

CHAPTER - V

ANALYSIS

AND

INTERPRETATION

## **5.1 INTRODUCTION**

The present chapter is devoted to the analysis and interpretation of data concerning the period under study with reference to the various objectives of the study. The main objective of this exercise is to sketch out an analytical picture of the working capital management in the industrial companies of Jordan in each of its components like inventory, receivables, cash and working finance. As mentioned earlier in chapter III mainly the ratio analysis technique has been followed to analysis the data. All the analyses have been categorised into five sections. Section I contains the analysis of the data on the inventory management in the industrial companies, section II deals with the analysis of the data on receivables management, Section III is devoted to the analysis of the data on cash management, section IV is devoted to the analysis of the data on working finance and the last section contains the analysis of the data on the overall efficiency of working capital management of the industrial companies during the period under study i.e., from 1987 to 1996.

SECTION - I

ANALYSIS AND  
INTERPRETATION  
OF DATA RELATED  
TO INVENTORY  
MANAGEMENT

### 5.1.1 INTRODUCTION

Inventory occupies a strategic position and poses a challenging problem for the efficient and effective management in the structure of working capital of a business enterprise. This section is an attempt to introduce the concept of inventory management and also to focus on the analysis and interpretation of data related to the objective to evaluate the composition of inventory management regarding its adequacy in each of its components like raw materials, work-in-process, finished goods, spare parts and stores, and miscellaneous goods. The discussion is confined to the structure of inventory of the industrial companies of Jordan selected for study. It seeks to highlight the importance of the diverse components of inventory and their management, so as to find out whether there is any overstocking in the constituents of inventory in these companies and to suggest better techniques of inventory.

Inventory management is concerned with keeping enough product on hand to avoid complete depletion of stock and at the same time, maintaining a small but enough inventory balance to allow for a reasonable return on investment. The turnover of working capital is highly dependent upon the inventory turnover. A proper inventory management is important for the financial health of the companies because when the product is out of stock it forces customers to turn to competitors in the market or results in a loss of sales. So, the success or failure of a business depends upon its inventory management. Howard observes, "the proper management and control of inventory not only solves the acute problem of liquidity but also increases annual profits and causes substantial reduction in the working capital of a firm" <sup>(1)</sup> Schall, Lawrence and Haley rightly remark, "Managing the level of investment in inventory is like maintaining the level of water in a bath-tub with an open drain. If the water is let in too slowly, the tub is soon empty. If the water is let in too fast, the tub overflows. Like the water in the tub, the particular items of inventories keep changing, but the level may stay the same. The basic financial problems are to determine the proper level of investment in

inventories and to decide how much inventory must be acquired during each period to maintain that level".<sup>(2)</sup>

The importance of inventory management has been realised, of late, all over the world in view of its significant influence on the profitability of the companies. In fact, scientific management of inventory is the key to prosperity in industrial companies. Efficient and effective controlling of inventory in the company significantly contributes to the profits in terms of minimization of different types of costs associated with the holding of inventory.<sup>(3)</sup> Using simple inventory planning and control technique and without any adverse effect on production and sales, the level of inventories can be reduced by 10 per cent to 20 per cent.<sup>(4)</sup> For quite some time now, inventories have come to be recognized as the graveyard of business and the uncontrolled inventories as industry's cancer.<sup>(5)</sup>

In the industrial companies of Jordan, inventories in the form of raw materials, work-in-process, finished goods, spare parts and stores and miscellaneous goods represent a very significant part of the current assets. The overall industrial average inventories were 48.37 per cent of the working capital, 27.45 per cent of the capital employed and 240.37 per cent of the net working capital during the period 1987 to 1996. Therefore, it is absolutely imperative to manage inventories efficiently and effectively in order to avoid unnecessary investment in them. If an undertaking neglects the management of its inventories it will be jeopardizing its long-run profitability and may even lead to complete failure ultimately. Both, excessive as well as inadequate investment in inventories affect the profitability of the company.

Excessive investment in inventory results in high inventory carrying costs such as, additional storage space, stores handling costs, stores losses, insurance, and other carrying costs. Besides, the company has also to incur 'Opportunity Cost' on the excessive investment made in inventories. On the other hand, inadequate investment in inventories is even more dangerous. Insufficiency of inventory leads to frequent production hold-ups and failure to meet delivery commitments made to customers. The objective of inventory

management can be spelt out as the avoidance of excessive and inadequate investment in inventory as an essential step to improve profitability.<sup>(6)</sup>

It is, thus, desirable to have optimum investment in inventories. But, the question is how to determine the right amount of inventory. No standard set of rules can be formulated and offered as ready solution for all companies and for all circumstances. Two companies engaged in the same type of activity may meet with widely divergent circumstances affecting inventory policies. Even for a given company, what is accepted as the right decision at a given time may not prove good enough after some time. In a dynamic business setting, every policy decision needs to be constantly reviewed and updated to take into account the changing circumstances. Thus, the importance of inventory management in keeping the optimal inventory levels hardly needs to be emphasized. An effective inventory management should:

- a) ensure a regular supply of materials to facilitate uninterrupted production,
- b) maintain adequate stocks of raw materials during the period of scarce supply and anticipate price changes,
- c) maintain adequate stock of finished goods for smooth sales operations and effective customer services,
- d) minimize the carrying costs and time, and
- e) control investment in inventories and keep it at an optimum level.

The most challenging problem for the industrial companies is the efficient management of this vital component of working capital. The absence of any guiding principle with regard to the control of inventories in the industrial companies on the one hand, and the diversity in the field of industrial activities on the other hand, have aggravated the problem further.

### **5.1.2 DEFINITION OF INVENTORY**

There is some difficulty in defining the term 'inventory' as it does not often have an exact or precise meaning. The Dictionary meaning of the word is 'stock of goods'. According to Kholer, the term 'inventory' may be defined as

any class or group of materials or supplies, not yet expressed or capitalized as maintenance supplies or construction materials <sup>(7)</sup> Starr and Miller, define the term as a stock of some kind of physical commodity.<sup>(8)</sup> To a finance manager, inventory contains the value of raw materials, work-in-process, finished goods, spares, consumable and scrap in which the company's funds have been invested <sup>(9)</sup>

### **5.1.3 CLASSIFICATION OF INVENTORY**

Inventory can be classified according to the usage and point of entry in the operations as raw materials, consumable, bought out components, work-in-progress, finished goods, packaging materials and spares. Inventories may also be classified on the basis of the activity of the undertaking holding the inventories. Accordingly, inventories may be classified as manufacturing inventories and distribution inventories.<sup>(11)</sup> Inventories held in the companies which include raw materials in stock, component parts in process, sub-assemblies in stock can be termed as manufacturing inventories, while those held by the warehouses of trading organizations can be termed as the distribution inventories.

Another type of classification suggested by the Tandon Committee is on the basis of the purpose for which inventories are held. According to the Tandon Study Group, inventories may be classified as follows:<sup>(12)</sup>

- i) flabby inventory comprising finished goods, raw materials, and stores and spares held because of poor working capital management and inefficient distribution;
- ii) profit-making inventory representing stocks of raw materials and finished goods held for realizing stock profits;
- iii) safety inventory, to take care of failures in supplies, unexpected spurt in demand, etc , in effect an insurance cover,
- iv) normal inventory based on production plan, lead time of supplies and economic ordering levels; and

- (v) excessive inventory which even an efficient management may be compelled to build up for reasons beyond its control, as in the case of strategic import or as a measure of the price support given by the government to a commodity.

Keeping in mind the above different types of classification, the present researcher has usefully classified the inventories of the selected industrial companies of Jordan into the following five groups;

- (a) Raw materials, (b) Work-in-process, (c) Finished goods, (d) Spare parts and stores, and (e) Miscellaneous goods.

Accordingly, the expression 'inventory' is taken here to imply the aggregate value of raw materials, work-in-process, finished goods, spare parts and stores and miscellaneous goods.

The study of inventory management should be directed from the following angles:

- **Analysis of the Size of the Inventory**
- **Percentage of Inventory with Regard to the Total Capital Employed**
- **Adequacy of Inventory**
- **Structure of Inventory**
  - \* **Adequacy of Raw Materials**
  - \* **Adequacy of Work-in-Process**
  - \* **Adequacy of Finished Goods**
  - \* **Adequacy of Spare Parts and Stores**
  - \* **Adequacy of Miscellaneous Goods**

#### **5.1.4 ANALYSIS OF THE SIZE OF THE INVENTORY**

Table V.1.1 shows the size of inventory in the industrial companies during the period under study, i.e., 1987 to 1996.

TABLE V.1.1  
Size of Inventory in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total
(VALUE IN THOUSAND JD.)												
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co. Ltd		53,721	52,153	65,690	79,102	70,623	97,416	102,234	101,869	92,659	110,436	825,902
b) Intermediate Petrochemical Industries Co. Ltd		1,825	3,610	1,644	2,204	2,978	5,069	5,143	3,164	3,002	2,653	31,292
c) Jordan Sulpho- Chemicals Co. Ltd		1,109	2,458	1,770	2,542	2,511	2,890	2,446	3,760	2,504	2,890	24,880
Sub-Total		56,654	58,221	69,104	83,848	76,112	105,375	109,823	108,793	98,165	115,978	882,074
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co. Ltd		56,654										
b) The Jordan Ceramic Industries Co. Ltd		17,269	18,607	18,696	21,318	26,193	24,809	28,596	33,067	40,311	41,496	270,363
c) Jordan Rockwood Industries Co. Ltd		673	657	1,852	2,634	1,989	2,466	3,346	3,740	3,268	3,314	23,940
Sub-Total		126	244	490	513	506	420	484	743	868	869	5,263
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri. Co. Ltd		18,069	19,509	21,038	24,485	28,687	27,694	32,426	37,550	44,448	45,679	299,566
b) Arab Investment and Int. Trade Co. Ltd												
c) The National Industries Co. Ltd		2,712	2,438	3,287	5,554	8,662	8,751	8,083	8,965	7,258	6,336	62,045
Sub-Total		636	550	468	599	1,081	1,364	957	997	1,420	1,360	9,431
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf. Co. Ltd		739	378	450	809	697	625	1,012	1,083	2,685	1,412	9,890
b) Dar Al-Dawa Development & Inv. Co. Ltd		4,087	3,365	4,205	6,982	10,440	10,740	10,052	11,045	11,363	9,108	81,367
c) The Arab Center for Pharm. & Chemicals Co. Ltd												
Sub-Total												
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co. Ltd		4,101	4,054	7,344	8,919	9,288	10,094	10,963	14,260	8,630	7,464	85,117
b) National Cables & Wire Manuf. Co. Ltd		932	1,188	1,809	2,348	2,568	3,758	4,097	4,106	4,474	4,198	29,478
c) The Arab Center for Pharm. & Chemicals Co. Ltd		395	570	1,149	1,572	1,640	1,570	1,644	2,016	2,324	2,189	15,069
Sub-Total		5,429	5,811	10,303	12,838	13,496	15,422	16,705	20,382	15,429	13,850	129,664
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co. Ltd		833	1,120	1,987	1,884	3,884	1,829	2,881	6,475	4,212	2,112	27,216
b) Jordan Tanning Co. Ltd		1,475	2,076	3,565	4,010	3,946	4,576	5,834	7,075	7,050	6,255	45,863
c) The Jordan Pipes Manufacturing Co. Ltd		1,454	4,119	5,083	4,607	3,940	4,097	4,960	3,690	5,167	3,603	40,720
Sub-Total		3,762	7,316	10,636	10,500	11,770	10,503	13,675	17,240	16,428	11,970	113,799
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co. Ltd		3,269	5,684	9,210	7,668	7,326	8,395	8,275	8,994	10,938	11,869	81,629
b) The Arab Paper Converting & Trading Co. Ltd		811	737	557	1,060	1,443	1,305	1,254	1,394	1,558	2,005	12,123
c) The Woolen Industries Co. Ltd		207	257	406	368	503	655	858	913	971	905	6,042
Sub-Total		4,287	6,678	10,173	9,096	9,273	10,355	10,387	11,300	13,466	14,779	99,794
<b>Grand Total</b>												
		94,284	103,748	128,398	151,000	152,763	183,917	196,932	210,936	205,551	216,500	1,644,029

Source: Appendix 1

The investment in inventories in the selected industrial companies has an infallible trend to rise during the period under study. As per Table V.2 1, the size of inventory in absolute amount for all the industrial companies taken together increased from Jordanian Dinar (JD) 94,284 thousand in 1987 to JD 216,500 thousand in 1996, i.e., more than double during the period under study, except in 1995 when investment in inventory come down a little, i e., JD 205,551 thousand. It can be seen from the same Table that the Chemical and Petroleum Industrial Sector had the highest amount of money locked up in inventories amounting to JD 882,074 thousand for the period of ten years under study as compared to the Paper and Packing Industrial Sector which had the lowest value of inventory, i.e., JD 37,766 thousand. The total value of inventory for all the industries taken together for the ten years of the study was JD 1,644,029 thousand.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector showed a twofold increase in the size of inventory over the period of ten years. Company no. 1a had an inventory of the value of JD 53,721 thousand in 1987, which nearly doubled to JD 110,436 thousand in 1996. Other companies in the Chemical and Petroleum Industrial Companies also followed the same trend.

In the Construction Industrial Sector the size of inventory was the highest in company no. 2a which amounted to JD 41,496 thousand in 1996 as compared to JD 869 thousand in the case of the company no 2c This vast gap in the value of inventory might be attributed to the difference in the size of the two companies In the case of company no 2b, the size of inventory increased from JD 673 thousand in 1987 to JD 3,314 thousand in 1996

The Consumables and Food Industrial Sector as well as the Pharmaceutical Industrial Sector showed a similar trend of doubling of the value of inventories over the period of ten years. All the companies in the above two sectors selected for study also reflected the same pattern.

But, in the case of the Engineering Industrial Sector, diverse behaviour was seen in the case of each of the companies selected for study. Company no. 5a followed the overall pattern of increase in inventory over the years, whereas company no. 5b showed a fluctuating pattern. The inventory increased from JD 1,475 thousand in 1987 to JD 4,010 thousand in 1990; then it declined to JD 3,946 thousand in 1991 and then again increased gradually to JD 7,075 thousand in 1994. From 1994 it declined again and reached a level of JD 6,255 thousand in 1996. Thus company no. 5b showed ups and downs in the size of its inventory but overall it showed a threefold increase in inventories. Company no. 5c also reflected a pattern of rise and fall in the level of its inventory, which is similar to company no. 5b.

The Textile Industrial Sector showed a rise in the levels of inventory. However, the overall increase over the period of study was nearly 4 times, indicating an increased tendency to maintain high level of stocks.

In the Paper and Packing Industrial Sector, there was a twofold increase in the size of inventory but the level of inventory has declined in 1996. In the case of all the companies selected for study, the sector as a whole showed a reduced level of inventory. This is possible due to a variety of reasons including low production, lower sales, and non-availability of raw materials. On the positive side, it could have been due to efficient inventory management.

The general scenario in the industrial sector of Jordan showed the value of inventory doubling over the period of ten years indicating a substantial growth in the level of production.

However, just studying the size of inventory will not serve much purpose except to get a picture of the pattern of increase / decrease in the size of inventory over the years. This is a rare situation for a going concern as growth in operations is assumed with the passage of time. Therefore, we need to study the relationship of inventory with other factors rather than study it in isolation. This is essential to draw fruitful conclusions about the state of inventory management in any company, industrial sector or the total industry as a whole.

However, before judging the relationship of inventory, output and sales, an attempt has been made to evaluate inventory as a percentage of total capital employed to find out the role of inventory in the total capital employed by the industrial companies.

#### **5.1.5 PERCENTAGE OF INVENTORY WITH REGARD TO THE TOTAL CAPITAL EMPLOYED**

Inventory as a percentage of total capital employed shows the percentage of total funds utilized for running the business that are locked up in inventories. Higher percentage of inventory to total capital employed shows an excessive locking of funds in inventory. This results in a higher level of current assets and higher working capital requirement. Inventory in reality is not a liquid asset. So, although the working capital may show a high level, the actual liquidity position may not be so good.

Table V 1 2 shows the inventory as a percentage of total capital employed in the industrial companies during 1987 to 1996.

Table V 1.2  
Inventory as a Percentage of Total Capital Employed in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS										( In Percentage)				Average of Ten Years
1987	1988	1989	1990	1991	1992	1993	1994	1995	1996					
1) Chemical & Petroleum Industrial Sector														
a) Jordan Petroleum Refinery Co Ltd	38.43	35.45	46.37	42.11	34.66	39.27	36.92	35.39	28.22	29.15	36.60			
b) Intermediate Petrochemical Industries Co Ltd	23.26	39.48	13.08	16.88	30.83	46.26	49.10	36.51	36.02	35.60	32.70			
c) Jordan Sulpho- Chemicals Co Ltd	19.72	33.71	29.96	38.28	43.75	40.73	46.74	39.00	27.79	33.18	35.29			
Sector-wise Ratio	36.97	35.60	43.15	40.40	34.73	39.60	37.53	35.54	28.40	29.36	36.13			
2) Construction Industrial Sector														
a) The Jordan Cement Factories Co Ltd	8.76	9.82	10.21	12.10	14.89	14.39	17.22	18.47	21.81	22.21	14.99			
b) The Jordan Ceramic Industries Co Ltd	19.64	13.36	30.78	38.03	27.60	31.92	29.63	32.52	27.53	26.44	27.75			
c) Jordan Rockwool Industries Co Ltd	5.36	9.58	12.41	15.70	17.11	14.78	17.09	19.04	22.23	24.51	15.78			
Sector-wise Ratio	8.91	9.91	10.90	13.13	15.42	15.14	18.00	19.31	22.16	22.51	15.54			
3) Consumables & Food Industrial Sector														
a) The Industrial Commercial & Agri. Co Ltd	30.66	27.62	35.74	44.88	51.48	45.87	39.56	42.45	37.31	34.18	38.97			
b) Arab Investment and Int. Trade Co Ltd	18.26	16.45	15.18	19.30	25.71	27.06	24.55	20.60	30.19	27.97	22.53			
c) The National Industries Co Ltd	18.45	8.34	10.09	18.50	15.37	13.94	21.61	21.76	37.51	17.73	18.33			
Sector-wise Ratio	25.02	20.15	25.12	35.07	40.84	37.55	34.64	35.70	36.28	29.04	31.94			
4) Pharmaceuticals Industrial Sector														
a) The Arab Pharmaceuticals Manuf. Co Ltd	15.80	14.89	20.29	24.04	24.38	24.12	25.45	30.63	20.82	17.84	21.83			
b) Dar Al-Dawa Development & Inv. Co Ltd	19.50	19.68	20.26	21.25	20.17	23.17	18.01	17.71	18.39	18.11	19.63			
c) The Arab Center for Pharm. & Chemicals Co Ltd	12.82	16.10	21.70	26.70	18.16	23.86	21.11	20.55	46.41	31.38	23.88			
Sector-wise Ratio	16.05	15.79	20.43	23.76	22.55	23.86	22.69	25.62	21.80	19.24	21.18			
5) Engineering Industrial Sector														
a) Arab Aluminum Industry Co Ltd	10.73	14.34	24.60	20.21	33.51	14.90	19.52	37.13	25.06	11.97	21.20			
b) National Cables & Wire Manuf. Co Ltd	32.65	35.63	33.72	33.84	36.37	38.06	31.89	37.27	33.71	31.06	34.42			
c) The Jordan Pipes Manufacturing Co Ltd	40.29	71.58	66.74	69.43	69.86	66.90	69.47	49.39	58.04	46.34	60.80			
Sector-wise Ratio	23.68	37.72	40.49	37.76	41.91	34.52	34.03	39.28	35.24	26.27	35.09			
6) Textile Industrial Sector														
a) The Jordan Worsted Mills Co Ltd	50.94	64.31	78.53	69.19	68.07	59.72	53.70	51.05	46.87	53.53	59.59			
b) Jordan Tanning Co Ltd	36.51	35.04	26.27	29.32	31.59	25.85	26.16	27.19	21.29	34.10	29.33			
c) The Woolen Industries Co Ltd	37.09	43.86	56.26	39.20	49.01	47.97	48.84	50.95	52.79	47.22	47.32			
Sector-wise Ratio	46.61	57.93	69.82	58.17	56.68	50.59	47.30	46.06	41.45	49.32	52.39			
7) Paper & Packing Industrial Sector														
a) Jordan Paper and Cardboard Factories Co Ltd	25.89	37.93	27.75	37.85	18.37	25.19	25.75	28.37	25.53	24.64	27.73			
b) The Arab Paper Converting & Trading Co Ltd	24.96	36.88	29.93	40.83	32.36	53.25	51.09	38.64	53.00	37.82	39.88			
c) Jordan Pnnting and Packing Co Ltd	32.36	30.45	35.02	37.72	41.24	43.54	36.88	38.45	32.44	41.01	36.91			
Sector-wise Ratio	26.49	36.81	28.76	38.32	22.11	31.07	30.65	31.63	35.66	30.45	31.19			
Overall Industrial Ratio	21.48	22.92	27.24	29.05	27.85	30.37	30.29	30.39	27.59	27.28	27.45			

Source: Appendices I & IV

Table V.1 2 reveals that the overall average percentage of inventory with respect to the total capital employed in the selected industrial companies was 27.45 per cent during 1987 to 1996. The sector-wise figures show that the percentage of inventory was the highest in the Textile Industrial Sector with 52.39 per cent to total capital employed, while it was the lowest in the Construction Industrial Sector with only 15.54 per cent. Whereas, in the case of the Pharmaceutical Industrial Sector, the percentage was lower than the overall industrial average and in the rest of the four sectors, the percentage of inventory stayed nearly between 30 to 36 per cent to total capital employed during the period under study

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had an average of 36.13 per cent inventory with respect to the total capital employed which is considered high as compared to the overall industrial average of 27.45 per cent. In general, the companies in this sector showed a fluctuating trend over the period under study. In the case of company no. 1a an average of inventory with regard to the total capital employed was maintained at 36.60 per cent whereas company no. 1b and company no. 1c had a lower average of 32.70 per cent and 35.29 per cent respectively as compared to the sector average of 36.13 per cent

In the case of the Construction Industrial Sector, there was a general rise in the percentage of inventory with respect to the total capital employed. Thus, there was also a general attitude of increasing the amount of inventory which increased twofold during the period under study, i.e., from 1987 to 1996. In the case of company no. 2a, the money was blocked mainly in spare parts and stores which formed more than 70 per cent of the aggregate inventory (as shown in Table V.1.14). Company no. 2b showed a fluctuating trend with the percentage increasing from 19.64 per cent in 1987 to 38.03 per cent in 1990. It fell to 27.60 per cent in 1991 and further increased to 32.52 per cent in 1994. From 1995, the percentage showed a decline and reached 26.44 per cent in 1996, which was much higher than the average of 15.54 per cent for the

Construction Industrial Sector Thus, while company no. 2a locked up money in the stock of stores and spares, companies no. 2b and 2c blocked funds in raw materials (approx. 45 per cent) for nearly 8 to 10 months which is considered to be very high.

The Consumables and Food Industrial Sector showed an increasing trend in the percentage of inventory with regard to total capital employed. It had increased from 25.02 per cent in 1987 to 40.84 per cent in 1991. Then it declined gradually to 29.04 per cent in 1996. In the case of company no. 3a, a huge quantum of funds was locked up amounting to nearly 50 per cent of total capital employed in the year 1991, which gradually decreased to 34.18 per cent in 1996. As compared to this, company no. 3c showed a better picture with only 17.73 per cent of the total capital employed invested in inventory in 1996 which is 50 per cent less than company no. 3a. On an average, company no. 3c maintained only 2.20 months' raw materials as compared to 4.95 months' raw materials maintained by company no. 3a (as shown in Table V.1.6). In general, the Consumables and Food Industrial Sector maintained the percentage of inventory with regard to the total capital employed.

The Pharmaceuticals Industrial Sector maintained a lower percentage of inventory with respect to the total capital employed which was 21.18 per cent as compared to the overall industrial average of 27.45. In the case of company no. 4a and company no. 4b, an increasing trend was seen up to 1991 and thereafter it continued to decline up to 1996. Except in 1995, company no. 4c also showed the similar trend like the other two companies. This could have had an adverse effect on the company resulting in increased carrying costs and strained liquidity position. The Pharmaceutical Industrial Sector did not show any particular problem in 1995 indicating that only company no. 4c faced the problem due to a break up in contract with some foreign countries, which could have been the result of mismanagement.

The Engineering Industrial Sector also showed a trend of rise and fall in the percentage of inventory with regard to the total capital employed over the years. But the companies of this sector showed behaviour contradictory to their

sector-wise average. In the case of company no. 5a, only 10.73 per cent of the total capital employed was locked up in inventories in 1987. It had increased three times to 33.51 per cent in 1991, then suddenly decreased to 14.90 per cent in 1992 rising again till it reached 37.13 per cent in 1994 and then falling to 11.97 per cent in 1996 thus returning to its original position of 1987. This behaviour can be attributed to change in inventory turnover, which reduced from 6.88 times in 1987 to 2.82 times in 1991 due to lack of co-ordination between the sales and the production departments indicating poor inventory management. For company no. 5b, the percentage of inventory with respect to the total capital employed was maintained over the period under study, except in the year 1992 when the percentage was as high as 38.06 per cent. In the case of company no. 5c, the highest percentage of inventory with regard to the total capital employed of all the industrial companies was on an average 60.80 per cent as compared to the overall industrial average of 27.45 per cent, the lowest being 40.29 per cent in 1987 and the highest being 71.58 per cent in 1988. It reflects a unhealthy position of this company in this sector and it appears that the company unnecessarily maintained huge inventory. The inventory comprise mainly of raw materials and finished goods. However, the sales of the company also doubled in 1989, i.e., 208.33 per cent of the sales in 1987. It is possible that in anticipation of the sale order in 1989, the company increased its inventory in 1988 from JD 1,454 thousand to JD 4,119 thousand. But the sales declined after 1989 giving rise to unnecessarily accumulated inventory.

The overall picture of the Textile Industrial Sector shows a higher level of inventory throughout the period under study. The industrial average for ten years was 52.39 per cent. Company no. 6a is a cloth manufacturing company. It showed a gradual increase in sales but the corresponding rise in inventory was very steep. The sales decreased to 89.77 per cent in 1989 due to discontinuation of business with some neighboring countries, while there was more than double growth in inventory, which was JD 9,210 thousand in 1989 as compared to JD 3,269 thousand in 1987. This position was the result of many factors. Firstly, the main source of raw materials for this company was

totally imported, secondly, the company's policy was to keep raw materials for the period of 3 to 4 years, and thirdly the company had made emergency purchase of JD 750 thousand in 1988. In the case of company no 6b, which is a tanning company, the average percentage of inventory over ten years was 29.33 per cent, quite close to the overall industrial average of 27.45 per cent. The growth of percentage in inventory showed a smooth rising curve and it corresponded with the growth in sales. This shows a proper management of inventory on the part of the management of the company. Company no 6c which is a wool company, showed alternate ups and downs in the percentage of inventory with regard to the total capital employed. It coincided with the pattern of the growth of inventory indicating that the growth in the percentage of inventory with respect to the total capital employed was mainly due to the increase in the level of inventory which increased from JD 207 thousand in 1987 to JD 905 thousand in 1996.

The Paper and Packing Industrial Sector was also close to the overall industrial average of 27.45 per cent. This sector showed a fluctuating trend during the period under study. In the case of company no. 7a, a similar trend of rise and fall was found between 1987 and 1991, which remained more or less constant thereafter. Company no. 7b also showed a similar trend of fluctuation. The percentage of inventory in the total capital employed was 24.96 per cent in 1987 but gradually after the ups and downs, it reached to 53.25 per cent in 1992. There was a tremendous growth in sales. The sales in 1992 was 233.23 per cent of the sales in 1987. The level of inventory dropped inspite of the fact that the sales in 1991 doubled, i.e., 191.34 per cent as compared to base year, i.e., 1987. The fluctuation in the percentage of inventory with respect to the total capital employed can be attributed to lack of co-ordination between the sales department and the purchase department. In the case of company no. 7c, a relatively better performance was seen as compared to the other two companies of the same sector. On an average, the percentage was 36.91 per cent as compared to 31.19 per cent of the sector's average. In 1994 the sales increased up to 126.87 per cent of the sales in 1987, but it declined in the last two years of the study i.e., 1995 and 1996 with 94.38 per cent and 86.89 per

cent respectively Inventories also followed the same pattern but started declining from 1996 instead of 1995 However, this could be possibly due to the loss made by the company in 1996.

In general, the industrial companies of Jordan showed a growth in the percentage of inventory with regard to the total capital employed. It was 21.48 per cent in 1987 and rose to 30.39 per cent in 1994, thereafter it fell to 27.59 per cent in 1995 and remained steady at 27.28 per cent in 1996 But corresponding to this increase, the increase in the size of inventory was nearly double which indicates unnecessary investment in inventories

### **5.1.6 ADEQUACY OF INVENTORY**

The study of the mere size of inventories is inadequate for finding out whether the companies included in the study maintained adequate or excessive inventories during the period. It is equally difficult to lay down standards for evaluating the adequacy of the inventory. Nevertheless, there are certain ratios which are used to test or to have a good insight into the extent of overstocking The two commonly used yard sticks for measuring the adequacy of the inventory are:

- A) Ratio of inventory to cost or value of production.
- B) Ratio of inventory to sales or inventory turnover <sup>(13)</sup>

#### **A) *Ratio of Inventory to Cost of Production***

This ratio between inventory and cost of production shows the extent of money locked up in inventories. It shows the extent of overstocking of inventory in terms of cost of production. If the calculated ratio is multiplied with the number of months in a year, the result shows the number of months' production invested in inventory. Through this, one can easily identify whether a company is carrying any excess inventory or not.

Table V 1.3 shows the inventory in terms of months' cost of production in the industrial companies during the period under study, i.e., 1987 to 1996

Table V 1 3  
Inventory in Terms of Months' Cost of Production in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Months) -										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	3 02	2 98	3 52	3 88	3 42	3 74	3 75	3 58	3 22	3 77	3 49
b) Intermediate Petrochemical Industries Co. Ltd	5 17	9 58	2 48	3 24	7 00	12 60	13 52	8 59	13 44	11 17	8 68
c) Jordan Sulpho- Chemicals Co. Ltd	3 94	6 75	4 57	5 31	5 57	7 76	7 85	9 89	5 22	8 79	6 56
Sector-wise Ratio	3 08	3 20	3 51	3 89	3 54	3 93	3 93	3 72	3 33	3 88	3 60
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	6 68	8 21	7 85	6 52	6 56	5 52	5 19	5 89	6 88	6 98	6 63
b) The Jordan Ceramic Industries Co. Ltd	6 72	6 05	8 44	8 90	7 93	6 67	8 61	7 29	6 99	6 02	7 36
c) Jordan Rockwood Industries Co. Ltd	3 40	4 12	3 63	4 17	8 04	5 89	5 02	9 42	10 42	10 79	6 49
Sector-wise Ratio	6 64	8 02	7 69	6 63	6 66	5 61	5 41	6 05	6 93	6 95	6 66
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co. Ltd	5 95	4 76	5 41	5 63	5 69	4 87	4 23	7 17	6 12	6 49	5 63
b) Arab Investment and Int. Trade Co. Ltd	7 04	3 67	5 10	10 97	8 56	3 33	4 28	4 78	6 07	5 49	5 93
c) The National Industries Co. Ltd	6 26	4 10	4 35	3 37	3 53	2 63	4 24	3 76	5 95	4 29	4 25
Sector-wise Ratio	6 16	4 46	5 24	5 43	5 66	4 39	4 24	6 32	6 07	5 86	5 38
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	6 76	7 32	7 83	8 42	8 59	8 77	8 22	11 31	7 82	6 39	8 14
b) Dar Al-Dawa Development & Invt. Co. Ltd	5 09	4 62	4 24	4 26	4 39	5 01	3 93	3 36	3 44	3 60	4 19
c) The Arab Center for Pharm. & Chemicals Co. Ltd	13 29	11 85	9 01	13 41	12 03	7 27	6 39	5 19	11 60	11 87	10 19
Sector-wise Ratio	6 62	6 77	6 91	7 43	7 48	7 28	6 34	7 10	5 92	5 50	6 73
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co. Ltd	2 28	2 09	2 97	2 91	5 77	2 37	3 33	7 94	5 24	2 78	3 77
b) National Cables & Wire Manuf. Co. Ltd	10 59	8 78	5 81	5 59	6 72	7 62	7 68	7 52	6 36	7 02	7 37
c) The Jordan Pipes Manufacturing Co. Ltd	5 55	13 37	10 31	12 06	10 90	8 16	9 71	10 02	14 54	9 08	10 37
Sector-wise Ratio	4 91	6 77	5 99	6 01	7 26	5 60	6 40	8 12	7 24	5 85	6 42
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	8 66	13 28	20 68	19 91	14 91	18 51	20 73	17 58	19 11	15 77	16 91
b) Jordan Tanning Co. Ltd	11 94	9 57	5 48	3 88	2 70	1 84	2 14	1 91	1 27	2 06	4 28
c) The Woolen Industries Co. Ltd	9 78	7 94	10 09	8 28	10 39	9 33	10 92	14 95	16 49	13 49	11 16
Sector-wise Ratio	9 19	12 43	17 32	12 95	8 63	8 40	9 77	8 68	7 26	8 24	10 29
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	5 40	7 95	5 39	4 99	3 97	6 50	7 74	8 52	5 62	5 70	6 18
b) The Arab Paper Converting & Trading Co. Ltd	8 33	12 78	7 28	8 16	8 47	12 13	10 78	7 18	19 79	6 71	10 16
c) Jordan Printing and Packing Co. Ltd	5 03	4 73	5 57	4 64	5 60	5 99	5 18	6 00	8 26	5 97	5 70
Sector-wise Ratio	5 64	7 92	5 63	5 30	4 64	7 24	7 89	7 78	9 29	6 15	6 75
<b>Overall Industrial Ratio</b>	3 90	4 28	4 65	4 82	4 66	4 60	4 62	4 79	4 55	4 79	4 57

Source: Appendices I & V

It is evident from the Table V.1 3 that the overall industrial average of inventory in terms of months' cost of production was 4.57 months. The sector-wise analysis reveals that the ratio of inventory to cost of production, in the case of the Textile Industrial Sector was the highest, which was equal to 10.29 months' cost of production while the Chemical and Petroleum Industrial Sector had the lowest amount of inventory which was equal to 3.60 months' cost of production. It can also be seen from the Table that in the case of the Consumable and Food Industrial Sector, it was almost equal to the overall industrial average and the rest four sectors showed the value ranging between 6 and 7 months' cost of production.

An indepth analysis of each sector and its companies reveals that the Chemical and Petroleum Industrial Sector on an average maintained inventory equal to 3.60 months' cost of production through out the period under study. In the case of company no 1a, a trend similar to that of the sector was found. Its inventory varied between 2.98 months' and 3.88 months' cost of production. The sales of the company showed a growth, which was nearly double in the last year of the study as compared to the base year, i.e., 1987. However, as can be observed from Table V.1.1, the value of inventory nearly doubled in the last year under study. Finished goods constituted a large part of the inventory. Since the prices of petroleum increased manifold in the period under study, the increase in inventory can be attributed mainly to the rise in price instead of rise in quantum. In the case of company no. 1b, we find a radically different picture compared to the petroleum sector. The inventory in terms of months' cost of production varied from 5.17 months' in 1987 to as high as 13.52 months in 1993 and 11.17 months in 1996. The inventory turnover ratio of this company was very low which was the main cause for the higher level of inventory. So, there was a sharp increase in sales in 1989 which was 226.23 per cent of the sales in 1987. A subsequent increase in inventory from 1987 to 1989 can be explained as owing to the rise in sales. But even in 1988 there was over-purchasing of raw materials to the tune of 9.58 months' production. The inventory levels again became normal in 1989 and 1990. In 1990, the sales

were 212.66 per cent of the sales in 1987. In anticipation of higher sales in the future, 7 months' production was maintained as inventory in 1991. There was a steep fall in sales in 1991, but the production continued without correlating with sales. As a result, the company maintained high levels of stock from 1991 onwards. The decreasing sales and increasing carrying cost of inventories lead to losses from 1993 onwards. It was also observed that company no. 1c maintained high levels of inventory, which was 3.94 months' production in 1987 and it almost doubled to 6.75 in 1988 inspite of the fact that its sales declined to 96.57 per cent of the sales in 1987. In this respect, both company no. 1b and 1c are similar in the sense that both doubled their inventories in 1988 without an increase in sales. If we attribute this sudden buying spree to the anticipated change in the government policy, then company no. 1a and the petroleum sector as a whole should also have reflected the same behaviour, which they did not. The increase in inventory was due to the increase in raw materials. There was no steep rise in sales. Therefore, either the raw materials were purchased without consulting the Sales Department and Production Department, or there was deliberate overstocking either to create shortage in the market or in anticipation of a price rise which company no. 1a did not consider. The latter reason seems more plausible because there was an increase in the profits of company no. 1b and 1c, which over-stocked the raw materials.

The Construction Industrial Sector on an average maintained 6.66 months' production in inventory. This could be due to the time taken for completion of a project. In the case of company no. 2a, nearly 6.63 months' production in inventories was maintained. But this was mainly due to the high stock of spare parts and stores, which constituted more than 70 per cent of the aggregate inventory. Raw materials was negligible and finished goods constituted 9.41 per cent of the inventory. Such a high investment in stores and spares was due to the non-availability of the specific spares required for running the cement factory in Jordan. It was also found that company no. 2b maintained approximately 7 months' production in inventory. However, in this

case raw materials formed the major part of inventory alongwith stores and spares. Such over-stocking of raw materials in the case of ceramic industry may have been due to a low turnover of raw materials. Company no. 2c initially had low inventory of 3.40 months' production. It gradually increased to 8.04 months in 1991 and then again fell to 5.02 months in 1993. From 1994 it again maintained a high level of inventory to the tune of 9.42 months' production. Thus, it rose to nearly seven times the inventory in 1987 (as shown in Table V.1.1). 'Barring 1989, when the company made high profits, the other years were not good enough for the company and from 1990 onwards, the company showed alternate losses and low profits. The sales sharply increased in 1989, but later there was a steep decline. However, the inventory level continued to rise. But this rise in the level of inventory cannot be said to have impaired the profits because the inventory itself constituted only 30 to 35 per cent of the total working capital of the company.

The Consumables and Food Industrial Sector maintained the same level of inventory in terms of months' cost of production throughout the period under study. On an average, it was 5.38 months as compared to the overall industrial average of 4.57 months. Company no. 3a maintained an average of 5.5 months' production as inventory till 1993. But the quantum of inventory increased three times in the same period alongwith a corresponding increase in the sales. Therefore, inspite of an increase in the level of inventories, the ratio of 5.5 months' production remained constant. Till this time, the increase in inventories was justified. However in 1994, the sales of the company took a plunge, but the company continued to purchase raw materials. The production declined, as a result of which the ratio of inventory to months' production rose sharply to 7.17 months. Thereafter, the company stopped further investments in inventory, which is reflected by Table V.1.1 and V.1.2. In the case of company no. 3b, we find that it showed a fluctuating trend of inventory in terms of months' cost of production. The size of inventory reduced during the period 1987 to 1990 while the ratio of inventory in terms of months' cost of production was on the rise which indicates a low production level of the company. This

was due to a decrease in the demand for the product of the company. In 1992, the sales of the company boomed to five times that in 1987. Therefore the inventory level of the company shot to JD 1,364 thousand in 1992 and the production also increased resulting in lower ratio of inventory to months' production. The sales of the company were reduced in the subsequent years but were still higher than those in 1990-91. Therefore, the company maintained a high level of inventory and also commensurate production. This resulted in an increase in the requirement of working capital. The company also maintained a high level of cash. This increased the cost of idle funds and the carrying costs of inventory. Lack of co-ordination between cash management and inventory management resulted in the company making losses from 1993 onwards. In the case of company no. 3c, the ratio of inventory with regard to the months' cost of production showed a fluctuating trend during the period of study which varied between 2.63 months and 6.26 months. The sales of the company also showed a fluctuating trend during the period under study reaching high points in 1990 and 1995. The ratio of inventory to months' cost of production increased with an increase in sales and decreased with a decrease in sales. The size of inventory also followed the same path. It had a very high level of inventory in 1987 but it dropped from JD 739 thousand in 1987 to JD 378 thousand in 1988 and then steadily rose to JD 2,685 thousand in 1995. Thereafter it declined to JD 1,412 thousand in 1996. In spite of the proper management of inventory, the company made losses in the 1987 and 1988.

The Pharmaceutical Industrial Sector on an average showed higher inventory in terms of months' cost of production, this being 6.73 months as compared to the overall industrial average of 4.57 months. In the case of company no. 4a, a gradual growth in sales was seen. The growth in inventory was also on the same line and can easily be co-related with the growth in sales. The turnover of raw materials was low, i.e., 2.03 times on an average. This also explains the company's need to maintain a high level of inventory. The company, on an average, maintained 8.14 months' production in inventory. In 1994, this ratio was as high as 11.31 months. This can possibly

be explained by the fall in sales which were nearly 160.05 per cent of the sales as compared to the sales in 1993 (i.e., 212.44 per cent). In the case of company no. 4b, the ratio of inventory to months production was lower than the average for the Pharmaceutical Industrial Sector. The sales of the company showed manifold increase from 1989. The sales in 1996 were as high as 623.77 per cent of the sales in 1987. The size of inventory also increased accordingly and in 1996 it was 450.32 per cent of the inventory in 1987. The low rate of inventory in terms of months' cost of production only goes to establish that there was a proper co-ordination between production, sales and purchase departments. Company no. 4c, on an average, maintained a higher level inventory of 10.19 months' cost of production with fluctuations through out the period under study. The sales of the company doubled in 1988. From 1989, they showed a sharp increase till 1994 when they became around 14 times the sale of 1987. Thereafter, in 1995 and 1996, the sales declined and became 778.16 per cent and 637.62 per cent respectively as compared to the base year, i.e., 1987. During three years, i.e., 1992, 1993, and 1994, the sales shot-up very high. The company managed to maintain balance between increased sales and inventory. The increased sale led to use of the over stocked inventory to cope up with the increased production. As a result, the ratio of inventory in terms of months of production improved in these three years. However, the decline in sales in 1995 and 1996 resulted in lower production. But the company had maintained a high level of inventory in 1994 and 1995 in anticipation of higher sales which did not materialise. Consequently, the ratio of inventory to months' cost of production became as high as 11.60 months and 11.87 months in 1995 and 1996 respectively.

The Engineering Industrial Sector, on an average, showed a higher level of inventory with 6.42 months' cost of production as compared to the overall industrial average of 4.57 months' production. In general, it showed fluctuating trends through out the period under study. Company no. 5a, an aluminium manufacturing company, showed a low ratio of inventories to cost of production, the average being 3.77 for the period under study. The sales of the

company showed a steady rise till 1992 after which they suddenly shot up in 1993. From 1994 onwards, the sales started declining. The company purchased raw materials according to estimated sales. Therefore the ratio under study was well within limits. The only exception was in 1994. Since the sales were very high in 1993, the company must have procured raw materials anticipating a similar trend in 1994. On the contrary, the sales declined causing lower production and a higher inventory consisting of both raw materials and finished goods. Therefore, the ratio was 7.94 months' production in 1994. Company no 5b had low sales and high inventory in 1987 and 1988, and therefore nearly 9 months' production in inventories. There was also a large amount of work-in-process in the years under study. In 1989, the sales increased to 566.03 per cent of the sales in 1987. The company acquired proportionate inventory and had a high turnover of raw materials, work-in-process and finished goods. For the rest of the years, the company continued to over stock the inventory resulting in blocking of funds and higher carrying costs. With regard to company no. 5c, a pipe manufacturing company, a high ratio of inventory in terms of months' cost of production was observed except in 1987. It was 10.37 months on an average but reached as high as 13.37 in 1988 and 14.54 in 1995. The company increased its inventories to JD 4,119 thousand in 1988 from JD 1,454 thousand in 1987. There was apparently no reason for such an increase because the sales increased only by 108 per cent of the sales in 1987. Therefore, the ratio in terms of months' cost of production suddenly shot up to 13.37 months from 5.55 months in 1987. Thereafter the sales doubled in 1989 reducing the ratio further. The sales declined in 1990 and 1991, but the level of inventory did not reduce proportionately thereby pushing the ratio further high. As the sales increased again in 1992 and 1993, the ratio reduced again. This pattern continued again. However, finished goods constituted nearly 40 per cent of the aggregate inventory. Therefore, such a high ratio indicates a high quantum of finished goods in stock, which further indicates over production of goods in excess of actual demand.

The Textile Industrial Sector also showed a high ratio of inventory, i.e., equal to 10.29 months' cost of production on an average. Company no. 6a, on an average, maintained nearly 17 months' production in inventories. This blocked the funds of the company, thereby affecting its liquidity position which showed low sales throughout the period except in 1995. But the company maintained a very high level of inventories. The inventory consisted mainly of raw materials and also of finished goods. Company no. 6b had initially a high level ratio of inventory to months' cost of production, then from 1989 till 1996, it had a downward trend. This company initially had low sales till 1989 after which the sales increased atleast 1.5 times every year. Thus the sales in 1996 were nearly 12 times the sales of 1987. The company procured inventory which was commensurate with sales. It also maintained a reasonable level of finished goods to meet fluctuations in demand. Therefore, from 1989 onwards the company maintained a reasonable level of production in inventories, it being 4.28 months' production on an average. On an average, company no. 6c maintained 11.16 months' production throughout the period under study. From 1987 to 1992 the inventory of the company consisted mainly of raw materials and from 1993 onwards it consisted mainly of finished goods. The size of inventory showed a continually rising trend. But the sales of the company increased only till 1993 after which they declined, only to rise again sharply in 1996. Therefore the high ratio of inventory in terms of months' cost of production can be explained in two parts. From 1987 to 1993, the company maintained high levels of raw materials - firstly due to the low turnover of raw materials and secondly due to the anticipated rise in sales. From 1994 onwards as the sales declined the company continued production at the earlier levels but at the same time curbed the purchase of raw materials. The high level of inventory in this period is primarily due to over production of finished goods, which could not be sold and the company had to suffer from a major problem, i.e., it had no proper planning and no co-ordination between production and sales.

The Paper and Packing Industrial Sector also maintained high inventory in terms of months' cost of production. The average was 6.75 months for the

period under study. In the case of Company no. 7a, the ratio of inventory in terms of months' cost of production varied inversely with sales. Thus, when the sales were the highest in 1991, this ratio was at its lowest at 3.97 months, and when the sales were low in 1988 this ratio was 7.95 months which showed a rise in sales from 1987 to 1991 after which the sales dropped in 1992 and again showed a rising trend till 1995 after which they dropped again. The inventory consisted mainly of raw materials and spare parts and stores. The level of spare parts and stores remained constant irrespective of the level of production, as also the level of inventory which remained at around JD 2,245 thousand throughout the period under study. Company no. 7b had high inventory in terms of months' cost of production it being 10.16 months on an average. It reached the highest point of 19.79 in 1995 and was around 12 months in 1988, 1992 and 1993. The sales of the company increased 2.5 times in 1990. They again declined in 1991 after which they continued to multiply. The inventory of the company consisted mainly of raw materials. The company maintained an excessive level of raw materials which far exceeded the quantum required. This was because 85 per cent of raw materials was imported. Therefore, the high ratio of the company was mainly because of over stocking of raw materials. This will be clearer if we study the analysis of the inventory turnover of these companies during the period under study.

#### ***B) Ratio of Inventory to Sales***

A more refined and important criterion for measuring the soundness and adequacy of the inventory is the ratio between sales and inventory, i.e., inventory turnover ratio (also known as stock turnover ratio). Inventory turnover ratio indicates the efficiency of the firm in producing and selling its product. The objective of calculating this ratio is to check whether only the required minimum has been locked up in inventory.

Table V 1.4 shows the inventory turnover ratio in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.1.4  
Inventory Turnover in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	( In Times ) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co. Ltd		4 56	4 70	4 18	3 96	4 61	4 01	4 01	4 27	4 98	4 47	4 38
b) Intermediate Petrochemical Industries Co. Ltd		2 79	1 43	7 01	4 91	2 19	1 04	0 98	1 83	1 04	1 22	2 44
c) Jordan Sulpho- Chemicals Co. Ltd		4 21	1 83	3 77	2 96	2 69	1 83	1 93	1 27	2 84	1 51	2 48
Sector-wise Ratio		4 50	4 38	4 24	3 95	4 46	3 80	3 82	4 09	4 81	4 32	4 24
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co. Ltd		2 76	2 29	2 42	2 69	2 51	3 45	3 56	3 03	2 59	2 64	2 79
b) The Jordan Ceramic Industries Co. Ltd		2 75	3 14	2 08	1 75	2 89	2 67	2 13	2 39	3 12	3 16	2 61
c) Jordan Rockwood Industries Co. Ltd		5 78	4 30	6 01	4 35	1 72	3 10	3 66	1 70	1 57	1 30	3 35
Sector-wise Ratio		2 78	2 34	2 47	2 62	2 52	3 37	3 42	2 94	2 61	2 65	2 77
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri. Co. Ltd		2 55	3 09	2 83	2 62	2 73	3 08	3 92	2 02	2 57	2 33	2 77
b) Arab Investment and Int. Trade Co. Ltd		1 85	3 55	2 65	1 29	1 83	4 40	3 38	3 00	2 33	2 58	2 69
c) The National Industries Co. Ltd		2 10	3 76	3 12	4 62	4 22	5 11	3 53	4 13	1 94	2 92	3 54
Sector-wise Ratio		2 36	3 24	2 84	2 73	2 73	3 37	3 83	2 32	2 39	2 46	2 83
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf. Co. Ltd		2 59	2 63	2 25	2 08	2 10	2 15	2 06	1 19	2 76	3 30	2 31
b) Dar Al-Dawa Development & Int. Co. Ltd		2 93	3 58	3 84	4 19	3 51	3 11	3 76	4 42	4 07	4 06	3 75
c) The Arab Center for Pharm. & Chemicals Co. Ltd		1 23	1 62	2 29	1 53	1 79	3 11	3 05	3 36	1 62	1 41	2 10
Sector-wise Ratio		2 55	2 73	2 54	2 40	2 33	2 48	2 57	2 05	2 97	3 23	2 58
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminium Industry Co. Ltd		6 88	6 86	4 85	5 53	2 82	6 58	5 22	2 18	3 04	5 69	4 97
b) National Cables & Wire Manuf. Co. Ltd		1 39	1 38	3 24	3 56	2 60	1 88	1 99	1 86	2 18	1 95	2 20
c) The Jordan Pipes Manufacturing Co. Ltd		2 79	1 07	1 66	1 08	1 24	1 80	1 36	1 88	0 99	1 58	1 52
Sector-wise Ratio		3 15	2 04	2 79	2 82	2 22	2 67	2 45	1 94	2 03	2 50	2 46
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co. Ltd		1 86	1 03	0 59	0 79	1 09	1 03	1 10	0 95	1 13	0 87	1 04
b) Jordan Tanning Co. Ltd		1 29	1 81	2 86	3 97	5 34	7 55	6 73	7 25	10 68	6 45	5 39
c) The Woolen Industries Co. Ltd		1 81	1 70	1 53	1 93	1 55	1 51	1 22	0 87	0 76	1 33	1 42
Sector-wise Ratio		1 75	1 14	0 75	1 21	1 78	1 88	1 79	1 72	2 21	1 65	1 59
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co. Ltd		3 08	2 22	3 63	3 61	4 47	2 17	2 10	2 03	2 93	2 37	2 86
b) The Arab Paper Converting & Trading Co. Ltd		1 72	1 04	2 64	2 36	1 82	1 26	1 65	2 04	0 79	2 10	1 74
c) Jordan Printing and Packing Co. Ltd		3 05	3 09	2 66	3 24	2 77	2 26	2 91	2 46	1 61	1 96	2 60
Sector-wise Ratio		2 88	2 10	3 37	3 35	3 71	1 96	2 07	2 08	1 72	2 22	2 55
<b>Overall Industrial Ratio</b>		3 75	3 43	3 35	3 29	3 44	3 39	3 41	3 25	3 57	3 49	3 44

Source: Appendices I & III

It can be seen from Table V.1.4 that the overall industrial average of the inventory turnover ratio was 3.44 times during the period from 1987 to 1996. The sector-wise analysis reveals that the inventory turnover ratio was the highest in the case of the Chemical and Petroleum Industrial Sector viz , 4.24 times, while it was the lowest in the case of the Textile Industrial Sector at 1.59 times. In other remaining five sectors the ratio was lower than the overall industrial average during the period under study.

An indepth study of each sector and the related companies reveals that the Chemical and Petroleum Industrial Sector on an average had a high inventory turnover ratio to the tune of 4.24 times. However, the companies selected for study under this sector showed a fluctuating trend during the period under study. In the case of company no. 1a, the turnover ratio was very close to 4 times throughout the period under study. This ratio is good enough for a petroleum refinery. The company increased its stock of inventory according to the trend of sales. The turnover of raw materials was high, but the turnover of finished goods of the company was low. This means that, although the company converted raw materials into finished goods very fast, it could not convert the finished goods into sales at a similar pace. The good inventory turnover ratio of the company can therefore be said to be the result of better production and use of raw materials than that of finished goods. Regarding company no. 1b, we find wide fluctuations in the inventory turnover ratio. It was as high as 7.01 times in 1989 and as low as 0.98 times in 1993. The company had doubled its raw materials in 1988 without a corresponding increase in sales. But the sales doubled in 1989, and the company did not proportionately increase the inventory but relied primarily on the stocks procured and held from the earlier years. Therefore, the inventory turnover ratio of the company suddenly shot up to 7.01 times in 1989. Thereafter, the sales declined from 212.66 per cent in 1990 onwards to 63.51 per cent in 1996. As a result, the inventory turnover ratio declined to 0.98 time in 1993 after which it improved slightly. This low turnover ratio not only indicates inefficient management of inventory, but also unnecessary locking up of working capital fund. Company

no. 1c initially had a high turnover ratio of 4.21 times in 1987, which reduced to 1.83 times in 1988. Then again it increased to 3.77 times in 1989 with the increase in sales and then again, this ratio showed a declining trend till 1996. The inventory turnover ratio followed the pattern of sales of the company and increased with increase in sales and decreased with decrease in sales. Therefore, the low inventory ratio was mainly due to decrease in sales without proportionate decrease in the levels of inventory.

The Construction Industrial Sector showed a low inventory turnover ratio which was 2.77 times on an average during the period under study. Company no. 2a, on an average, had a low inventory turnover ratio, i.e., 2.79 times. But this ratio increased from 2.76 times in 1987 to 3.45 times in 1992. This was mainly due to the increase in raw materials turnover ratio which increased from 3.56 times in 1991 to 9.17 times in 1992 and also because of high finished goods turnover ratio which increased from 17.07 times in 1991 to 46.17 times in 1992. Company no. 2b showed a fluctuating trend. It was, on an average, 2.61 times for the period under study. The raw materials turnover ratio was very low in this case, being 1.25 times which reveals over-stocking of raw materials. In addition, the turnover of spare parts and stores was obviously low. Therefore, in spite of high finished goods turnover ratio, the company had an overall low inventory turnover ratio. But company no. 2c, had a high inventory ratio of 5.78 times in 1987 and fairly maintained it till 1993 with the exception of 1991, but the ratio started declining from 1994 and reached as low as 1.30 times in 1996. The increase in the ratio was mainly due to high sales and high turnover of finished goods indicating efficient sales management. The raw materials turnover ratio was also high from 1987 till 1990. Thereafter, the raw materials turnover ratio declined from 1991 onwards. There was also a decline in the sales of the company from 1994 onwards but the company continued to build-up a high level of inventories. This caused the inventory turnover ratio to decline from 1994 onwards, indicating inefficient management of inventories by the company.

The Consumables and Food Industrial Sector showed mixed results. The inventory turnover ratio gradually rose from 2.36 times in 1987 to 3.83 times in 1993 and then declined to 2.46 times in 1996. But on an average, it maintained a turnover ratio of 2.83 times during the period under study. This can possibly be due to the nature of the sector that it requires longer processing on raw materials resulting in lower raw materials turnover ratios. Company no. 3a showed a more stable inventory ratio as compared to the other two companies of the same sector. It revolved around 2.7 times throughout the period. Raw materials constituted 67.41 per cent of its aggregate inventory. The raw materials turnover ratio was nearly 2.50 times on an average. The finished goods constituted 10 to 15 per cent of the aggregate inventory and had a very high turnover ratio to the tune of 25.91 times on an average. Spare parts and stores were 11.77 per cent of the aggregate inventory. However, the aggregate inventory ratio seems to have been worst affected by the size of the raw materials inventory which the company maintained at very high levels. Company no. 3b had a rise and fall in the ratio over the period. It rose from 1.85 times in 1987 to 3.55 times in 1988 then fell in 1989 to 2.65 times and further decreased till 1991. It suddenly became as high as 4.40 times in 1992 and then again showed a declining trend till 1996 with 2.58 times. The turnover ratio followed the pattern of sales which had an identical rise and fall in these years. The low turnover ratio was a result of reduced sales but higher inventory. Company no. 3c had alternately low and high inventory turnover ratio which varied from 1.94 times to 5.11 times throughout the period under study. The sales and inventory of the company followed identical patterns. Till 1994 the company managed its inventories efficiently as is obvious from the inventory turnover ratios. However, in 1995 the sales shot up but the inventory increased more than proportionately thereby reducing the turnover ratio. It can be reasonably concluded that inventory was fairly well managed by the company during the period under study.

The Pharmaceutical Industrial Sector maintained a low inventory turnover ratio of 2.58 times on an average for the period under study. The level

of inventory was also very high. In the case of company no. 4a, it had a low level of inventory ratio. Its inventory consisted mainly of raw materials which had a very low turnover ratio. Although the turnover of finished goods was as high as 12.78 times on an average, the inefficient use of raw materials lowered the overall inventory turnover ratio. Whereas, company no. 4b was at a better position as compared to company no. 4a. Its turnover ratio was 3.75 times as average for the ten years and it maintained nearly the same average for each of the ten years, indicating a uniformity in operations. This indicates an efficient management of inventory and a proper utilization of funds. But company no. 4c, showed extreme fluctuations in the inventory turnover ratio. It was as high as 3.36 times in 1994 and as low as 1.23 times in 1987. Except in 1994, the raw materials turnover was very low throughout the period under study. Raw material being the major part of the inventory, its inefficient utilization created an overall problem for the company. The finished goods turnover ratio was generally high.

The Engineering Industrial Sector showed a low inventory turnover ratio, but the companies selected for the study showed two divergent situations. The average ratio for the sector was 2.46 times as compared to the overall industrial average of 3.44 times which itself is quite low. Company no. 5a, had a high inventory turnover ratio throughout the period except in two years, i.e., 1991 and 1994 when it fell to 2.82 times and 2.18 times respectively. Since the raw materials were a major part of the aggregate inventory, their utilization greatly affected the total turnover ratio. The raw materials turnover ratio was high during the period under study except in 1991, 1994 and 1995 when it dropped to 2.84 times, 1.97 times and 2.61 times respectively (Table V.1.7). This decrease was primarily due to over-stocking of raw materials which nearly doubled in these two years without a corresponding rise in sales. Except 1991 and 1994, the company managed its inventory pretty well. For company no. 5b, average inventory turnover ratio was 2.20 times. It had a low ratio in most of the years except in 1989 and 1990 when it increased slightly. The turnover ratio of raw materials was moderate throughout the period. However, the

finished goods turnover ratio went very low from 1992 thereby reducing the overall turnover ratio. Although the sales were high in this period, there was increase in production and over-stocking of finished goods resulting in a lower finished goods turnover ratio. Regarding company no. 5c, we find that it had the lowest inventory turnover ratio among the three companies of the relative sector with only 1.52 times on an average. The sales of the company did not increase substantially during the period under study. However, the company continued to procure raw materials and produce goods. Consequently the ratio of net sales to inventory showed a decline. The turnover ratios of raw materials, finished goods and stores and spares were low for the company.

The Textile Industrial Sector had the lowest ratio of all the sectors. On an average, it was 1.59 times as compared to the overall industrial average of 3.44 times. Company no. 6a had the lowest ratio viz., 1.04 times on an average. This ratio reduced from 1.86 times in 1987 with reduction in sales to 0.79 times in 1990. In 1991 there was a rise in sales as a result of which the turnover ratio improved to 1.09 times. From 1992, although there was a steady increase in sales, the inventory turnover ratio continued to fall because of rise in the stock of raw materials and also because of increase in production in 1991. However, the sales of the company did not show spectacular rise and the raw materials turnover ratio for the company was very low. We can conclude that this situation was primarily because of a lack of co-ordination between the sales department and production department. Company no. 6b had a better performance in the beginning, having a turnover ratio of 1.29 times in 1987. From 1989 the sales of the company showed a sharp rise. The company adapted its inventory policy to suit to the changed needs. It gradually increased its inventories just in proportion to the increase in sales. It managed the composition of its inventories for the proportion of raw materials and finished goods. The raw materials turnover of the company was very good and so was the finished goods turnover. Thus because of proper management of inventory and also proper co-ordination between sales and production, the inventory turnover ratio of the company increased from 1.81 in 1988 to 10.68

times in 1995. However, there was a fall in its sales in 1996 as a result of which its turnover ratio suffered and reached 6.45 times in 1996. Company no. 6c registered a below average performance. The inventory turnover ratio was 1.81 times in 1987 which showed decrease till 1989 after which it suddenly rose to 1.93 times in 1990. Thereafter, there was a continuous decrease in the ratio. The decrease in ratio in 1987 and 1988 was due to over-stocking of raw materials. But the company did not invest further in raw materials and used up the existing material to cater to the new orders. This resulted in a higher turnover ratio in 1990. After this period the company started over-stocking raw materials disproportionately to the increased sales. Therefore, the inventory ratio dropped further. From 1993 the company controlled its purchase of raw materials but still continued to produce goods without any demand for the same. As a result, the finished goods started piling up in its inventory. This caused the inventory turnover ratio to drop further and it became 0.76 times in 1995 when nearly 60 per cent of the inventory consisted of finished goods. The sales of the company showed a rise from 1987 till 1993 after which they continued to decrease till 1995 only to rise again sharply in 1996. But the company went on increasing inventory till 1995. As the sales shot up in 1996, the company used existing finished goods and raw materials to cater to the demand, thereby slightly improving the turnover ratio.

The Paper and Packing Industrial Sector showed a better inventory turnover ratio in the initial years, i.e., from 2.88 times in 1987 to 3.71 times in 1991. Thereafter, the sector showed a fluctuating trend in its turnover ratio till 1996. The ratio was at its highest in 1991 at 3.71, gradually reduced to 1.72 in 1995 then again increased to 2.22 in 1996. There was an overall rise in the sales in this sector. Individual study of each of the companies will explain the cause for such fluctuation in the turnover ratio. Company no. 7a had nearly 60 per cent of inventory in the form of raw materials. The raw materials turnover ratio was very low except in 1991, 1995 and 1996. But the finished goods turnover ratio was very high throughout the period indicating faster conversion of finished goods into sales. Initially, in 1988, the company procured a large

quantity of raw materials but the sales were not as high. Therefore, the turnover ratio fell from 3.08 times in 1987 to 2.22 times in 1988. However, as the sales picked up in the later period the turnover ratio improved to 4.47 in 1991 due to efficient use of inventory. But in 1991 and 1992 there was more production of goods whereas the sales fell down. Consequently, the inventory turnover ratio declined and reached a low of 2.03 times in 1994. Thereafter the situation improved with improvement in sales and coordinated purchase and production. In the case of company no. 7b the average inventory turnover ratio was 1.74 times. However, the turnover of raw materials was low in all the years. This was primarily because of improper planning and inefficient production. Raw materials was the major component of its inventory, its turnover ratio was lower than that of similar companies in the Paper and Packing Industrial Sector. The inventory turnover ratio of the company was the lowest in 1995 at 0.79 indicated blocking of funds in inventories. In the case of company no. 7c, the turnover ratio was 2.60 times on an average for the period under study, which was higher than the average for the sector, but lower than the overall industrial average of 3.44 times. This company's performance was similar to company no. 7a in the sense that it showed good inventory turnover ratio till 1991 after which the ratio declined slightly. The sales of this company, just like company no. 7a, showed an increase till 1991 after which they fell down steeply. But the inventory of the company which consisted mainly of raw materials, continued to grow. This improper increase seriously affected the inventory turnover ratio.

In order to take the necessary remedial action to achieve the objective of bringing inventory to optimal levels, attempts should be made to identify that category of inventory in which funds are locked up. As such, a discussion on the structure of inventory items would be quite meaningful at this stage of the analysis and interpretation.

### 5.1.7 STRUCTURE OF INVENTORY

The researcher studied the structure of the inventory of the selected industrial companies in accordance with the classification of inventory envisaged in the foregoing discussion as raw materials, work-in-process, finished goods, spare parts and stores and miscellaneous goods. Further, these constituents were analysed and interpreted in relation to each component of inventory to the aggregate inventory. Appropriate indicators about the adequacy or inadequacy of each type of inventory was obtained and applied to the actual portion obtained in the industrial companies of Jordan with a view to know at what point inventory concentrated most and when and where the overstocking had made inroads.

#### 5.1.7.1 Adequacy of Raw Materials

Raw materials are the major input in any manufacturing organization. Any interruption in the supply of raw materials results in breakdown in production. The function of raw materials inventory is to act as a buffer between procurement and manufacturing. The supply of raw materials may be regular or seasonal and its sources may be local or foreign. These factors will directly affect the lead time and indirectly the level of raw materials inventory. The level of raw materials is also influenced by other factors like the volume of safety stocks to be maintained, economies in large scale buying, credit available in the economy, costs and risks associated with the stocks of materials and governmental restrictions.

#### **Percentage of Raw Materials to the Aggregate Inventory**

Table V.1 5 shows the percentage of raw materials inventory in the aggregate inventory in the selected industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.1.5  
Percentage of Raw Materials Inventory to Aggregate Inventory in the Industrial Companies During 1987 to 1996.  
(In Percentage)

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	14.98	18.72	20.11	17.64	17.94	17.14	17.67	15.81	15.39	15.38	17.08
b) Intermediate Petrochemical Industries Co Ltd	77.96	72.85	72.47	66.41	71.99	67.36	58.82	55.57	53.56	58.03	65.50
c) Jordan Sulpho-- Chemicals Co Ltd	62.45	52.83	34.18	45.03	61.41	35.48	24.26	52.10	43.70	64.71	47.62
Sector-wise Ratio	17.94	23.52	21.71	19.75	21.49	20.06	19.74	18.22	17.28	17.58	19.73
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	1.52	3.18	1.42	1.38	1.59	1.04	2.08	1.91	1.95	3.22	1.93
b) The Jordan Ceramic Industries Co Ltd	35.19	46.77	42.51	51.82	58.59	51.12	45.16	31.80	46.12	42.22	45.13
c) Jordan Rockwool Industries Co Ltd	35.26	41.00	40.14	45.91	46.78	44.47	47.87	56.60	53.63	56.01	46.77
Sector-wise Ratio	3.01	5.12	5.94	7.75	6.34	6.16	7.21	5.97	6.20	7.06	6.08
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn Co Ltd	74.18	68.79	71.51	66.13	71.06	71.01	67.00	63.38	57.49	63.55	67.41
b) Arab Investment and Int. Trade Co Ltd	74.26	78.64	79.79	78.94	75.38	80.26	79.48	62.90	63.87	69.67	74.32
c) The National Industries Co Ltd	59.37	16.80	42.16	29.04	41.18	21.33	38.14	55.30	44.39	32.54	38.02
Sector-wise Ratio	71.51	64.56	69.29	62.92	69.51	69.30	65.28	62.54	55.19	59.66	64.98
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	56.40	47.71	47.00	50.80	53.30	53.00	52.46	53.95	58.66	58.38	53.17
b) Dar Al-Dawa Development & Inv. Co Ltd	66.53	75.15	63.98	81.34	72.50	63.54	60.46	62.96	71.94	73.18	69.16
c) The Arab Center for Pharm. & Chemicals Co Ltd	19.84	42.17	64.62	71.71	64.39	75.00	73.81	75.38	73.93	71.08	63.19
Sector-wise Ratio	55.48	52.78	51.95	58.94	58.30	57.81	56.53	57.89	64.81	64.88	57.93
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co Ltd	61.22	47.99	57.17	51.53	56.98	65.30	65.02	58.71	70.54	70.54	60.50
b) National Cables & Wire Manuf Co Ltd	46.90	37.39	45.96	59.64	59.95	48.16	59.88	39.83	33.30	28.20	45.92
c) The Jordan Pipes Manufacturing Co Ltd	17.96	33.66	65.01	27.98	29.65	36.95	38.75	37.63	49.19	32.61	36.94
Sector-wise Ratio	38.88	36.91	57.16	44.30	48.83	46.77	53.30	46.45	47.85	37.00	45.74
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	43.87	54.65	60.29	48.12	32.53	40.06	42.85	46.68	58.91	40.00	46.79
b) Jordan Tanning Co Ltd	25.45	41.78	39.64	46.05	58.51	54.85	50.58	52.72	66.85	52.67	48.91
c) The Woolen Industries Co Ltd	69.45	60.64	37.40	41.42	53.02	49.48	32.32	33.41	21.51	18.45	41.71
Sector-wise Ratio	41.62	53.46	58.24	47.61	37.68	42.52	42.91	46.35	57.13	40.40	46.79
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	67.91	76.12	68.72	64.95	56.44	55.35	56.94	61.53	44.89	48.60	60.15
b) The Arab Paper Converting & Trading Co Ltd	63.68	64.78	60.57	75.99	73.76	80.90	83.44	86.77	88.54	84.57	76.30
c) Jordan Printing and Packing Co Ltd	49.56	36.54	48.46	51.10	52.50	60.15	52.44	46.46	54.99	53.10	50.53
Sector-wise Ratio	64.68	70.00	65.15	65.31	58.89	62.32	63.27	67.49	68.18	65.54	65.08
<b>Overall Industrial Ratio</b>	22.46	27.18	29.94	27.51	29.00	27.68	27.53	27.09	27.15	23.93	26.95

Source Appendix I

It is evident from the Table V.1.5 that, the share of raw materials in the aggregate inventory for all the industrial companies taken together varied between 22.46 per cent and 29.94 per cent throughout the period under study. The overall industrial average was 26.95 per cent for the period of ten years. The sector-wise analysis reveals that in the Paper and Packing Industrial Sector, raw materials formed the highest percentage to the aggregate inventory, i.e., 65.08 per cent, followed by the Consumables and Food Industrial Sector, the Pharmaceuticals Industrial Sector, the Engineering Industrial Sector and the Textile Industrial Sector, with 64.98 per cent, 57.93 per cent, 45.74 per cent, and 46.79 per cent respectively while it was the lowest in the Construction Industrial Sector with only 6.08 per cent during the period under study. In the case of the Chemical and Petroleum Industrial Sector, the percentage of raw materials in the aggregate inventory was lower than the overall industrial average, i.e., 19.73 per cent during the period under study.

An indepth study of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector showed a lower percentage of raw materials with regard to the aggregate inventory throughout the period under study as compared to the overall industrial average. It had on an average of 19.73 per cent of raw materials with respect to the aggregate inventory. The company-wise analysis indicates that in the case of company no. 1a, the percentage of raw materials with regard to the aggregate inventory was on an average 17.08 per cent and it remained constant through out the period under study as the company maintained a regular supply of raw materials through tunnel from Iraq. Company no. 1b had a very high percentage, i.e., 65.50 per cent of raw materials with regard to the aggregate inventory average. It was as high as 77.96 per cent of raw materials in 1987 due to increase in production. From 1990 onwards the sales of the company showed a decreasing trend. But the company continued to increase the level of raw materials in its stock. Therefore, the percentage of raw materials with respect to the aggregate inventory remained high throughout the period under study. Company no. 1c, showed a fluctuating trend in the percentage of raw

materials with respect to the aggregate inventory through out the period under study, the lowest being 24.26 per cent in 1993 and the highest at 64.71 per cent in 1996. This high fluctuation took place as the company imported their raw materials from Iraq. This company relied completely on Iraq and therefore it was hard hit by the consequences of the Gulf War during the period under study

The Construction Industrial Sector had the lowest percentage of raw materials with regard to the aggregate inventory with only 6.08 per cent as compared to the overall industrial average of 26.95 per cent. Individually, company no 2a showed an extremely low percentage, i.e., 1.93 per cent of raw materials with respect to the aggregate inventory on an average. The highest was at 3.22 per cent in 1996. This company kept a low percentage of raw materials because their raw materials were procured from indigenous sources. Company no 2b had on an average 45.13 per cent of inventory in the form of raw materials. It had 35.19 per cent in 1987 which increased to 58.59 per cent in 1991. It declined to 31.80 per cent in 1994 and then it increased to 42.22 per cent in 1996. This fluctuation was mainly due to irregular supply of raw materials from other countries during the period under study. In company no. 2c, the percentage of raw materials with regard to the aggregate inventory was on an average 46.77 per cent. The company also maintained a high level of raw materials through out the period under study. It had 35.26 per cent of raw materials in 1987 which gradually increased to 47.87 per cent in 1993. Thereafter, the stock of raw materials was more than 54 per cent of aggregate inventory during the last three years of the study. It seems that there was a lack of planning between production and sales.

The Consumables and Food Industrial Sector had the second highest raw materials as compared to other industrial sectors. On an average, it had 64.98 per cent as compared to the overall industrial average of 26.95 per cent. Company no. 3a had a very high percentage of raw materials in its inventory. The average percentage of raw materials was 67.41 per cent and it was close to this average through out the period under study. Therefore, the high level of raw materials in the aggregate inventory was due to difficulties in forecasting

their sales on account of the Gulf Crisis. Company no. 3b also showed a trend similar to company no, 3a. It was as high as 80.26 per cent of raw materials in the aggregate inventory in 1992. Thereafter, the percentage of raw materials remained constant around 78 per cent till 1993, and then it had slightly declined to 69.67 in 1996. The high level of raw materials in this company was due to the break down of machinery in the initial years of the study which took a long time to start again and therefore the company had to keep a high level of raw materials. The other reason was the Gulf Crisis which badly affected their production and sales. Company no. 3c had a position different from company no. 3a and company no. 3b. The company maintained a lower level of raw materials than the other two companies of the same sector. It had on an average 38.02 per cent raw materials during the period under study. The lowest percentage was in 1988 at 16.80 per cent due to increase in the prices of raw materials. In the rest of the years, the company varied the amount of raw materials with change in sales.

The Pharmaceuticals Industrial Sector maintained a high level of raw materials. It was on an average 57.93 per cent as compared to the overall industrial average of 26.95 per cent. Company no. 4a maintained a fairly constant percentage of raw materials with regard to the aggregate inventory during the period under study. On an average, it was nearly 53 per cent, thereby indicating that the raw materials were purchased as per requirements only. Company no. 4b had a high percentage of raw materials, i.e., 69.16 per cent of the aggregate inventory. The percentage of raw materials in the aggregate inventory increased from 66.53 per cent in 1987 to 81.34 per cent in 1990. Thereafter, it decreased and came down to 73.18 per cent in 1996. This may be due to the fact that 95 per cent of the raw materials was imported by the company. Regarding company no. 4c, the overall percentage of raw materials with respect to the aggregate inventory was 63.19 per cent. It was as low as 19.84 per cent in 1987. Thereafter, it increased to 42.17 per cent in 1988 and 71.08 per cent in 1996. The company had a high level of raw materials after 1988. This was due to two reasons, firstly, the company

imported 90 per cent of their raw materials from outside the country and second was break up of some contracts due to the Gulf War

The Engineering Industrial Sector had a high percentage of raw materials in its aggregate inventory. It was 45.74 per cent for the ten years as compared to the overall industrial average of 26.95 per cent. In the case of company no. 5a, we find that it was 61.22 per cent in 1987 and increased to 70.54 per cent in 1996. Therefore, the percentage of raw materials in the aggregate inventory appears to be very high for the period under study because, firstly, 75 per cent of the main sources of their raw materials was imported and secondly the company had established two more new units in 1992 and 1994 at Amman - Ain El-Basha in Jordan. Company no. 5b maintained on an average nearly 46 per cent of its inventory in raw materials. The percentage of raw materials in the aggregate inventory of the company varied from 38 to 60 per cent till 1992 and thereafter it reduced from 59.88 per cent in 1993 to 28.20 per cent in 1996. The high level of inventory during the former period was mainly due to the rejection of a big order by a client and the reason for the low level of raw materials during the later period was the fact that the company failed to market its products. Company no. 5c had a lower percentage of raw materials with respect to the aggregate inventory compared to the other two companies of the relative sector. On an average, it had 36.94 per cent during the period under study. It was 17.96 per cent in 1987, which increased to 65.01 per cent in 1989 and then declined to 32.61 per cent in 1996. This was mainly due to lack of materials budgeting and sales forecasts which give rise to a high level of raw materials. It also seems that there was a break in export to neighbouring countries which negatively affected the level of raw materials of the company.

The Textile Industrial Sector showed a variation in the percentage of raw materials with regard to the aggregate inventory. It had on an average 46.79 per cent of raw materials for the period under study. Raw materials constituted nearly 50 per cent of its aggregate inventory on an average for ten years. Such a high percentage of raw materials indicates over-stocking of raw materials. This could be due to two reasons, firstly, the company relied entirely on

imported raw materials, and secondly, the company followed a policy of keeping raw materials for the period of 2 to 3 years, as the company supplied its product to the government and government agencies of Jordan. Company no. 6b, a tanning company, had on an average 48.91 per cent of raw materials during the period under study. In the initial period till 1990, the company had a low percentage of raw materials with regard to the aggregate inventory. This could be because of the finished goods lying in stock which could not be sold. However, as the sales picked up from 1990, the percentage of finished goods reduced thereby increasing the percentage of raw materials in the aggregate inventory. The company maintained around 50 per cent of its aggregate inventory in raw materials which appears high on the face of it, but since the aggregate inventory itself was low, the amount of raw materials was adequate. In the case of company no. 6c, from 1987 to 1992 the stock of raw materials was very high, which was nearly 40 to 70 per cent of the aggregate inventory. After this, the percentage of raw materials in the aggregate inventory reduced from 49.48 in 1992 to 18.45 in 1996. In general, there was over-purchase and over-stocking of raw materials in the Textile Industrial Sector.

The Paper and Packing Industrial Sector shows that the sector invested heavily in raw materials, on an average, to the tune of 65.08 per cent of the aggregate inventory. Company no. 7a, on an average, had 60.15 per cent raw materials in the aggregate inventory. It had a fluctuating trend varying between 44.89 per cent and 76.12 per cent throughout the period under the study. The High lead time for the procurement of raw materials is a major reason for keeping such a high amount of raw materials. Company no. 7b had a sharp increase of the percentage of raw materials with respect to the aggregate inventory from 63.68 per cent in 1987 to 88.54 per cent in 1995. The percentage of finished goods of the company reduced over the period under study. Thus, over-stocking of raw materials and decrease in stock of finished goods together resulted in a high percentage of raw materials in the aggregate inventory mainly due to the closing of the main market for the company especially with Iraq and other Gulf countries because of the Gulf Crisis and also because 85 per cent of the main sources of their raw materials were

imported. Company no. 7c had a high fluctuation which varied from 36.54 per cent to 60.15 per cent throughout the period under study. The company showed a poor sales performance as is obvious from Table V.2.2. The sales of the company rose slightly in 1991 only to fall gradually till 1996. Table V.1.2 shows that the level of the aggregate inventory was moderate in the earlier years but slightly out of proportion towards the end. However, a deeper study of Table V.1.5, Table V.1.8, Table V.1.11, and Table V 1.14 reveals that the company did not have any substantial amount of work-in-process and finished goods throughout the period under study. This situation is somewhat surprising. There is also a possibility that the company produced finished goods only on order and therefore did not have any stock of work-in-process or finished goods. If this was the case, we can assume that the company was unnecessarily blocking large funds in raw materials without any corresponding orders on hand.

In general, most of the companies have a high percentage of raw materials to aggregate inventory due to the following reasons:

- ⇒ The absence of norms for holding of raw materials was responsible for the increase in the proportion of raw materials. This indicates that the industrial companies failed to follow an efficient controlling system of raw materials. It also indicates that a significant amount of investment was locked up in inventories of raw materials.
- ⇒ Most of the companies import their raw materials from a foreign countries and therefore they have to keep a large stock of raw materials items.
- ⇒ The Gulf Crisis hampered the production process and therefore the level of raw materials also increased.

However, the study of the size of raw materials is not a measure of its adequacy. The adequacy can be determined by analysis and interpretation of raw materials in terms of months' value of raw materials consumption and raw materials turnover which are given in the Tables V.1.6 and V.1.7 respectively.

#### **Raw Materials Inventory in Terms of Months' Value of Raw Materials Consumption**

Table V.1.6 shows the raw materials inventory in terms of months' value of raw materials consumption in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V 1.6  
Raw Materials Inventory in terms of Moths' Value of Raw Materials Consumption in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Months) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		0.49	0.61	0.77	0.73	0.66	0.68	0.70	0.60	0.53	0.62	0.64
b) Intermediate Petrochemical Industries Co Ltd		4.52	7.77	1.94	2.36	5.81	9.90	9.50	5.78	9.66	8.13	6.54
c) Jordan Sulpho- Chemicals Co Ltd		2.81	4.17	2.11	2.85	4.11	3.48	2.56	6.46	2.73	7.37	3.86
<b>Sector-wise Ratio</b>		0.60	0.82	0.83	0.82	0.82	0.84	0.82	0.72	0.61	0.73	0.76
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		1.93	7.64	1.92	2.62	3.37	1.31	2.48	2.38	3.46	9.06	3.62
b) The Jordan Ceramic Industries Co Ltd		10.11	11.94	12.14	12.72	11.92	9.50	10.93	6.55	8.59	6.62	10.10
c) Jordan Rockwool Industries Co Ltd		2.86	3.73	2.83	3.75	10.09	7.06	6.21	15.36	14.39	15.85	8.21
<b>Sector-wise Ratio</b>		3.11	7.68	4.58	6.70	7.43	4.79	5.62	4.72	6.34	8.27	5.92
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri. Co Ltd		6.49	4.70	5.18	4.68	4.77	4.24	3.45	6.18	4.42	5.44	4.95
b) Arab Investment and Int. Trade Co Ltd		7.21	3.51	4.74	9.67	7.73	2.84	3.75	3.59	4.50	4.81	5.24
c) The National Industries Co Ltd		4.65	0.79	2.59	1.26	1.92	0.78	2.96	3.11	3.15	1.38	2.20
<b>Sector-wise Ratio</b>		6.22	3.88	4.81	4.30	4.69	3.68	3.39	5.36	4.11	4.28	4.47
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf. Co Ltd		5.55	5.16	4.60	5.44	6.25	5.84	7.12	10.61	6.49	5.14	6.22
b) Dar Al-Dawa Development & Int. Co Ltd		6.32	6.86	6.86	6.86	6.86	6.86	7.06	7.06	7.06	6.86	6.86
c) The Arab Center for Pharm. & Chemicals Co Ltd		13.22	15.75	21.76	21.75	19.00	12.26	8.09	5.96	26.28	22.42	16.65
<b>Sector-wise Ratio</b>		5.78	5.89	5.62	6.50	7.03	6.55	7.21	8.76	7.68	6.58	6.76
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co Ltd		1.99	1.29	2.09	1.91	4.23	2.29	2.85	6.10	4.59	2.25	2.96
b) National Cables & Wire Manuf. Co Ltd		5.17	3.94	2.80	3.70	4.72	4.35	5.36	3.20	2.31	2.50	3.80
c) The Jordan Pipes Manufacturing Co Ltd		1.20	5.37	7.70	3.96	3.78	3.45	4.34	4.56	8.72	3.58	4.67
<b>Sector-wise Ratio</b>		2.41	3.10	3.90	3.14	4.31	3.35	4.16	4.43	4.02	2.61	3.54
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		5.01	9.65	14.92	11.35	6.16	9.09	9.59	12.25	13.56	7.92	9.95
b) Jordan Tanning Co Ltd		4.86	5.49	3.43	2.10	1.80	1.15	1.28	1.14	0.93	1.16	2.33
c) The Woolen Industries Co Ltd		10.42	6.74	5.00	4.38	6.93	5.76	4.55	7.28	4.89	3.35	5.93
<b>Sector-wise Ratio</b>		5.21	8.90	12.69	7.31	3.91	4.20	4.81	5.10	4.68	3.84	6.07
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		6.18	10.07	6.50	5.30	3.50	7.75	9.96	11.89	3.98	3.79	6.89
b) The Arab Paper Converting & Trading Co Ltd		7.46	10.48	5.63	7.48	7.83	12.12	11.50	5.11	20.25	6.66	9.45
c) Jordan Printing and Packing Co Ltd		5.60	4.94	5.60	4.23	4.50	5.79	5.42	5.25	5.25	4.94	5.15
<b>Sector-wise Ratio</b>		6.27	9.59	6.27	5.50	4.15	8.32	9.68	7.50	8.91	5.20	7.14
<b>Overall Industrial Ratio</b>		1.10	1.46	1.73	1.66	1.73	1.60	1.65	1.69	1.59	1.49	1.57

Source: Appendices I & V

It can be observed from Table V.1.6 that the overall industrial average was 1.57 months' consumption. The sector-wise average reveals that the raw materials inventory in terms of months' value of raw materials' consumption was the highest in the case of the Paper and Packing Industrial Sector with 7.14 months' consumption while it was the lowest in the Chemical and Petroleum Industrial Sector at 0.76 month's consumption. It was also high in the remaining industrial sectors and it varied between 4 and 6 months' consumption during the period under study.

An indepth analysis of each sector and its companies indicate that the Chemical and Petroleum Industrial Sector had on an average 0.76 month's raw materials consumption in its aggregate inventory. Of the three companies under this sector, company no. 1b maintained the highest quantity of raw materials consumption in its aggregate inventory. It had maintained on an average 6.54 months' consumption in stock. It was as high as 9.90 months' consumption in stock in 1992. In the case of company no. 1a, it had the lowest raw materials in stock of the three companies, on an average, it was only 0.64 month's consumption. But company no. 1c kept a moderate stock of raw materials as compared to the other two companies. On an average, it was 3.86 months for the period under study. Most of this period, it kept nearly three months' stock, but in 1994 the stock level was high at 6.46 months' consumption

The Construction Industrial Sector kept on an average 5.92 months' stock of raw materials consumption. Company no. 2b had on an average the highest level of stock at 10.10 months' consumption. It maintained higher levels in the initial years up to 1990 and then it gradually declined due to irregular in the supply of their raw materials. Company no. 2c was the next in order maintaining on an average 8.21 months' stock. It showed the reverse trend as compared to company no. 2b, i.e., initially it maintained around three months' stock till 1990, thereafter it increased to as high as 15.85 months' stock in 1996 due to defective methods of production as some of the machinery used by the company was very old. Company no. 2a maintained on an average 3.62

months raw materials in stock which seems to be adequate as compared to the other two companies and as compared to the overall industrial average.

The Consumables and Food Industrial Sector maintained a reasonable level of raw materials in its inventory as compared to the Construction Industrial Sector. On an average, the sector had kept 4.47 months' consumption in stock. Company no. 3a and company no. 3b showed similar patterns of inventory holding and held 4.95 months and 5.24 months' consumption in stock respectively. But company no. 3c showed a different picture. It had 2.20 months' consumption in stock which is much lower than the average for the sector. The company had a very low level of raw materials in 1988 and 1992 when it had kept nearly 0.79 months' consumption in stock.

The Pharmaceutical Industrial Sector had also a high level of raw materials in its inventory. The average for the sector was 6.76 months' consumption as compared to the overall industrial average of 1.57 months' consumption. Company no. 4a and company no. 4b were in a better position than company no. 4c under the period under study. Company no. 4a and company no. 4b had average of 6.22 and 6.86 months' stock of raw materials consumption respectively. But the level maintained by company no. 4c was higher than that by company no. 4a and company no. 4b. The lowest was in 1994 at 5.96 months' stock. It was extremely high, i.e., 26.28 months' stock in 1995 due to the breaking up of some contract with some European Countries in large quantity. But still the average for the company was very high at 16.65 months' consumption indicating inefficient management of inventory.

The Engineering Industrial Sector was better than the Pharmaceutical Industrial Sector in this regard. On an average, it had kept 3.54 months' consumption in stock. All the companies selected for study under this sector showed similar results. In the case of company no. 5a, we find that on an average, it maintained 2.96 months' stock. The only time when it kept a very high level of raw materials was in 1991, 1994 and 1995 when there was 4.23, 6.10 and 4.59 months' consumption in stock respectively. Company no. 5b was relatively stable in this regard. The average stock of raw materials was 3.80

months' consumption and the company maintained a stock level close to this throughout the period. But company no. 5c showed fluctuations in its stock level in 1987, 1989 and 1995 when it kept 1.20, 7.70 and 8.72 months' raw materials respectively. In the rest of the years it kept nearly 3 to 4 months' stock. The average for the company was 4.67 months' consumption.

The Textile Industrial Sector showed a different position for each of the companies selected for the study. The overall industrial average for this sector was 6.07 months' consumption in stock. But this average cannot be relied on to reflect the true picture because of the variations in the results of each of the companies. Company no. 6a had the highest level of raw materials among the three companies. The highest for this company was in 1989 when it kept 14.92 months' consumption in stock. The average for the company was 9.95 months' consumption. Whereas company no. 6b, initially had high levels of raw materials inventory. But it declined from 1989 and thereafter kept 1 to 2 months' consumption in stock. The company kept 2.33 months' stock on an average which appears to be reasonable. But company no. 6c maintained a higher level of stock than company no. 6b but lower than company no. 6a on an average, it kept 5.93 months' stock. This resulted in blocking of funds unnecessarily by company no. 6c. The overall picture shows that the Textile Industrial Sector blocked its funds in raw materials inventory which could have been due to inefficient inventory management or ineffective methods of production.

The Paper and Packing Industrial Sector had a very high level of raw materials inventory. The average for the sector was 7.14 months' consumption in stock which was alarmingly high. In the case of company no. 7a, on an average, it was 6.89 months' consumption in stock. It had a very high level of raw materials till 1994, but this level declined thereafter. Whereas, the company kept 11.89 months' stock in 1994 which reduced to 3.79 months' stock in 1996. Company no. 7b had a level of inventory higher than company no. 7a. The company kept a higher level of inventory throughout the period, rising sharply further in some years. The highest was in 1995 when the

company had 20.25 months' consumption in stock. The average for the company was 9.45 months' consumption. Company no. 7c had an average stock of raw materials at 5.15 months' consumption and the company maintained a stock level close to this throughout the period under study. The Paper and Packing Industrial Sector had an alarmingly high level of raw materials inventory and showed great fluctuations throughout the period.

The overall industrial average was 1.57 for all the sectors for ten years. This appears to be reasonable but concrete conclusions about the state of affairs of the complete industrial sector cannot be drawn on this basis since the stock-holding varies from sector to sector. If each company is considered separately, the overall position of the industrial sector in Jordan is one of investing heavily in raw materials. This could be due to various reasons which include .

- ⇒ Delays and irregular supply of raw materials.
- ⇒ Absence of inventory standard norms.
- ⇒ Lack of co-ordination between production and sales department.
- ⇒ Liberal attitude of purchase department.

Thus, it can be concluded that most of the companies selected for study, did not have an effective system of raw materials inventory control and there appears to be a good scope for introduction of effective control techniques.

However, the adequacy of raw materials alone should not be considered but the way it is put to use is also important. The efficient use of raw materials can be determined after a study of raw materials turnover which indicates how fast the company converts the raw materials into work-in-process. This in turn indicates the efficiency of raw materials management and also production management. The higher the turnover ratio, the higher is the efficiency. Table V.1.7 projects the raw materials turnover of the companies selected for study

### **Raw Materials Turnover**

Table V.1.7 shows the raw materials turnover in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.1 7  
Turnover of Raw Materials in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	(In Times)									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996 Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>										
a) Jordan Petroleum Refinery Co. Ltd	24.38	19.71	15.60	16.39	18.23	17.66	17.10	20.05	22.86	19.41
b) Intermediate Petrochemical Industries Co. Ltd	2.65	1.54	6.18	5.08	2.07	1.21	1.26	2.08	1.24	1.48
c) Jordan Sulpho-Chemicals Co. Ltd	4.27	2.87	5.68	4.21	2.92	3.45	4.69	1.86	4.39	1.63
<b>Sector-wise Ratio</b>	19.97	14.62	14.45	14.55	14.67	14.31	14.55	16.66	19.62	16.43
<b>2) Construction Industrial Sector</b>										
a) The Jordan Cement Factories Co. Ltd	6.21	1.57	6.25	4.59	3.56	9.17	4.84	5.05	3.47	1.32
b) The Jordan Ceramic Industries Co. Ltd	1.19	1.00	0.99	0.94	1.01	1.26	1.10	1.83	1.40	1.81
c) Jordan Rockwool Industries Co. Ltd	4.19	3.22	4.24	3.20	1.19	1.70	1.93	0.78	0.83	0.76
<b>Sector-wise Ratio</b>	3.86	1.56	2.62	1.79	1.62	2.51	2.14	2.54	1.89	1.45
<b>3) Consumables &amp; Food Industrial Sector</b>										
a) The Industrial Commercial & Agri. Co. Ltd	1.85	2.55	2.31	2.56	2.52	2.83	3.47	1.94	2.72	2.21
b) Arab Investment and Int. Trade Co. Ltd	1.66	3.42	2.53	1.24	1.55	4.22	3.20	3.34	2.67	2.49
c) The National Industries Co. Ltd	2.58	15.10	4.63	9.51	6.27	15.37	5.08	3.86	3.81	8.71
<b>Sector-wise Ratio</b>	1.93	3.09	2.49	2.79	2.56	3.26	3.54	2.24	2.92	2.81
<b>4) Pharmaceuticals Industrial Sector</b>										
a) The Arab Pharmaceuticals Manuf. Co. Ltd	2.16	2.33	2.61	2.21	1.92	2.06	1.69	1.13	1.85	2.33
b) Dar Al-Dawa Development & Invst. Co. Ltd	1.90	1.75	1.75	1.75	1.75	1.75	1.70	1.70	1.70	1.75
c) The Arab Center for Pharm. & Chemicals Co. Ltd	0.91	0.76	0.55	0.55	0.63	0.98	1.48	2.01	0.46	0.54
<b>Sector-wise Ratio</b>	2.08	2.04	2.14	1.85	1.71	1.83	1.66	1.37	1.56	1.82
<b>5) Engineering Industrial Sector</b>										
a) Arab Aluminium Industry Co. Ltd	6.02	9.28	5.74	6.27	2.84	5.24	4.21	1.97	2.61	5.34
b) National Cables & Wire Manuf. Co. Ltd	2.32	3.05	4.29	3.24	2.54	2.76	2.24	3.75	5.20	4.81
c) The Jordan Pipes Manufacturing Co. Ltd	9.98	2.24	1.56	3.03	3.18	3.48	2.76	2.63	1.38	3.35
<b>Sector-wise Ratio</b>	4.98	3.87	3.08	3.82	2.78	3.59	2.88	2.71	2.98	4.60
<b>6) Textile Industrial Sector</b>										
a) The Jordan Worsted Mills Co. Ltd	2.40	1.24	0.80	1.06	1.95	1.32	1.25	0.98	0.89	1.51
b) Jordan Tanning Co. Ltd	2.47	2.19	3.50	5.71	6.67	10.43	9.37	10.48	12.97	10.30
c) The Woolen Industries Co. Ltd	1.15	1.78	2.40	2.74	1.73	2.08	2.64	1.65	2.45	3.58
<b>Sector-wise Ratio</b>	2.31	1.35	0.95	1.64	3.07	2.86	2.49	2.35	2.56	3.13
<b>7) Paper &amp; Packing Industrial Sector</b>										
a) Jordan Paper and Cardboard Factories Co. Ltd	1.94	1.19	1.85	2.26	3.43	1.55	1.20	1.01	3.01	3.17
b) The Arab Paper Converting & Trading Co. Ltd	1.61	1.15	2.13	1.61	1.53	0.99	1.04	2.35	0.59	1.80
c) Jordan Printing and Packing Co. Ltd	2.14	2.43	2.14	2.84	2.67	2.07	2.21	2.29	2.29	2.43
<b>Sector-wise Ratio</b>	1.92	1.25	1.91	2.18	2.89	1.44	1.24	1.60	1.35	2.31
<b>Overall Industrial Ratio</b>	10.90	8.25	6.94	7.22	6.92	7.49	7.28	7.12	7.54	8.07

Source: Appendices I & III

It can be seen from Table V.1.7 that the overall industrial average of raw materials turnover was 7.77 times during 1987 to 1996. The sector-wise average reveals that it was the highest in the case of the Chemical and Petroleum Industrial Sector with 15.98 times. The remaining sectors varied nearly between 2 to 4 times, were lower than the overall industrial average of 7.77 times during the period under study.

An indepth study of each sector and its group of companies indicates that the Chemical and Petroleum Industrial Sector had a very high turnover of raw materials which was the highest among all the industrial sectors under study. On an average, it was 15.98 times during the period under study. The average for the sector was very high as company no. 1a kept very high raw materials turnover throughout the period which had a direct effect on their sector during the period of 1987 to 1996. In the case of company no. 1a, the average raw materials turnover was as high as 19.14 times. The company consistently maintained a high turnover throughout the period. The sales of the company showed an increasing trend. The company maintained co-ordination between sales and production. Company no. 1b had low raw materials turnover as compared to company no. 1a. Its average was only 2.48 times as against 19.14 times of company no. 1a. The company had high turnover only in 1989 and 1990 when its raw materials turnover was 6.18 times and 5.08 times respectively. This was also the time when the sales of the company were at their highest as can be seen from Table V.2.2. The raw materials turnover of company no. 1b was low mainly because of extremely low sales and disproportionately high inventory. Company no. 1c had on an average 3.60 times of raw materials turnover. But in six out of ten years under study, its raw materials turnover was near or equal to 4.50 times. The average for the company was low because of extremely low raw materials turnover in four years. The sales of the company were very low during this period, indicating that low sales were responsible for the low raw materials turnover of the company.

The Construction Industrial Sector showed a low average raw materials turnover for the period under study. It had only 2.20 times as compared to the overall industrial average of 7.77 times. Company no. 2a had a better average of raw materials turnover (i.e., 4.60 times) than that of the Construction

Industrial Sector as a whole. Out of ten years under study, the company had a high raw materials turnover during 8 years. It was as high as 9.17 times in 1992 and as low as 1.32 times in 1996 causing the overall average to fall. As the company used efficient inventory control during the period under study, the raw materials turnover of the company was high inspite of comparatively lower sales as can be seen from Table V 2.2. Company no. 2b had an extremely low turnover of raw materials. On an average, it was 1.25 times. The highest that the company could achieve was 1.81 times in 1996. The performance of the company was lower than that of the Construction Industrial Sector as whole. This was so in spite of very high sales by the company indicating understocking of inventory by the company. For company no. 2c, the average raw materials turnover was 2.20 times for ten years. Initially it showed a better performance keeping the turnover between 3.20 times to 4.30 times. But its performance deteriorated from 1991 and gradually declined to 0.76 times in 1996. The company had high sales till 1989-90 which declined thereafter as can be seen from Table V 2.2. The company overstocked in these years and therefore as the sales declined in later years, its raw materials turnover also reduced.

The Consumables and Food Industrial Sector had an average raw materials turnover of 2.76 times during 1987 to 1996. But the companies selected for this sector showed sharp contrasts in their performance. Company no. 3a and company no. 3b were similar in their performance. They had an average raw materials turnover of 2.50 times and 2.63 times respectively. The fluctuations in the raw materials turnover of both the companies coincided with the fluctuations in the sales. Company no. 3c showed sharp fluctuations in its raw materials turnover. The raw materials turnover of the company was 2.58 times in 1987, but it rose to 15.10 times in 1988 when there was a fall in the sales of the company. The company must have used the existing raw materials and not procured further, causing the raw materials turnover to increase sharply. However, from 1993, even as the sales of the company increased, its raw materials turnover decreased, indicating its inability to co-ordinate the sales and the raw materials.

The Pharmaceuticals Industrial Sector had an extremely low turnover, which was 1.80 times on an average during the period under study. The sales

of the sector were on the rise during this period. But the sector also overstocked raw materials as more than 90 per cent of the main sources of raw materials were imported. This contributed to lower turnover of raw materials for the sector. In the case of company no. 4a, it showed a declining trend of raw materials turnover over the years from 1987 (2.16 times) to 1994 (1.13 times), thereafter, increasing to 2.33 times in 1996. As can be seen from Table V 2.2, the sales of the company also increased substantially during this period which means that the company increased its production to cope with the sales thereby increasing the raw materials turnover. Company no. 4b on an average had 1.75 times and remained constant throughout the period under study. It was equal to their sector average but extremely lower than the overall industrial average of 7.77 times for the period of ten years. Company no. 4c had a very low turnover of raw materials, the average being 0.89 time, which was lower than the other two companies and also of the Pharmaceutical Industrial Sector. The raw materials turnover was around 0.50 times for most of the period under study. The low turnover indicates overstocking of raw materials.

The Engineering Industrial Sector showed ups and downs in its raw materials turnover. But the overall turnover for the sector remained between 3 times and 5 times approximately. In the case of company no. 5a, the average raw materials turnover was 4.95 times during the period under study. The highest raw materials turnover attained by the company was 9.28 times in 1988. However, it had a good raw materials turnover for 7 out of 10 years under study. Its raw materials turnover moved between 4 to 6 times except in 1991, 1994 and 1995. This was primarily because of excess inventory of raw materials due to reduction in sales. The over-stocking of inventory (Tables V.1.1 and V.1.2) reduced the raw materials turnover of the company to 2.84, 1.97 and 2.61 times in 1991, 1994 and 1995 respectively. Company no. 5b had a marginally lower raw materials turnover than company no. 5a, it being 3.42 times during the period under study. The company maintained on an average constant raw materials turnover except in 1987 and 1993. There was proper synchronisation between production and sales. In the case of company no. 5c the average raw materials turnover was 3.36 times. It showed an exceptionally high raw materials turnover of 9.98 times in 1987 indicating inadequacy of raw materials inventory as compared to its sector average. Thereafter, in later

years the raw materials turnover declined and remained between 2.50 times and 3 times. The only time it was very low was in 1989 (1.56 times) and 1995 (1.38 times). But it was mainly due to overstocking of raw materials as can be seen from Table V.1.1, Table V.1.2 and Table V.1.5.

The Textile Industrial Sector had a low raw materials turnover, i.e., 2.27 times during the period under study. Company no. 6a had a raw materials turnover of 2.40 times only in 1987. During the remaining period, it had fluctuated between 0.80 times and 1.50 times. There was overstocking of raw materials, the average for the company being 1.34 times. Company no. 6b had on an average 7.41 times during 1987 to 1996, though, initially it was as low as 2.19 times in 1988. But thereafter with the increase in sales, the company speeded up its production and also kept proportionate inventory. This resulted in a very good raw materials turnover, the highest being 12.97 times in 1995. On the whole, the company managed its raw materials inventory well and there also appears to be a complete synchronisation between sales and production. Company no 6c had an average raw materials turnover of 2.22 times, slightly lower than that for the Textile Industrial Sector as a whole. The sales of the company showed gradual increase but the aggregate inventory of the company increased sharply implying over-stocking. In the earlier years the company invested more in raw materials inventory, disproportionately to sales. Hence the raw materials turnover was slightly lower. But from 1995, the company controlled the raw materials inventory thereby increasing the raw materials turnover to 3.58 times in 1996.

The Paper and Packing Industrial Sector also had a low raw materials turnover, the average being 1.81 times during the period under study. The raw materials turnover of the sector slightly improved till 1991 after which it declined again in 1993. Thereafter, it again showed a slight increase till 1996. Company no. 7a had a trend similar with its related sector. It had on an average a turnover of 2.06 times. The highest was in 1991 of 3.43 times. The sales of the company remained low throughout the period except in 1991 when the sales nearly doubled. However, towards 1995 and 1996 in spite of very low sales, the raw materials turnover of the company improved which could have been due to the use of better technology and co-ordinated manufacturing activities. Company no 7b had a very low raw materials turnover. The

company had an average raw materials turnover of 1.48 times. The company had an excessive level of raw materials stock resulting in lower raw materials turnover inspite of growth in sales. Company no. 7c had an average of 2.35 times during the period of ten years and the raw materials turnover was around the company average throughout the period under study.

It can be concluded that the average raw materials turnover for the industrial companies of Jordan was 7.77 times during the period under study. The overall industrial ratio had the highest raw materials turnover in 1987 at 10.90 times but it showed alternate increase / decrease from 1988. The high level of raw materials turnover of the Chemical and Petroleum Industrial Sector influenced the overall raw materials turnover and pushed it upwards. This indicates efficient management of inventory in this sector. Although the overall raw materials turnover was good, it could have been solely due to the Chemical and Petroleum Industrial Sector since the rest of the sectors had either moderate or very low raw materials turnover during the period under study.

**5.1.7.2 Adequacy of Work-in-Process**

Work-in-process comprises the goods in the process of production. In accounting terminology, it is the cost of raw materials transferred plus wages and other direct costs of manufacturing. While raw materials act as a buffer between procurement and manufacturing, work-in-process acts as a buffer within the manufacturing itself. Work-in-process is the least liquid of all the different types of inventory. Principally, the length of the manufacturing period or production process determines the value of this inventory at any point in time. This again depends on the technological development and managements' policies. The strategy to be adopted for this inventory is the effective planning and co-ordination of manufacturing activities.

**Percentage of Work-in-Process With Regard to the Aggregate Inventory**

Table V.1 8 shows the percentage of work-in-process in the aggregate inventory in industrial companies during the period under study, i.e , from 1987 to 1996.

Table V.1.8  
Percentage of Work-in-Process to Aggregate Inventory in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	( In Percentage)	
										1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	4.51	4.44	3.21	2.38	2.76	3.87	3.93	3.38	3.09	3.69	3.53
b) Intermediate Petrochemical Industries Co Ltd	1.41	1.80	1.56	1.43	1.23	1.78	1.71	1.66	2.42	1.42	1.64
c) Jordan Sulpho- Chemicals Co Ltd	1.24	1.18	1.81	1.27	0.94	2.05	1.75	1.63	1.24	0.66	1.38
<b>Sector-wise Ratio</b>	4.35	4.14	3.14	2.32	2.64	3.72	3.78	3.27	3.02	3.57	3.39
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	16.40	19.13	13.71	14.51	22.54	13.86	10.62	13.91	18.36	14.65	15.77
b) The Jordan Ceramic Industries Co Ltd	1.77	1.58	1.05	1.56	1.71	1.59	1.27	1.62	1.70	1.49	1.53
c) Jordan Rockwool Industries Co Ltd	8.20	11.80	6.46	5.68	4.41	3.22	2.35	2.43	1.64	3.15	4.93
<b>Sector-wise Ratio</b>	15.80	18.45	12.42	12.93	20.78	12.61	9.53	12.46	16.80	13.48	14.53
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agr. Co Ltd	0.52	1.15	1.03	0.57	0.46	0.49	0.49	0.58	0.82	1.00	0.71
b) Arab Investment and Int. Trade Co Ltd	4.69	2.94	1.91	0.90	0.50	1.33	1.16	10.53	14.68	8.28	4.69
c) The National Industries Co Ltd	1.03	2.51	0.94	1.05	0.84	1.49	1.07	1.28	0.47	1.06	1.17
<b>Sector-wise Ratio</b>	1.26	1.60	1.12	0.66	0.49	0.66	0.61	1.55	2.47	2.10	1.25
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co Ltd	10.00	9.26	8.20	10.38	13.05	9.88	9.44	9.18	10.64	11.34	10.14
b) Dar Al-Dawa Development & Int. Co Ltd	19.19	13.53	25.50	5.99	13.32	16.28	8.13	14.89	7.46	4.22	12.85
c) The Arab Center for Pharm. & Chemicals Co Ltd	38.26	22.84	12.26	5.13	3.30	2.30	3.14	7.41	8.82	2.24	10.57
<b>Sector-wise Ratio</b>	13.63	11.46	11.69	8.93	11.91	10.67	8.50	10.16	9.44	7.74	10.42
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	2.35	4.00	2.38	3.13	1.86	1.84	1.77	0.81	1.18	1.18	2.05
b) National Cables & Wire Manuf. Co Ltd	32.81	22.44	19.47	14.95	11.05	8.37	5.87	17.08	25.46	21.53	17.90
c) The Jordan Pipes Manufacturing Co Ltd	4.03	3.01	2.14	3.63	4.49	3.69	2.27	4.08	3.52	4.29	3.51
<b>Sector-wise Ratio</b>	14.94	8.68	7.99	7.86	5.82	5.41	3.70	8.18	12.34	12.75	8.77
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	28.95	13.62	8.24	11.21	9.54	9.69	21.37	12.17	12.75	8.99	13.65
b) Jordan Tanning Co Ltd	19.59	22.12	9.50	15.59	14.90	14.65	10.54	8.12	6.90	20.82	14.27
c) The Woolen Industries Co Ltd	0.88	1.64	0.16	1.01	0.50	1.20	0.12	0.44	0.68	0.51	0.71
<b>Sector-wise Ratio</b>	25.82	14.09	7.99	11.31	9.88	9.78	18.31	10.73	11.21	10.07	12.92
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	0.88	0.75	0.74	0.48	1.75	0.84	0.87	0.65	0.83	1.14	0.89
b) The Arab Paper Converting & Trading Co Ltd	7.88	5.74	6.12	3.60	5.51	3.50	1.70	0.95	0.81	2.76	3.86
c) Jordan Printing and Packing Co Ltd	3.54	2.61	3.46	5.00	5.00	4.30	3.75	3.32	3.93	3.79	3.87
<b>Sector-wise Ratio</b>	2.29	1.83	1.86	1.54	2.96	1.98	1.39	0.99	1.07	2.09	1.80
<b>Overall Industrial Ratio</b>	8.30	8.06	6.04	5.43	7.41	5.86	5.68	6.22	7.68	6.78	6.74

Source: Appendix I

As shown in Table V.1.8, the overall industrial average of work-in-process with respect to the aggregate inventory was 6.74 per cent during the period under study. The sector-wise analysis reveals that the Construction Industrial Sector had the highest percentage of work-in-process with regard to the aggregate inventory, i.e., 14.53 per cent followed by the Pharmaceuticals Industrial Sector, the Engineering Industrial Sector and the Textile Industrial Sector at 10.42 per cent, 8.77 per cent and 12.92 per cent respectively while it was the lowest in the case of the Consumables and Food Industrial Sector with only 1.25 per cent followed by the Paper and Packing Industrial Sector and the Chemical and Petroleum Industrial Sector at 1.80 per cent and 3.39 per cent respectively during the period under study.

An indepth analysis of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector had 3.39 per cent of aggregate inventory as work-in-process. Out of the three companies of this sector, only company no. 1a had work-in-process almost equal to its sector average. It had 3.53 per cent of work-in-process to aggregate inventory. Company no 1b and company no. 1c had the same average but it was lower than their sector average and throughout the period under study the percentage remained around their respective average.

The Construction Industrial Sector had the highest percentage of work-in-process with regard to the aggregate inventory, i.e., 14.53 per cent. Company no 2a had a high percentage of work-in-process to aggregate inventory, i.e., 15.77 per cent and this percentage varied between 10 to 23 per cent throughout the period under study. Company no 2b had only 1.53 per cent of work-in-process in the aggregate inventory and this did not vary much during 1987 to 1996. This could be due to a faster conversion of work-in-process to finished goods. Company no 2c had also a lower average than its

sector average as well as the overall industrial average. This was 4.93 per cent during the period under study.

The average percentage of work-in-process in the aggregate inventory for the Consumables and Food Industrial Sector was very low at 1.25 per cent. Company no 3b showed a substantial quantum of work-in-process in some years. The highest was in 1994 and 1995 at 10.53 and 14.68 per cent respectively. Company no 3a and company no. 3c, both had a low average percentage of work-in-process with regard to its aggregate inventory during the period under study.

The Pharmaceuticals Industrial Sector showed a high percentage of work-in-process in the aggregate inventory. The average for the sector was 10.42 per cent during 1987 to 1996. In the case of company no. 4a, we find an average of 10.14 per cent of work-in-process. This percentage remained fairly constant throughout the period. Company no. 4b had an average of 12.85 per cent of work-in-process in aggregate inventory. It had a very high percentage in the initial years from 1987 to 1989. The highest was 25.50 per cent in 1989. But from 1991 the percentage of work-in-process increased again till 1994. In spite of an increase in sales, the percentage of work-in-process remained high indicating slower production process. But towards the end, the percentage of work-in-process was 4.22 per cent in 1996. Concerning company no. 4c, the average for the company was 10.57 per cent during the period under study. It had an extremely high percentage of work-in-process from 1987 to 1989. For the rest of the period the company had a moderate percentage of work-in-process. In general, it can be concluded that this sector and its companies maintained a high percentage of work-in-process due to lack of speed and smooth flow of work as the company used old machinery in the initial years of the study.

The Engineering Industrial Sector showed a moderate percentage of work-in-process, which was on an average 8.77 per cent during 1987 to 1996. Company no. 5b had a substantially high level of work-in-process. On an average, it was 17.90 per cent, but the highest was in 1987 at 32.81 per cent. This could be due to the fact that the manufacturing process of the company was very lengthy. With regard to company no. 5a and company no. 5c, we find that both had very low average, i.e., 2.05 and 3.51 per cent respectively as compared to company 5b. This percentage remained fairly constant throughout the period under study for both the companies.

The Textile Industrial Sector had the second highest percentage of work-in-process to aggregate inventory. On an average, it was 12.92 per cent during 1987 to 1996. Out of the three companies in this sector, two companies confirm to this overall position. Company no. 6a had on an average, a higher percentage of work-in-process (i.e., 13.65 per cent) as compared to its sector average. There was wide fluctuation of holding work-in-process throughout the period. It varied between 8.24 per cent and 28.95 per cent due to failure of management in controlling the goods in process and reducing the manufacturing cycle of the products in this company. Company no. 6b also had a marginally higher percentage of work-in-process in the aggregate inventory as compared to company no. 6a. This was on an average 14.27 per cent which is higher than the sector average of 12.92 per cent as well as the overall industrial average of 6.74 per cent. The sales of the company increased sharply and the aggregate inventory also showed proportionate increase. The work-in-process turnover of the company was high. This coupled with the fact that the production process was lengthy, justifies the level of work-in-process. Company no. 6c had a very low percentage of work-in-process to aggregate inventory, which was on an average 0.71 per cent. For the entire period under study, it fluctuated between 0.50 and 1.64 per cent. The seasonal nature of the company was responsible for low work-in-process.

The Paper and Packing Industrial Sector had a low percentage of work-in-process to aggregate inventory. It was on an average 1.80 per cent for the period of ten years. Company no. 7a had on an average of only 0.89 per cent of work-in-process with respect to the aggregate inventory. But this could have been due to the low production as Table V.2.2 indicates low sales of the company throughout the period under study. Company no. 7b, on the other hand, had an average of 3.86 per cent of work-in-process. The sales of the company increased significantly. Although initially the company had a high percentage of work-in-process, this gradually decreased with an increase in sales indicating proper synchronisation between sales and production. Company no. 7c had an average of 3.87 per cent. This percentage remained around its average throughout the period under study with a slight increase in the year 1990 and 1991.

In general, the industrial companies of Jordan showed a low percentage of work-in-process in the aggregate inventory. On an average, it was 6.74 per cent. But this percentage varied from sector to sector and also from company to company within a sector depending upon the production process and also the style of production. For example, sometimes companies might produce only on order. In such a case work-in-process would be negligible. Also in case of very lengthy manufacturing process, there would be a substantial quantum of work-in-process. The analysis of the work-in-process in terms of months' cost of production may indicate the degree of accumulation of work-in-process which is shown in Table V.1.9.

#### **Work-in-Process in Terms of Months' Cost of Production**

Table V.1.9 shows the extent of work-in-process in terms of months' cost of production in the industrial companies during the period under study, i.e., 1987 to 1996.

Table V.1.9  
Work-in-Process in Terms of Months' Cost of Production in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Months)										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	0.14	0.13	0.11	0.09	0.09	0.14	0.15	0.12	0.10	0.14	0.12
b) Intermediate Petrochemical Industries Co. Ltd	0.07	0.17	0.04	0.05	0.09	0.22	0.23	0.14	0.32	0.16	0.15
c) Jordan Sulpho- Chemicals Co. Ltd	0.05	0.08	0.08	0.07	0.05	0.16	0.14	0.16	0.06	0.06	0.09
Sector-wise Ratio	0.13	0.13	0.11	0.09	0.09	0.15	0.15	0.12	0.10	0.14	0.12
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	1.10	1.57	1.08	0.95	1.48	0.77	0.55	0.82	1.26	1.02	1.06
b) The Jordan Ceramic Industries Co. Ltd	0.12	0.10	0.09	0.14	0.14	0.11	0.11	0.12	0.12	0.09	0.11
c) Jordan Rockwood Industries Co. Ltd	0.28	0.49	0.23	0.24	0.35	0.19	0.12	0.23	0.17	0.34	0.26
Sector-wise Ratio	1.05	1.48	0.96	0.86	1.38	0.71	0.52	0.75	1.16	0.94	0.98
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	0.03	0.05	0.06	0.03	0.03	0.02	0.02	0.04	0.05	0.06	0.04
b) Arab Investment and Int. Trade Co. Ltd	0.33	0.11	0.10	0.10	0.04	0.04	0.05	0.50	0.89	0.45	0.26
c) The National Industries Co. Ltd	0.06	0.10	0.04	0.04	0.03	0.04	0.05	0.05	0.03	0.05	0.05
Sector-wise Ratio	0.08	0.07	0.06	0.04	0.03	0.03	0.03	0.10	0.15	0.12	0.07
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	0.68	0.68	0.64	0.87	1.12	0.87	0.78	1.04	0.83	0.72	0.82
b) Dar Al-Dawa Development & Int. Co. Ltd	0.98	0.63	1.08	0.26	0.58	0.82	0.32	0.50	0.26	0.15	0.56
c) The Arab Center for Pharm. & Chemicals Co. Ltd	5.08	2.71	1.10	0.69	0.40	0.17	0.20	0.38	1.02	0.27	1.20
Sector-wise Ratio	0.90	0.78	0.81	0.66	0.89	0.78	0.54	0.72	0.56	0.43	0.71
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	0.05	0.08	0.07	0.09	0.11	0.04	0.06	0.06	0.06	0.03	0.07
b) National Cables & Wire Manuf. Co. Ltd	3.47	1.97	1.13	0.84	0.74	0.64	0.45	1.28	1.62	1.51	1.37
c) The Jordan Pipes Manufacturing Co. Ltd	0.22	0.40	0.22	0.44	0.49	0.30	0.22	0.41	0.51	0.39	0.36
Sector-wise Ratio	0.73	0.59	0.48	0.47	0.42	0.30	0.24	0.66	0.89	0.75	0.55
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	2.51	1.81	1.70	2.23	1.42	1.79	4.43	2.14	2.44	1.42	2.19
b) Jordan Tanning Co. Ltd	2.34	2.12	0.52	0.61	0.40	0.27	0.23	0.16	0.09	0.43	0.72
c) The Woollen Industries Co. Ltd	0.09	0.13	0.02	0.08	0.05	0.11	0.01	0.07	0.11	0.07	0.07
Sector-wise Ratio	2.37	1.75	1.38	1.46	0.85	0.82	1.79	0.93	0.81	0.83	1.30
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	0.05	0.06	0.04	0.02	0.07	0.05	0.07	0.06	0.05	0.07	0.05
b) The Arab Paper Converting & Trading Co. Ltd	0.66	0.73	0.44	0.29	0.47	0.42	0.18	0.07	0.16	0.19	0.36
c) Jordan Printing and Packing Co. Ltd	0.18	0.12	0.19	0.23	0.28	0.26	0.19	0.20	0.32	0.23	0.22
Sector-wise Ratio	0.13	0.14	0.10	0.08	0.14	0.14	0.11	0.08	0.10	0.13	0.12
<b>Overall Industrial Ratio</b>	0.32	0.34	0.28	0.26	0.34	0.27	0.26	0.30	0.35	0.32	0.31

Source: Appendices I & V

Table V.1 9 reveals that the overall industrial average of work-in-process in terms of months' cost of production was 0.31 month during the period under study. The sector-wise analysis reveals that the Textile Industrial Sector had the highest level of stock of work-in-process, i.e., 1.30 months' production followed by the Construction Industrial Sector, the Pharmaceuticals Industrial Sector and the Engineering Industrial Sector with 0.98, 0.71 and 0.55 month respectively while it was the lowest in the case of the Consumables and Food Industrial Sector with only 0.07 month followed by the Chemical and Petroleum Industrial Sector and the Paper and Packing Industrial Sector with 0.12 month each respectively

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector should ideally have little work-in-process. This sector conformed to it and had only 0.12 month's production in work-in-process. Company no. 1a had on an average 0.12 month's production in work-in-process. The highest for the company was at 0.15 month in 1993, during the rest of the years the work-in-process fluctuated between 0.09 and 0.14 month's production. Company no. 1b had an average of 0.15 month's production and it was lower than or equal to its average throughout the period under study except in the years 1992, 1993 and 1995 when the company had a higher work-in-process in terms of months' cost of production due to low turnover of work-in-process. Company no. 1c had an average of only 0.09 month's production. And it was lower than or equal to this throughout the years of the study except from 1992 to 1994 when the work-in-process in term of months' production was higher than the company average due to lack of control of goods in process

The Construction Industrial Sector normally should maintain some quantum of work-in-process. This sector conformed to it and had 0.98 month's production in work-in-process during the period under study. Company no. 2a on an average had 1.06 months' production. The highest figures for the

company was at 1.57, 1.48 and 1.26 months in 1988, 1991 and 1995 respectively, during the rest of the years the work-in-process fluctuated between 0.55 and 1.02 months' production. Company no 2b and company 2c, on the other hand, showed an average of 0.11 and 0.26 month's production in work-in-process respectively which is reasonable during the period under study.

The Consumables and Food Industrial Sector registered a very low level of work-in-process. On an average, it had only 0.07 month's production in work-in-process. Regarding company no. 3a and company 3c, the average period of work-in-process in terms of months' cost of production was 0.04 and 0.05 month respectively. For both the companies, their percentage remained fairly constant throughout the period. Company no. 3b on an average, had 0.26 month's production in work-in-process. In 1987, the company had a high stock of work-in-process in terms of months' production, i.e., 0.33 month. But this level gradually reduced till 1993 when it had only 0.05 month's production in work-in-process. However, thereafter it again increased to 0.89 month's production in 1995 and then came down to 0.45 month's production in 1996. In spite of an increase in sales, work-in-process in terms of months' production in the last three years of the study remained high indicating slower production process.

The Pharmaceuticals Industrial Sector had a substantial work-in-process in terms of months' cost of production. On an average, it had 0.71 month's production in work-in-process. However, this ratio was higher than its average in 6 out of 10 years. Company no. 4a, on an average, had 0.82 month's production in work-in-process. It was higher than the sector average of 0.71 month as well as the overall industrial average of 0.31 month. This could be due to many reasons like lack of speed in machinery, absence of smooth flow of work, and low work-in-process turnover. In the case of company no. 4b, the average work-in-process for the company was 0.56 month's production which

was lower than the average for the sector. It had low sales and higher work-in-process in the initial period from 1987 to 1989. But as the sales picked up from 1990, the position of the company improved. Company no. 4c, on an average, had 1.20 months' production in work-in-process for the period under study. In 1987 it had a very high work-in-process of 5.08 months' production because of lack of speed due to use of the old machinery. The level of work-in-process gradually reduced to as low as 0.27 month in 1996 due to the replacement of the old machinery of the company.

The Engineering Industrial Sector had an average of 0.55 month's production in work-in-process. The sector had high work-in-process throughout the period under study except in 1992 and 1993 when it had 0.30 and 0.24 month's production in work-in-process respectively. Company no. 5b showed a very high work-in-process throughout the period. On an average, it had 1.37 months' production in work-in-process. The highest was in 1987 at 3.47 months' production in work-in-process. But this level gradually reduced till 1993 when it had 0.45 month's production in work-in-process. However, thereafter it again increased to 1.51 months in 1996. On the whole, the company had a very high level of work-in-process in terms of months' cost of production due to lack of control of goods in process. Company no. 5a and 5c, had average of 0.07 and 0.36 month's production respectively and this ratio remained constant and around their respective sector average for both the companies throughout the period under study.

The Textile Industrial Sector also had the highest work-in-process in terms of months' cost of production among all the sectors under study. On an average, it had 1.30 months' production in work-in-process. Company no. 6a had a very high level of work-in-process, on an average, it was 2.19 months' production. The company had very low sales as can be seen from Table V.2.2. From Table V.1.10 it is clear that the company had also a very low work-in-process turnover. The company showed slackness in production and inventory

management resulting in higher inventory of work-in-process during the period under study. Both company no. 6b and company no. 6c, on an average, had 0.72 and 0.07 month's production in work-in-process respectively. But company no. 6b had a sharp rise in sales throughout the period whereas company no. 6c had low sales as seen from Table V.2.2. But both companies maintained reasonable levels of work-in-process, except in the initial years for company no. 6b when it had 2.34 and 2.12 months' production in 1987 and 1988 respectively due to very low turnover of work-in-process.

The Paper and Packing Industrial Sector had a low level of work-in-process in terms of months' cost of production. On an average, it had 0.12 month's production in work-in-process. Company no. 7a, on an average had only 0.05 month's production in work-in-process while company no. 7b had 0.36 month's production in work-in-process. Table V.2.2 indicates low sales for company no. 7a which means lower production and therefore lower work-in-process. Company no. 7b on the other hand had gradual increase in sales. So, it had higher work-in-process turnover, and at least 1/4 month's production in work-in-process. Company no. 7c on an average had 0.22 month's production and this ratio remained constant throughout the period under study.

In general, all the industrial companies taken together had 0.31 months' production in work-in-process which is quite low. Only the Textile Industrial Sector had a very high level of work-in-process despite low sales indicating possible inefficiency in production management. The Construction Industrial Sector, Pharmaceuticals Industrial Sector and Engineering Industrial Sector showed reasonable work-in-process in terms of months' cost of production. All the other sectors showed low levels of sales and also very low levels of work-in-process.

### **Work-in-Process Turnover**

Table V.1.10 shows the work-in-process turnover in the industrial companies during the period under study, i.e., 1987 to 1996.

Table V.1.10  
Turnover of Work-in-Process in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Times)									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>1) Chemical &amp; Petroleum Industrial Sector</b>										
a) Jordan Petroleum Refinery Co. Ltd	87 95	90 49	106 13	130 31	127 14	82 96	81 36	99 24	120 70	86 27
b) Intermediate Petrochemical Industries Co. Ltd	164 83	69 57	309 80	258 54	139 60	53 48	51 99	84 04	36 93	75 70
c) Jordan Sulpho- Chemicals Co. Ltd	246 60	150 33	145 53	177 78	228 53	75 39	87 17	74 21	184 62	207 65
Sector-wise Ratio	89 63	90 65	109 12	133 19	128 56	82 16	80 80	98 58	119 33	86 73
<b>2) Construction Industrial Sector</b>										
a) The Jordan Cement Factories Co. Ltd	10 95	7 63	11 16	12 69	8 12	15 69	21 75	14 65	9 51	11 73
b) The Jordan Ceramic Industries Co. Ltd	100 89	125 47	135 53	86 39	88 41	113 37	109 67	101 40	100 95	133 93
c) Jordan Rockwood Industries Co. Ltd	43 05	24 67	51 09	50 72	33 89	63 29	101 54	52 34	70 02	35 29
Sector-wise Ratio	11 44	8 11	12 57	14 00	8 68	16 96	23 26	15 92	10 30	12 81
<b>3) Consumables &amp; Food Industrial Sector</b>										
a) The Industrial Commercial & Agri. Co. Ltd	386 62	218 39	215 19	370 82	461 90	498 35	579 07	287 78	237 94	185 37
b) Arab Investment and Int. Trade Co. Ltd	36 32	111 48	123 10	120 95	279 71	271 76	240 82	23 81	13 47	26 38
c) The National Industries Co. Ltd	186 68	116 58	293 12	338 36	405 35	307 35	265 34	249 80	428 89	264 55
Sector-wise Ratio	154 47	168 35	204 73	335 28	435 97	415 19	462 80	122 62	79 94	97 70
<b>4) Pharmaceuticals Industrial Sector</b>										
a) The Arab Pharmaceuticals Manuf. Co. Ltd	17 75	17 71	18 68	13 73	10 71	13 85	15 47	11 55	14 43	16 56
b) Dar Al-Dawa Development & Invt. Co. Ltd	12 30	19 19	11 09	47 02	20 53	14 72	37 62	24 00	46 82	79 01
c) The Arab Center for Pharm. & Chemicals Co. Ltd	2 36	4 43	10 86	17 43	30 22	71 71	59 75	31 18	11 73	45 21
Sector-wise Ratio	13 29	15 47	14 86	18 07	13 46	15 44	22 28	16 64	21 47	28 18
<b>5) Engineering Industrial Sector</b>										
a) Arab Aluminum Industry Co. Ltd	223 73	143 61	169 84	131 62	111 78	275 78	203 73	187 29	193 76	364 48
b) National Cables & Wire Manuf. Co. Ltd	3 45	6 09	10 61	14 37	16 16	18 81	26 60	9 34	7 41	7 93
c) The Jordan Pipes Manufacturing Co. Ltd	53 70	29 81	54 43	27 44	24 51	39 88	54 33	29 38	23 47	30 81
Sector-wise Ratio	16 35	20 43	25 06	25 39	28 40	39 62	50 62	18 06	13 43	16 08
<b>6) Textile Industrial Sector</b>										
a) The Jordan Worsted Mills Co. Ltd	4 78	6 64	7 04	5 38	8 44	6 69	2 71	5 61	4 92	8 46
b) Jordan Tanning Co. Ltd	5 13	5 67	23 07	19 81	29 84	44 50	53 19	77 29	136 62	28 00
c) The Woolen Industries Co. Ltd	138 86	92 37	741 55	143 11	231 81	107 49	885 82	183 46	106 54	175 39
Sector-wise Ratio	5 06	6 85	8 67	8 20	14 07	14 60	6 71	12 89	14 76	14 46
<b>7) Paper &amp; Packing Industrial Sector</b>										
a) Jordan Paper and Cardboard Factories Co. Ltd	253 10	200 74	302 42	504 44	172 24	218 70	178 84	218 03	257 99	184 31
b) The Arab Paper Converting & Trading Co. Ltd	18 30	16 35	26 97	40 82	25 74	28 30	65 59	175 83	75 01	64 85
c) Jordan Printing and Packing Co. Ltd	67 40	97 23	62 23	51 76	42 83	46 60	61 81	60 28	36 98	52 99
Sector-wise Ratio	92 86	82 81	114 30	147 00	87 34	83 50	109 42	155 53	120 97	93 61
Overall Industrial Ratio	37 10	34 80	42 77	45 83	34 79	44 46	45 73	40 23	34 37	36 96

Source: Appendices I & II

It is clear from Table V.1.10 that the overall industrial average of work-in-process turnover was 39.70 times. The sector-wise analysis reveals that it was the highest in the case of the Consumables and Food Industrial Sector with 247.70 times followed by the Chemical and Petroleum Industrial Sector and the Paper and Packing Industrial Sector with 101.88 and 108.73 times respectively while it was lowest in the case of the Textile Industrial Sector at 10.63 times followed by the Construction Industrial Sector, the Pharmaceuticals Industrial Sector and the Engineering Industrial Sector at 13.40, 17.92 and 25.34 times respectively during the period under study

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had a high work-in-process turnover which was 101.88 times on an average. Company no. 1a, on an average had a high work-in-process turnover of 101.26 times. The sales of the company increased gradually, but the conversion of work-in-process to finished goods was quite fast which could have resulted in higher finished goods inventory. Company no. 1b, on an average, had 124.45 times. With the exception of 1988, this ratio was very high in the initial years from 1987 to 1991 due to high costs of production and low levels of work-in-process. Company no. 1c had an average of 157.78 times which was considered to be higher than the other two companies as well as the average of its sector. For most of this period it remained higher than its sector average. As seen earlier, the company had low sales throughout the period under study. This indicates unnecessary production of goods without a corresponding demand.

The Construction Industrial Sector had a low work-in-process turnover of 13.40 times on an average. Company no. 2a had a low work-in-process from 1987 to 1991 and also a low sales position. But as the sales of the company improved from 1992 till 1996, the company seemed to speed up its production process thereby improving on its work-in-process turnover. From 1992 the company continuously improved its performance till 1994. Then in the last two years the company had the same position as in the initial years of the period under study. Company no. 2b had an average of 109.60 times. This ratio was

close to its sector average of 8 out of the 10 years under study. The company had a continuous increase throughout the period under study and a low percentage of work-in-process with regard to the aggregate inventory. It seems that the company produced goods according to demand. Company no. 2c, on an average had 52.59 times. The company in general showed a fluctuation during the period under study. It varied between 24.67 times to 101.54 times. This ratio increased or decreased with rise or fall in sales which indicates that the company produced goods according to demand.

The Consumables and Food Industrial Sector had the highest work-in-process turnover among all the sectors under study. The average for the sector was 247.70 times. The work-in-process turnover was very high due to high costs of production and low levels of work-in-process. Company no. 3a on an average had the highest turnover of work-in-process compared to all the industrial companies selected for the study, i.e., 344.14 times for the period of ten years. And it was very high throughout the period under study. As mentioned earlier, high cost of production and low quantum of work-in-process caused the high work-in-process turnover. Company no. 3b had an extremely fluctuating position. The work-in-process turnover varied in a wide range between 13.47 and 279.71 times. It was the highest in 1991. But in spite of a similar level of work-in-process throughout the period under study, these fluctuations point to the possibility also of fluctuating costs of production. Company no. 3c had an average of 285.60 times for the period of ten years. This ratio of this company under this sector also had a very high turnover of work-in-process during 1987 to 1996 which was due to high fixed costs and other costs of production. The overall position of the sector was that of a radically high work-in-process turnover.

The Pharmaceuticals Industrial Sector showed a low work-in-process turnover throughout the period under study. On an average, it was 17.92 times. The companies selected for study showed fluctuations in their work-in-process turnover over the period under study. Company no. 4a, on an average, had a low work-in-process turnover of 15.04 times for the period of ten years. For

most of this period it remained around 14 times. As seen earlier, the company had low sales and a substantial amount of work-in-process. The company continued to produce goods despite low demand. The main reason was to avoid high set up costs. Company no 4b had a low work-in-process turnover from 1987 to 1989, and also a low sales position. But as the sales of the company improved from 1990, the company seemed to speed up its production process thereby improving on its work-in-process turnover. From 1993 the company continuously improved its performance till it reached 79.01 times in 1996. The company had a low work-in-process turnover in 1991 and 1992, but that was mainly due to Gulf Crisis and not because of production costs. Company no. 4c showed an extremely low work-in-process turnover at 2.36 times in 1987, but with increase in sales the company raised its production and its work-in-process turnover increased to 71.71 times in 1992. However, the work-in-process turnover showed a declining trend from 1993 till 1995 and it rose again to 45.21 times in 1996.

The Engineering Industrial Sector had a low work-in-process turnover for most of the years under study. The only exceptions were in 1992 and 1993 when the work-in-process turnover was 39.62 and 50.62 times respectively. The average for the sector was 25.34 times. Table V.1.9 indicates that the sector maintained a low level of work-in-process. Therefore, this low work-in-process turnover can be attributed to a lengthy manufacturing process. Company no. 5a had an average of 200.56 times, which was extremely high as compared to its sector average as well as the overall industrial average. The company had high sales and low quantum of work-in-process over the period under study. This indicates that the company produced goods according to demand. Company no. 5b showed an increase in work-in-process turnover from 3.45 times in 1987 to 26.60 times in 1993 after which it decreased till 1996. The company initially had a very high level of work-in-process in terms of months' production as seen from Table V 1.9. With increased sales the work-in-process turnover improved as the company catered to the demand. Company no. 5c on an average, had 36.78 times. The sales of the company

increased or decreased with the work-in-process turnover throughout the period under study, but the conversion of work-in-process to finished goods was quite fast which resulted in higher finished goods inventory.

The position of the Textile Industrial Sector was poor. It showed an average work-in-process turnover of only 10.63 times. The highest for the sector was 14.65 times in 1995. In the case of company no. 6a, on an average, it was the lowest at 6.07 times as compared to other companies in this sector. The company had a low work-in-process turnover indicating very slow manufacturing activities. Company no. 6b showed great fluctuations in its work-in-process turnover. The company had a low work-in-process turnover in the initial years, gradually rising to as high as 136.62 times in 1995. But a slump in sales in 1996 caused slower production and lower work-in-process turnover. Company no. 6c, on an average, had the highest work-in-process turnover of 280.64 times. The sales of the company showed gradual increase, but its work-in-process turnover remained around 100 to 200 times for most of the period except in 1989 and 1993 when it was as high as 741.55 times and 885.82 times respectively which was mainly due to the Gulf Crisis.

The Paper and Packing Industrial Sector had a high work-in-process turnover throughout the period. The average for the sector was 108.73 times. In the case of company no. 7a, the average for the company was as high as 249.08 times. It showed an increase in its work-in-process turnover from 253.10 times in 1987 to 504.44 times in 1990 after which there were regular ups and downs in the work-in-process turnover. As the company had high fixed costs and other costs of production, it had a high work-in-process turnover. Company no. 7b had an average, of 53.78 times. Initially the company had low work-in-process turnover but from 1993 the position of the company improved greatly. With this improvement the work-in-process turnover of the company also increased and it reached 175.83 times in 1994. Thereafter, it continued to decrease till it reached 64.85 times in 1996 indicating that either the company was producing beyond its capacity thereby incurring heavy costs or the efficiency of the company reduced with increase in sales. Company no. 7c had

an average of 58.01 times for the period of ten years. The company in general showed fluctuation. This coupled with the status of slow and low growth in overall sales indicates unnecessary production of goods without a corresponding demand.

The industrial companies of Jordan had a substantial work-in-process turnover of 39.70 times on an average of work-in-process over the period under study. But out of the seven sectors selected for study, the Construction Industrial Sector, the Pharmaceuticals Industrial Sector, the Engineering Industrial Sector and the Textile Industrial Sector had an extremely low turnover of work-in-process of all. This was despite the fact that some companies from these sectors showed good performance.

**5.1.7.3 Adequacy of Finished goods**

Finished goods represent the goods-in-stock ready for sale. It rarely happens (except in job order industries or industries that produce goods on orders), that the goods produced are shipped or sold as soon as they come out of the process of manufacture. In general, the quantum of finished goods depends on the nature of demand for the goods under consideration. The unevenness or seasonality of the demand for goods makes the firm carry higher levels of stocks. The inventory of finished goods varies inversely with sales. If sales fall below expectations and production cannot be cut back immediately, unsold goods pile up. Moreover, any over-stocking of finished goods speaks of inefficient sales organization.

**Percentage of Finished Goods to Aggregate Inventory**

Table V.1.11 shows the percentage of finished goods to aggregate inventory in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.1.11  
Percentage of Finished Goods to Aggregate Inventory in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	( In Percentage)	
										1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	59.73	55.04	50.81	52.24	50.80	50.87	50.60	50.47	47.46	48.19	51.62
b) Intermediate Petrochemical Industries Co. Ltd	12.66	20.71	12.64	19.06	16.32	23.67	32.43	31.61	32.12	26.97	22.82
c) Jordan Sulpho- Chemicals Co. Ltd	29.86	35.28	33.70	24.17	17.83	38.98	33.33	30.00	23.65	12.49	27.93
<b>Sector-wise Ratio</b>	57.63	52.08	49.46	50.51	48.37	49.23	49.36	49.22	46.39	46.82	49.91
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	10.94	11.29	12.33	12.45	14.68	7.47	7.08	6.32	5.82	5.71	9.41
b) The Jordan Ceramic Industries Co. Ltd	29.30	11.34	10.75	25.89	5.74	18.19	26.23	43.51	24.65	25.40	22.10
c) Jordan Rockwood Industries Co. Ltd	36.47	29.50	31.18	22.70	24.96	18.25	13.33	9.74	8.55	12.60	20.73
<b>Sector-wise Ratio</b>	11.80	11.52	12.63	14.11	14.24	8.58	9.15	10.09	7.26	7.27	10.67
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	9.54	6.36	8.09	22.41	9.62	14.16	9.05	15.67	18.20	14.02	12.71
b) Arab Investment and Int. Trade Co. Ltd	14.43	11.06	9.39	13.26	20.23	14.48	13.74	17.87	15.05	15.39	14.49
c) The National Industries Co. Ltd	19.50	47.75	17.89	20.02	15.92	28.23	20.25	8.52	41.03	41.47	28.06
<b>Sector-wise Ratio</b>	12.10	11.77	9.28	21.35	11.14	15.02	10.63	15.17	23.20	18.48	14.81
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	19.80	18.50	20.25	22.34	19.58	25.88	26.76	27.64	14.63	10.94	20.63
b) Dar Al-Dawa Development & Invst. Co. Ltd	14.28	11.33	10.53	12.68	14.18	20.18	31.42	22.15	20.60	22.60	17.99
c) The Arab Center for Pharm. & Chemicals Co. Ltd	10.90	9.58	2.92	5.28	15.77	10.81	11.03	6.07	7.38	15.98	9.57
<b>Sector-wise Ratio</b>	18.20	16.16	16.61	18.48	18.09	22.96	26.36	24.40	15.27	15.27	19.18
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	21.13	36.01	21.40	28.16	16.74	16.54	15.93	15.32	10.64	10.64	19.25
b) National Cables & Wire Manuf. Co. Ltd	9.08	29.77	26.41	16.64	17.65	31.81	25.14	30.99	28.92	32.72	24.91
c) The Jordan Pipes Manufacturing Co. Ltd	36.27	27.11	19.24	32.64	40.44	33.19	43.21	36.69	31.66	38.60	33.90
<b>Sector-wise Ratio</b>	22.26	29.23	22.05	25.73	24.98	29.69	29.75	26.32	25.09	30.59	26.57
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	20.73	26.12	27.55	35.34	51.98	44.48	29.68	34.56	22.09	45.09	33.76
b) Jordan Tanning Co. Ltd	47.04	27.42	39.66	18.79	3.65	8.28	9.19	15.11	4.53	10.28	18.40
c) The Woolen Industries Co. Ltd	16.86	26.58	28.34	19.04	20.44	20.99	34.77	47.93	60.39	57.91	33.33
<b>Sector-wise Ratio</b>	25.52	26.28	28.24	32.75	42.74	38.43	27.63	33.24	22.82	41.15	31.88
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	5.17	3.09	2.29	5.32	4.88	3.93	4.52	5.23	6.69	9.25	5.04
b) The Arab Paper Converting & Trading Co. Ltd	20.54	21.27	24.40	11.89	10.10	9.72	9.06	6.84	6.78	6.58	12.72
c) Jordan Printing and Packing Co. Ltd	17.70	13.05	17.31	25.00	25.00	21.48	18.73	16.59	19.64	18.96	19.35
<b>Sector-wise Ratio</b>	9.22	7.35	7.37	8.71	9.15	7.83	7.21	6.79	7.78	8.74	8.02
<b>Overall Industrial Ratio</b>	40.71	36.63	34.56	36.84	33.03	36.32	35.48	34.41	29.89	33.07	35.09

Source: Appendix I

It can be observed from Table V.1.11 that the overall industrial average of finished goods to the aggregate inventory was 35.09 per cent during the period under study. The overall industrial ratio declined with a slight fluctuation from 40.71 per cent in 1987 to 33.07 per cent in 1996. The sector-wise analysis indicates that the percentage of finished goods with respect to the aggregate inventory was very high in the case of the Chemicals and Petroleum Industrial Sector, i.e., 49.91 per cent while it was very low in the case of the Paper and Packing Industrial Sector, i.e., 8.02 per cent. While in the rest of the sectors, the percentage of finished goods with regard to the aggregate inventory was comparatively lower than the overall industrial average of 35.09 per cent during the period under study.

An indepth analysis of each sector and its related companies reveals that the percentage of finished goods with regard to the aggregate inventory in the Chemical and Petroleum Industrial Sector was nearly 50 per cent throughout the period except in 1987 when it was slightly higher at 57.63 per cent. The overall percentage of finished goods to aggregate inventory remained fairly constant over the period under study. Company no. 1a reflected a similar position. The average percentage of finished goods with regard to the aggregate inventory for the company was 51.62 per cent. Company no. 1b showed an increasing trend from 12.66 in 1987 to 32.43 per cent in 1993 after which it declined to 26.97 per cent in 1996. The average for the company was 22.82 per cent which was much lower than its sector average. The low percentage could be due to low sales of the company as seen from Table V.2.2. Company no. 1c had also a low percentage of finished goods with respect to the aggregate inventory, which was 27.93 per cent on an average. It moved around 30 per cent for a major part of the period under study. The only time when it was very low was in 1991 (17.83 per cent) and 1996 (12.49 per cent).

The Construction Industrial Sector had on an average 10.67 per cent of finished goods in the aggregate inventory. The sector showed ups and downs in this percentage over the period. This percentage appears fair enough since a major part of the inventory in the Construction Industrial Sector generally consisted of spare parts and stores, while finished goods took the back seat. Company no. 2a initially showed increase or decrease in this percentage till 1991, but from 1992 onwards, the percentage of finished goods remained around 6 per cent. The sales of the company showed a steady increase over

the period. Company no. 2b also showed a similar pattern. But it showed a decrease in percentage of finished goods till 1989 (10.75 per cent). Thereafter, the percentage increased to 25.89 per cent in 1990 but fell sharply to 5.74 per cent in 1991. This pattern was repeated over the years. After seeing Table V.1.11 and the steadily increasing pattern of sales from Table V.2.2, we can reasonably conclude that there was actually a fluctuation in the stock level of finished goods and that the fluctuations in the percentage of finished goods was not due to change in the percentage of other components of inventory. If we refer to Tables V.1.11, V.1.12 and V.2.2 we can see that company no. 2c had a high level of finished goods when there was a high level of sales. The pattern reversed at the time of low sales. The percentage of finished goods with respect to the aggregate inventory was 36.47 per cent in 1987 and remained around that point till 1989 after which it sharply reduced to 22.70 per cent in 1990. This percentage continued to decline till it reached 8.55 per cent in 1995. The average percentage of finished goods in the aggregate inventory was 20.73 per cent.

The Consumables and Food Industrial Sector had on an average 14.81 per cent of finished goods in the aggregate inventory. The average position for this sector showed a fluctuating trend over the years. Company no. 3a had an average of 12.71 per cent of finished good. It had a low percentage of finished goods with regard to the aggregate inventory in five out of ten years, which was around 9 per cent. In the remaining period, it showed a higher percentage of around 15 to 22 per cent. Company no. 3b had an average of 14.49 per cent finished goods in the aggregate inventory. This percentage remained around the average for most of the years except in 1988 and 1989 when the percentage fell to 11.06 and 9.39 per cent respectively and had a higher percentage in 1991 at 20.23 per cent. Company no. 3c had the highest percentage of finished goods in the aggregate inventory among the three companies. Its average was 26.06 per cent which was higher than the average for the sector. The position of the company varied every year. It was as high as 47.75 per cent in 1988 and as low as 8.52 per cent in 1994, thereby showing no particular trend in the adequacy of finished goods inventory.

The Pharmaceuticals Industrial Sector had a low percentage of finished goods with regard to the aggregate inventory. The average for the sector was 19.18 per cent and from 1987 to 1991 the sector maintained approximately the same percentage. During 1992 to 1994, this percentage rose by nearly 3 to 5

per cent, only to decline and remain at 15.27 per cent from 1995. Company no. 4a kept its finished goods inventory at 20.63 per cent for most of the period, i.e., from 1987 to 1991. From 1992 to 1994, this percentage suddenly rose by nearly 6 per cent, but started declining thereafter till it reached 10.94 per cent in 1996. Whereas, company no. 4b had an average of 17.99 per cent. In the initial years from 1987 to 1991, this percentage was even lower (10 to 14 per cent) but from 1992 onwards it remained at nearly 20 per cent for all the remaining years except in 1993 when it rose sharply to 31.42 per cent. Company no. 4c had a very low percentage of 9.57 on an average which was even lower than the average for the sector. In 1989 the company had only 2.92 per cent of finished goods in the aggregate inventory. Due to increase in sales, the percentage of finished goods in the aggregate inventory was quite low throughout the period.

The Engineering Industrial Sector had on an average 26.57 per cent of finished goods with respect to the aggregate inventory. The average remained between 25 and 31 for most of the period except in 1987 and 1989 when it fell up to 22 per cent. In the case of company no. 5a, on an average, it was 19.25 per cent. The only time when this percentage was very high was in 1988 (36.01 per cent) and 1990 (28.16 per cent). Regarding company no. 5b, the average for the company was 24.91 per cent. It had only 9.08 per cent of finished goods in the aggregate inventory in 1987, but this percentage sharply rose to 29.77 per cent in the subsequent year and remained around that level for most of the remaining period. Company no. 5c had a very high percentage of finished goods in its aggregate inventory. On an average, it was 33.90 per cent. The percentage fluctuated between 20 and 40 per cent and showed alternate ups and downs throughout the period.

The Textile Industrial Sector showed a very high percentage of finished goods which was 31.88 per cent on an average during the period under study. The company showed an increasing trend from 25.52 per cent in 1987 to 42.74 per cent in 1991. Thereafter, it declined and reached 22.82 per cent in 1995. This percentage again rose to 41.15 per cent in 1996. Company no. 6a followed exactly the same pattern as that of the sector. Its percentage of finished goods rose from 20.73 per cent in 1987 to 51.98 per cent in 1991, thereafter it dropped to 22.09 per cent in 1995. In 1996, this percentage was as high as 45.09 per cent indicating overstocking of goods. Company no. 6b showed a high percentage of finished goods with regard to the aggregate

inventory in the first three years from 1987 to 1989. But as the sales of the company picked up, this percentage was reduced. However, the percentage of finished goods was very low in 1991 (3.65 per cent) and 1995 (4.53 per cent). The average percentage of finished goods for the company was 18.40 per cent which appears reasonable. Regarding company no. 6c, the average for the company was 33.33 per cent. It had a very high percentage of finished goods to aggregate inventory. Though it was only 16.86 per cent in 1987, it rose over the years to reach as high as 57.91 per cent in 1996. This could be due to a low level of sales.

The Paper and Packing Industrial Sector had an extremely low percentage of finished goods with regard to the aggregate inventory. It was only 8.02 per cent on an average. In the case of company no. 7a, the average for the company was 5.04 per cent. It had a very low percentage in the finished goods to aggregate inventory ranging from 3 to 7 per cent throughout the period except in 1996 when it crossed 9 per cent. Company no. 7b had a substantial percentage of finished goods to aggregate inventory, nearly 20 to 24 per cent from 1987 to 1989. The percentage started decreasing from 11.89 per cent in 1990 till it reached 6.58 per cent in 1996. With regard to company no. 7c, on an average, it had 19.35 per cent for the period of ten years. The company showed ups and downs in this percentage over the period under study.

The overall industrial average was 35.09 per cent. The percentage was high at 40.71 per cent in 1987. But in 1988 this percentage fell to 36.63 per cent and was quite stable with slight ups and downs till 1996. However, the adequacy of finished goods cannot be determined by merely studying the percentages of finished goods in the aggregate inventory over the years. This study can only establish a general trend. The adequacy of finished goods can roughly be determined by studying the level of finished goods in terms of months' cost of sales and also by studying the finished goods turnover.

#### **Finished Goods in Terms of Months' Cost of Sales**

Table V.1.12 depicts the position of finished goods in terms of months' cost of sales in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.1.12  
Finished Goods Inventory in Terms of Months' Cost of Sales in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
<i>(In Months)</i>											
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	1.66	1.49	1.55	1.73	1.40	1.61	1.61	1.52	1.23	1.38	1.52
b) Intermediate Petrochemical Industries Co Ltd	0.66	2.26	0.29	0.63	1.16	3.54	4.88	2.34	4.29	2.74	2.28
c) Jordan Sulpho- Chemicals Co Ltd	1.28	2.72	1.46	1.29	0.96	3.60	2.41	3.20	1.12	1.03	1.91
Sector-wise Ratio	1.64	1.52	1.51	1.69	1.39	1.65	1.66	1.55	1.25	1.39	1.52
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.74	0.96	0.94	0.83	1.05	0.38	0.37	0.38	0.42	0.39	0.65
b) The Jordan Ceramic Industries Co Ltd	1.68	0.63	0.95	2.67	0.38	1.30	2.49	3.60	1.50	1.54	1.67
c) Jordan Rockwood Industries Co Ltd	1.08	1.33	1.16	0.95	2.01	1.01	0.86	0.93	0.89	1.43	1.15
Sector-wise Ratio	0.78	0.95	0.95	0.97	1.02	0.45	0.50	0.63	0.52	0.50	0.73
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co Ltd	0.56	0.30	0.44	1.38	0.54	0.70	0.37	1.18	1.11	0.88	0.74
b) Arab Investment and Int. Trade Co Ltd	0.98	0.40	0.47	1.54	1.67	0.48	0.58	0.83	0.93	0.88	0.88
c) The National Industries Co Ltd	0.98	1.58	0.72	0.69	0.55	0.76	0.87	0.31	3.05	1.59	1.11
Sector-wise Ratio	0.70	0.50	0.48	1.25	0.62	0.67	0.44	0.98	1.48	1.04	0.82
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co Ltd	1.32	1.35	1.68	1.93	1.69	2.30	2.71	4.53	0.95	0.68	1.91
b) Dar Al-Dawa Development & Invt. Co Ltd	0.73	0.52	0.45	0.55	0.62	1.06	1.29	0.73	0.71	0.82	0.75
c) The Arab Center for Pharm. & Chemicals Co Ltd	1.48	1.16	0.26	0.73	2.12	0.76	0.36	0.31	0.87	2.06	1.01
Sector-wise Ratio	1.20	1.09	1.19	1.41	1.37	1.70	1.70	1.98	0.83	0.83	1.33
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	0.48	0.78	0.64	0.83	0.98	0.41	0.54	1.28	0.53	0.29	0.68
b) National Cables & Wire Manuf. Co Ltd	0.92	3.15	1.61	0.90	1.19	2.71	1.93	2.49	1.82	2.25	1.90
c) The Jordan Pipes Manufacturing Co Ltd	1.85	4.40	1.93	4.51	4.51	2.60	4.78	3.14	4.97	3.32	3.60
Sector-wise Ratio	1.05	2.22	1.33	1.58	1.84	1.73	1.96	2.18	1.79	1.74	1.74
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	1.75	4.11	7.09	7.31	9.52	8.12	4.86	6.80	3.83	10.54	6.39
b) Jordan Tanning Co Ltd	5.95	2.31	2.32	0.71	0.10	0.15	0.20	0.29	0.06	0.21	1.23
c) The Woolen Industries Co Ltd	1.28	2.30	3.17	1.45	2.25	2.04	4.58	8.84	12.38	6.81	4.51
Sector-wise Ratio	2.28	3.67	5.87	4.25	3.99	3.23	2.48	3.06	1.61	3.93	3.44
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	0.27	0.24	0.12	0.27	0.19	0.26	0.35	0.45	0.38	0.53	0.31
b) The Arab Paper Converting & Trading Co Ltd	1.61	2.92	1.73	0.86	0.83	1.13	0.78	0.49	1.43	0.44	1.22
c) Jordan Printing and Packing Co Ltd	0.89	0.62	0.96	1.15	1.39	1.29	0.98	1.00	1.61	1.14	1.10
Sector-wise Ratio	0.51	0.59	0.41	0.46	0.42	0.56	0.55	0.53	0.74	0.54	0.53
<b>Overall Industrial Ratio</b>	1.49	1.48	1.46	1.61	1.38	1.49	1.47	1.49	1.18	1.32	1.44

Source: Appendices I & V

It can be observed from Table V.1.12 that the overall industrial average of finished goods in terms of months' cost of sales was 1.44 months during the period under study. The sector-wise analysis indicates that finished goods in terms of months' cost of sales was very high in the case of the Textile Industrial Sector with 3.44 months while it was lowest in the case of the Paper and Packing Industrial Sector with only 0.53 month followed by the Construction Industrial Sector and the Consumables and Food Industrial Sector with 0.73 and 0.82 month respectively. The rest of the sectors showed an average approximately around the overall industrial average of 1.44 months' cost of sales during the period under study.

An indepth study of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector had a high level of finished goods inventory which was on an average 1.52 months' cost of sales. There was no specific trend in the finished goods inventory in the sector. It remained between 1.5 months and 1.7 months for most of the period except in 1991 and 1995 when this level was reduced to 1.39 and 1.25 respectively only to rise again to 1.39 in 1996. In the case of company no. 1a, the average for the company was 1.52 months' cost of sales. It showed an identical position to that of the sector as a whole. Company no. 1b had the highest level of finished goods inventory among the three companies selected for study under this sector. On an average, it was 2.28 months' cost of sales in finished goods inventory. Table V.2.2 shows that the increase and decrease in the sales of the company. The sales increased in 1989 only to decline till 1993 after which the same pattern was repeated. As the sales decreased, the finished goods inventory kept piling up and it decreased slightly only when the sales increased a little. Company no 1c had a high level of inventory at 2.72 months' cost of sales in 1988. From 1989 to 1991 this level dropped and remained between 1 to 1.5 months' cost of sales. Again it rose for three years from 1992 and started declining from 1995. This indicate that during 1988 and from 1992 to 1994, the

company could not sell all their products and also their inability to co-ordinate production with sales.

The Construction Industrial Sector also showed a low level of finished goods inventory. The average for the sector was 0.73 month's cost of sales. For most of the years (i.e., in the first five years) under study, the finished goods inventory remained higher than this while it was lower than the sector average in the rest of the years. Company no. 2a showed fluctuating pattern of finished goods inventory. On an average, it had 0.65 month's cost of sales in finished goods. The highest was in 1991 when it had 1.05 months' cost of sales in inventory. This was possibly due to low sales as can be seen from Table V.2.2. The lowest for the company was at 0.37 in 1993 when the sales were the highest. This indicates that the company had a co-ordination between sales and production department during the period under study. In the case of company no. 2b, the finished goods inventory level showed a sharp increase or decrease without any observable trend indicating inefficiency in sales / production management. Though, the average for the company was 1.67 months' cost of sales, the company had finished goods inventory as low as 0.38 month's cost of sales in 1991, while the highest was at 3.60 months' cost of sales in 1994. Company no. 2c was another company whose finished goods level varied without co-ordination to sales. The average for the company was 1.15 months' cost of sales. The company showed a decline in its level of finished goods inventory from 1992 onwards but this level rose sharply to 1.43 in 1996 from 0.89 in 1995.

The Consumables and Food Industrial Sector showed a reasonable level of finished goods inventory which was 0.82 month's cost of sales on an average. During 6 out of 10 years, the sector maintained between 0.45 to 0.70 month's cost of sales in stock. The highest in the remaining four years was 1.48 months' cost of sales in 1995. Company no. 3a had an average of 0.74 month's cost of sales in finished goods inventory. The finished goods inventory level which was 0.37 month's cost of sales in 1993 rose to 1.18 months' cost of

sales in 1994. For most of the period prior to 1993, this level was around 0.50 month with the only exception of 1.38 months' cost of sales in 1990. Concerning company no. 3b, the average for the company was 0.88 month's cost of sales which was moderate. The finished goods level of the company varied inversely with sales. Company no. 3c had a higher level of finished goods than the sector's average. The average for the company was 1.11 months' cost of sales as compared 0.82 month's cost of sales for the sector. The only time when the company had a low level of finished goods was in 1994 at 0.31 month's cost of sales while the highest was in 1995 at 3.05 months' cost of sales. The rest of the period had the finished goods inventory between 0.60 to 1.6 months' cost of sales with continually increasing trends.

The level of finished goods of the Pharmaceuticals Industrial Sector was at 1.33 months' cost of sales on an average, whereas ideally it should have seen around 1.1/2 months' cost of sales in stock. The sector showed a fairly stable position of around 1.2 months' cost of sales for four years till 1990 after which this level continued to rise till it reached 1.98 months' cost of sales in 1994. Thereafter, it declined to 0.83 month's cost of sales in 1995 and remained at that level. Company no. 4a had the highest level of finished goods among the three companies, which was 1.91 months' cost of sales on an average. The company showed an increasing trend from 1.32 months' cost of sales in 1987 to 2.71 months' cost of sales in 1993 after which it suddenly shot up to 4.53 in 1994, only to decline to 0.68 month's in 1996. The sales of the company were poor as we can see from Table V.2.2. The company continued its production without corresponding rise in demand. Also, it failed to convert its finished goods into sales. Company no. 4b was at a better position than company no. 4a. The average for the company was also lower than that of the sector, at 0.75 month's cost of sales. The finished goods inventory of the company was well within the limits from 1987 to 1991 and from 1994 onwards. The inventory level went high only in 1992 and 1993, but even at this time the sales of the company were not declining. On the contrary, they showed an increase compared to earlier years. Company no. 4c had a lower average of

finished goods inventory in terms of months' cost of sales (i.e., 1.01 months) than its sector average. But the range covered by the company was very high. The low average of the company was a result of the carrying out of very high and very low levels of finished goods holding which was 2.12 months' cost of sales in 1991 and 0.26 month's cost of sales in 1989 respectively. The sales of the company increased till 1994 after which they started declining. There was no co-ordination between sales and finished goods inventory

The Engineering Industrial Sector had an average of 1.74 months' cost of sales during the period under study. Company no. 5a, on an average had 0.68 month's cost of sales in finished goods inventory. The finished goods inventory of the company showed an increasing trend from 0.48 month's cost of sales in 1987 to 0.98 month's cost of sales in 1991. It then dropped to 0.41 month's cost of sales in 1992 and was on the rise till 1994 (1.28 months' cost of sales). Thereafter, it again showed a declining trend. This indicates that the company maintained adequate finished goods inventory in almost all the years. Regarding company no. 5b, the average for the company was 1.90 months. It registered an initial increase in sales till 1990 after which the sales declined till 1992 only to rise again till 1995. But in 1996, there was again a sharp decline. The finished goods level of the company did not vary in the same fashion. It followed roughly a pattern of alternate increase and decrease and remained in the range of 0.92 to 3.15 months' cost of sales. This indicates the inability of the company to forecast demand for its products and also to produce goods accordingly. With regard to company no. 5c, the average for the company was 3.60 months' cost of sales. The company maintained nearly 2 to 5 months' stock during the period under study.

The Textile Industrial Sector had an extremely high level of finished goods inventory in terms of months' cost of sales. The average for the company was 3.44 months' cost of sales. The level of finished goods rose from 2.28 months in 1987 to 5.87 months in 1989 after which it continued to decrease till it reached 1.61 months in 1995 with the exception of 1994 when it

shot to 3.06 months and to 3.93 months in 1996. The sector showed no growth in sales from 1987 to 1989. Thereafter, the sales continued to increase till 1995 only to fall in 1996. This explains the phenomenon of the initial rise and the subsequent fall in the level of finished goods. The sector invested heavily in finished goods inventory which was perhaps more than necessary. Company no. 6a initially had a reasonable level of finished goods inventory in 1987 (1.75 months' cost of sales). But it sharply rose from 4.11 months in 1988 to 9.52 months in 1991 after which it declined till 1995 (i.e., 3.83 months' cost of sales). The finished goods inventory level increased three times in 1996 when it became 10.54 months' cost of sales. The company had extremely low sales throughout the period which fluctuated between low and extremely low. This was perhaps the cause for the piling up of finished goods. The company did not produce according to demand and this resulted in a high level of finished goods inventory. Company no. 6b was in total contrast to the results of its sector. Although initially for three years it had a very high level of finished goods inventory, as its sales picked up from 1990, the company co-ordinated its production and sales resulting in minimal investment in finished goods inventory. The company had 1.23 months' cost of sales in finished goods on an average. Company no. 6c showed gradual increase in its sales over the period under study. But its finished goods inventory level also moved to higher levels over this period. Whereas the company had only 1.28 months' cost of sales in finished goods inventory in 1987, this proportion increased to 12.38 in 1995, decreasing thereafter to 6.81 in 1996. The company produced more than it could sell.

The Paper and Packing industrial Sector showed a steady growth in its sales during the period of ten years under study. It also seemed to manage its finished goods inventory well, having 0.53 month's cost of sales in inventory on an average. The average remained between 0.40 to 0.75 month's cost of sales throughout the period under study. Company no. 7a had a low level of finished goods inventory at 0.31 month's cost of sales on an average. The company managed to keep its finished goods less than a month throughout the period

under study. Company no. 7b showed a continuous sharp increase in its sales from 1987 to 1996 except in 1991 when it decreased. With increase in sales, the company started managing its finished goods inventory. The average for the company was 1.22 months, but except 1988, for rest of the years the finished goods inventory level was between 0.44 to 1.73 months' cost of sales which itself is a big margin. The company showed excess finished goods in some years and indicated a need to devise newer means to manage finished goods. In the case of company no 7c, on an average, it had 1.10 months' cost of sales. The sales of the company increased till 1991 and then thereafter the sales sharply decreased till it reached as low as 86.89 per cent in 1996 as compared to the base year, i.e., 1987 (Table V.2.2). But its finished goods inventory level also moved to higher levels over this period. The company had 0.89 month's cost of sales in finished goods inventory in 1987. It then dropped to 0.62 month's cost of sales in 1988 and increased till 1991 (1.39 months' cost of sales in finished goods). Except 1992, this proportion fell to 1 month's cost of sales in 1994. But it sharply rose to 1.61 months after which it declined to 1.14 months in 1996. This indicates that the company continued to produce without a corresponding rise in demand and it failed to convert its finished goods into sales.

The overall level of finished goods inventory in terms of months' cost of sales for the industrial companies of Jordan was 1.44 months' cost of sales. Except the Textile Industrial Sector, most of the sectors showed an average approximately around 1.44 months' cost of sales. But the Textile Industrial Sector had an alarmingly high level of 3.44 months' cost of sales. The finished goods level for the companies stabilized at 1.49 months' cost of sales by 1994 but then it reduced to 1.32 months' cost of sales in 1996. The discrepancy among the individual sectors was thus evened out.

### **Turnover of Finished Goods**

Table V.1.13 shows the turnover of finished goods in the industrial companies during the period of the study i.e., from 1987 to 1996.

Table V 1 13  
Turnover of Finished Goods in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Times)										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	7.64	8.54	8.22	7.57	9.08	7.88	7.93	8.46	10.50	9.27	8.51
b) Intermediate Petrochemical Industries Co. Ltd	22.04	6.89	55.46	25.79	13.41	4.38	3.02	5.80	3.23	4.52	14.45
c) Jordan Sulpho- Chemicals Co. Ltd	14.10	5.20	11.18	12.25	15.08	4.70	5.78	4.23	12.02	12.10	9.66
<b>Sector-wise Ratio</b>	7.81	8.41	8.56	7.82	9.21	7.73	7.74	8.32	10.37	9.23	8.52
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	25.24	20.26	19.62	21.61	17.07	46.17	50.33	48.02	44.46	46.27	33.91
b) The Jordan Ceramic Industries Co. Ltd	9.37	27.67	19.36	6.77	50.29	14.70	8.12	5.49	12.66	12.44	16.69
c) Jordan Rockwood Industries Co. Ltd	15.84	14.58	19.29	19.18	6.87	17.00	27.46	17.41	18.31	10.35	16.63
<b>Sector-wise Ratio</b>	23.57	20.32	19.58	18.59	17.68	39.29	37.35	29.17	35.92	36.51	27.80
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co. Ltd	26.71	48.66	34.98	11.67	28.34	21.77	43.29	12.91	14.13	16.61	25.91
b) Arab Investment and Int. Trade Co. Ltd	12.79	32.15	28.21	9.71	9.03	30.42	24.61	16.81	15.49	16.76	19.60
c) The National Industries Co. Ltd	10.76	7.88	17.46	23.09	26.49	18.09	17.42	48.43	4.74	7.05	18.14
<b>Sector-wise Ratio</b>	19.48	27.56	30.60	12.81	24.53	22.43	36.03	15.28	10.31	13.30	21.23
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	13.06	14.24	11.12	9.30	10.70	8.32	7.68	4.31	18.87	30.18	12.78
b) Dar Al-Dawa Development & Invst. Co. Ltd	20.52	31.60	36.43	33.01	24.74	15.40	11.98	19.96	19.74	17.96	23.13
c) The Arab Center for Pharm. & Chemicals Co. Ltd	11.26	16.88	76.54	29.03	11.35	28.72	27.67	55.35	21.98	8.84	28.96
<b>Sector-wise Ratio</b>	13.99	16.88	15.26	12.96	12.86	10.82	9.76	8.42	19.44	21.17	14.16
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	32.58	19.05	22.67	19.65	16.87	39.78	32.77	14.20	28.59	53.44	27.96
b) National Cables & Wire Manuf. Co. Ltd	15.25	4.62	12.29	21.37	14.73	5.93	7.93	5.99	7.55	5.95	10.16
c) The Jordan Pipes Manufacturing Co. Ltd	7.70	3.93	8.65	3.31	3.06	5.42	3.16	4.57	3.11	4.09	4.70
<b>Sector-wise Ratio</b>	14.14	6.98	12.65	10.98	8.88	8.99	8.22	7.36	8.08	8.16	9.44
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	8.96	3.92	2.15	2.25	2.11	2.30	3.70	2.75	5.11	1.92	3.52
b) Jordan Tanning Co. Ltd	2.75	6.61	7.21	21.13	146.42	91.11	73.23	47.98	235.53	62.78	69.47
c) The Woolen Industries Co. Ltd	10.74	6.41	5.40	10.15	7.58	7.18	3.50	1.82	1.26	2.30	5.64
<b>Sector-wise Ratio</b>	6.85	4.33	2.67	3.69	4.16	4.88	6.47	5.18	9.67	4.02	5.19
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	59.70	71.77	158.74	67.87	91.51	55.28	46.42	38.88	43.77	25.66	65.96
b) The Arab Paper Converting & Trading Co. Ltd	8.39	4.88	10.81	19.88	18.04	12.99	18.19	29.82	11.71	31.95	16.67
c) Jordan Printing and Packing Co. Ltd	17.22	23.68	15.40	12.98	11.09	10.53	15.55	14.84	8.19	10.32	13.98
<b>Sector-wise Ratio</b>	31.21	28.57	45.73	38.46	40.62	25.05	28.71	30.57	22.13	25.37	31.64
<b>Overall Industrial Ratio</b>	9.22	9.36	9.69	8.93	10.16	9.34	9.62	9.45	11.96	10.54	9.83

Source: Appendices I & II

It can be seen from the Table V.1.13 that the overall industrial average of finished goods turnover was 9.83 times during the period under study. The sector-wise analysis indicates that the turnover of finished goods was very high in the case of the Paper and Packing Industrial Sector (31.64 times) followed by the Construction Industrial Sector and Consumables and Food Industrial Sector (27.80 and 21.23 times respectively) while it was very low in the case of the Textile Industrial Sector (5.19 times). In the Pharmaceuticals Industrial Sector it was marginally higher than the overall Industrial average. The remaining sectors showed an average approximately close or almost equal to the overall industrial average of 9.83 times for the period of ten years.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had a low turnover of finished goods throughout the period under study. It was on an average 8.52 times. Company no. 1a had on an average a low finished goods turnover of 8.51 times. The sales of the company increased very slowly over the years. The finished goods turnover of the company was also very low. The company was quite unable to convert its finished goods into sales. With regard to company no. 1b, except in 1988, the company had a high finished goods turnover in the initial years till 1990. But from 1991 onwards it dropped to an extremely low level at 3.02 times in 1993 and remained around that for the remaining term. The sales of the company showed a continuous decline over the period from 1990. Company no. 1c also showed a similar pattern as that of company no. 1b. Except 1988, its finished goods turnover was high during 1987 to 1991 but it fell for the next three years only to rise again from 1995. The sales of the company increased till 1990 and then showed a declining trend.

The Construction Industrial Sector was at a better position than the Chemical and Petroleum Industrial Sector. It had a finished goods turnover of 27.80 times on an average. The sector had a fluctuating trend throughout years. Company no. 2a had an average finished goods turnover of 33.91

times. The finished goods turnover of the company was satisfactory in 6 out of 10 years. Despite low sales, the company showed good speed in converting finished goods into sales. The highest was at 50.33 times in 1993. Company no. 2b had an increasing trend in its sales throughout the period. But its finished goods turnover fluctuated heavily due to the high cost of transportation. The highest was at 50.29 times in 1991 while the lowest was at 5.49 times in 1994. The average for the company was 16.69 times. Company no. 2c showed slightly less fluctuations than company no. 2b. The growth rate of sales of the company was lower than that of company no. 2b. The finished goods turnover of the company was good over stretches of time. The average for the company was 16.63 times for the period of ten years.

The Consumables and Food Industrial Sector had a good finished goods turnover of 21.23 times on an average. The sector showed increase / decrease in finished goods turnover every two years. Company no. 3a was the best among the three companies selected for study. The sales of the company increased till 1993 after which they declined. The finished goods turnover of the company was also very high till 1993, the highest being 48.66 times in 1988 and 43.29 times in 1993. But with decline in sales, the finished goods turnover also reduced from 1994 and was 16.61 times in 1996. This decline resulted in a decrease in the average for the company which came down to 25.91 times. Company no. 3b showed alternately increase and decrease in its finished goods turnover every three years. The finished goods turnover of the company varied directly with sales. Although, the company was capable of achieving a finished goods turnover of 32.15 times in 1988, the average for the company was 19.60 times. The company maintained a moderate level of finished goods inventory as seen from Table V.1.12. It needed to have a consistent policy on production and sales. Company no. 3c had ups and downs in its sales throughout the period. The overall growth rate of sales was low. The finished goods turnover of the company was spread over a large margin of 4.74 times in 1995 to 48.43 times in 1994 indicating that at times the company

could sell all that it produced, whereas at other times it could not achieve its targets. This could have been either due to slackness in demand or inability of the company to fulfill sales orders in time or for some other reason. The average for the company was 18.14 times.

The Pharmaceuticals Industrial Sector showed a good finished goods turnover in 9 out of 10 years. The average for the sector was 14.16 times. The sector had finished goods turnover between 10 to 16 times for the period from 1987 to 1993, but it fell to 8.42 times in 1994 with a decrease in overall sales, only to rise sharply from next year till it reached 21.17 times in 1996. Company no. 4a had a low sales growth rate throughout the period. The company also had on an average a low finished goods turnover of 12.78 times. The finished goods turnover of the company was moderate between 8 to 14 times till 1993. In 1994, the sales of the company dropped and so did its finished goods turnover to as low as 4.31 times. But the finished goods turnover of the company improved from 1995 till it reached 30.18 times in 1996. Company no. 4b had a very good finished goods turnover in 9 out of 10 years. The only exception was in 1993 when it slightly fell to 11.98 times. The sales of the company increased rapidly over the years. The company had a high finished goods turnover in the initial years till 1991. But in the later years the finished goods inventory of the company went on increasing with a lower growth in sales. This caused a comparatively low finished goods turnover (17 to 19 times) for the company. The average finished goods turnover was 23.13 times. The average finished goods turnover of company no. 4c was 28.96 times which was the highest among the three companies in this sector. The sales of the company increased manifold over the years. The company managed its finished goods inventory well in co-ordination with sales resulting in good finished goods turnover for most of the period. However, the sales of the company sharply reduced in 1995 and 1996 causing the finished goods turnover to drop down to 8.84 times in 1996. The highest finished goods turnover was at 78.54 times in 1989 when the sales of the company doubled

as compared to the previous year. The company could not only sell all that it had in stock but also all that it could produce. For the remaining period (except 55.35 times in 1994), the finished goods turnover of the company remained around 27 times

The Engineering Industrial Sector had on an average a low finished goods turnover of 9.44 times. The finished goods turnover showed a gradually declining trend from 1987 to 1996. Each of the three companies selected for study showed different results. Company no. 5a had a good finished goods turnover throughout the period. The average for the company was 27.96 times. Despite moderate sales, the company had a finished goods turnover as high as 53.44 times in 1996, which indicates that it could sell most of its production or that it produced only according to the orders thereby maintaining minimal inventory. Company no. 5b had on an average a low finished goods turnover of 10.16 times. Except 1988, in the earlier years till 1991, the company showed a good finished goods turnover but despite an increase in sales, from 1992 onwards there was a sharp decrease in the finished goods turnover of the company. Company no. 5c had the lowest finished goods turnover of the three companies. The average for the company was 4.70 times and it remained at that level throughout the period except in 1987 and 1989 when it increased slightly.

The Textile Industrial Sector had a poor finished goods turnover of 5.19 times on an average. The sector showed slight ups and downs in this ratio over the period of ten years. Of the three companies selected, company no. 6b was the only one with good results. Company no. 6a had a poor finished goods turnover of 3.52 times. The ratio showed a decline over the period from 8.96 times in 1987 to 1.92 times in 1996 except in 1995 when it slightly increased to 5.11 times. The sales of the company also showed a declining trend for some years while during the rest of the years the sales increased at an extremely slow rate. Company no. 6b started with a finished goods turnover of 2.75 times

in 1987 and it slightly increased till 1989. But from 1990 onwards, the finished goods turnover increased sharply. However, it showed ups and downs, but there was an overall increase. The highest was at 235.53 times in 1995. The average for the company was 69.47 times. Company no. 6c was at a relatively better position in the earlier years till 1992. But even as the sales increased in 1993, the finished goods turnover fell to 3.50 times and continued to fall further. The average for the company was 5.64 times.

The Paper and Packing Industrial Sector had the highest finished goods turnover as compared to other sectors average as well as the overall industrial average. It increased from 31.21 times in 1987 to 40.62 times in 1991. Thereafter, it started declining till it reached 25.37 times in 1996. However, the overall sales of the sector showed a continuous increase throughout the period. Company no. 7a showed a gradual increase in sales from 1987 to 1991, thereafter a fall till 1996. The finished goods turnover of the company also increased with increase in sales from 1987 (59.70 times) till 1989 (158.74 times). In 1991, the finished goods turnover was 91.51 times which began declining from 1992 onwards till it reached 25.66 times in 1996. The average for the company was 65.96 times. Company no. 7b had a lower finished goods turnover than company no. 7a. The company had a very low finished goods turnover in the initial years from 1987 (8.39 times) to 1989 (10.81 times). Thereafter, the situation improved from 1990 (19.88 times) and the company showed an overall increase in finished goods turnover till 1996 (31.95 times). The sales of the company improved till 1991 after which they declined till 1996. Generally the finished goods turnover increases with sales but this company showed just the opposite trend. In the case of company no. 7c, the average was 13.98 times. In the initial years, i.e., in 1987 and 1988, the company had a higher finished goods turnover as compared to its sector average while in the rest of the period, the company had regular ups and downs till it reached to 10.32 times in 1996.

The overall turnover of finished goods for the industrial companies of Jordan was relatively low. It was on an average only 9.83 times and it remained at that level throughout the period. But concerning sector-wise average and its related companies, there was an overall tendency of high level of finished goods inventory. The possible cause could be:

- ◇ Lack of co-ordination between sales and production,
- ◇ Slackness in demand,
- ◇ Transport bottlenecks.
- ◇ As indicated by the low finished goods turnover which inefficiency to convert finished goods into sales.

#### **5.1.7.4 Adequacy of Spare Parts and Stores**

Stores and spare parts form an important component of inventories by themselves. Their consumption pattern differs from that of raw materials or finished goods. Proper investment in spare parts and stores plays an important role in a firm. Mismanagement of investment can reduce the profitability of the concern and it can also affect its liquidity. A close watch on the movement of spare parts and stores and its effective control can pay rich dividends to a firm. Consequently, the stocking policies are different, necessitating special methods for solving their peculiar inventory problems. The use of spare parts and stores differs from industry to industry. For example, it is high in the cement industry (nearly 70 per cent) but it is low in the pharmaceutical industry (6 to 15 per cent).

#### **Percentage of Spare Parts and Stores With Regard to the Aggregate Inventory**

Table V.1.14 shows the percentage of spare parts and stores with regard to the aggregate inventory in the industrial companies during the period under study i.e., from 1987 to 1996

Table V 1.14

Percentage of Spare Parts and Stores to Aggregate Inventory in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
(In Percentage)												
1) Chemical & Petroleum Industrial Sector												
a) Jordan Petroleum Refinery Co Ltd		18.28	19.28	20.78	19.05	22.35	19.52	21.64	21.42	26.33	24.26	21.29
b) Intermediate Petrochemical Industries Co Ltd		7.97	4.64	13.33	13.10	10.46	7.20	7.04	11.15	11.91	13.58	10.04
c) Jordan Sulpho- Chemicals Co Ltd		1.99	3.91	4.98	7.09	10.36	10.47	18.19	12.33	22.80	18.74	11.09
Sector-wise Ratio		17.63	17.72	20.20	18.53	21.48	18.68	20.88	20.81	25.80	23.88	20.56
2) Construction Industrial Sector												
a) The Jordan Cement Factories Co Ltd		71.14	66.40	72.55	71.65	61.19	77.63	80.21	77.87	73.88	76.42	72.89
b) The Jordan Ceramic Industries Co Ltd		33.74	40.32	45.70	20.73	33.96	29.09	27.34	23.06	27.54	30.89	31.24
c) Jordan Rockwood Industries Co Ltd		20.07	17.70	21.46	24.10	22.89	22.87	30.73	27.23	27.70	26.49	24.13
Sector-wise Ratio		69.39	64.91	68.99	65.17	58.63	72.48	74.02	71.41	69.57	72.16	68.67
3) Consumables & Food Industrial Sector												
a) The Industrial Commercial & Agn Co Ltd		10.05	13.59	11.02	7.72	6.62	9.98	12.40	12.12	15.54	18.69	11.77
b) Arab Investment and Int Trade Co Ltd		6.61	7.36	8.91	6.90	3.88	3.94	5.61	8.70	6.40	6.66	6.50
c) The National Industries Co Ltd		16.92	30.64	38.49	22.83	41.74	48.48	36.75	35.42	14.37	25.27	31.09
Sector-wise Ratio		10.76	14.48	13.73	9.40	8.68	11.45	14.20	14.10	14.12	17.91	12.88
4) Pharmaceuticals Industrial Sector												
a) The Arab Pharmaceuticals Manuf Co Ltd		13.80	24.52	24.54	16.48	14.07	11.23	11.33	9.22	16.08	19.33	16.06
b) Dar Al-Dawa Development & Invst Co Ltd		2.98	3.89	3.69	3.85	3.54	3.74	4.20	5.13	5.04	26.24	6.23
c) The Arab Center for Pharm & Chemicals Co Ltd		29.14	23.11	12.91	10.34	10.60	11.02	12.01	11.14	9.87	10.71	14.09
Sector-wise Ratio		13.06	19.91	19.38	13.24	11.64	9.06	9.46	8.40	11.84	13.74	12.97
5) Engineering Industrial Sector												
a) Arab Aluminum Industry Co Ltd		15.29	12.00	19.06	17.18	24.42	16.33	17.27	25.16	17.64	17.64	18.20
b) National Cables & Wire Manuf Co Ltd		8.20	6.35	5.13	6.53	8.06	8.42	6.79	9.95	9.63	11.92	8.10
c) The Jordan Pipes Manufacturing Co Ltd		25.84	12.31	9.79	14.48	16.75	16.28	15.03	20.59	14.56	23.60	16.92
Sector-wise Ratio		16.59	10.57	9.96	11.93	16.37	12.86	11.98	17.94	13.23	16.44	13.79
6) Textile Industrial Sector												
a) The Jordan Worsted Mills Co Ltd		6.46	5.61	3.92	5.33	5.96	5.77	6.10	6.58	6.25	5.92	5.79
b) Jordan Tanning Co Ltd		7.93	8.68	11.20	19.57	22.94	22.22	29.69	24.04	21.71	16.23	18.42
c) The Woolen Industries Co Ltd		7.20	11.15	14.25	15.20	16.30	16.05	15.17	14.22	14.06	15.53	13.91
Sector-wise Ratio		6.77	6.16	4.73	7.39	9.16	8.50	9.70	9.35	8.60	7.91	7.83
7) Paper & Packing Industrial Sector												
a) Jordan Paper and Cardboard Factories Co Ltd		25.80	19.89	28.10	29.12	36.12	38.76	36.45	32.59	30.61	41.01	31.85
b) The Arab Paper Converting & Trading Co Ltd		7.90	8.21	8.91	8.52	10.63	5.89	5.79	4.64	2.86	4.93	6.83
c) Jordan Printing and Packing Co Ltd		26.44	28.36	22.85	18.90	17.50	14.07	12.67	20.78	17.66	24.03	20.32
Sector-wise Ratio		23.24	18.70	24.60	24.34	28.47	27.19	26.02	23.26	15.27	23.08	23.42
Overall Industrial Ratio		26.57	25.39	25.95	24.22	25.71	24.83	27.21	27.47	31.12	31.65	27.01

Source: Appendix 1

It can be seen from Table V.1.14 that the overall industrial<sup>1</sup> average of spare parts and stores with regard to the aggregate inventory was 27.01 per cent during the period of ten years. The sector-wise analysis indicates that the Construction Industrial Sector had the highest percentage, i.e., 68.67 per cent of spare parts and stores in the aggregate inventory, while it was the lowest in the Textile Industrial Sector with 7.83 per cent. In the case of the remaining sectors it was less than the overall industrial average of 27.01 per cent during the period under study.

An indepth analysis of each sector and its related companies reveals that the percentage of spare parts and stores with regard to the aggregate inventory in the Chemical and Petroleum Industrial Sector was nearly 20 per cent throughout the period of the study. Individually, company no. 1a had an average of 21.29 which is close to its sector average and this percentage remained fairly constant throughout the period under study. Company no. 1b had an average of 10.04 per cent while company no. 1c was at 11.09 per cent. Company no. 1b and company no. 1c both showed increase / decrease pattern in the level of spare parts and stores.

The Construction Industrial Sector had the highest percentage among all the selected sectors, i.e., on an average 68.67 per cent of spare parts and stores in the aggregate inventory. This was roughly maintained for most of the years except in 1991 when it fell to 58.63 per cent. Company no. 2a had on an average the highest percentage of spare parts and stores among all the companies selected for study under this sector, i.e., 72.89 per cent and the company maintained this level with a margin of +/- 5 per cent. The year 1991 was the only exception when it fell to 61.19 per cent. The high level of spare parts and stores in this company was due to unavailability of spare parts in Jordan. Company no. 2b, initially had a high percentage of spare parts and stores (40 to 45 per cent) till 1989 except 1987 but it declined to 20.73 per cent

in 1990. Thereafter, the company showed regular rise and fall in this percentage. The average for the company was 31.24 per cent. Company no 2c had an average of 24.13 per cent. The company maintained this average with slight fluctuations of spare parts and stores in its inventory during 1987 to 1996.

The Consumables and Food Industrial Sector had on an average 12.88 per cent of spare parts and stores in aggregate inventory. During 6 out of 10 years, the sector had more than 12 per cent of spare parts and stores while in the remaining period it was 8 to 10 per cent. Though there were some fluctuations in the initial years, in the latter part, i.e., from 1993 onwards this percentage was fairly stabilized and remained constant. Company no. 3a showed a decline in the level of spare parts and stores from 1988 (13.59 per cent) to 1991 (6.62 per cent) after which it again rose till it reached 18.69 per cent in 1996. The average for the company was 11.77 per cent. Company no 3b showed fluctuations in the level of spare parts and stores but on the whole maintained 6.50 per cent spare parts and stores in aggregate inventory. Company no. 3c had a high level of spare parts and stores in its stock. The average for the company was 31.09 per cent but in five out of ten years, the company had spare parts and stores at 35 per cent or more which is indeed very high. This could have been due to the fact that 80 per cent of the spare parts are imported by the company.

The Pharmaceuticals Industrial Sector had on an average 12.97 per cent and this was around the sector average through out the period under study. Company no. 4a had an average of 16.06 per cent of spare parts and stores in the aggregate inventory. Initially the company had a high percentage but with regular periodical ups and downs it decreased to 9.22 per cent in 1994 and then thereafter it increased sharply to reach 19.33 per cent in 1996. With regard to company no 4b, on an average, it had only 6.23 per cent of spare parts and stores in the aggregate inventory. This percentage was as low as

2.98 per cent in 1987 and it increased gradually at a very slow rate till it reached 5.04 per cent in 1995, only to increase very sharply to 26.24 per cent in 1996. Company no. 4c had an average of 14.09 per cent of spare parts and stores in the aggregate inventory. The company showed higher levels of spare parts and stores in 1987 at 29.14 per cent and then a decrease till it reached 10.71 per cent in 1996.

The Engineering Industrial Sector had an average of 13.79 per cent. This percentage increased towards the end of the period. In the case of company no. 5a, on an average, it had 18.20 per cent of spare parts and stores in the aggregate inventory. The company had a low percentage in 1987 and 1988 at 15.29 and 12 per cent respectively and high percentage in 1991 and 1994 with 24.42 and 25.16 per cent respectively while in the remaining years the percentage of spare parts and stores was around the company average of the period for ten years. Company no. 5b had an average of 8.10 per cent and this percentage was maintained around the company average throughout the period under study. Company no. 5c which was a pipe manufacturing company, had a slightly higher average of 16.92 per cent. The company showed higher levels of spare parts and stores in 1987, 1994 and 1996 at 25.84, 20.59 and 23.60 per cent respectively.

The Textile Industrial Sector had on an average 7.83 per cent of spare parts and stores in its inventory. But the companies selected for study did not conform to this. Whereas company no. 6a had a very low percentage of 5.79 per cent, company no. 6b and company no. 6c had an average of 18.42 per cent and 13.91 per cent respectively which was higher than the average for the sector.

The Paper and Packing Industrial Sector had an average of 23.42 per cent of spare parts and stores with regard to the aggregate inventory. Company no. 7a had a very high percentage of spare parts and stores which

was on an average 31.85 per cent. The company showed an increase till 1992 (38.76 per cent) and then a decrease till it reached 30.61 per cent in 1995. But the percentage rose to 41.01 per cent in 1996. This was perhaps, because 80 per cent of the spare parts were imported by the company. Company no. 7b had on an average a very low percentage of spare parts and stores which was 6.83 per cent. From 1987 to 1991, the company had on an average about 7 to 10 per cent but this percentage reduced from 1992 (5.89 per cent) till 1995 (2.86 per cent) and again showed a rise in 1996 (4.93 per cent). With regard to company no. 7c, the average for the company was 20.32 per cent. It had 26.44 per cent in spare parts and stores in 1987. This percentage continued to drop till 1993 (12.67 per cent) and again rose in 1994 (20.78 per cent). Thereafter, it showed a decrease in 1995 (17.66 per cent) and then an increase in 1996 (24.03 per cent).

It can be concluded that the overall percentage of spare parts and stores appears to be quite high indicating some sort of laxity in the control of this category. However, whether each of the sectors or the companies carried either excessive or inadequate stock of spare parts and stores cannot be inferred from a reading of only the percentage of spare parts and stores in the aggregate inventory. The adequacy of this component can be known only when it is compared with the actual consumption of spare parts and stores. The details of this item in terms of months' consumption of spare parts and stores are given in Table V.1.15.

### **Spare Parts and Stores in Terms of Months' Consumption**

Table V.1.15 shows the stock of spare parts and stores in terms of months' spare parts and stores consumed in the selected industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.1.15  
Stock of Spare parts and Stores in Terms of Months' Spare Parts and Stores Consumed in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	(In Months)									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>1) Chemical &amp; Petroleum Industrial Sector</b>										
a) Jordan Petroleum Refinery Co. Ltd	78.56	64.52	78.81	86.13	67.64	64.32	67.79	67.00	66.68	54.19
b) Intermediate Petrochemical Industries Co. Ltd	100.37	193.84	99.32	75.44	137.85	103.88	96.43	78.13	155.77	119.07
c) Jordan Sulpho- Chemicals Co. Ltd	9.24	12.04	5.79	25.41	32.63	33.97	72.83	45.92	78.98	62.77
<b>Sector-wise Ratio</b>	77.52	62.66	73.21	83.59	67.14	63.89	68.20	66.52	67.46	54.72
<b>2) Construction Industrial Sector</b>										
a) The Jordan Cement Factories Co. Ltd	97.05	110.64	101.72	79.28	45.79	49.94	41.39	42.59	45.50	61.34
b) The Jordan Ceramic Industries Co. Ltd	39.64	42.72	52.40	21.67	45.68	29.68	34.31	31.62	41.02	42.42
c) Jordan Rockwood Industries Co. Ltd	12.45	19.30	22.97	24.34	21.27	19.69	12.88	24.63	27.26	34.22
<b>Sector-wise Ratio</b>	93.32	105.43	94.21	71.52	45.43	48.41	40.52	41.89	45.13	60.17
<b>3) Consumables &amp; Food Industrial Sector</b>										
a) The Industrial Commercial & Agn Co. Ltd	61.04	62.53	50.81	37.81	24.00	21.49	30.26	47.13	55.27	102.66
b) Arab Investment and Int Trade Co. Ltd	21.94	28.87	57.19	67.22	22.79	13.37	13.23	12.41	10.30	13.46
c) The National Industries Co. Ltd	12.20	5.26	13.09	10.02	14.95	5.88	14.69	9.93	20.41	13.17
<b>Sector-wise Ratio</b>	26.43	16.98	27.35	21.55	20.05	12.79	22.85	22.67	33.33	35.96
<b>4) Pharmaceuticals Industrial Sector</b>										
a) The Arab Pharmaceuticals Manuf Co. Ltd	62.31	101.35	167.03	122.74	99.20	77.53	77.23	74.32	62.31	67.86
b) Dar Al-Dawa Development & Int Co. Ltd	10.54	9.89	10.04	10.62	11.02	12.47	11.60	12.14	10.86	10.73
c) The Arab Center for Pharm & Chemicals Co. Ltd	12.70	12.00	11.58	12.00	51.05	27.09	29.84	31.60	34.57	59.39
<b>Sector-wise Ratio</b>	34.12	48.34	70.79	53.44	63.38	49.38	45.40	43.94	37.85	41.16
<b>5) Engineering Industrial Sector</b>										
a) Arab Aluminum Industry Co. Ltd	15.28	13.55	29.51	24.42	58.67	16.66	21.25	95.84	53.06	29.60
b) National Cables & Wire Manuf Co. Ltd	70.39	87.60	162.12	62.89	81.66	49.36	130.81	82.40	101.11	166.97
c) The Jordan Pipes Manufacturing Co. Ltd	84.76	124.02	44.17	106.30	109.57	77.49	97.96	78.31	83.09	105.89
<b>Sector-wise Ratio</b>	43.08	49.86	41.99	52.87	73.85	39.35	48.13	87.75	73.03	78.48
<b>6) Textile Industrial Sector</b>										
a) The Jordan Worsted Mills Co. Ltd	41.26	62.42	46.15	55.27	99.27	56.65	56.32	29.98	49.33	45.12
b) Jordan Tanning Co. Ltd	66.44	44.04	16.67	47.25	60.66	33.34	54.89	32.47	18.98	31.18
c) The Woolen Industries Co. Ltd	18.31	38.32	54.90	47.38	72.71	28.45	26.97	26.53	66.06	92.03
<b>Sector-wise Ratio</b>	42.09	56.31	38.13	51.84	77.35	42.00	48.97	30.23	34.32	42.43
<b>7) Paper &amp; Packing Industrial Sector</b>										
a) Jordan Paper and Cardboard Factories Co. Ltd	22.56	22.90	14.59	14.13	19.75	27.69	25.64	29.45	26.36	52.89
b) The Arab Paper Converting & Trading Co. Ltd	15.40	30.39	38.24	42.90	22.10	29.26	16.42	23.72	25.51	35.22
c) Jordan Printing and Packing Co. Ltd	29.37	39.81	31.46	29.33	22.88	17.38	33.23	49.09	31.84	37.57
<b>Sector-wise Ratio</b>	22.88	25.05	16.06	15.48	20.18	26.61	25.13	30.05	26.70	48.92
<b>Overall Industrial Ratio</b>	73.20	69.05	69.85	65.36	51.48	48.49	47.83	48.53	50.92	56.05
Source: Appendices I & V										58.07

It can be observed from the Table V.1.15 that the overall industrial average of spare parts and stores was 58.07 months' consumption during the period under study. The sector-wise analysis indicates that the level of spare parts and stores was the highest in the case of the Chemical and Petroleum Industrial Sector with 68.49 months' consumption followed by the Construction Industrial Sector at 64.60 months' consumption while it was lowest in the Consumables and Food Industrial Sector and the Paper and Packing Industrial Sector with 24 and 25.71 months' consumption respectively. The Engineering Industrial Sector was found to be equal to the overall industrial average of 58.07 months' consumption. In the case of the Pharmaceuticals Industrial Sector and the Textile Industrial Sector it was marginally lower than the overall industrial average of 58.07 months' consumption during the period under study.

An indepth study of each sector and its related companies shows that the Chemical and Petroleum Industrial Sector showed a very high level of spare parts and stores in terms of months' consumption. It had on an average 68.49 months' consumption in spare parts and stores. But company no. 1c under this sector posed a totally different picture. In the case of company no. 1a, on an average, it had 69.56 months' consumption. The company maintained this high level of spare parts and stores in terms of months' consumption throughout the period under study. Company no. 1b maintained an extremely high level of spare parts and stores in terms of months' consumption in stock which was 116.01 months on an average. This level was extremely high in the initial years, which was as high as 193.84 months in 1988. Thereafter, the company had nearly 100 months' consumption in stock which was also very high. This could have inflicted heavy financial and administrative burdens on the company resulting in reduced profits. Company no. 1c also kept a high level of stock which was 37.95 months' consumption on an average. Initially, this was well within control till 1989. Thereafter, it showed a sharp increase till it reached 62.77 in 1996.

The Construction Industrial Sector also carried a very high level of stock of spare parts and stores. It was 64.60 months' consumption on an average. Though carrying of 1.1/2 to 2 years stock would be reasonable but the sector carried more than 5.1/2 years consumption in stock which was quite

unreasonable. Company no. 2a had an extremely high level of 110.64 months' consumption in 1988 but it gradually declined to 41.39 months' consumption in 1993, increasing thereafter. The average for the company was 67.52 months' consumption. Company no. 2b and company no. 2c were in a better position as they had 38.11 and 21.90 months' consumption in inventory respectively. These two companies showed ups and downs in this level but there was no major rise or fall in this level during the period under study.

The Consumables and Food Industrial Sector carried a high level of inventory of spare parts and stores, which was 24 months' consumption on an average. The sector showed an increase in the level of spare parts and stores towards the end when it increased from 22.67 months' consumption in 1994 to 33.33 months' consumption in 1995 and further. Company no. 3a had the highest level of spare parts and stores at 49.30 months' consumption on an average. The company carried very high levels of spare parts and stores throughout the period but in 1996 it had an extremely high stock of 102.66 months' consumption. Company no. 3b initially had a very high level of spare parts and stores till 1990 when it was 67.22 months' consumption. But the company improved on its position from 1991 and controlled its spare parts and stores in such a way that it had 13.46 months' consumption in spare parts and stores in 1996. The average for the company was 26.08 months' consumption for the period of ten years. Company no. 3c also showed a similar position. The company maintained on an average 11.96 months' consumption in spare parts and stores and with one or two exceptions, throughout the period.

The Pharmaceuticals Industrial Sector had nearly 48 months' consumption in stock on an average. The sector showed ups and downs in the level of spare parts and stores during 1987 to 1996. Company no. 4a had a very high level of spare parts and stores inventory. The average for the company was 91.19 months' consumption. The company showed an increase in the level of spare parts and stores from 62.31 months' consumption in 1987 to 122.74 months' consumption in 1990 which was the highest point. Thereafter, the level of spare parts and stores declined till it reached 67.86 months' consumption in 1996. With regard to company no. 4b, on an average, it had only 10.99 months' consumption. The company maintained this ratio constantly throughout the period under study. Company no. 4c started with

12.70 months' stock of spare parts and stores and maintained it for four years. But this level suddenly shot up to 51.05 months' consumption in 1991 and again fell to 27.09 months' consumption in 1992, remaining around that level for the rest of the period. It sharply rose to 59.39 months' consumption in 1996. The average for the company was 28.18 months' consumption.

The Engineering Industrial Sector maintained around four years' consumption of spare parts and stores in stock on an average. The overall trend for the sector was that of increase and the highest level was at 87.75 months' consumption in 1994. Company no. 5a had an average of 35.78 months' consumption. This ratio fluctuated violently during the period under study and it ranged between as low as 13.55 months to as high as 95.84 months' consumption. Company no. 5b had on an average an extremely high level of spare parts and stores at 99.53 months' consumption. The company showed ups and downs in the level of spare parts and stores. Company no. 5c also showed a similar pattern. The average for the company was 91.16 months' consumption. This company also showed great fluctuation. But the highest level of stock by company no. 5b was 166.97 months' consumption in 1996, whereas it was 124.02 in 1988 in the case of company no. 5c.

The Textile Industrial Sector also had a very high level of spare parts and stores which was on an average 46.37 months' consumption. The sector also showed fluctuations in the level of spare parts and stores over the years. Company no. 6a maintained very high level of spare parts and stores in its inventory. Though the average for the company was as high as 54.18 months' consumption, the highest for the company was at 99.27 months' consumption in 1991. Company no. 6b showed alternate increase / decrease in the level of spare parts and stores, but it was better off than company no. 6a. The average for the company was 40.59 months' consumption. Company no. 6c had 18.31 months' consumption in spare parts and stores in 1987 but it sharply rose to 38.32 months' consumption in 1988 and continued to rise till 1991 (72.71 months' consumption). This level dropped to 28.45 months' consumption in 1992 and remained constant till 1994 after which it again sharply increased till 1996 (92.03 months' consumption). The average for the company was 47.17 months' consumption.

The performance of the Paper and Packing Industrial Sector was better than that of the earlier sector. It had on an average 25.71 months' stock in spare parts and stores. The sector generally maintained this level but towards the end of the period, i.e., 1996, it sharply rose to 48.92 months' consumption. Company no. 7a showed a similar picture. The average for the company was 25.60 months' consumption which was approximately the same level for the company for most of the period except in 1996 when it rose sharply to 52.89 months' consumption. In the case of company no. 7b, the level of spare parts and stores increased from 15.40 months in 1987 to 42.90 in 1990. But it dropped to 22.10 months' consumption in 1991 and remained fairly constant till 1995 after which it rose to 35.22 months' consumption in 1996. The average for the company was 27.92 months' consumption. In the case of company no. 7c on an average, it had 32.19 months' consumption. The company maintained this ratio with slight ups and downs throughout the period under study. The only time when this ratio was very high was the year 1994 when it reached to 49.09 months' consumption.

The overall industrial average was 58.07 months' consumption of spare parts and stores. There was a declining trend from 73.20 in 1987 to 51.48 in 1991 after which the level of spare parts and stores remained fairly constant till 1995. Thereafter, there was an increase in the level of spare parts and stores till it reached 56.05 in 1996. Nakra Committee<sup>(16)</sup> suggested that the stock of spare parts and stores should not exceed 12 months' value of the consumption of spare parts and stores in any public enterprise. Compared to this recommendation, the stock of spare parts and stores was excessive in all the selected industrial companies of Jordan during the whole period under study with the exception of company no. 3c and company no. 4b. For a better understanding of the accumulation of spare parts and stores in the industrial companies during the period under study, the turnover of spare parts and stores is presented in Table V.1.16.

#### **Turnover of Spare Parts and Stores**

Table V.1.16 depicts the turnover of spare parts and stores in the selected industrial companies during the period under study i.e., from 1987 to 1996.

Table V 1.16  
Turnover of Stores and Spares Inventory in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS										( In Times)	
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
1) Chemical & Petroleum Industrial Sector											
a) Jordan Petroleum Refinery Co Ltd	0 15	0 19	0 15	0 14	0 18	0 19	0 18	0 18	0 18	0 22	0 18
b) Intermediate Petrochemical Industries Co Ltd	0 12	0 06	0 12	0 16	0 09	0 12	0 12	0 15	0 08	0 10	0 11
c) Jordan Sulpho-- Chemicals Co Ltd	1 30	1 00	2 07	0 47	0 37	0 35	0 16	0 26	0 15	0 19	0 63
Sector-wise Ratio	0 15	0 19	0 16	0 14	0 18	0 19	0 18	0 18	0 18	0 22	0 18
2) Construction Industrial Sector											
a) The Jordan Cement Factories Co Ltd	0 12	0 11	0 12	0 15	0 26	0 24	0 29	0 28	0 26	0 20	0 20
b) The Jordan Ceramic Industries Co Ltd	0 30	0 28	0 23	0 55	0 26	0 40	0 35	0 38	0 29	0 28	0 33
c) Jordan Rockwool Industries Co Ltd	0 96	0 62	0 52	0 49	0 56	0 61	0 93	0 49	0 44	0 35	0 60
Sector-wise Ratio	0 13	0 11	0 13	0 17	0 26	0 25	0 30	0 29	0 27	0 20	0 21
3) Consumables & Food Industrial Sector											
a) The Industrial Commercial & Agri. Co Ltd	0 20	0 19	0 24	0 32	0 50	0 56	0 40	0 25	0 22	0 12	0 30
b) Arab Investment and Int. Trade Co Ltd	0 55	0 42	0 21	0 18	0 53	0 90	0 91	0 97	1 17	0 89	0 67
c) The National Industries Co. Ltd	0 98	2 28	0 92	1 20	0 80	2 04	0 82	1 21	0 59	0 91	1 17
Sector-wise Ratio	0 45	0 71	0 44	0 56	0 60	0 94	0 53	0 53	0 36	0 33	0 54
4) Pharmaceuticals Industrial Sector											
a) The Arab Pharmaceuticals Manuf. Co Ltd	0 19	0 12	0 07	0 10	0 12	0 15	0 16	0 16	0 19	0 18	0 14
b) Dar Al-Dawa Development & Inv. Co Ltd	1 14	0 82	0 83	0 83	1 08	0 62	0 85	0 81	1 03	1 12	0 91
c) The Arab Center for Pharm & Chemicals Co Ltd	0 94	1 00	1 04	1 00	0 24	0 44	0 40	0 38	0 35	0 20	0 60
Sector-wise Ratio	0 35	0 25	0 17	0 22	0 19	0 24	0 26	0 27	0 32	0 29	0 26
5) Engineering Industrial Sector											
a) Arab Aluminium Industry Co. Ltd	0 79	0 89	0 41	0 49	0 20	0 72	0 56	0 13	0 23	0 41	0 48
b) National Cables & Wire Manuf. Co Ltd	0 17	0 14	0 07	0 19	0 15	0 24	0 09	0 15	0 12	0 07	0 14
c) The Jordan Pipes Manufacturing Co. Ltd	0 14	0 10	0 27	0 11	0 11	0 15	0 12	0 15	0 14	0 11	0 14
Sector-wise Ratio	0 28	0 24	0 29	0 23	0 16	0 30	0 25	0 14	0 16	0 15	0 22
6) Textile Industrial Sector											
a) The Jordan Worsted Mills Co. Ltd	0 29	0 19	0 26	0 22	0 12	0 21	0 21	0 40	0 24	0 27	0 24
b) Jordan Tanning Co. Ltd	0 18	0 27	0 72	0 25	0 20	0 36	0 22	0 37	0 63	0 38	0 36
c) The Woolen Industries Co. Ltd	0 66	0 31	0 22	0 25	0 17	0 42	0 44	0 45	0 18	0 13	0 32
Sector-wise Ratio	0 29	0 21	0 31	0 23	0 16	0 29	0 25	0 40	0 35	0 28	0 28
7) Paper & Packing Industrial Sector											
a) Jordan Paper and Cardboard Factories Co. Ltd	0 53	0 52	0 82	0 85	0 61	0 43	0 47	0 41	0 46	0 23	0 53
b) The Arab Paper Converting & Trading Co. Ltd	0 78	0 39	0 31	0 28	0 54	0 41	0 73	0 51	0 47	0 34	0 48
c) Jordan Printing and Packing Co. Ltd	0 41	0 30	0 38	0 41	0 52	0 69	0 36	0 24	0 38	0 32	0 40
Sector-wise Ratio	0 52	0 48	0 75	0 78	0 59	0 45	0 48	0 40	0 45	0 25	0 51
Overall Industrial Ratio	0 16	0 17	0 17	0 18	0 23	0 25	0 25	0 25	0 24	0 21	0 21

Source Appendices I & III

It can be noticed from Table V.1.16 that the overall industrial average of turnover of spare parts and stores was 0.21 times during the period under study. The sector-wise analysis indicates that the turnover of spare parts and stores was the highest in the case of the Consumables and Food Industrial Sector with 0.54 times followed by the Paper and Packing Industrial Sector at 0.51 times while in the remaining sectors, it was around the overall industrial average of 0.21 times during the period under study.

An indepth analysis of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector showed a low turnover of spare parts and stores which was 0.18 times on an average. The sector had this level of turnover for most of the period. Company no. 1a on an average, had 0.18 times. This company followed the exact pattern of the sector. Company no. 1b had on an average spare parts and stores turnover of 0.11 times. The turnover remained around the company average during five out ten years during 1987 to 1996. Company no. 1c had 0.63 times on an average. The company showed great fluctuation, the highest turnover being 2.07 times in 1989 and the lowest being 0.15 times in 1995.

The Construction Industrial Sector also had an average spare parts and stores turnover of 0.21 times. The turnover showed an increasing trend from 0.13 times in 1989 to 0.30 times in 1993 after which it began decreasing till it reached 0.20 times in 1996. Company no. 2a followed the pattern of the sector. The average was 0.20 times while for company no. 2b it was 0.33 times. The turnover, with slight fluctuation, increased from 0.30 times in 1987 to 0.55 times in 1990 and thereafter the ratio decreased to 0.28 times in 1996. Company no. 2c had a higher average of 0.60 times as compared to the other two companies and its sector average. This ratio decreased from 0.96 times in 1987 to 0.49 times in 1990 and again increased to 0.93 times in 1993. But it dropped to 0.35 times in 1996.

The Consumables and Food Industrial Sector had an average spare parts and stores turnover of 0.54 times, which is higher than the overall industrial average of 0.21 times. The spare parts and stores turnover showed an overall increasing trend till 1992 and a decline thereafter till 1996. Company no. 3a had a reasonable turnover of 0.30 times but company no. 3b and company no. 3c registered a higher turnover of 0.67 times and 1.17 times respectively. Company no. 3c had the highest turnover among the three companies selected for study. In 1992, the company had a very high turnover of 2.04 times.

The Pharmaceuticals Industrial Sector, the Engineering Industrial Sector and the Textile Industrial Sector had a reasonable spare parts and stores turnover of 0.26 times, 0.22 times and 0.28 times respectively. But the Paper and Packing Industrial Sector had a slightly higher turnover than these three sectors. It was on an average 0.51 times. The sector showed an increasing trend till 1990, but from 1991 the turnover started reducing implying an improvement in the situation.

The overall industrial sector of Jordan had an average spare parts and stores turnover of 0.21 times. The companies showed an increase till 1994 after which there was a slight decrease till 1996. Last item of inventory component is miscellaneous goods, as percentage to aggregate inventory are shown in Table V.1.17.

**5.1.7.5 Adequacy of Miscellaneous Goods**

The item mainly includes materials in transit, materials under inspection, scrap, packing materials, laboratory material, fuel store, rejected items and such other material. In fact, none of the selected industrial companies had to measure and identify the adequacy for the stocking of miscellaneous goods.

Table V.1.17 provides details with regard to the proportion of miscellaneous goods to aggregate inventory in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.1.17  
Percentage of Miscellaneous Goods to Aggregate Inventory in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	2 50	2 51	5 09	8 69	6 16	8 60	6 16	8 92	7 72	8 47	6 48
b) Intermediate Petrochemical Industries Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
c) Jordan Sulpho- Chemicals Co Ltd	4 46	6 80	25 33	22 44	9 46	13 02	22 45	3 93	8 61	3 41	11 99
<b>Sector-wise Ratio</b>	2 45	2 54	5 48	8 88	6 02	8 31	6 23	8 48	7 51	8 15	6 41
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
b) The Jordan Ceramic Industries Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
c) Jordan Rockwool Industries Co Ltd	0 00	0 00	0 75	1 62	0 97	11 18	5 72	3 99	8 47	1 75	3 45
<b>Sector-wise Ratio</b>	0 00	0 00	0 00	0 03	0 02	0 17	0 09	0 08	0 17	0 03	0 06
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agr Co Ltd	6 08	10 93	8 96	3 17	12 49	4 51	11 33	8 43	8 30	3 37	7 76
b) Arab Investment and Int Trade Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
c) The National Industries Co Ltd	3 18	2 30	0 52	27 06	0 33	0 48	3 80	0 31	0 11	0 52	3 86
<b>Sector-wise Ratio</b>	4 61	8 18	7 06	5 67	10 38	3 70	9 49	6 87	5 33	2 43	6 37
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
b) Dar Al-Dawa Development & Inv Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
c) The Arab Center for Pharm & Chemicals Co Ltd	1 86	2 29	7 29	7 54	5 93	0 87	0 00	0 00	0 00	0 00	2 58
<b>Sector-wise Ratio</b>	0 14	0 22	0 81	0 92	0 72	0 09	0 00	0 00	0 00	0 00	0 29
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
b) National Cables & Wire Manuf Co Ltd	3 02	4 05	3 04	2 24	3 30	3 24	2 32	2 16	2 69	5 63	3 17
c) The Jordan Pipes Manufacturing Co Ltd	15 89	23 91	3 82	21 27	8 67	9 90	0 75	1 01	1 08	0 90	8 72
<b>Sector-wise Ratio</b>	7 33	14 61	2 84	10 19	4 01	5 27	1 26	1 10	1 49	3 21	5 13
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
b) Jordan Tanning Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
c) The Woolen Industries Co Ltd	5 60	0 00	19 84	23 32	9 74	12 29	17 61	4 00	3 35	7 61	10 34
<b>Sector-wise Ratio</b>	0 27	0 00	0 79	0 94	0 53	0 78	1 45	0 32	0 24	0 47	0 58
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	0 25	0 14	0 15	0 13	0 80	1 10	1 22	0 00	16 98	0 00	2 08
b) The Arab Paper Converting & Trading Co Ltd	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 81	1 02	1 16	0 30
c) Jordan Printing and Packing Co Ltd	2 76	19 44	7 92	0 00	0 00	0 00	12 42	12 86	3 79	0 11	5 93
<b>Sector-wise Ratio</b>	0 57	2 12	1 03	0 10	0 53	0 68	2 11	1 47	7 69	0 55	1 68
<b>Overall Industrial Ratio</b>	2 00	2 79	3 57	6 04	4 13	5 37	4 18	4 89	4 28	4 70	4 20

Source Appendix I

The overall industrial average percentage of miscellaneous goods with regard to the aggregate inventory was 4.20 per cent. The proportion increased from 2 per cent in the year 1987 to 6.04 per cent in the year 1990 and a decline thereafter with slight ups and downs till 1996.

An indepth study and analysis of the miscellaneous goods with regard to the aggregate inventory indicates that the Chemical and Petroleum Industrial Sector had the highest percentage of miscellaneous goods to aggregate inventory, which was 6.41 per cent on an average. The sector showed alternate increase / decrease in the percentage but there was an overall increasing trend

The Construction Industrial Sector had a negligible percentage of miscellaneous goods (0.06 per cent on an average) while it was substantial (6.37 per cent) for the Consumables and Food Industrial Sector. The Pharmaceuticals Industrial Sector and the Textile Industrial Sector showed an overall low percentage of miscellaneous goods. But the Engineering Industrial Sector had reasonable amount of 5.13 per cent on an average. The Paper and Packing Industrial Sector had 1.68 per cent of miscellaneous goods in the aggregate inventory on an average during the period of ten years.

From the foregoing analysis we can conclude that there was a general tendency towards overstocking among the companies of Jordan. This overstocking was very high in the case of raw materials. The other components of inventory also showed an inclination towards overstocking.

The turnover of various components of inventory was lower than expected in most of the cases. Only a few of the 21 companies selected for study showed reasonably good results. In general there was a tendency to over-procure, over-produce and over-stock. There was a lethargy in production which was possibly due to the use of inefficient methods of production. Most of the companies reflected a need for proper inventory management and also a co-ordination between various departments within the companies

SECTION - II

ANALYSIS AND  
INTERPRETATION  
OF DATA RELATED  
TO RECEIVABLES  
MANAGEMENT

### 5.2.1 INTRODUCTION

Receivables management is an important function for maintaining adequate working capital. As receivables is the second most important component of working capital, this investigator decided to study this component in detail. This section is an attempt to highlight the basic concepts of receivables management. It also focuses on the analysis and interpretation of data related to objective to determine the impact of receivables management and its adequacy in each of its components like accounts receivable and loans and advances.

Receivables management means making decisions relating to the investment of funds in receivables as a part of internal short-term operation process.<sup>(18)</sup> According to Joy, "the term receivables is defined as debt owed to the firm by customers arising from sales of goods or services in the ordinary course of business".<sup>(19)</sup> Kholer defines the term "Credit" as the ability to buy or borrow in consideration of a promise to pay within a period.<sup>(20)</sup> The word "Credit" originates from a Latin word "cred" which means "believe or trust". The term "Trade Credit Management" is also known as "Receivables Management". The origin of trade credit dates back to the earliest stage of human society, when barter system was prevalent. With the ultimate introduction of "money" as the medium of exchange, the physical transfer of money led to the subsequent evolution of "credit".

The receivables represent an important component of current assets. It is the second most important component of working capital after inventories. It forms about 40.41 per cent of current assets in the industrial companies of Jordan selected for the present study. The main purpose of maintaining receivables is to push up sales and ultimately earn profits by allowing certain credit to the potential customers who otherwise may find it difficult to make cash purchases. Credit sales and receivables are treated as marketing tools to aid the sales of goods through production and distribution to the customers, allowing them a reasonable period of time in which they can pay for the goods which they have received. However, extension of credit involves risk and cost.

Management should weigh the pros and cons of the credit proposal. It is opined by Lawrence and Charles that, “accounts receivable is the total of all credit extended by a company to its customers”.<sup>(21)</sup> In the present day industrialized economy credit stands out as a prominent and an all pervasive force. It becomes highly difficult for a manufacturer to pay cash across the counter, whatever be his liquidity in meeting the debts. Some view trade credit as a type of business finance necessary for greasing the wheels of the production process.<sup>(22)</sup> It is not an exaggeration to say that receivables is as important as cash in a business enterprise. The receivables, arising out of credit has three dimensions.<sup>(23)</sup> First, it embraces an element of risk which needs to be assessed, since cash sales are totally riskless. Second, it is based on economic values. To the buyer, the economic value in goods or services is passed on immediately at the time of sale, while the seller expects an equivalent value to be received at a later date. Third, it implies futurity. The payment for value received, materialises at a future date.

The evaluation of the efficiency in receivables management can be evolved from the following methods:

- **Analysis of the Size of the Receivables.**
- **Analysis of the Growth rate in Average Annual Sales and Receivables.**
- **Composition of Receivables’ Analysis.**
- **Evaluation of the Efficiency of Credit Granting and Collecting Policy.**
- **Percentage of Bad and Doubtful Debt Analysis.**

### **5.2.2 OBJECTIVES OF RECEIVABLES MANAGEMENT**

The emergence of receivables in a business operation, creates revenues and costs. Hence, the volume, composition and movements of receivables are required to be so designed and maintained that they ultimately help in maximizing the value of an organization. This is a long standing and accepted principle of financial management. In other words, it may be said that the basic objective of receivables management is to achieve a trade off between their liquidity and profitability aspects, but not to maximize sales or to

minimize the risk of bad debts. In fact, an organization should manage the receivables in a way that the sales are expanded to an extent where risk remains within the acceptable limits. Thus, the goals of receivables management are as follows:

- a) To maintain an optimum level of investment in receivables.
- b) To maintain an optimum volume of sales.
- c) To control the cost of credit allowed and to keep it at the minimum possible level.
- d) To reduce the average collection period.
- e) To obtain benefit from the investment in debtors at an optimum level <sup>(24)</sup>

As the above goals are likely to be a little contradictory, only a balanced approach in their conflicting aspects can help in achieving the desired result. As Bolton says, "the objective of receivables management is to promote sales and profits until that point is reached where the return on investment in further finding of receivables is less than the cost of funds raised to finance that additional credit"<sup>(25)</sup> In the word of Vyas, "other important aspects of managing accounts receivable are credit term, discount policy and collection procedure, etc."<sup>(26)</sup>

### **5.2.3 CREDIT POLICY**

The formulation of sound and effective collection policy, and procedures of credit occupy a significant place in the management of receivables of an industry. It governs the decision as to which customer's order should be accepted and which should be rejected. According to Joseph, "the purpose of any commercial enterprise is the earning of profit. Credit in itself is utilized to increase sales, but sales must return a profit"<sup>(27)</sup> The basic objective in the management of receivables should be that of maximizing the overall return on investment. From the survey conducted by National Association of Credit Management and Harvard Business Review, it is revealed that more and more U S corporations were treating their credit departments as profit centers. Most of the credit managers felt that "when we extend credit we commit some of the resources of our firm in support of our firm to earn a profit, just as the

production manager who purchases additional equipment, or the advertising executive who undertakes a promotional campaign. Extending credit has its initial impact on company sales but our ultimate goal is to increase profits”<sup>(28)</sup>

The credit policy of a company may be classified as lenient credit policy or stringent credit policy. Credit policy is a significant part of the overall dealings of an organization to sell its products and spread its services. If the unit accepts credit, it is accepting a promise of payment in the future. The company must formulate its willingness to accept credit sales in all its financial decisions. These factors involve the potential benefits versus the costs associated with the policy.<sup>(29)</sup> Lenient terms and favourable incentives granted to customers can lead to higher chances of incurring higher bad debts and the lack of liquidity. Stringent and restrictive credit and collection policies follow stringent terms and as a result, minimize costs and chances of bad debts. An industry pursuing liberal credit and collection policies will have higher sales and profits as compared to similar industries which follow stringent credit policy.

The profit margin of the seller likewise influences the degree of risk that will be involved in accepting additional customers. According to Harry Gross, “Two very important considerations involved in increasing additional credit risk are the market for a company’s product and its capacity to satisfy that market. If the demand for the seller’s products is greater than its capacity to produce, then it would be more selective in the credit of its customers. Conversely, if the supply of the product exceeds the demand, the seller would be more likely to lower credit standards with resulting greater risk”.<sup>(30)</sup>

Credit policy once developed should be stated in writing with clear and precise terms so that wrong inferences based on variations in individual understandings could be avoided. The three important decision variables of credit are:

(a) credit terms, (b) credit standards, and (c) collection policy.

#### **(a) Credit Terms**

The agreement under which goods are sold on credit by a company to its customers is known as credit terms. The decision granted on terms may

cover various aspects of a credit policy, like selection of credit customers, approval of credit periods, acceptance of sales discounts and provision regarding the instruments of security for credits to be accepted. An organization should consider carefully various aspects to decide the terms of credit. Policies which stress credit terms, strict credit standards and highly aggressive policy of collections may help to minimize bad debts and the locking up of the funds in receivables. Credit terms should be formulated in the light of the needs of the company and the established practices of the industry. Selection of credit customers should be made on the basis of the amount of bad debts which a company can absorb during the span of any given period.

The amount of funds tied up in receivables is directly related to the limits of credit granted to customers. "These limits should never be ascertained on the basis of the firm's own requirements, they should be based upon the debt paying power of the customer and his ledger record of the orders and payments."<sup>(31)</sup>

Credit term has two important components, (i) credit period, and (ii) the cash discount terms.

#### **(i) Credit Period**

In the words of Seiden, "credit period is the duration of time for which trade-credit is extended. During this period, the overdue amount must be paid by the customer. The length of credit period directly affects the volume of investment in receivables and indirectly the net worth of the company. A long credit period may boost sales but it also increases investment in receivables and lowers the quality of trade credit."<sup>(32)</sup> The credit period of the business enterprise is governed by the industry's norms, but the companies can extend credit for a longer duration to stimulate sales. Credit period is also influenced by the economic status of customers.

#### **(ii) Cash Discount**

Cash discount is also another important and significant component of trade terms. It implies to the volume of sales, average collection period, bad debt expenses and profit per unit. Thus, taking a decision for granting of cash

discount should be handled properly by the management, keeping in mind, whether the discount rate will be increased or decreased if these factors are initiated. Many industrial companies offer cash discount to their customers for encouraging them to pay the bills promptly, which results in reducing the collection period, eventually decrease in bad debt expenses and an increase in profit. According to Theodore N. Beckman "Cash discount is a premium on payment of debts before the due date and not a compensation for the so called prompt payment".<sup>(33)</sup>

The cash discount terms indicate the rate of discount and the period for which discount has been offered. Credit terms involve both the length of the credit period and the discount given. To make an effective tool of credit control, a business enterprise should also see that it allows discount only to those customers who make payments at due dates.<sup>(34)</sup>

#### **(b) Credit Standards**

The term credit standard represents the basic criteria for extension of credit to the customers. It has an impact on sales and receivables. The level of sales and receivables are likely to be high if the credit standards of the concern are relatively loose and vice-versa. In the words of Van Horne,<sup>(35)</sup> "there is the cost of additional investment in receivables resulting from: (i) A slower average collection period, and (ii) Increased sales".

If new customers are attracted by the relaxed credit standard, collection from these customers is likely to be slower than that from existing customers. Moreover, a more liberal extension of credit may cause certain existing customers to be less conscientious about paying their bills in time. Those who decide credit policy must consider this probability. Credit standards are influenced by five "Cs", as,

- 1) Character > which denotes the integrity of the customers.
- 2) Capital > which denotes customers' investment and financial soundness.
- 3) Condition > which denotes the impact of general economic trends on an organization
- 4) Capacity > which refers to the ability of the customers to pay

- 5) Collateral > which denotes the assets offered by the customer by way of guarantee.

The extent of credit standard should depend upon the striding balance of profits arising due to increased sales and the costs to be incurred on the increased sales.

**(c) Collection Policy**

Collection policy is the process of collecting payments from the customers. According to Weston and Brigham "Collection policy refers to the procedures a firm follows to collect payment of past due accounts".<sup>(36)</sup> The collection policy aims at accelerating collections from slow payers and reducing bad debts. These procedures include letters sent to the customers, threat of legal action, phone calls, personal calls to the customers, telegraphic advice, and if justified, acceptance of reduced payment in settlement of account. Continuity in the collection efforts in turn will depend upon the fulfillment of two pre-requisites<sup>(37)</sup>

- a) the establishment of a pleasant collections follow up system, and
- b) the development of a suitable collection system.

A rigorous collection programme tends to decrease sales, shorten the average collection period, reduce bad debt percentage and increase the collection expense. A lax collection programme, on the other hand, would increase sales, lengthen the average collection period, increase the bad debt percentage, and perhaps reduce the collection expense.

#### **5.2.4 ANALYSIS OF THE SIZE OF THE RECEIVABLES**

The analysis of the size of receivables acts as an indicator of the type of credit policy - liberal or stringent - followed by a company.<sup>(38)</sup> So, the size of receivable varies from one sector to another and from one company to another company depending upon the volume and nature of sales.

Table V.2 1 shows the size of receivables in the industrial companies during the period under study, i.e., 1987 to 1996.

Table V 2 1  
Size of Receivable in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	(Value in Thousand JD.)										
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	35,511	43,059	42,727	73,172	67,714	88,638	114,491	140,407	182,645	209,599	997,964
b) Intermediate Petrochemical Industries Co. Ltd	354	305	570	693	675	1,023	499	824	648	830	6,421
c) Jordan Sulpho-- Chemicals Co. Ltd	795	1,133	478	853	226	318	509	651	1,628	1,207	7,799
Sub--Total	36,660	44,497	43,775	74,718	68,616	89,978	115,499	141,882	184,921	211,637	1,012,184
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	2,263	1,984	2,723	2,395	4,730	4,049	5,148	4,779	5,953	7,318	41,340
b) The Jordan Ceramic Industries Co. Ltd	123	179	451	439	486	439	429	524	595	746	4,413
c) Jordan Rockwood Industries Co. Ltd	385	538	1,533	875	758	793	835	877	810	659	8,062
Sub--Total	2,771	2,701	4,707	3,709	5,975	5,281	6,411	6,180	7,357	8,723	53,815
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co. Ltd	1,666	2,255	1,420	2,612	3,313	4,394	6,350	2,197	4,063	4,826	33,097
b) Arab Investment and Int. Trade Co. Ltd	306	396	172	234	789	1,332	318	390	516	677	5,130
c) The National Industries Co. Ltd	646	949	1,012	711	854	895	430	1,146	1,796	1,365	9,824
Sub--Total	2,618	3,601	2,604	3,557	4,956	6,620	7,099	3,733	6,375	6,888	48,051
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	11,047	11,863	16,840	14,894	15,603	14,887	16,758	16,565	16,516	19,565	154,537
b) Dar Al-Dawa Development & Int. Co. Ltd	2,433	3,258	5,058	5,297	3,930	5,047	5,364	7,456	8,147	8,127	54,118
c) The Arab Center for Pharm. & Chemicals Co. Ltd	279	388	1,282	1,380	1,781	1,928	3,325	4,676	1,347	1,373	17,760
Sub--Total	13,759	15,508	23,180	21,571	21,314	21,862	25,448	28,697	26,010	29,065	226,415
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co. Ltd	1,212	492	1,633	1,653	1,952	1,884	1,723	768	907	773	12,986
b) National Cables & Wire Manuf. Co. Ltd	557	619	2,586	2,765	1,912	2,276	3,608	3,691	3,177	3,687	24,858
c) The Jordan Pipes Manufacturing Co. Ltd	329	529	1,330	647	233	420	414	622	520	413	5,458
Sub--Total	2,099	1,639	5,529	5,066	4,096	4,580	5,744	5,071	4,604	4,874	43,303
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	2,067	2,362	1,946	3,017	3,108	5,203	5,554	6,609	10,797	8,936	49,590
b) Jordan Tanning Co. Ltd	537	535	815	1,590	2,280	2,858	2,371	1,021	3,215	1,418	16,640
c) The Woolen Industries Co. Ltd	37	27	36	198	187	253	294	306	305	510	2,153
Sub--Total	2,641	2,924	2,787	4,806	5,575	8,315	8,219	7,936	14,317	10,864	68,383
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	1,618	1,758	2,674	1,588	1,411	929	1,365	1,301	2,792	3,338	18,775
b) The Arab Paper Converting & Trading Co. Ltd	246	180	427	267	343	277	292	364	930	1,046	4,373
c) Jordan Printing and Packing Co. Ltd	79	73	83	128	153	160	154	162	435	174	1,601
Sub--Total	1,942	2,011	3,184	1,983	1,907	1,367	1,811	1,827	4,157	4,558	24,748
<b>Grand Total</b>	<b>62,490</b>	<b>72,882</b>	<b>85,767</b>	<b>115,410</b>	<b>112,441</b>	<b>138,002</b>	<b>170,231</b>	<b>195,326</b>	<b>247,741</b>	<b>276,609</b>	<b>1,476,900</b>

Source: Appendix I

It can be seen from Table V.2.1 that the overall industrial average in Jordan has shown a tendency towards a rise in the size of the receivables. The overall size of receivables have gone up from Jordanian Dinar (JD) 62,490 thousand in 1987 to JD 276,609 thousand in the year 1996. All the sectors have recorded accumulation of receivables as compared to the base year 1987. The Chemical and Petroleum Industrial Sector has recorded an increase of more than 5 times in the size of its receivables and has gone up from JD 36,660 thousand in the year 1987 to JD 211,637 thousand in 1996. Similarly, the Textile Industrial Sector has recorded an increase of about 4 times in the size of receivables over the period of ten years. In the same manner, the Construction Industrial Sector has also shown a rising tendency which can be seen from a rise in the size of receivables to JD 8,723 thousand in 1996 as compared to JD 2,771 thousand in 1987. The Engineering Industrial sector and Pharmaceuticals Industrial sector have maintained the receivables to about double the size in 1996 as compared to 1987. While the Consumables and Food Industrial Sector and the Paper and Packing Industrial Sector have also shown the tendency of more than doubling the size of receivables over the period of ten years.

An indepth analysis of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector showed an overall trend of increase in the receivables. The receivables increased from JD 36,660 thousand in 1987 to JD 211,637 thousand in 1996. It is interesting to note that inventory had blocked a major share of working capital for this sector in 1987 but the situation reversed in 1996 and the sector had major funds locked up in receivables. In the case of company no. 1a, there was continuous increase in receivables over the period under study. Company no. 1b also showed an increase in receivables from JD 354 thousand in 1987 to JD 1,023 thousand in 1992. But the level of receivables dropped sharply in 1993 to JD 499 thousand after which it again continued to increase and reached up to JD 830 thousand in 1996. In the case of company no. 1c, a fluctuating trend has been seen throughout the period, where the receivables, which were JD 795 thousand in 1987, increased to JD 1,207 thousand by 1996.

The Construction Industrial Sector showed a steady building up of receivables from JD 2,771 thousand in 1987 to JD 8,723 thousand in 1996.

Both company no 2a and company no 2b showed a steady growth in receivables over the period. In the case of company no 2c, a rise in the size of receivables has been found between 1987 to 1991, after which the receivables dropped till 1993, and again showed an increase between 1994 to 1996.

The Consumables and Food Industrial Sector also showed fluctuating trend in receivables and a general fluctuation in the level of receivables. The size of receivables increased from JD 2,618 thousand in 1987 to JD 6,888 thousand in 1996. Though there were ups and downs in receivables, the major drop came in 1994 when the receivables dropped from JD 7,099 thousand in 1993 to JD 3,733 thousand in 1994. The size of receivables for this sector almost tripled during the period under study, i.e., from 1987 to 1996. All the three companies in this sector showed a similar pattern of fluctuations in the level of receivables during the ten years under study.

The Pharmaceuticals Industrial Sector showed a slow growth in terms of receivables. The receivables increased from JD 13,759 thousand in 1987 to JD 29,065 thousand in 1996. Both, company no 4a and company no 4b showed a slower growth of receivables than company no. 4c which multiplied its receivables over the years.

The Engineering Industrial Sector showed a sharp increase in receivables in earlier years but from the middle of the period of study, the size of the receivables was constant. In the case of company no. 5a, the level of receivables increased between 1988 to 1991 but from 1992 onwards, the receivables started declining, which fell from JD 1,884 thousand in 1992 to JD 773 thousand in 1996. On the other hand, company no 5b showed a reverse trend. The size of its receivables continuously increased over the period. Company no. 5c had a sharp increase in receivables in 1989 (JD 1,330 thousand). Thereafter, the size of receivables decreased and after further fluctuations, it fell to JD 413 thousand in 1996.

The Textile Industrial Sector showed a sharp increase in its receivables from JD 2,641 thousand in 1987 to JD 10,864 thousand in 1996. The highest was JD 14,317 thousand in 1995. Both, company no 6a and company no. 6b showed an increase in the receivables from 1987 to 1995 and a sharp decline in 1996. Company no. 6c registered a sharp increase in size of receivables from JD 37 thousand in 1987 to JD 510 thousand in 1996.

The Paper and Packing Industrial Sector showed an increase in the size of receivables from JD 1,942 thousand in 1987 to JD 3,184 thousand in 1989. The receivables continued to decline till 1992 (JD 1,367 thousand). Thereafter, they sharply increased till they reached JD 4,558 thousand in 1996. Company no. 7a and company no. 7b trod the path of their sector with similar ups and downs. But company no. 7c showed an increase in the size of receivables till 1995 and a sudden fall thereafter.

The data regarding the level of receivables during the period of this study shows an overall picture of all the industrial companies of Jordan. The data reveals an overall increase in the size of receivables over the period under study. The total receivables amounting to JD 62,490 thousand in 1987, increased to JD 276,609 thousand in 1996. On an average, all the sectors have shown increase in the size of receivables over the decade but this gives an incomplete picture unless its trend is compared with that of the growth of sales. Therefore an attempt is made to compare the growth of sales and the size of receivables.

#### **5.2.5 ANALYSIS OF THE GROWTH RATE IN AVERAGE ANNUAL SALES AND RECEIVABLES**

An increase in the accounts receivable is naturally the outcome of sales growth but a company should have a proper management of credit control by not allowing a faster growth in receivables than that in sales. If liberal credit terms are offered to induce the existing customers to purchase more and also to attract new customers, receivables may grow faster than sales. Disproportionate growth in receivables may result in more costs and losses than incremental profit from incremental sales due to the inclusion of lower quality of debtors. This phenomenon also helps in proving the fact that sales growth is mainly dependent on the extension of credit.

Detailed analysis and interpretation of data regarding the growth rate of sales and receivables can help in understanding the overall efficiency of industrial companies of Jordan included in this study.

Table V.2 2 shows the growth in receivables and growth in sales in the industrial companies during the period of the study, i.e , 1987 to 1996.

**Table V 2 2**  
**Growth of Receivable and Net Sales (Trend Percentages) in the Industrial Companies During 1987 to 1996.**

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co		100 00 (100)	121 26 (100)	120 32 (111 93)	206 06 (127 59)	190 69 (132 91)	249 61 (159 17)	322 41 (167 25)	395 39 (137 37)	514 34 (183 32)	590 24 (201 24)	281 03 (146 58)
b) Intermediate Petrochemical Industrial Co		100 00 (100)	86 26 (101 13)	161 03 (226 23)	195 72 (212 66)	190 82 (127 93)	288 86 (103 23)	140 97 (98 94)	232 89 (113 86)	183 02 (61 11)	234 42 (63 51)	181 40 (120 86)
c) Jordan Sulpho- Chemicals Co		100 00 (100)	142 46 (96 57)	60 10 (142 94)	107 24 (161 21)	28 43 (144 65)	39 99 (133 45)	63 94 (100 92)	81 88 (102 21)	204 68 (152 55)	151 81 (93 5)	98 05 (122 8)
<b>Sector-wise Ratio</b>		100 00 (100)	121 38 (99 96)	119 41 (114 78)	203 81 (129 9)	187 17 (133 03)	245 44 (157 21)	315 05 (164 67)	387 02 (174 72)	504 42 (185 13)	577 30 (196 52)	276 10 (145 59)
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories		100 00 (100)	87 69 (89 27)	120 32 (94 9)	105 81 (120 34)	209 01 (137 69)	178 90 (179 41)	227 48 (231 81)	211 16 (210 49)	263 03 (218 86)	323 38 (229 87)	182 68 (161 26)
b) Jordan Ceramic Industrial Co		100 00 (100)	145 17 (111 47)	366 94 (208 72)	357 17 (249 64)	396 63 (310 47)	356 83 (356 47)	348 58 (385 3)	425 63 (482 61)	483 44 (551 34)	606 75 (565 98)	358 71 (332 20)
c) Jordan Rockwood Industrial Co		100 00 (100)	139 85 (143 83)	398 47 (403 81)	227 62 (305 86)	196 98 (118 94)	206 17 (178 42)	217 02 (242 71)	228 13 (172 70)	210 47 (186 31)	171 28 (155 38)	209 60 (200 80)
<b>Sector-wise Ratio</b>		100 00 (100)	97 48 (90 88)	169 89 (103 56)	133 88 (127 79)	215 67 (143 78)	190 59 (185 92)	231 40 (220 54)	223 04 (219 96)	265 52 (230 63)	314 84 (241 16)	194 23 (166 42)
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri Co		100 00 (100)	135 34 (109 17)	85 25 (134 56)	156 77 (210 30)	198 85 (341 85)	263 69 (390 55)	381 11 (458 43)	131 84 (262 44)	243 85 (270 08)	289 64 (213 60)	198 63 (249 10)
b) Arab Investment and Int Trade Co		100 00 (100)	129 74 (166 36)	56 34 (105 57)	76 51 (65 68)	258 21 (168 20)	435 75 (511 39)	104 10 (275 63)	127 62 (254 99)	168 92 (281 88)	221 37 (298 71)	167 86 (222 84)
c) The National Industrial Co		100 00 (100)	146 89 (91 53)	156 55 (90 63)	110 00 (240 82)	132 07 (189 42)	138 44 (205 51)	66 58 (229 99)	177 37 (288 04)	277 83 (336 36)	214 34 (265 82)	152 01 (203 81)
<b>Sector-wise Ratio</b>		100 00 (100)	137 53 (113 30)	99 47 (123 95)	135 86 (197 59)	189 30 (296 14)	252 85 (375 47)	271 13 (399 36)	142 59 (265 65)	243 49 (282 20)	263 08 (232 38)	183 53 (238 60)
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co		100 00 (100)	107 38 (100 65)	152 44 (155 95)	134 82 (174 61)	141 24 (183 41)	134 76 (204 92)	151 70 (212 44)	149 95 (160 05)	149 50 (232 55)	177 10 (232 27)	139 89 (174 89)
b) Dar Al-Dawa Development & Invt Co		100 00 (100)	133 88 (155 65)	207 87 (254 11)	217 69 (359 78)	161 51 (329 85)	207 42 (427 5)	220 43 (564 53)	306 42 (664 19)	334 81 (666 19)	334 00 (623 77)	222 40 (414 64)
c) Arab Center for Pharm & Chemicals		100 00 (100)	139 14 (190 22)	459 89 (543 70)	495 13 (496 91)	639 01 (605 79)	691 65 (1005 95)	1192 88 (1035 89)	1677 37 (1396 19)	483 34 (778 16)	492 62 (637 62)	637 10 (679 04)
<b>Sector-wise Ratio</b>		100 00 (100)	112 71 (114 66)	168 47 (188 93)	156 78 (222 48)	154 91 (227 14)	158 89 (277 01)	184 95 (310 86)	208 57 (303 08)	189 04 (331 19)	211 24 (323 81)	164 56 (239 92)

Continue Table V 2.2

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
5) Engineering Industrial Sector												
a) Arab Aluminium Industry Co		100 (100)	40 55 (134 03)	134 69 (188 11)	136 38 (181 78)	160 97 (191 35)	155 37 (209 84)	142 10 (282 40)	62 51 (245 81)	74 83 (223 50)	63 78 (209 53)	107 12 (192 64)
b) National Cables & Wire Manuf Co		100 (100)	111 06 (139 77)	460 48 (566 03)	496 19 (697 95)	343 02 (501 93)	408 38 (422 12)	647 33 (568 96)	662 32 (642 89)	570 06 (753 07)	661 62 (595 39)	446 05 (498 81)
c) Jordan Pipes Manufacturing Co		100 (100)	180 61 (108 09)	403 90 (208 33)	196 49 (122 56)	70 87 (120 25)	127 69 (181 41)	125 74 (166 70)	189 07 (152 47)	158 05 (125 43)	125 53 (140 20)	165 79 (142 54)
Sector-wise Ratio		100 (100)	78 11 (126 13)	263 42 (250 60)	241 35 (250 57)	195 18 (220 57)	218 21 (236 74)	273 68 (282 50)	241 62 (282 34)	219 37 (281 28)	232 20 (252 36)	206 31 (228 31)
6) Textile Industrial Sector												
a) The Jordan Worsted Mills Co		100 (100)	114 27 (95 97)	93 68 (89 77)	145 97 (100 22)	150 35 (132 09)	251 73 (141 72)	268 72 (149 69)	319 73 (140 66)	522 37 (203 34)	432 30 (169 47)	239 91 (132 29)
b) Jordan Tanning Co		100 (100)	99 60 (127 40)	151 72 (152 21)	296 07 (401 56)	424 44 (735 52)	532 07 (939 69)	441 33 (805 27)	190 02 (964 71)	598 47 (1587 63)	264 05 (1235 01)	309 78 (704 90)
c) The Woolen Industrial Co		100 (100)	72 97 (116 67)	96 58 (165 71)	532 35 (189 70)	501 95 (207 84)	880 04 (263 01)	788 32 (278 20)	821 92 (212 78)	817 51 (197 64)	1368 33 (321 79)	578 00 (205 33)
Sector-wise Ratio		100 (100)	110 71 (101 40)	105 53 (102 30)	181 95 (146 82)	211 05 (220 23)	314 78 (259 33)	311 15 (247 76)	300 43 (259 46)	542 00 (396 56)	411 29 (326 04)	258 89 (215 99)
7) Paper & Packing Industrial Sector												
a) Jordan Paper and Cardboard Factories		100 (100)	108 68 (103 97)	165 32 (179 02)	98 16 (193 37)	87 25 (200 11)	57 44 (116 73)	84 38 (118 07)	80 46 (131 41)	172 59 (169 38)	206 38 (129 37)	116 07 (144 14)
b) Arab Paper Converting & Trading Co		100 (100)	73 25 (102 89)	173 46 (229 79)	108 51 (267 47)	139 53 (191 34)	112 68 (233 23)	118 68 (321 01)	147 74 (542 25)	378 10 (500 98)	425 20 (976 77)	177 72 (346 57)
c) Jordan Printing and Packing Co		100 (100)	92 39 (105 87)	105 64 (104 97)	162 57 (140 98)	194 16 (158 88)	203 75 (141 85)	196 45 (140 09)	206 27 (126 87)	553 05 (94 38)	220 89 (86 89)	203 52 (120 08)
Sector-wise Ratio		100 (100)	103 53 (104 16)	163 93 (172 42)	102 08 (192 09)	98 21 (193 14)	70 37 (130 85)	93 26 (139 40)	94 08 (167 23)	214 03 (187 59)	234 70 (198 26)	127 42 (158 52)
Overall Industrial Ratio		100 (100)	116 63 (113 78)	137 25 (157 45)	184 66 (171 47)	179 93 (176 59)	220 84 (192 40)	272 41 (191 05)	312 57 (204 59)	396 45 (228 54)	442 64 (239 25)	236 34 (177 51)

Source: Appendices II &amp; III

Note: Figures in the brackets indicate average annual percentage growth rate in sales

It can be noticed from the given table that overall sales of the companies in Jordan have recorded a rise by more than double up to 1996 as compared to 1987. Thus, the overall industrial sales has registered a gradual increase over the years, which was 239.25 per cent of the sales in 1996 as compared to 1987. Against this, the growth rate of receivables was much higher than the growth rate of sales. It was 442.64 per cent in 1996 as compared to 1987. Throughout the period, the growth rate of receivables has been more than that of sales and particularly after 1992 it has been increased substantially more than the growth rate of sales. To sum up, the overall growth rate in sales has increased about 177.58 per cent, whereas the growth in receivables has been 236.34 per cent. Sector-wise analysis reveals somewhat different results. Certain sectors had maintained higher level of receivables as compared to their growth of sales indicating liberal credit policy, while the performance of some other sectors has been in sharp contrast.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector has nearly doubled the sales in 1996 as compared to 1987 but its receivables have gone up by 5 times within the same period. In the case of company no. 1b, a fall in sales has been registered after 1989 and the sales was just 63.51 per cent in 1996 as compared to the base year, i.e., 1987. In spite of this, the receivables continued to increase to 234.42 per cent in 1996. Although company no. 1a had doubled its sales over the period of ten years but the growth rate of receivables was much higher which went up to about 6 times over the period. On the other hand, company no. 1c showed a very slow growth in receivables till 1994. Only from 1995 onwards, the receivables of the company increased more sharply than the sales. One of the main reasons for this trend in the Chemical and Petroleum Industrial Sector is the average collection period of accounts receivable, which was 52 days in 1987, and had gone up to 154 days in the year 1996 (Table V.2.8). This implies the change in collection policy and methods adopted by the companies under this sector. The management had followed the liberal credit policy during the latter period of the study.

In the Construction Industrial Sector, all the three companies under study have shown an even trend of maintaining higher size of receivables as compared to the sales. On the whole, the Construction Industrial Sectors' sales growth was 241.16 per cent and as against this, the receivables went up to 314.84 per cent in 1996 as compared to base year under the period of the study.

The Textile Industrial Sector also maintained a consistent trend with the overall industrial trend and registered a growth of receivables up to 411.29 per cent as against the growth of sales of 326.04 per cent in 1996 as compared to the base year of the study. The collection period of the accounts receivable of this sector went up to 152 days in 1996 as compared to 98 days in 1987, which seems to be the main reason behind the increased investment in the receivables. However, company no. 6b indicates a different performance from the other two companies. It had a higher growth of sales than that of receivables. Throughout the period of ten years, it had a higher rate of sales growth than the receivables. This company showed remarkable control on accounts receivable and thereby the collection period of accounts receivable, which was as high as 165 days in 1987 but was brought down to just 35 days in 1996.

All the above three sectors, with the exception of few industrial companies, have indicated poor management of receivables and lack of proper collection policy and thereby had much more money locked up in receivables, quite inconsistent with that of sales. Although sometimes companies may follow a liberal collection policy to boost up the sales, one has to consider the cost of maintaining these higher receivables and the strain it puts on the liquidity and the cash position of the company. In the above cases, certain sectors have shown an abnormally higher growth of receivables. Further, certain companies in these sectors have shown remarkable growth of sales without being too liberal in their collection policies. Hence, the overall performance of these companies should be viewed from the angle of inefficiency of receivable management rather than thinking about anticipation of growth in sales.

The Consumables and Food Industrial Sector had a higher rate of growth in receivables as compared to that of sales in the initial years of the decade. But thereafter, the company improved its receivables position and collection policy which resulted in the lowering of the growth of receivables as compared to the sales. In 1995, the sector had receivables growth of 243.49 per cent as compared to the sales growth of 282.20 per cent. The sector, however, had a downfall in the sales volume from the year 1994 onwards and thereby the sector adopted a liberal collection policy. Hence, in the year 1996, the growth rate of receivables was higher than that of the sales. It was up to 263.08 per cent as compared to the growth rate of sales of about 232.38 per cent (as compared to 100 per cent of base year 1987).

The Pharmaceuticals Industrial Sector as such and nearly all the companies in it have had a higher growth rate of sales than that of receivable. The sector-wise ratio showed growth of sales to 323.81 per cent in 1996 as compared to the base year 1987. And during the same period, the receivables had grown up to 211.24 per cent. This can be explained from the fact that the average collection period of the receivables of the sector, which was 334 days in 1987 was brought down to 229 days in the year 1996. All the companies in this sector under the study have shown similar trends but especially company no. 4b had better figures than other companies. On an average, the company had an overall sales growth of 414.64 per cent and the average collection period was brought down from 315 days in 1987 to an average of 188 days, while the average growth in receivables was just rose to 222.40 per cent.

The Engineering Industrial Sector showed a completely different picture from the sectors discussed above. On an average, this sector had a growth rate of receivables of 206.31 per cent as compared to that of sales of about 228.31 per cent. In the case of company no. 5a and company no. 5b, the receivables grew at a lower rate than sales during the period under study. Company 5c however showed a different trend with a higher growth in receivables than in sales in the first half of the decade under study. This can be attributed to the specific conditions affecting the company and to inefficient management of receivable.

In the Paper and Packing Industrial Sector, the companies registered an overall higher growth rate of sales than the receivables up to the year 1994. But in the years 1995 and 1996, it had a higher growth rate of receivables than that of sales. This might well be the indication and the beginning of a reversal of the trend. Despite this, the overall average of the ten years show a higher growth of sales than that of receivables. In the case company no. 7a, the trend was pretty similar to that of the sector. But company no. 7c had continuously a higher rate of growth in receivables than the sales, which is in contrast to the overall performance of the sector. It had an average growth of 203.52 per cent of growth of receivables as compared to the growth of sales which was 120.08 per cent.

Thus, the above four sectors seem to have had better collection policy than others under the study. Thereby these sectors were able to check the growth of receivables below the growth of sales.

#### **5.2.6 COMPOSITION OF RECEIVABLES' ANALYSIS**

Composition of receivables is also an important part of receivables management besides the size of receivables and the comparative growth rate of sales and analysis of receivables. It is a very vital tool, among others, for evaluating the management of receivables and for the study of their structure, which helps to find the point where receivables are concentrated most. Prudent management of receivables requires that the receivables should consist chiefly of accounts receivable and also some other receivables like loans, advances, deposits, etc. For the purpose of the study, total receivables in the industrial companies comprises of accounts receivable and loans and advances. Thus, composition of receivables' analysis can be evolved from the following:

- (a) proportion of Accounts Receivable, and Loans and advances in total receivables, and
  - (b) proportion of advances and deposits in total loans and advances
- (a) Proportion of Accounts Receivable, and Loans and Advances in Total Receivables**

Tables V 2.3 and V 2.4 show the accounts receivable and loans and advances as percentage of total receivables in the industrial companies during the period of the study, i.e., 1987 to 1996.

**Table V.2.3**  
**Accounts Receivable as a Percentage of the Total Receivables in the Industrial Companies During 1987 to 1996**

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	99.58	99.71	99.78	99.81	99.82	99.80	99.87	99.77	99.78	99.81	99.75
b) Intermediate Petrochemical Industries Co Ltd	38.65	30.95	15.06	15.69	32.78	71.02	87.07	83.24	74.93	94.13	53.75
c) Jordan Sulpho- Chemicals Co Ltd	86.02	94.94	91.38	90.54	78.59	87.66	77.71	78.46	96.48	93.81	87.56
<b>Sector-wise Ratio</b>	98.70	99.11	98.58	98.92	99.09	99.43	99.49	99.58	99.66	99.76	99.23
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	84.88	79.34	82.00	59.14	58.41	71.53	59.49	64.38	40.14	56.32	65.56
b) The Jordan Ceramic Industries Co Ltd	85.63	53.63	28.94	46.47	55.99	75.46	44.54	75.43	83.87	84.22	63.42
c) Jordan Rockwool Industries Co Ltd	66.34	67.90	82.54	91.46	97.94	97.38	96.80	95.83	95.29	93.10	88.44
<b>Sector-wise Ratio</b>	82.34	75.36	77.08	65.27	63.22	75.74	63.32	69.78	49.74	61.49	68.34
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri Co Ltd	40.56	39.09	54.52	69.85	56.10	58.55	75.26	69.92	30.11	51.50	54.55
b) Arab Investment and Int. Trade Co Ltd	78.23	58.08	62.75	43.62	86.86	68.18	48.35	81.37	61.81	85.73	67.30
c) The National Industries Co Ltd	67.98	85.08	70.21	95.71	78.16	57.05	69.12	64.00	63.89	90.65	74.19
<b>Sector-wise Ratio</b>	51.73	53.31	61.16	73.29	64.80	60.28	73.59	69.30	42.19	62.73	61.24
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	91.10	90.42	93.11	91.90	91.45	91.15	89.21	91.80	94.13	97.07	92.13
b) Dar Al-Dawa Development & Invt Co Ltd	96.79	97.14	91.49	86.37	87.23	96.59	89.39	96.17	96.47	96.91	93.45
c) The Arab Center for Pharm & Chemicals Co Ltd	86.13	81.14	72.74	87.13	79.08	91.19	96.04	95.04	79.58	93.05	86.11
<b>Sector-wise Ratio</b>	92.00	91.60	91.63	90.24	89.63	92.41	90.14	93.46	94.11	96.83	92.21
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co Ltd	40.62	65.64	12.12	10.70	10.55	20.56	22.87	67.51	63.83	84.15	39.86
b) National Cables & Wire Manuf Co Ltd	87.94	84.57	90.69	85.24	82.54	68.88	78.81	75.55	84.43	89.77	82.84
c) The Jordan Pipes Manufacturing Co Ltd	95.59	98.86	97.80	99.08	97.37	98.60	98.58	98.96	82.50	97.05	96.44
<b>Sector-wise Ratio</b>	61.81	83.50	69.19	62.67	49.09	51.74	63.46	77.22	80.15	89.49	68.83
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	72.23	54.69	79.55	86.35	89.52	85.87	91.58	88.90	86.41	94.50	82.96
b) Jordan Tanning Co Ltd	88.40	96.01	68.95	57.74	94.75	95.54	93.19	89.06	88.56	87.41	85.96
c) The Woolen Industries Co Ltd	95.09	92.47	94.25	97.86	99.48	98.99	91.97	97.23	96.21	97.67	96.12
<b>Sector-wise Ratio</b>	75.84	62.60	76.84	77.36	91.99	89.59	92.06	89.24	87.10	93.72	83.61
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	46.71	83.73	91.20	82.75	71.99	74.36	57.50	80.27	42.26	29.08	65.98
b) The Arab Paper Converting & Trading Co Ltd	76.96	44.92	52.11	78.36	26.84	70.92	80.16	81.41	20.55	64.89	59.91
c) Jordan Printing and Packing Co Ltd	96.54	94.35	94.61	86.31	79.59	73.52	78.33	60.36	82.46	49.80	79.59
<b>Sector-wise Ratio</b>	52.56	80.64	86.05	82.39	64.83	73.56	62.93	78.73	41.61	38.09	66.14
<b>Overall Industrial Ratio</b>	90.89	92.04	91.31	92.65	91.13	93.10	93.69	95.96	94.06	95.89	93.07

Source: Appendix II

Table V.2.4  
Loans and Advances as a Percentage of the Total Receivables in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	0.42	0.29	0.22	0.19	0.18	0.20	0.33	0.23	0.22	0.19	0.25
b) Intermediate Petrochemical Industries Co Ltd	61.35	69.05	84.94	84.31	67.22	28.98	18.93	16.76	25.07	5.87	46.25
c) Jordan Sulpho- Chemicals Co. Ltd	13.98	5.06	8.62	9.46	21.41	12.34	22.29	21.54	3.52	6.19	12.44
Sector-wise Ratio	1.30	0.89	1.42	1.08	0.91	0.57	0.51	0.42	0.34	0.24	0.77
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	15.12	20.86	18.00	40.86	41.59	28.47	40.51	35.62	59.86	43.68	34.44
b) The Jordan Ceramic Industries Co. Ltd	14.37	46.37	71.06	53.53	44.01	24.54	55.46	24.57	16.13	15.78	36.58
c) Jordan Rockwool Industries Co Ltd	33.66	32.10	17.46	8.54	2.06	2.62	3.40	4.17	4.71	6.90	11.56
Sector-wise Ratio	17.66	24.64	22.92	34.73	36.78	24.26	36.68	30.22	50.26	38.51	31.66
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	59.44	60.91	45.48	30.15	43.90	41.45	24.74	30.08	69.89	48.50	45.45
b) Arab Investment and Int. Trade Co. Ltd	21.77	41.92	37.25	56.38	13.14	31.82	53.65	18.63	38.19	14.27	32.70
c) The National Industries Co. Ltd	32.02	14.92	29.79	4.29	21.84	42.95	30.88	36.00	36.11	9.35	25.81
Sector-wise Ratio	48.27	46.09	38.84	26.71	35.20	39.72	26.41	30.70	57.81	37.27	38.76
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	8.90	9.58	6.89	8.10	8.55	8.85	10.79	8.20	5.87	2.93	7.87
b) Dar Al-Dawa Development & Invt. Co. Ltd	3.21	2.86	8.51	13.63	12.77	3.41	10.61	3.83	3.53	3.09	6.55
c) The Arab Center for Pharm. & Chemicals Co. Ltd	13.87	18.86	27.26	12.87	20.92	8.81	3.96	4.96	20.42	6.95	13.89
Sector-wise Ratio	8.00	8.40	8.37	9.76	10.37	7.59	9.86	6.54	5.89	3.17	7.79
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	59.38	34.36	87.88	89.30	89.45	79.44	77.13	32.49	36.17	15.85	60.14
b) National Cables & Wire Manuf. Co. Ltd	12.06	15.43	9.31	14.76	17.46	31.12	21.19	24.45	15.57	10.23	17.16
c) The Jordan Pipes Manufacturing Co. Ltd	4.41	1.14	2.20	0.92	2.63	1.40	1.42	1.04	17.50	2.95	3.56
Sector-wise Ratio	38.19	16.50	30.81	37.33	50.91	48.26	36.54	22.78	19.85	10.51	31.17
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	27.77	45.31	20.45	13.65	10.48	14.13	8.42	11.10	13.59	5.50	17.04
b) Jordan Tanning Co. Ltd	11.60	3.99	31.05	42.26	5.25	4.46	6.81	10.94	11.44	12.59	14.04
c) The Woolen Industries Co. Ltd	4.91	7.53	5.75	2.14	0.52	1.01	8.03	2.77	3.79	2.33	3.88
Sector-wise Ratio	24.16	37.40	23.36	22.64	8.01	10.41	7.94	10.76	12.90	6.28	16.39
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	53.29	16.27	8.80	17.25	28.01	25.64	42.50	19.73	57.74	70.92	34.02
b) The Arab Paper Converting & Trading Co. Ltd	23.04	55.08	47.89	21.64	71.16	29.08	19.84	18.59	79.45	35.11	40.09
c) Jordan Printing and Packing Co. Ltd	3.46	5.65	5.39	13.69	20.41	26.48	21.67	39.65	17.54	50.20	20.41
Sector-wise Ratio	47.44	19.36	13.95	17.61	35.17	26.44	37.07	21.27	58.39	61.91	33.86
<b>Overall Industrial Ratio</b>	9.11	7.96	8.69	7.35	8.87	6.90	6.31	4.04	5.94	4.11	6.93

Source: Appendix II

It can be seen from Table V.2.3 that the overall industrial average shows a tendency to increase the percentage of accounts receivable in total receivables over the years. It was 93.07 per cent during the period under study. Thus, from 90.89 per cent in 1987, the proportion of accounts receivable has gone up to 95.89 in 1996. Table V.2.4 shows that the overall industrial average of loans and advances as percentage of total receivables was as low as 6.93 during the period under study. It has gone down from 9.11 in 1987 to 4.11 in 1996. The sector-wise analysis reveals that the ratio of accounts receivable to total receivables was very high in all the sectors during the period under study. On an average, it was extremely high in the Chemical and Petroleum Industrial Sector, i.e., 99.23 per cent, the balance 0.77 per cent being in loans and advances, while in the Pharmaceutical Industrial Sector both the ratios were close to their overall industrial averages. In the remaining sectors, the ratio of accounts receivable to total receivables varied between 60 per cent and 80 per cent, the balance being in loans and advances during the period under study.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had 99.23 per cent investment in receivables on an average, the balance 0.77 per cent being in loans and advances. It had 98.70 per cent in 1987 of its receivables as accounts receivable which gradually increased to 99.76 in the year 1996. Thereby a bulk of the receivables consisted of accounts receivable and only 0.24 per cent in 1996, as loans and advances (Table V.2.4). But this has been possible due to the share of company no. 1a which essentially played a major role as compared to company no. 1b and company no. 1c in this sector. The average investment by company no. 1a in loans and advances was just 0.25 per cent of its total receivables and even in that the proportion of advances was of 100 per cent (Table V.2.5). In the case of company no. 1b, on an average, 53.75 per cent consisted of accounts receivable, the balance being loans and advances to total receivables. However, it had a very low percentage of receivables in the form of accounts receivable. From 1987 to 1990, a major share of the receivables was that of loans and advances and the share of accounts receivable had gone down from 38.65 per cent in 1987 to 15.69 per cent in 1990. Thereafter there has been a remarkable turn around in the proportion of accounts receivable and it went on increasing up to 94.13 per cent of the total

receivables in 1996. Thus it had just 5.87 per cent of the receivables as loans and advances in 1996.

The Construction Industrial Sector showed a tendency of reducing portion of accounts receivable in total receivables. The average proportion of accounts receivable was up to 68.34 per cent of the total receivables and loans and advances constituted 31.66 per cent of the total receivables. In the case of company no. 2a and company no. 2b, it was found that they stayed close to their sector average for both the ratios while company no. 2c, had an average of 88.44 per cent and 11.56 per cent for accounts receivable and loans and advances respectively.

The Consumables and Food Industrial Sector which initially had just 51.73 per cent of the receivables as accounts receivable in 1987 gradually increased the proportion and it went up to 73.59 per cent in the year 1993. Therefore the corresponding share of loans and advances reduced to 26.41 per cent in the same year. Afterwards, the share of the accounts receivable again went down to 62.73 in the year 1996. Thereby this sector has shown the tendency to invest higher funds in loans and advances which can disturb the operating cycle and affect the cash position of the company.

The Pharmaceuticals Industrial Sector had a higher percentage of accounts receivable in relation to the total receivables. On an average, it was 92.21 per cent of the total receivables while loans and advances constituted just 7.79 per cent. Thus, the proportion of accounts receivable seems quite satisfactory.

The Engineering Industrial Sector initially had just 61.81 per cent of its total receivables as accounts receivable which further went down to 49.09 per cent in the year 1991. This indicates that the greater part of the company's fund was diverted to loans and advances. Around 51 per cent of the total receivables in loans and advances indicates that the funds of the working which should be applied in rotation had been applied for fixed purposes, thus indicating a poor composition of receivables. Afterwards, the proportion of accounts receivable increased significantly and it went up to 89.49 per cent of its total receivables in 1996. However, company no. 5c registered an average of about 96.44 per cent of its receivables as accounts receivable while the portion of loans and advances constituted just 3.56 per cent.

The Textile Industrial Sector showed an increasing tendency to apply funds in accounts receivable as compared to loans and advances. Thus from 75.84 per cent in 1987, the percentage of accounts receivable went up to 93.72 per cent in the year 1996 and thereby the proportion of loans and advances came down to 6.28 per cent in 1996 from 24.16 per cent in 1987.

The Paper and Packing Industrial Sector showed the opposite trend to that of overall industrial average. Although, in the initial years, the proportion of accounts receivable in total receivables increased from 52.56 per cent in 1987 to 86.05 per cent in 1989, the proportion underwent a gradual decline thereafter and in 1996 it was just 38.09 per cent of the total receivables. Thus, in this sector, the loans and advances constituted the bulk of the total receivables. In the year 1996, the portion of loans and advances in total receivables was 61.91 per cent.

The overall industrial average of accounts receivable was nearly between 90 to 95 per cent of the total receivables. If we study the position of individual companies, it can be said that company no. 5a was at the lowest position. The average percentage of accounts receivable was only 39.86 per cent. However, this low average was due to the initial high amount of loans and advances between 1987 and 1993. But, the position of the company improved later to 84.15 per cent of accounts receivable in total receivables in 1996. In the case of company no. 7a, high percentage of loans and advances of 70.92 per cent was found in 1996. The companies having a higher percentage of loans and advances than accounts receivable could have reached this situation due to the absence of a general policy in respect of the control of receivables.

#### **(b) Proportion of Advances and Deposits in Total Loans and Advances**

In the above section, we have discussed the proportion of accounts receivable and loans and advances in total receivables. Loans and advances also consist of certain advances and certain deposits which are essentially of fixed investment.

Tables V.2.5 and V.2.6 depict the percentage of advances and deposits to total loans and advances in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V.2.5  
Percentage of "Advances" to the Total Loans and Advances in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
b) Intermediate Petrochemical Industries Co Ltd		19.73	59.06	5.27	3.16	7.63	13.51	34.93	65.72	44.39	33.66	28.71
c) Jordan Sulpho- Chemicals Co Ltd		33.02	18.83	13.25	52.91	18.09	24.24	66.39	38.45	26.05	40.15	33.14
<b>Sector-wise Ratio</b>		47.83	66.33	20.35	24.93	26.47	43.98	83.12	77.56	78.76	84.99	55.43
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		47.16	38.46	38.19	23.52	14.38	47.19	37.03	13.86	6.69	7.29	27.38
b) The Jordan Ceramic Industries Co Ltd		46.34	3.85	0.93	1.31	1.19	7.03	24.09	39.57	50.90	39.09	21.43
c) Jordan Rockwool Industries Co Ltd		86.35	90.47	67.79	12.15	21.54	14.33	13.18	34.82	38.25	66.76	44.56
<b>Sector-wise Ratio</b>		57.50	47.65	34.46	18.81	13.14	43.28	35.43	16.04	8.16	9.21	28.37
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn Co Ltd		85.94	69.24	4.19	3.54	7.00	79.00	44.31	52.91	86.54	91.55	52.42
b) Arab Investment and Int. Trade Co Ltd		33.80	28.66	100.00	30.36	46.19	11.93	26.56	72.41	32.00	100.00	48.19
c) The National Industries Co Ltd		33.53	51.23	36.38	10.64	12.60	7.57	12.18	1.87	33.40	10.13	20.95
<b>Sector-wise Ratio</b>		74.62	63.71	19.86	7.49	9.93	57.75	40.42	35.77	74.27	87.76	47.16
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co Ltd		46.14	39.77	29.44	40.29	41.90	38.26	41.56	47.95	63.60	100.00	48.89
b) Dar Al-Dawa Development & Invst Co Ltd		78.46	46.41	18.25	3.76	7.07	22.32	58.96	26.62	49.69	56.86	36.84
c) The Arab Center for Pharm & Chemicals Co Ltd		63.10	41.46	22.27	22.54	18.00	52.62	68.58	55.07	34.96	91.87	47.05
<b>Sector-wise Ratio</b>		49.03	40.34	25.67	26.27	29.95	38.08	46.92	45.58	55.84	87.38	44.51
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co Ltd		2.34	18.76	1.64	1.52	1.67	1.32	0.72	24.28	44.08	51.80	14.81
b) National Cables & Wire Manuf Co Ltd		9.06	3.87	1.32	1.98	2.84	2.02	2.74	1.93	3.32	4.37	3.35
c) The Jordan Pipes Manufacturing Co Ltd		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<b>Sector-wise Ratio</b>		4.67	15.32	3.28	1.93	2.15	1.81	1.73	7.24	27.60	18.00	8.37
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		0.00	0.00	0.00	15.08	5.66	18.12	27.97	23.98	25.36	67.72	18.39
b) Jordan Tanning Co Ltd		11.03	32.22	2.11	1.66	18.70	13.63	5.77	5.53	26.68	26.03	14.34
c) The Woolen Industries Co Ltd		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	86.59	81.93	16.85
<b>Sector-wise Ratio</b>		1.02	0.61	0.79	6.74	9.14	17.40	21.47	21.33	26.01	57.05	16.15
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		5.41	14.41	2.76	3.65	3.77	5.88	2.45	13.41	95.35	92.69	23.98
b) The Arab Paper Converting & Trading Co Ltd		5.79	4.63	2.22	31.87	3.67	3.69	7.89	17.58	1.92	15.29	9.46
c) Jordan Printing and Packing Co Ltd		100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
<b>Sector-wise Ratio</b>		5.71	12.82	3.49	13.13	8.20	16.44	7.79	28.46	67.04	82.84	24.59
<b>Overall Industrial Ratio</b>		36.70	39.21	17.09	14.43	14.33	33.40	32.45	30.49	45.81	58.21	32.21

Source Appendix II

Table V.2.6  
Percentage of "Deposits" to Total Loans and Advances in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
b) Intermediate Petrochemical Industries Co Ltd		80 27	40 94	94 73	96 84	92 37	86 49	65 07	34 28	55 61	66 34	71 29
c) Jordan Sulpho-- Chemicals Co Ltd		66 98	81 17	86 75	47 09	81 91	75 76	33 61	61 55	73 95	59 85	66 86
Sector-wise Ratio		52 17	33 67	79 65	75 07	73 53	56 02	16 88	22 44	21 24	15 01	44 57
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		52 84	61 54	61 81	76 46	85 62	52 81	62 97	86 14	93 31	92 71	72 62
b) The Jordan Ceramic Industries Co Ltd		53 66	96 15	99 07	98 69	98 81	92 97	75 91	60 43	49 10	60 91	78 57
c) Jordan Rockwood Industries Co Ltd		13 65	9 53	32 21	87 85	78 46	85 67	86 82	65 18	61 75	33 24	55 44
Sector-wise Ratio		42 50	52 35	65 54	81 19	86 86	56 72	64 57	83 96	91 84	90 79	71 63
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri Co Ltd		14 06	30 76	95 81	96 46	93 00	21 00	55 69	47 09	13 46	8 45	47 58
b) Arab Investment and Int. Trade Co Ltd		66 20	71 34	0 00	69 64	53 81	88 07	73 44	27 59	68 00	0 00	51 81
c) The National Industries Co Ltd		66 47	48 77	63 62	89 43	87 40	92 43	87 82	98 13	66 60	89 87	79 05
Sector-wise Ratio		25 38	36 29	80 14	92 52	90 07	42 25	59 58	64 23	25 73	12 24	52 84
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co Ltd		53 86	60 23	70 56	59 71	58 10	61 74	58 44	52 05	36 40	0 00	51 11
b) Dar Al-Dawa Development & Int. Co Ltd		21 54	53 59	81 75	96 24	92 93	77 68	41 04	73 38	50 31	43 14	63 16
c) The Arab Center for Pharm & Chemicals Co Ltd		36 90	58 54	77 73	77 46	82 00	47 38	31 42	44 93	65 04	8 13	52 95
Sector-wise Ratio		50 97	59 66	74 33	73 73	70 05	61 92	53 08	54 42	44 16	12 62	55 49
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co Ltd		97 66	81 24	98 36	98 48	98 33	98 68	99 28	75 72	55 92	48 20	85 19
b) National Cables & Wire Manuf Co Ltd		90 94	96 13	98 68	98 02	97 16	97 98	97 26	98 07	96 68	95 63	96 65
c) The Jordan Pipes Manufacturing Co Ltd		0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Sector-wise Ratio		95 33	84 68	96 72	98 07	97 85	98 19	98 27	92 76	72 40	82 00	91 63
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		100 00	100 00	100 00	84 92	94 34	81 88	72 03	76 02	74 64	32 28	81 61
b) Jordan Tanning Co Ltd		88 97	67 78	97 89	98 34	81 30	86 37	94 23	94 47	73 32	73 97	85 66
c) The Woolen Industries Co Ltd		100 00	100 00	100 00	100 00	100 00	100 00	100 00	100 00	13 41	18 07	83 15
Sector-wise Ratio		98 92	99 37	99 18	93 26	90 86	82 60	78 53	78 67	73 99	42 95	83 83
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		94 59	85 59	97 24	96 35	96 23	94 12	97 55	86 59	4 65	7 31	76 02
b) The Arab Paper Converting & Trading Co Ltd		94 21	95 37	97 78	68 13	96 33	96 31	92 11	82 42	98 08	84 71	90 54
c) Jordan Printing and Packing Co Ltd		0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00
Sector-wise Ratio		94 29	87 18	96 51	86 85	91 80	83 56	92 21	71 54	32 96	17 16	75 41
<b>Overall Industrial Ratio</b>		63 30	60 78	82 90	85 57	85 67	66 60	67 55	69 51	54 19	41 79	67 79

Source: Appendix II

From Table V.2.5 and Table V.2.6, an overall industrial average with regard to average percentage of advances and deposits to total loans and advances can be observed. It can be seen that the average percentage of advances to total loans and advances has been 32.21 per cent while that of deposits has been 67.79 per cent. But the industry seems to be moving towards more advances than deposits in the last two years where the percentage of advances has increased to 45.81 per cent and 58.21 per cent in the years 1995 and 1996 respectively. On an average, the percentage of advances, to total loans and advances was the lowest in the case of the Engineering Industrial Sector with 8.37 per cent followed by the Construction Industrial Sector, the Textile Industrial Sector, and the Paper and Packing Industrial Sector with 28.37 per cent, 16.15 per cent and 24.59 per cent respectively. In the remaining sectors, the percentage of advances to total loans and advances was found to be higher than the overall industrial average of advances, the balance for each sector being deposits during the period of the study (Table V.2.6).

An indepth analysis of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector showed a tendency of reduction in the percentage of its advances over the deposits in the initial years when the share of advances was reduced from 47.83 per cent in 1987 to 26.47 per cent in 1991. At this time, the percentage of deposits in respect to total loans and advances increased from 52.17 per cent to as high as 73.53 per cent. But, thereafter, the percentage of advances further increased and it went up to 84.99 per cent of the total loans and advances in the year 1996, thus, indicating an increasing trend to apply the funds in advances rather than in deposits. Company-wise analysis shows that company no. 1a had 100 per cent of advances out of total loans and advances, whereas company no. 1b and company no. 1c had more than 50 per cent of deposits out of loans and advances during the period under study.

The Construction Industrial Sector showed substantial investment in deposits as compared to advances. Over the period of ten years, the sector registered a reduction in the percentage of advances from 57.50 per cent in

1987 to 9.21 per cent in the year 1996. Thus, the sector showed a tendency to apply funds in deposits which are essentially of fixed nature rather than in advances which keeps in rotation. The percentage of deposits over the period increased from 42.50 per cent in 1987 to 90.79 per cent in 1996. On an average, for both tables, company no. 2a and company no. 2b shared similar positions but it was reverse in the case of company no. 2c. This position is natural for the construction sector since it has to invest a lot of money in the form of deposits like Earnest Money Deposit (EMD), Security Deposit (SD), etc., with various agencies.

The Consumables and Food Industrial Sector had a mixed trend of investment of advances as compared to other sectors. Initially the advances constituted 74.62 per cent of the total loans and advances which sharply went down in 1990 to just 7.49 per cent. In 1991, this percentage increased to 9.93 per cent. Thereafter, the proportion suddenly increased and it went up to 87.76 per cent of the total loans and advances in 1996. Thereby the sector initially had small percentage of deposits which went up to 92.52 per cent in 1990. After 1992, it came down to 12.24 per cent in 1996. Company no. 3a and company no. 3b showed similar positions with average of 52.42 per cent and 48.19 per cent respectively of advances to total loans and advances. But company no. 3c had only 20.95 per cent advances and a whopping 79.05 per cent deposits on an average to total loans and advances during the period of ten years of the study.

The Pharmaceutical Industrial Sector also applied funds more in advances as compared to deposits. Thus, from 49.03 per cent in 1987 the percentage of advances went down to 26.27 per cent in 1990. At this time, the funds blocked up in deposits were to the tune of 73.73 per cent. Thereafter, there was a gradual increase in the investment in advances which went up to 87.38 per cent of its total advances in 1996. The share of deposits in the corresponding years gradually came down and the deposits were just 12.62 per cent of the total loans and advances. The Tables V.2.5 and V.2.6 show that the companies under this sector registered average close to the average of the sector concerned.

The Engineering Industrial Sector had average percentage of advances was just about 8.37 per cent of the total loans and advances. A bulk of it, i.e., 91.63 per cent of the total loans and advances was in the form of deposits. In the last two years, the proportion of advances went up a little and the percentage of advances in respect to the total loans and advances increased to 27.60 per cent and 18 per cent respectively in the years 1995 and 1996. However, the companies selected for this sector showed contradictory results. Company no. 5a showed a negligible percentage of advances till 1993 after which it increased to 51.80 per cent in 1996, with an average of 14.81 per cent for ten years. Company no. 5b, on the other hand, on an average had 3.35 per cent of advances and 96.65 per cent of deposits to total loans and advances. In the case of company no. 5c, we find 100 per cent advances and no deposits throughout the period.

The Textile Industrial Sector initially had a very small portion of advances in total loans and advances but its percentage in the advances gradually increased during the later period. Thus, the percentage of advances to the total loans and advances was just 1.02 per cent in 1987 gradually went up to 57.05 per cent in 1996. The deposits in the corresponding years went up with the increase in share of advances. The average of each of the companies under this sector was close to the average of the sector concerned and they were in a similar positions and invested heavily in deposits. But these companies showed a sharp increase in percentage of advances in the last two years of the study so as to comprise a major part of loans and advances. Company no. 6c especially had no advances till 1994 but suddenly diverted most of the portion of its loans and advances and the percentage of advances to total loans and advances which had been 86.59 per cent and 81.93 per cent respectively in the years 1995 and 1996. Thus, this sector as a whole showed a tendency to release funds out of investment of a fixed nature like deposits and reapply them to a slightly faster realisable investment like advances.

The Paper and Packing Industrial Sector also showed a tendency to apply funds in liquid investment. Thus, the percentage of advances to total loans and advances went up from 5.71 per cent in 1987 to 82.84 per cent in

1996. The deposit component went down from 94.29 per cent in 1987 to just 17.16 per cent in 1996. In the case of company no. 7a, position similar to that of the sector was seen. But company no. 7b showed a reverse position. The deposits formed the major part, i.e., more than 90 per cent of the total loans and advances. Company no. 7c had 100 per cent advances and no deposits throughout the period

In short, one can say that the overall industrial average in Jordan has shown a growing tendency to apply funds in a way that more and more funds become part of the operating cycle and more and more funds are kept in rotation. It is for this reason, that the percentage of accounts receivable in total receivables is considerably higher than that of loans and advances. Within loans and advances also there has been an overall tendency to apply more funds in advances than in deposits so that they form part of money rotated instead of being converted into dead investment.

## **5.2.7 EVALUATION OF THE EFFICIENCY OF CREDIT**

### **GRANTING AND COLLECTION POLICY**

Since the companies selected for study have a large portion of their current assets in receivables, their management becomes a very important issue. The efficiency of receivables management is measured by using various tools of which accounting ratio analysis has been used here. Two ratios are generally used as good indicators for the measurement of efficiency of receivables management. They are:

- ⇒ Accounts Receivable Turnover Ratio.
- ⇒ Average Collection Period.

#### **Accounts Receivable Turnover Ratio**

The turnover of accounts receivable ratio is one of the most important measures adopted for judging the effectiveness of the credit policy of a company. It depicts the efficiency achieved in using the funds invested in receivable. The amount of uncollected receivables should bear a reasonable proportion to the sales volume. The existence of an unduly large amount of receivables indicates that too much of the wealth of the company is blocked in

the form of receivables. The higher the receivables turnover ratio, the greater the liquidity of the firm. An unusually low ratio, on the other hand, would indicate that the amount of receivables is high in comparison with sales. Through the turnover of accounts receivable, the liquidity of the receivables can also be measured

### **Average Collection Period**

The collection policy constitutes the biggest and also the most important exercise of the receivables' management. This in turn is influenced by the nature of the industry, market trend, future expectations, etc. An efficient collection requires a lower average collection period and a higher receivable turnover ratio. The average collection period measures the quality of customers since it shows the rapidity or slowness of their collectibility. According to Ercites Lewis, "The average collection period is a significant measure of collection activity and the quality of accounts receivable."<sup>(39)</sup> As it is observed by Ramamoorthy "Collection of book debts is the concluding stage in the fruition of sales transactions".<sup>(40)</sup> The shorter the average collection period, the better the quality of customers and the collection expenses. Delays or prolonged holds-up in collection can cause major financial embarrassments, as alternative sources of funds will have to be arranged for sustaining operations. "Slow - paying customers have to be handled tactfully to ensure prompt payments".<sup>(41)</sup>

The previous discussion showed that the trend of the receivables had been increasing disproportionately with the growth of sales. The overall industrial ratio of Jordan had a much higher percentage of growth of receivables than the sales. While analysing the reasons of this, one has to take into account the average collection period as well as turnover of accounts receivable of the respective companies

Tables V.2.7 and V.2.8 depict the accounts receivable turnover ratio and average collection period respectively in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.2.7  
Turnover of Accounts Receivable in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Times) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		6 93	5 71	6 44	4 28	4 82	4 41	3 59	3 10	2 53	2 36	4 42
b) Intermediate Petrochemical Industries Co Ltd		37 23	54 51	134 23	99 62	29 43	7 24	12 46	8 45	6 41	4 14	39 37
c) Jordan Sulpho- Chemicals Co Ltd		6 82	4 19	15 27	9 74	37 99	18 99	11 92	9 34	4 53	3 85	12 26
Sector-wise Ratio		7 05	5 78	6 78	4 48	4 99	4 48	3 65	3 15	2 56	2 37	4 53
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		24 81	27 03	20 26	40 50	23 76	29 53	33 28	32 61	43 67	26 58	30 20
b) The Jordan Ceramic Industries Co Ltd		17 56	21 53	28 50	22 62	21 02	19 91	37 32	22 61	20 45	16 66	22 92
c) Jordan Rockwool Industries Co Ltd		2 86	2 87	2 33	2 79	1 17	1 69	2 20	1 50	1 76	1 85	2 10
Sector-wise Ratio		22 02	22 43	14 34	26 62	19 12	23 36	27 30	25 63	31 67	22 59	23 50
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn Co Ltd		10 22	8 56	12 01	7 96	12 71	10 49	6 63	11 81	15 25	5 94	10 16
b) Arab Investment and Int Trade Co Ltd		4 91	8 48	11 47	7 56	2 88	6 61	21 95	9 44	10 37	6 05	8 97
c) The National Industries Co Ltd		3 53	1 76	1 98	5 49	4 41	6 25	12 00	6 09	4 55	3 29	4 93
Sector-wise Ratio		7 12	5 69	7 50	7 30	8 89	9 07	7 37	9 90	10 11	5 18	7 81
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co Ltd		1 05	1 00	1 06	1 35	1 36	1 60	1 51	1 12	1 53	1 30	1 29
b) Dar Al-Dawa Development & Invt Co Ltd		1 16	1 34	1 50	2 15	2 63	2 40	3 22	2 53	2 31	2 16	2 14
c) The Arab Center for Pharm & Chemicals Co Ltd		2 02	2 93	2 83	2 00	2 08	2 77	1 57	1 52	3 52	2 42	2 37
Sector-wise Ratio		1 09	1 12	1 23	1 58	1 64	1 90	1 87	1 56	1 87	1 59	1 55
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminium Industry Co Ltd		11 64	23 81	48 68	58 90	53 27	31 06	38 18	27 55	22 13	18 46	33 37
b) National Cables & Wire Manuf Co Ltd		4 17	5 46	4 97	6 06	6 50	5 50	4 09	4 71	5 74	3 68	5 09
c) The Jordan Pipes Manufacturing Co Ltd		12 90	8 40	6 50	7 76	21 49	17 77	16 59	10 05	11 86	14 19	12 75
Sector-wise Ratio		9 12	10 91	7 75	9 34	12 98	11 83	9 17	8 53	9 02	6 85	9 55
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		4 07	4 51	3 54	2 34	2 88	1 93	1 79	1 45	1 32	1 22	2 50
b) Jordan Tanning Co Ltd		2 21	2 60	2 84	4 58	3 57	3 61	3 82	11 12	5 84	10 44	5 06
c) The Woolen Industries Co Ltd		10 59	17 41	18 33	3 67	4 19	3 93	3 86	2 86	2 53	2 42	6 96
Sector-wise Ratio		3 74	4 15	3 59	2 96	3 22	2 61	2 45	2 75	2 38	2 40	3 03
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		5 78	3 09	3 21	6 43	8 61	7 38	6 57	5 50	6 27	5 82	5 87
b) The Arab Paper Converting & Trading Co Ltd		2 69	6 48	5 27	6 52	9 86	6 05	7 00	9 35	13 36	7 34	7 39
c) Jordan Printing and Packing Co Ltd		11 35	13 31	11 51	11 01	11 26	10 37	9 97	11 16	2 27	8 65	10 09
Sector-wise Ratio		5 62	3 69	3 61	6 75	8 97	7 47	7 02	6 67	6 23	6 56	6 26
<b>Overall Industrial Ratio</b>		6 23	5 30	5 49	4 65	5 12	4 85	4 21	3 66	3 15	2 85	4 55

Source: Appendices II & III

Table V.2.8  
Average Collection Period in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
<i>( In Days )</i>											
1) Chemical & Petroleum Industrial Sector											
a) Jordan Petroleum Refinery Co. Ltd	53	64	57	85	76	83	102	118	144	155	93
b) Intermediate Petrochemical Industries Co. Ltd	10	7	3	4	12	50	29	43	57	88	30
c) Jordan Sulpho- Chemicals Co. Ltd	54	87	24	37	10	19	31	39	81	95	48
Sector-wise Ratio	52	63	54	81	73	81	100	116	143	154	92
2) Construction Industrial Sector											
a) The Jordan Cement Factories Co. Ltd	15	14	18	9	15	12	11	11	8	14	13
b) The Jordan Ceramic Industries Co. Ltd	21	17	12	16	17	18	10	16	18	22	17
c) Jordan Rockwood Industries Co. Ltd	128	127	157	131	312	217	168	244	207	197	189
Sector-wise Ratio	17	16	25	14	19	16	13	14	12	16	16
3) Consumables & Food Industrial Sector											
a) The Industrial Commercial & Agn. Co. Ltd	36	43	30	46	29	35	55	31	24	61	39
b) Arab Investment and Int. Trade Co. Ltd	74	43	32	48	127	55	17	39	35	60	53
c) The National Industries Co. Ltd	103	208	184	66	83	58	30	60	80	111	98
Sector-wise Ratio	51	64	49	50	41	40	50	37	36	70	49
4) Pharmaceuticals Industrial Sector											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	346	367	346	270	268	228	242	327	238	281	291
b) Dar Al-Dawa Development & Invt. Co. Ltd	315	272	243	170	139	152	114	144	158	169	188
c) The Arab Center for Pharm. & Chemicals Co. Ltd	181	125	129	182	175	132	232	240	104	151	165
Sector-wise Ratio	334	327	297	231	222	193	195	234	195	228	246
5) Engineering Industrial Sector											
a) Arab Aluminium Industry Co. Ltd	31	15	7	6	7	12	10	13	16	20	14
b) National Cables & Wire Manuf. Co. Ltd	88	67	73	60	56	66	89	77	64	99	74
c) The Jordan Pipes Manufacturing Co. Ltd	28	43	56	47	17	21	22	36	31	26	33
Sector-wise Ratio	40	33	47	39	28	31	40	43	40	53	39
6) Textile Industrial Sector											
a) The Jordan Worsted Mills Co. Ltd	90	81	103	156	127	189	204	251	276	299	178
b) Jordan Tanning Co. Ltd	165	140	129	80	102	101	96	33	62	35	94
c) The Woollen Industries Co. Ltd	34	21	20	100	87	93	94	136	144	151	88
Sector-wise Ratio	98	88	102	123	113	140	149	133	153	152	125
7) Paper & Packing Industrial Sector											
a) Jordan Paper and Cardboard Factories Co. Ltd	63	118	114	57	42	49	56	66	58	63	69
b) The Arab Paper Converting & Trading Co. Ltd	136	56	69	56	37	60	52	39	27	50	58
c) Jordan Printing and Packing Co. Ltd	32	27	32	33	32	35	37	33	161	42	46
Sector-wise Ratio	65	99	101	54	41	49	52	55	59	56	63
Overall Industrial Ratio	59	69	66	79	71	75	87	100	116	128	85

Source: Appendices II & III

The overall industrial ratio, as reflected in Table V.2.8, shows that the average collection period of the accounts receivable over the period under study had increased more than 2 times that of the base year 1987 with the overall average of 85 days. Thus, the average collection period of the overall industrial average increased from 59 days to as high as 128 days in 1996. With this, the accounts receivable turnover registered a reducing trend. As indicated in Table V.2.7, the receivable turnover which was 6.23 times in 1987 went down significantly to 2.85 times in the year 1996 and the overall average was 4.55 times during the period under study.

An indepth analysis of each sector and its group of companies reveals that in the case of the Chemical and Petroleum Industrial Sector the average collection period of the accounts receivable increased by nearly 3 times that of the base year 1987 (Table V.2.8). Therefore in 1996, the average collection period of the sector was as high as 154 days as compared to 52 days in 1987. With this, the accounts receivable turnover showed a reducing trend. As indicated in Table V.2.7, the receivable turnover which was 7.05 times in 1987 went down significantly to 2.37 times in the year 1996. In the case of company no. 1a and company no. 1b in particular, a substantial increase in the collection period was seen. Whereas in company no.1a, the collection period went up to 155 days in 1996 as compared to 53 days in 1987 and its receivable turnover went down to 2.36 times in 1996 as compared to 6.93 times in the year 1987. Company no. 1b had much higher increase and its collection period was almost 9 times in 1996 to that in 1987. There was continued reduction in the collection period up to the year 1989 when it was just 3 days as compared to 10 days of 1987. But after that there was a sudden increase in the collection period offered. This policy seems to have been influenced by the pattern of the sales it had during the initial years under study. In 1988, the company had a sales of about 101.13 per cent as compared to 1987, as a result the management seems to have adopted a liberal collection policy which had its results in the next two years where there was an increase in sales which was up to about 226 per cent and 212 per cent in the next two years (Table V.2.2). Thereafter, one finds a gradual decrease in the volume of sales even though

the collection period went up. Such a trend reflects inefficiency on the part of the management and poor collection policy. Thereby the accounts receivable turnover went down remarkably over the years. From 37.23 times in 1987 it fell to as low as 4.14 times in the year 1996.

The Construction Industrial Sector did not witness many variations over the years due to the stable collection policy over the period under study. As reflected in Table V.2.8, the average collection period was around 16 days on an average with a marginal increase in 1989 and 1991 when it was 25 days and 19 days respectively. With this, the accounts receivable turnover was also quite stable, which was 23.50 times on an average of ten years which can be considered to be the highest among all the sectors under the study as compared to the overall industrial average of 4.55 times. This also had some deviations in the year 1989 and 1991 as indicated in Table V.2.7. With a slight increase in the collection period, the accounts receivable turnover went down to 14.34 times and 19.12 times in the years 1989 and 1991 respectively. In the case of company no. 2a and company no. 2b, the figures of collection period and accounts receivable turnover show a picture similar to that of the average of the sector. While company no. 2c reflects a somewhat different trend. The company gradually increased its collection period from 128 days in 1987 to 197 days in 1996, its average being 189 days for the period under study. With this, the accounts receivable turnover went down to just 1.85 times in 1996 (against the sector-wise ratio of 22.59 times) from 2.86 times in 1987 (against the sector-wise ratio of 22.02 times) thereby the company had a higher percentage of funds blocked up in receivables. But such a trend of this particular company may be due to specific conditions prevailing or due to the fact that the sales showed a declining trend in the later half of the decade.

The Consumables and Food Industrial Sector showed a satisfactory performance over the period although in the last year under study, i.e., in 1996, it reflected the reverse trend. The accounts receivable turnover ratio was steadily increasing and it went up to 10.11 times in the year 1995 as against 7.12 times in the year 1987. All the companies showed a similar trend during the period under study. The main reason for this is the average collection

period offered by the sector over the period. This gradually went down to just 36 days in 1995 from 51 days in 1987. As discussed above, this sector witnessed a reduction in volume of sales from the year 1993 onwards, which revealed a very low point in the year 1996. The sector seems to have adopted a liberal collection policy in the year 1996 when its collection period was at an all time high of 70 days. This had a direct impact on accounts receivable turnover which was the lowest of the decade, i.e., 5.18 times in the year 1996.

The Textile Industrial Sector also recorded a reduction in receivables turnover over the years. The sector analysis in Table V.2.7 shows that the turnover of accounts receivable in the year 1987 was up to 3.74 times which went down to 2.40 times in the year 1996. In the case of company no. 6a and company no. 6c, accounts receivable turnover substantially reduced to 1.22 times and 2.42 times respectively in 1996. The same companies had a turnover of about 4.07 times and 10.59 times respectively in the year 1987 and their respective average of ten years were 2.50 times and 6.96 times during the period under study. Company no. 6b, however, reflects an altogether different trend and its average of ten years was 5.06 times. This company improved its accounts receivable turnover position from 2.21 times in 1987 to 10.44 times in 1996, with a gradual increase till 1993 and fluctuation thereafter. This trend in the sector seems to be directly influenced by the average collection period of the sector (Table V.2.8). The sectorian average collection period went up from 98 days in 1987 to 152 days in 1996. Company no. 6a increased the average collection period of the accounts receivable over the period of ten years to almost 3 times that of the base year 1987. Thus the average collection period increased from 90 days in 1987 to as high as 299 days in 1996. The main reason for this increase was the Gulf War. The company had JD 8,000,000 with Iraqi Government against goods sold to them which the company could not receive in time due to the Gulf War. So, the Iraqi Government promised to send JD 1,000,000 p.a. to the company concerned. While company no. 6c also witnessed the same trend but it was with a higher growth in the collection period. Company no. 6b, however, seems to have adopted the proper collection policy and therefore the collection period went down to 35 days in

1996 as compared to 165 days in 1987 with an average of 94 days. Company no. 6b, as indicated, put up a laudable performance in the collection policy, with a reduction in the average collection period and an increase in the accounts receivable turnover over the years.

The overall management of receivables in the above sectors was inefficient due to poor collection policy. This had a direct impact in the form of an increase the collection period and reduction in the debtors' turnover indicating higher investment in the accounts receivable.

The other sectors, however, showed different trends. As discussed in the size and trend of receivables, the Pharmaceutical Industrial Sector had recorded lower growth of receivables as compared to the sales. Thereby the accounts receivable turnover in the sector went up from 1.09 times in 1987 to 1.59 times in the year 1996 (Table V.2.7). This is the result of the reduction in the collection period of the sector over the period, which went down to 229 days in 1996 as compared to 334 days in 1987 (Table V.2.8). Although there was reduction in the average collection period, it seems to be quite higher than the industrial decade average of 85 days. Though the receivables turnover showed an increasing trend, it is still below the overall industrial average of 4.55 times for the period of ten years under study.

The Paper and Packing Industrial Sector also had a gradual increase in accounts receivable turnover ratio over the years. From 5.62 times in 1987 the accounts turnover gradually went up to 7.02 times in the year 1993. Thereafter it gradually came down to 6.56 times in the year 1996, which was higher than the average of the base year 1987 (Table V.2.7). Such a trend was a direct result of the average collection period of the particular sector. Thus, where the average collection period came down from 65 days in 1987 to 52 days in 1993, it showed incremental trend which continued till 1995 and in 1996 it rose to 56 days (Table V.2.8). In the case of company no. 7c, the average collection period was 46 days. However, this sector had a slightly different performance as compared to the other companies in this sector. After a steady performance in the first 8 years, there was an increase in the average collection period in the last two years under the study. Thereby the turnover of accounts receivable in

1995 and 1996 was just 2.27 times and 8.65 times respectively as compared to 11.35 times in the year 1987. This increased the investment in accounts receivable in the last two years.

The above two sectors seem to have improved their collection policies over the years. By reducing the collection period they were able to increase the accounts receivable turnover and lower down the funds blocked up in the accounts receivable.

The Engineering sector witnessed a fluctuating trend in the accounts receivable turnover. From 1987 to 1991, the sector reduced its average collection period from 40 days to 28 days. Thereafter, it gradually increased to 53 days in the year 1996. In the same way, the accounts receivable turnover increased from 9.12 times in 1987 to 12.98 times in the year 1991 but afterwards it came down to 6.85 times in 1996 due to an increase in the average collection period.

On the whole, the industrial companies in Jordan have shown inefficient management of receivables as the average collection period increased from 59 days in 1987 to 128 days in 1996. This reduced the accounts receivable turnover from 6.23 times in 1987 to 2.85 times in 1996. As a result, the amount of funds blocked in the receivables were disproportionately higher.

Thus, from the preceding analysis, it can be seen that poor management of receivables directly affects the liquidity of the company and it directly puts stress on the cash position. Further, a higher average collection period and a lower accounts receivable turnover are the causes for blocking additional funds in working capital as a whole. For judging the adequacy of accounts receivable, the percentage of accounts receivable to sales and accounts receivable in terms of months' value of sales are shown in Tables V.2.9 and V.2.10 respectively.

Tables V.2.9 and V 2.10 depict the percentage of accounts receivable to sales and accounts receivable in terms of months' value of sales in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.2.9  
Percentage of Accounts Receivable to the Total Sales in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	14.42	17.51	15.53	23.34	20.74	22.67	27.82	32.21	39.46	42.40	25.61
b) Intermediate Petrochemical Industries Co. Ltd	2.69	1.83	0.74	1.00	3.40	13.81	8.03	11.83	15.59	24.14	8.31
c) Jordan Sulpho- Chemicals Co. Ltd	14.66	23.87	6.55	10.26	2.63	5.27	8.39	10.71	22.06	25.95	13.03
<b>Sector-wise Ratio</b>	14.19	17.30	14.75	22.32	20.05	22.32	27.37	31.72	39.04	42.14	25.12
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	4.03	3.70	4.94	2.47	4.21	3.39	3.00	3.07	2.29	3.76	3.49
b) The Jordan Ceramic Industries Co. Ltd	5.69	4.64	3.39	4.42	4.76	5.02	2.88	4.42	4.89	6.00	4.59
c) Jordan Rockwool Industries Co. Ltd	34.97	34.80	42.93	35.88	85.51	59.32	45.53	66.73	56.74	54.10	51.65
<b>Sector-wise Ratio</b>	4.54	4.46	6.97	3.77	5.23	4.28	3.66	3.90	3.16	4.43	4.44
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co. Ltd	9.78	11.69	8.33	12.56	7.87	9.53	15.09	8.47	6.56	16.84	10.67
b) Arab Investment and Int. Trade Co. Ltd	20.36	11.79	8.71	13.23	34.70	15.12	4.56	10.60	9.64	16.54	14.52
c) The National Industries Co. Ltd	28.31	56.86	50.50	18.21	22.69	16.00	8.33	16.41	21.98	30.44	26.97
<b>Sector-wise Ratio</b>	14.05	17.58	13.34	13.69	11.25	11.03	13.57	10.11	9.89	19.30	13.38
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	94.85	100.44	94.76	73.89	73.33	62.41	66.33	89.55	65.26	77.06	79.79
b) Dar Al-Dawa Development & Invt. Co. Ltd	86.24	74.45	66.69	46.56	38.06	41.73	31.10	39.50	43.20	46.23	51.38
c) The Arab Center for Pharm. & Chemicals Co. Ltd	49.54	34.14	35.39	49.93	47.98	36.06	63.61	65.67	28.43	41.35	45.21
<b>Sector-wise Ratio</b>	91.56	89.62	81.31	63.28	60.84	52.75	53.37	64.01	53.46	62.87	67.31
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co. Ltd	8.59	4.20	2.05	1.70	1.88	3.22	2.62	3.63	4.52	5.42	3.78
b) National Cables & Wire Manuf. Co. Ltd	23.98	18.33	20.12	16.53	15.39	18.17	24.45	21.23	17.43	27.21	20.28
c) The Jordan Pipes Manufacturing Co. Ltd	7.75	11.91	15.37	12.88	4.65	5.63	6.03	9.95	8.43	7.05	8.96
<b>Sector-wise Ratio</b>	10.96	9.17	12.90	10.70	7.70	8.46	10.90	11.72	11.08	14.60	10.82
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	24.59	22.17	28.26	42.81	34.68	51.92	55.96	68.78	75.56	82.05	48.68
b) Jordan Tanning Co. Ltd	45.32	38.48	35.24	21.83	28.04	27.74	26.19	8.99	17.12	9.58	25.85
c) The Woolen Industries Co. Ltd	9.45	5.75	5.46	27.26	23.87	25.43	25.89	37.31	39.53	41.26	24.12
<b>Sector-wise Ratio</b>	26.73	24.09	27.86	33.78	31.07	38.33	40.74	36.42	41.96	41.67	34.26
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	17.29	32.40	31.17	15.55	11.62	13.54	15.21	18.19	15.94	17.17	18.81
b) The Arab Paper Converting & Trading Co. Ltd	37.13	15.43	18.97	15.34	10.14	16.53	14.30	10.70	7.48	13.63	15.96
c) Jordan Printing and Packing Co. Ltd	8.81	7.52	8.69	9.08	8.88	9.64	10.03	8.96	44.11	11.56	12.73
<b>Sector-wise Ratio</b>	17.78	27.11	27.67	14.81	11.15	13.38	14.24	14.98	16.06	15.25	17.24
<b>Overall Industrial Ratio</b>	16.06	18.85	18.21	21.52	19.51	20.60	23.73	27.33	31.72	35.13	23.27

Source: Appendices II & III

Table V.2.10  
Accounts Receivable in Terms of Months' Value of Sales in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	( In Months ) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	1 73	2 10	1 86	2 80	2 49	2 72	3 34	3 87	4 74	5 09	3 07
b) Intermediate Petrochemical Industries Co Ltd	0 32	0 22	0 09	0 12	0 41	1 66	0 96	1 42	1 87	2 90	1 00
c) Jordan Sulpho-- Chemicals Co Ltd	1 76	2 86	0 79	1 23	0 32	0 63	1 01	1 29	2 65	3 11	1 56
<b>Sector-wise Ratio</b>	1 70	2 08	1 77	2 66	2 41	2 68	3 28	3 81	4 69	5 06	3 01
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0 48	0 44	0 59	0 30	0 51	0 41	0 36	0 37	0 27	0 45	0 42
b) The Jordan Ceramic Industries Co Ltd	0 68	0 56	0 41	0 53	0 57	0 60	0 32	0 53	0 59	0 72	0 55
c) Jordan Rockwool Industries Co Ltd	4 20	4 18	5 15	4 31	10 26	7 12	5 46	8 01	6 81	6 49	6 20
<b>Sector-wise Ratio</b>	0 54	0 53	0 84	0 45	0 63	0 51	0 44	0 47	0 38	0 53	0 53
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri Co Ltd	1 17	1 40	1 00	1 51	0 94	1 14	1 81	1 02	0 79	2 02	1 28
b) Arab Investment and Int Trade Co Ltd	2 44	1 41	1 05	1 59	4 16	1 81	0 55	1 27	1 16	1 98	1 74
c) The National Industries Co Ltd	3 40	6 82	6 06	2 18	2 72	1 92	1 00	1 97	2 64	3 65	3 24
<b>Sector-wise Ratio</b>	1 69	2 11	1 60	1 64	1 35	1 32	1 63	1 21	1 19	2 32	1 61
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	11 38	12 05	11 37	8 87	8 80	7 49	7 96	10 75	7 83	9 25	9 57
b) Dar Al-Dawa Development & Invt Co Ltd	10 35	8 93	8 00	5 59	4 57	5 01	3 73	4 74	5 18	5 55	6 17
c) The Arab Center for Pharm & Chemicals Co Ltd	5 94	4 10	4 25	5 99	5 76	4 33	7 63	7 88	3 41	4 96	5 43
<b>Sector-wise Ratio</b>	10 99	10 75	9 76	7 59	7 30	6 33	6 40	7 66	6 42	7 54	8 08
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	1 03	0 50	0 25	0 20	0 23	0 39	0 31	0 44	0 54	0 65	0 45
b) National Cables & Wire Manuf Co Ltd	2 88	2 20	2 41	1 98	1 85	2 18	2 93	2 55	2 09	3 26	2 43
c) The Jordan Pipes Manufacturing Co Ltd	0 93	1 43	1 84	1 55	0 56	0 68	0 72	1 19	1 01	0 85	1 08
<b>Sector-wise Ratio</b>	1 32	1 10	1 55	1 28	0 92	1 01	1 31	1 41	1 33	1 75	1 30
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	2 95	2 66	3 39	5 14	4 16	6 23	6 72	8 25	9 07	9 85	5 84
b) Jordan Tanning Co Ltd	5 44	4 62	4 23	2 62	3 36	3 33	3 14	1 08	2 05	1 15	3 10
c) The Woolen Industries Co Ltd	1 13	0 69	0 65	3 27	2 86	3 05	3 11	4 48	4 74	4 95	2 89
<b>Sector-wise Ratio</b>	3 21	2 89	3 34	4 05	3 73	4 60	4 89	4 37	5 03	5 00	4 11
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	2 07	3 89	3 74	1 87	1 39	1 63	1 83	2 18	1 91	2 06	2 26
b) The Arab Paper Converting & Trading Co Ltd	4 46	1 85	2 28	1 84	1 22	1 98	1 72	1 28	0 90	1 64	1 92
c) Jordan Printing and Packing Co Ltd	1 06	0 90	1 04	1 09	1 07	1 16	1 20	1 07	5 29	1 39	1 53
<b>Sector-wise Ratio</b>	2 13	3 25	3 32	1 78	1 34	1 61	1 71	1 80	1 93	1 83	2 07
<b>Overall Industrial Ratio</b>	1 93	2 26	2 19	2 56	2 34	2 47	2 85	3 28	3 81	4 22	2 79

Source: Appendices II & V

It can be observed from Table V.2.9 that the percentage of accounts receivable with regard to sales went up from 16.06 per cent in 1987 to 35.13 per cent in the year 1996, with an overall average of 23.27 per cent. On the other hand, as indicated in Table V.2.10, the overall industrial average locked up funds equivalent to 4.22 months' value of sales in 1996 as compared to 1.93 months in 1987, the overall average being 2.79 months' value of sales. The sector-wise analysis reveals that the accounts receivable to sales as well as the accounts receivable in terms of months' value of sales were the highest in the Pharmaceuticals Industrial Sector, i.e., 67.31 per cent and the investment of receivables was up to 8.08 months' value of sales followed by the Textile Industrial Sector with 34.26 per cent where this sector had locked up funds equivalent to 4.11 months' value of sales. While in the Construction Industrial Sector had the lowest percentage of accounts receivable with regard to sales up to 4.44 per cent and the investment of receivables was only 0.53 month's value of sales. This was followed by the Consumable and Food Industrial Sector, the Engineering Industrial Sector and the Paper and Packing Industrial Sector with 13.38 per cent, 10.82 per cent, and 17.24 per cent of accounts receivable to sales where these sectors had the locked up funds equivalent to sales of 1.61 months, 1.30 months and 2.07 months' value of sales respectively. In the case of the Chemical and petroleum Industrial Sector, the average of accounts receivable with regard to sales was around the overall industrial average during the period under study for both respective ratios.

An indepth analysis of each sector and its related companies reveals that the percentage of accounts receivable to sales of the Chemical and Petroleum Industrial Sector, as indicated in Table V.2.9, went up from 14.19 per cent in 1987 to 42.14 per cent in the year 1996 indicating that the increase in sales was because of extension of credit. In other words, the sector had the locked up funds equivalent to 5.06 months' value of sales in 1996 as compared to 1.70 months in 1987. In the case of company no. 1a, the pattern is very similar to that of the sector. On an average, it had 25.61 per cent of receivables to sales. The percentage went up to 42.40 per cent of the sales in 1996 as compared to 14.42 per cent in 1987. Thus, the company had locked up funds equivalent to 1.73 months to sales in the year 1987 which went up to 5.09 months' value of sales in the year 1996. Regarding company no. 1b, it can be

said that the initial investment in receivables was very low, which was approximately 1 to 3 per cent till 1991. The sales of the company were very poor since 1989 and it also showed a continuous decrease. But from 1991 onwards, the percentage of receivables to sales increased continuously till 1996 when it was 24.14 per cent. The company had locked up funds equivalent to 0.32 month of sales in the year 1987 which went up to 2.90 months' value of sales in the year 1996. With regard to company no. 1c, it was found that there was no stability in its proportion of receivables to sales, but there was an overall increase in this percentage. It was as high as 25.95 per cent in 1996, but the average for the company of both ratios were 13.03 per cent and 1.56 months to sales during the period under study.

On an average, the Construction Industrial Sector had a similar percentage of accounts receivable for the ten years, which was about 4.44 per cent throughout the period (Table V.2.9) with a slight increase in 1989 and 1991. To put the same fact in terms of receivables in the form of months' value of sales as reflected in Table V.2.10, the sector had an average of 0.53 month's value of sales locked up in the accounts receivable. In the case of company no. 2a and company no. 2b, the trend was similar to that of the average of the sector. But this percentage was very high in the case of company no. 2c. On an average, it was 51.65 per cent but the highest was 85.51 per cent in 1991 when the company had locked up funds equivalent to 10.26 months' value of sales in the same year. The company invested heavily in receivables. The sales of the company were also moderate. The main reason for this was the average collection period offered by the company, which was as high as 312 days (Table V.2.8) indicating poor management of receivables.

The Consumables and Food Industrial Sector registered a satisfactory performance over the period although in the last year under study, i.e., in 1996, it reflected the reverse trend. Whereby the percentage of accounts receivable to sales went down from 14.05 per cent in 1987 to 9.89 per cent in 1995. With this, the investment in receivables in terms of months' sales also went down to 1.19 months in 1995 from 1.69 months in 1987. The main reason for this is the average collection period offered by the sector over the period. In the case of company no. 3a and company no. 3b also, a similar position was seen. But

company no. 3c showed somewhat different results. From 1987 to 1989, it had nearly 50 per cent of receivables to sales. At this time, there was a decrease in the sales of the company. Till 1995, due to increase in sales, the receivables also increased but their proportion fell to nearly 16 per cent. But it was 30.44 per cent in 1996, having an average of 26.97 per cent receivables to sales. In other words, on an average the company had locked up funds equivalent to 3.24 months to sales which was also higher than their sector average of 1.61 months to sales during the period under study.

In the case of Pharmaceuticals Industrial Sector, as discussed in the size and trend of receivables, it recorded lower growth of receivables as compared to the sales. But decrease in the average collection period also had an impact on investment in accounts receivable, which went down to 62.87 per cent in 1996 as compared to 91.56 per cent in 1987 with an average of 67.31 per cent and the investment in accounts receivable was up to 8.08 months' sales for the average of ten years. Pharmaceuticals companies in general have to invest heavily in receivables because they have to supply on credit and also because they have to pay advances to their salesmen. But even in such cases, 67.31 per cent receivables appears to be very high. This average investment is also much higher than the overall industrial average of 23.27 per cent. The main reason for this is the average collection period offered by the sector which was on an average as high as 246 days (Table V.2.8). In the case of company no. 4a, a very high average of 79.79 per cent was found while company no. 4b and company no. 4c remained around 51.38 per cent and 45.21 per cent respectively. Eventhough the industrial companies under study tried to reduce the funds locked up in the accounts receivable by reducing the collection period and increasing the accounts receivable turnover during the period under study, yet there is need for further reduction of lock up fund.

The Engineering Industrial Sector showed fluctuations in the percentage of receivables to sales, but the overall average maintained at 10.82 per cent of receivables with regard to sales and the investment in accounts receivable was up to 1.30 months' sales for the ten years. However, the companies under this sector varied in their results. In the case of company no. 5a, a very low percentage of accounts receivable to sales was seen, which was 3.78 per cent on an average and the company had locked up funds equivalent to 0.45

month's value of sales, while company no. 5b had a high of 20.28 per cent and the investment in accounts receivable was up to 2.43 months' sales for the ten years. Regarding company no. 5c, it can be said that its average was close to the sectors' average and had an average of 8.96 per cent and the investment in accounts receivable was up to 1.08 months' sales for the ten years' period under study.

The Textile Industrial Sector also had a substantial amount of receivables. The average for the sector was 34.26 per cent and the investment in accounts receivable was up to 4.11 months' value of sales. The percentage of receivables showed an increasing trend over the years. The collection policy seems to have affected the percentage of accounts receivable with regard to sales in this sector. The percentage which was 26.73 per cent in 1987 went up to 41.67 per cent in 1996 signaling a higher blockage of funds in accounts receivable in terms of months' value of sales. This was about 5 months in 1996 as compared to 3.21 months in 1987. Among the three selected companies from this sector, company no. 6b had a laudable performance in the collection policy. The company reduced the average collection period, increased accounts receivable turnover and reduced percentage of accounts receivable with regard to sales over the years' period under study.

The Paper and Packing Industrial Sector had 17.24 per cent receivables in sales and the investment in accounts receivable was up to 2.07 months' sales on an average. The sector showed slight fluctuations in this percentage. Thus, the reduction in the average collection period over the years brought down the percentage of accounts receivable with regard to sales from 17.78 per cent in 1987 to 15.25 per cent in 1996. With this the accounts receivable in terms of months' value of sales also reduced from 2.13 months in 1987 to 1.83 months' value of sales in 1996. In the case of company no. 7a, sales were very low for most of the period under study. The percentage of its receivables also decreased with the decrease in sales. The average for the company was 18.81 per cent and the investment in accounts receivable was up to 2.26 months' sales. Company no. 7b initially had a substantially high percentage of receivables with regard to sales, but it soon controlled this percentage. The sales of the company increased sharply but it maintained a steady percentage of receivables. The average for the company was 15.96 per cent and the

investment in accounts receivable was up to 1.92 months' sales. In the case of company no. 7c, however, the performance was slightly different as compared to the other companies in the sector, after a steady performance in the first 8 years. This increased the investment in accounts receivable in the last two years. It also did not invest more than 10 per cent of sales in receivables. The only exception was in 1995 when this rose to 44.11 per cent due to the average collection period which was the highest during the period under study, i.e., 161 days in the same year. The average for the company was 12.73 per cent and the investment in accounts receivable was up to 1.53 months' sales.

The industrial companies in Jordan have shown inefficient receivables' management as the amount of funds blocked in the receivables have been disproportionately high, which has resulted in an increase in the percentage of accounts receivable with regard to sales, i.e., from 16.06 per cent to 35.13 per cent. In other words, the investment in accounts receivable was equivalent to 4.22 months' value of sales in 1996, as compared to 1.93 months in 1987. The overall result of the whole exercise was that against the sales growth rate of 239.25 per cent in 1996 the receivables growth rate was 442.64 per cent (Table V.2.2). Thus, from the preceding analysis, it can be noted that the poor management of receivables directly affects the liquidity of the company and it directly puts stress on the cash position.

### **5.2.8 PERCENTAGE OF BAD AND DOUBTFUL DEBT ANALYSIS**

A liberal collection policy and improper collection method result in excessive percentage of bad and doubtful debts. For receivables' management to be efficient, it is essential to keep the percentage of bad debts low. As we have discussed earlier the industrial sector in Jordan had a poor management of receivables for most of the sectors concerned. Thereby the percentage of bad debts in relation to gross accounts receivable and also in relation to that of net sales has increased over the period of ten years.

Tables V.2.11 and V.2.12 show the percentage of bad and doubtful debts as compared to gross accounts receivable and to sales in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.2.11  
Percentage of Bad and Doubtful Debts to Gross Accounts Receivable in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	0.84	0.92	1.39	1.15	1.60	1.50	1.60	1.65	1.54	1.58	1.38
b) Intermediate Petrochemical Industries Co Ltd	0.00	12.05	22.66	26.89	15.30	5.22	9.00	6.92	12.13	9.60	11.98
c) Jordan Sulpho- Chemicals Co Ltd	0.00	0.00	3.32	8.10	25.49	16.82	12.48	10.61	3.44	4.70	8.50
<b>Sector-wise Ratio</b>	0.82	0.93	1.46	1.28	1.74	1.59	1.67	1.71	1.59	1.63	1.44
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.52	0.63	2.62	4.06	2.13	2.03	14.28	7.06	8.91	9.52	5.17
b) The Jordan Ceramic Industries Co Ltd	6.44	8.15	7.85	5.17	6.82	8.27	13.72	10.91	9.17	8.71	8.52
c) Jordan Rockwood Industries Co Ltd	0.00	0.00	0.00	2.44	2.62	2.82	3.59	5.61	8.32	12.80	3.79
<b>Sector-wise Ratio</b>	0.75	0.90	1.92	3.63	2.58	2.67	12.32	7.15	8.82	9.81	5.06
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co Ltd	15.08	14.12	19.28	10.98	6.73	5.34	3.43	11.52	16.97	9.14	11.26
b) Arab Investment and Int. Trade Co Ltd	53.78	54.72	72.86	75.25	31.16	24.26	69.95	51.96	52.04	37.38	52.34
c) The National Industries Co Ltd	0.00	0.00	0.00	1.52	2.33	5.60	3.33	1.38	0.73	0.28	1.52
<b>Sector-wise Ratio</b>	22.72	18.07	22.97	17.31	12.53	10.46	9.11	17.62	18.35	12.19	16.13
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co Ltd	1.15	1.09	0.86	0.98	0.94	0.99	1.32	2.06	8.14	11.12	2.86
b) Dar Al-Dawa Development & Invt. Co Ltd	2.89	2.16	5.51	17.94	22.58	17.02	17.26	12.24	11.29	11.27	12.02
c) The Arab Center for Pharm. & Chemicals Co Ltd	0.00	0.00	0.00	0.00	0.67	9.25	5.31	3.87	7.81	6.64	3.36
<b>Sector-wise Ratio</b>	1.46	1.31	1.87	5.51	5.65	6.11	5.67	5.29	9.16	10.97	5.30
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	3.62	13.46	17.06	15.03	12.74	9.37	11.27	8.91	7.96	8.45	10.79
b) National Cables & Wire Manuf. Co Ltd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c) The Jordan Pipes Manufacturing Co Ltd	1.26	0.76	0.31	0.62	1.73	0.96	0.97	0.65	0.92	0.99	0.92
<b>Sector-wise Ratio</b>	1.71	3.81	1.16	1.10	1.67	1.83	1.46	1.36	1.44	1.45	1.70
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b) Jordan Tanning Co Ltd	0.00	0.00	0.48	0.32	0.14	0.11	0.13	0.32	0.10	-0.24	0.18
c) The Woolen Industries Co Ltd	18.42	35.77	29.22	1.36	1.42	1.05	0.98	1.11	3.30	3.68	9.63
<b>Sector-wise Ratio</b>	0.40	0.76	0.78	0.15	0.11	0.08	0.07	0.09	0.10	0.22	0.28
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	3.34	1.74	11.80	51.34	24.90	5.02	4.45	7.26	7.11	8.52	12.55
b) The Arab Paper Converting & Trading Co Ltd	6.02	21.47	9.05	8.72	16.80	9.23	7.87	7.21	9.47	3.89	9.97
c) Jordan Printing and Packing Co Ltd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sector-wise Ratio</b>	3.61	2.89	11.29	46.26	22.39	5.32	4.73	6.79	6.00	6.36	11.56
<b>Overall Industrial Ratio</b>	1.68	1.70	2.49	3.76	3.12	2.61	2.77	2.60	2.75	3.05	2.65

Source Appendix II

Table V.2.12  
Percentage of Bad and Doubtful Debts to sales in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	( In Percentage )	
										1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	0.12	0.16	0.22	0.27	0.34	0.35	0.45	0.54	0.62	0.68	0.37
b) Intermediate Petrochemical Industries Co. Ltd	0.00	0.25	0.22	0.37	0.61	0.76	0.79	0.88	2.15	2.57	0.86
c) Jordan Sulpho-Chemicals Co. Ltd	0.00	0.00	0.22	0.90	0.90	1.03	1.20	1.27	0.79	1.28	0.76
<b>Sector-wise Ratio</b>	0.12	0.16	0.22	0.29	0.35	0.36	0.46	0.55	0.63	0.70	0.38
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	0.02	0.02	0.13	0.10	0.09	0.07	0.50	0.23	0.22	0.40	0.18
b) The Jordan Ceramic Industries Co. Ltd	0.39	0.41	0.29	0.24	0.35	0.45	0.43	0.54	0.49	0.57	0.42
c) Jordan Rockwool Industries Co. Ltd	0.00	0.00	0.00	0.90	2.30	1.54	1.69	3.97	5.15	7.94	2.35
<b>Sector-wise Ratio</b>	0.03	0.04	0.14	0.14	0.14	0.12	0.51	0.30	0.31	0.48	0.22
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co. Ltd	1.74	1.92	1.99	1.55	0.57	0.54	0.54	1.10	1.34	1.69	1.30
b) Arab Investment and Int. Trade Co. Ltd	23.69	14.24	23.39	40.22	15.71	4.84	10.60	11.46	10.46	9.87	16.45
c) The National Industries Co. Ltd	0.00	0.00	0.00	0.28	0.54	0.95	0.29	0.23	0.16	0.09	0.25
<b>Sector-wise Ratio</b>	4.13	3.88	3.98	2.87	1.61	1.29	1.36	2.16	2.22	2.68	2.62
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	1.10	1.11	0.82	0.73	0.70	0.82	0.89	1.88	5.78	9.65	2.33
b) Dar Al-Dawa Development & Invst. Co. Ltd	2.56	1.65	3.89	10.18	11.10	8.56	6.49	5.51	5.50	5.87	6.13
c) The Arab Center for Pharm. & Chemicals Co. Ltd	0.00	0.00	0.00	0.00	0.32	3.67	3.57	2.65	2.41	2.94	1.56
<b>Sector-wise Ratio</b>	1.35	1.19	1.55	3.69	3.65	3.43	3.21	3.58	5.39	7.75	3.48
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	0.32	0.65	0.42	0.30	0.27	0.33	0.33	0.36	0.39	0.50	0.39
b) National Cables & Wire Manuf. Co. Ltd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c) The Jordan Pipes Manufacturing Co. Ltd	0.10	0.09	0.05	0.08	0.08	0.05	0.08	0.06	0.08	0.07	0.07
<b>Sector-wise Ratio</b>	0.19	0.36	0.15	0.12	0.13	0.16	0.16	0.16	0.16	0.21	0.18
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b) Jordan Tanning Co. Ltd	0.00	0.00	0.17	0.07	0.04	0.03	0.03	0.03	0.02	0.02	0.04
c) The Woolen Industries Co. Ltd	2.13	3.20	2.25	0.38	0.34	0.27	0.26	0.42	1.35	1.57	1.22
<b>Sector-wise Ratio</b>	0.11	0.18	0.22	0.05	0.03	0.03	0.03	0.03	0.04	0.09	0.08
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	0.60	0.57	4.17	16.40	3.85	0.72	0.71	1.42	1.22	1.60	3.13
b) The Arab Paper Converting & Trading Co. Ltd	2.38	4.22	1.89	1.47	2.05	1.68	1.22	0.83	0.78	0.55	1.71
c) Jordan Printing and Packing Co. Ltd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Sector-wise Ratio</b>	0.67	0.81	3.52	12.75	3.22	0.75	0.71	1.09	1.02	1.04	2.56
<b>Overall Industrial Ratio</b>	0.27	0.33	0.47	0.84	0.63	0.55	0.67	0.73	0.90	1.11	0.65

Source: Appendices II & III

As indicated in Table V.2.11, the overall percentage of bad and doubtful debts with regard to gross accounts receivable increased from 1.68 per cent in 1987 to 3.05 per cent in 1996. Table V.2.12 also present the similar picture of increase in the percentage of bad and doubtful debts from 0.27 per cent of the sales in 1987 to 1.11 per cent of the sales in 1996. The overall industrial ratio was 2.65 per cent of the gross accounts receivable and it was 0.65 per cent of the sales for the period 1987 to 1996. Among different sectors, the average of bad and doubtful debts as percentage of gross accounts receivable was the highest in the Consumables and Food Industrial Sector with 16.13 per cent followed by the Paper and Packing Industrial Sector, the Construction Industrial Sector and the Pharmaceuticals Industrial Sector with 11.56 per cent, 5.06 per cent and 5.30 per cent respectively, while the Textile Industrial Sector had the lowest ratio at 0.28 per cent followed by the Chemical and Petroleum Industrial Sector and the Engineering Industrial Sector with 1.44 per cent and 1.70 per cent respectively. On the other hand, the percentage of bad and doubtful debts to sales was highest in the case of the Pharmaceuticals Industrial Sector with 3.48 per cent followed by the Consumables and Food Industrial Sector and the Paper and Packing Industrial Sector with 2.62 per cent and 2.56 per cent respectively, while it was the lowest in the Textile Industrial Sector at only 0.08 per cent and in the remaining sector also it was found lower than the overall industrial average of 0.65 per cent during the period under study.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector almost doubled the percentage of bad and doubtful debts with regard to accounts receivable. From 1987 to 1996, the percentage went up from 0.82 per cent in 1987 to 1.63 per cent in 1996. The percentage of bad debts with regard to sales also went up from 0.12 per cent in 1987 to 0.70 per cent in 1996. All the companies in the sector performed badly in this field. The main reason for this is the liberal collection policy adopted by the management. During the period, the average collection period went up from 52 days to 154 days. This coupled with liberal collection policies adopted by the management had a direct impact on these companies under this sector.

On an average, the percentage of bad and doubtful debts in the Construction Industrial Sector was 5.06 per cent with regard to gross accounts receivable and 0.22 per cent with regard to sales. This sector showed an upward trend in the percentage of bad debts. Although the average collection period in respect of accounts receivable was under control, the composition of the receivables suggested that the sector had an increasing trend of investing funds in loans and advances rather than in accounts receivable. It seems that the sector had not been careful about the loans and advances factor. Thereby the percentage of bad debts with regard to gross accounts receivable went up to 9.81 in 1996 as compared to 0.75 in 1987. Company no. 2c, in particular, reflected a tendency towards raising the average collection period, perhaps in anticipation of increase in sales. Its average collection period increased from 128 days in 1987 to 197 days in 1996. Such a liberal collection policy had its impact on receivables' position and as a result its bad debts increased from 2.44 per cent in 1990 to 12.80 per cent in 1996. The proportion of bad debts to sales also went up from 0.90 per cent in 1990 to 7.94 per cent in 1996. Company no. 2a and company no. 2b also show similar results.

The Consumables and Food Industrial Sector had quite a satisfactory collection policy over the years as discussed above and this is reflected in its position of bad debts. Over the years, the sector had a proper control on the collection policy and it had its average collection period under control. Thus the sector reduced the percentage of bad debts from 22.72 per cent in 1987 to 12.19 per cent in 1996. Although this is very high, the sign of improvement was evident. Company no. 3b, in particular, was able to reduce its average collection period from 74 days to 60 days. The percentage of bad debts with regard to gross accounts receivable went down from 53.78 per cent in 1987 to 37.38 per cent in 1996. In terms of percentage of bad debts with regard to sales also showed some sign of improvement. The sector-wise ratio fell from 4.13 per cent to 2.68 per cent and company no. 3b in particular, showed a reduction in its percentage from 23.69 per cent in 1987 to 9.87 per cent in 1996.

Although the Pharmaceutical Industrial Sector had an improvement in the collection policies by reducing the average collection period but as discussed earlier, its collection period was unusually quite high. It had a collection period of 230 days which is quite high and thereby the percentage of bad debts with regard to gross accounts receivable was on the increase. One of the main reasons for this may be inefficient collection techniques and improper follow-up methods. This percentage increased from 1.46 per cent in 1987 to 10.97 per cent in 1996, similarly the percentage of bad debts in respect of sales increased from 1.35 per cent in 1987 to 7.75 per cent in 1996. All the companies of this sector showed an overall increase in both their percentages. But company no. 4b had a very high percentage of bad debts in respect to gross accounts receivable, the average being 12.02 per cent. Its percentage with regard to sales was also very high, i.e., 6.13 per cent. In the case of company no. 4a and company no. 4c, the results seen were below the average of their sector.

From the above analysis, one can conclude that although the company reduced its collection period it still needed to work hard to bring the collection period further down and adopt strict collection methods and follow-ups.

The Engineering Industrial Sector had a mixed trend of average collection period. Initially the collection period was low and with that the percentage of bad debts with regard to gross accounts receivable also went down from 1.71 per cent in 1987 to 1.10 per cent in 1990. Thereafter as the average collection period increased, the percentage of bad debts also went up to 1.45 per cent in 1996. The percentage of bad debts with regard to sales also varied in the same manner when it was 0.19 per cent in 1987 and went down to 0.12 per cent in 1990. Further with the increase in the collection period, the percentage went up to 0.21 per cent in 1996. In general, the Engineering Industrial Sector showed good results. Its average collection period was very low and the percentage of bad debts with regard to gross accounts receivable and to sales was also low. The averages were 1.70 per cent and 0.18 per cent during the period under study respectively. But company no. 5a showed very different results. The average percentage of bad debts with regard to gross

accounts receivable was 10.79 per cent and there was wide fluctuation in this percentage. But the percentage of bad debts with regard to sales was very low at 0.39 per cent. Company no. 5b showed no bad debts throughout the period under study, while company no. 5c maintained the percentages below its average sector.

The performance of the Textile Industrial Sector was contrary to that of its collection policy. As discussed above, the average collection period of the sector went up from 98 days to 152 days but the bad debts percentage was significantly reduced from 0.40 per cent of the gross receivables in 1987 to 0.22 per cent in 1996. Especially, company no. 6a, which had a very high average collection period, was able to collect the dues from receivables on time and throughout the period it had no bad debts. The main reason for this favourable position of the company was that the company mostly dealt with the Government of Jordan and their accounts receivable was always safe. Similarly, company no 6b and company no. 6c were able to check their respective bad debts percentages. This trend shows that although the collection policies were liberal, they were not loose enough to succumb to bad debts trap. The sector seems to have exercised an effective control on at least the collection, although not on the collection period. On an average, the percentage of bad debts with regard to gross accounts receivable was 0.28 per cent whereas it was only 0.08 per cent with regard to sales.

The Paper and Packing Industrial Sector showed a rise in the percentage of bad debts. The percentage of bad debt with regard to gross accounts receivable which was 3.61 per cent in 1987 rose to 46.26 per cent in 1990. In the same period, the average collection period of the receivables increased. Thereafter it came down to 4.73 per cent in 1993 and again went up gradually to 6.36 per cent in 1996. On an average, the percentage of bad debts with regard to gross accounts receivable was 11.56 per cent and with regard to sales it was 2.56 per cent. Company no. 7a registered the highest percentage of bad debts among the three companies under this sector. This percentage increased between 1987 to 1990 but thereafter, it showed a decreasing trend. The average percentage with regard to gross accounts receivable was 12.55

per cent and with regard to sales it was 3.13 per cent. Company no. 7b also showed a high percentage of bad debts but its position improved in 1996. The averages for this company were 9.97 per cent and 1.71 per cent respectively. With regard to company no. 7c, it can be said that it had full control on the receivables and therefore the bad debts were nil throughout the period. Similar trends are observed in the sector in the percentage of bad debts with regard to sales. In the year 1987, the sector-wise ratio was 0.67 per cent which went up to 12.75 per cent in the year 1990. It came down sharply to 0.71 per cent in 1993 and steadily increased to 1.04 per cent in 1996. Thus, one can say that the sector's adopting of more liberal policy had an impact on the bad debts of the next 1 or 2 years, and where the collection policy was tightened by reducing the average collection period, its positive impact was witnessed the next year. On the whole, this sector was able to gain control over the volume of bad debts.

Thus, from the preceding analysis, it can be noted that the industrial companies in Jordan have not been able to check their percentage of bad debts. The main reason for this is the poor collection policies adopted by the management and the high average collection periods. However, it must be mentioned that certain sectors have been able to check bad debts despite higher average collection periods.

Thus, we can sum up and say that the overall receivables management of the industrial companies in Jordan from 1987 to 1996 was poor and inefficient and therefore there was lack of control of receivables. This is evident from the disproportionate growth rate in receivables as compared to that of sales, poor collection policies of the companies, incorrect anticipation of sales, changing of the receivables policies, etc. In turn this resulted in an overall excessive locking up of funds in receivables, a very high collection period in certain sectors, and a high percentage of bad and doubtful debts. As stated earlier, this had a direct effect on the inventory position and thereby the cash position of the company was further impaired.

**SECTION - III**

**ANALYSIS AND  
INTERPRETATION  
OF DATA RELATED TO  
CASH MANAGEMENT**

### 5.3.1 INTRODUCTION

The fundamental objectives of cash management are, to ensure sufficient cash to meet the currently maturing obligations in time; to control the cash flow, to maximise the availability of cash by accelerating cash inflows and containing cash outflows and to put the surplus cash to productive efficiency.<sup>(42)</sup> This section presents an introduction about cash management. It also focuses on the analysis and interpretation of data related to the objective to verify the availability of cash and bank balances as per operational requirements and liquidity and solvency of the selected industrial companies.

The crux of working capital management exercise is cash management. It is well known that a healthier profit position does not always indicate efficient cash management. For smooth running, an enterprise needs a proper flow of cash, and a proper operating cycle. Among the various component of working capital, cash is perhaps is the most important one, which reflects its liquidity position, and if not managed properly, can run affairs of even profit making enterprise into doldrums. The purpose of this section is to find out the efficiency with which the industrial companies managed their cash. The study of cash management should be studied from the following angles:

- ⇒ **Analysis of the Size of the Cash.**
- ⇒ **Adequacy of the Cash Maintained.**
- ⇒ **Adequacy of Cash in Terms of Liquidity and Solvency.**
- ⇒ **Analysis of Current Liabilities Position vis-à-vis Liquid Funds.**
- ⇒ **Coverage of Current Liabilities.**
- ⇒ **Control of Cash in the Industrial Companies.**

### 5.3.2 ANALYSIS OF THE SIZE OF THE CASH

Table V.3.1 shows the size of the cash and the value of total sales in the industrial companies during the period under study, i.e., 1987 to 1996.

Table V.3.1  
The Size of Cash and the Value of Total Sales in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total
( Value in Thousand JD.)												
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		9,125	15,088	1,788	10,056	44,452	35,520	30,312	13,847	20,650	2,334	183,172
b) Intermediate Petrochemical Industries Co Ltd		1,060	761	5,870	5,896	1,759	730	806	813	877	289	18,859
c) Jordan Sulpho- Chemicals Co Ltd		10	43	223	148	187	634	32	129	78	68	1,550
Sub-Total		10,194	15,892	7,880	16,100	46,397	36,884	31,150	14,789	21,604	2,691	203,582
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		144	1,691	3,912	2,195	3,290	3,036	1,769	441	690	747	17,914
b) The Jordan Ceramic Industries Co Ltd		442	445	176	109	602	267	786	918	1,901	2,292	7,938
c) Jordan Rockwool Industries Co Ltd		38	19	292	210	128	143	79	816	811	724	3,262
Sub-Total		624	2,155	4,380	2,515	4,020	3,446	2,633	2,175	3,402	3,763	29,113
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn. Co Ltd		165	95	191	334	596	437	509	2,816	564	348	6,057
b) Arab Investment and Int. Trade Co Ltd		49	51	204	123	284	280	297	1,175	468	572	3,483
c) The National Industries Co Ltd		197	310	207	159	394	156	608	313	389	677	3,411
Sub-Total		412	457	602	616	1,254	873	1,415	4,304	1,421	1,597	12,951
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co Ltd		166	749	770	1,420	1,150	4,863	3,130	2,802	3,550	2,891	21,591
b) Dar Al-Dawa Development & Invst Co Ltd		119	280	407	1,185	1,369	1,271	6,986	4,899	5,213	4,723	28,451
c) The Arab Center for Pharm. & Chemicals Co Ltd		7	84	492	668	3,500	1,008	772	953	1,096	1,351	9,932
Sub-Total		292	1,112	1,669	3,273	6,018	7,242	10,889	8,654	9,859	8,965	57,974
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminium Industry Co Ltd		1,588	1,672	385	2,245	2,743	6,019	7,943	7,402	4,477	5,389	39,865
b) National Cables & Wire Manuf Co Ltd		128	645	2,041	2,298	1,991	2,227	4,382	2,866	2,847	2,258	21,683
c) The Jordan Pipes Manufacturing Co Ltd		712	74	55	329	429	524	731	2,132	1,743	1,863	8,592
Sub-Total		2,428	2,391	2,482	4,872	5,163	8,770	13,056	12,400	9,067	9,511	70,139
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		192	58	34	18	38	28	47	310	14	6	746
b) Jordan Tanning Co Ltd		46	23	32	52	52	17	288	1,859	1,438	1,377	5,184
c) The Woolen Industries Co Ltd		8	1	3	2	3	32	68	13	44	32	205
Sub-Total		246	82	69	72	93	77	402	2,181	1,495	1,415	6,134
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		971	461	1,310	276	1,723	1,133	1,226	1,040	422	209	8,769
b) The Arab Paper Converting & Trading Co Ltd		6	71	56	65	280	113	215	699	219	58	1,782
c) Jordan Printing and Packing Co Ltd		2	75	4	5	23	8	0	2	21	7	148
Sub-Total		980	607	1,369	346	2,026	1,253	1,441	1,741	662	274	10,699
<b>Grand Total</b>												
		15,176	22,696	18,452	27,794	64,971	58,545	60,986	46,246	47,512	28,216	390,593
<b>Value of Total Sales</b>												
		353,749	355,803	429,986	496,918	525,061	623,713	672,144	685,973	734,661	755,086	5,633,095

Source: Appendix III

Looking at the overall industrial scenario, we can see that the size of cash has been varying from Jordanian Dinar (JD) 15,176 thousand to JD 64,971 thousand during the period under study which witnessed a lot of ups and downs. The trend indicates that the size of cash increased from JD 15,176 thousand in 1987 to JD 27,794 thousand in 1990. In the year 1991 it touched the highest level and it shot up to JD 64,971 thousand. After that, with slight variations, it gradually came down to JD 47,512 thousand in 1995. The year 1996 witnessed a sudden slump in the overall industrial cash size when it came down to JD 28,216 thousand.

The variation in the size of cash seems pretty consistent, although not in exact proportions, with a tendency towards an increase in the value of total sales over the whole period under study. Thus, we find that the value of total sales have gone regularly upwards from JD 353,749 thousand in 1987 to JD 755,086 thousand in 1996 i.e., more than double during the period under study.

In summing up, we may say that size of cash during the period from 1987 to 1990 was low. The value of total sales also reflected the same trend. The size of cash from 1991 to 1995 was much higher than that during the first four years, i.e., 1987 to 1990. This can be considered as the peak period as the value of total sales was also well above that of the first four years. The year 1996 recorded a sharp decline in the size of cash while the value of total sales continued to rise till the last year of the study.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector and the Engineering Industrial Sector had the tendency to maintain the cash balance much higher than the other sectors throughout the period. In the case of company no. 1a we find that it maintained a very high level of cash as compared to company no. 1b and company no. 1c. This may be due to the differential magnitude of the

companies' operations and the respective size. The Engineering Industrial Sector recorded an increase in the size of cash in 1990 when it was JD 4,872 thousand as compared to JD 2,482 thousand in 1989. This increase continued till 1994 when cash size was at its peak, i.e., JD 12,400 thousand after which it came down to JD 9,511 thousand in 1996.

The Textile Industrial Sector maintained the cash balance much below other sectors and had a total of JD 6,134 thousand for the period of ten years. Company no. 6c in particular recorded very small cash size throughout the period and had a total of just JD 205 thousand for the decade out of its sector's total of JD 6,134 thousand, due to the magnitude of its operations.

The Pharmaceuticals Industrial Sector showed a sudden jump in the cash size from the year 1990 onwards. From JD 1,669 thousand in 1989, the cash size suddenly shot up to JD 3,273 thousand in the year 1990. This trend continued till 1993 when the cash size was at the maximum level of the decade, i.e., JD 10,889 thousand. After that it came down gradually to JD 8,965 thousand in 1996. A somewhat similar trend was observed in all the three companies under this sector.

The Paper and Packing Industrial Sector maintained the cash size and had a total of JD 10,699 thousand for the decade. Company no. 7c, in particular, had a very small balance throughout the period with the total just up to JD 148 thousand out of its sector's total of JD 10,699 thousand.

The Construction Industrial Sector had a total cash size of JD 29,113 thousand out of the grand total of JD 390,593 thousand during the period under study. As compared to other sectors, this sector showed less fluctuation over the years and from year 1988 to 1996 the size of cash ranged between JD 2,155 thousand (minimum) to JD 4,380 thousand (maximum) with fewer deviations over the period as compared to other sectors.

The size of cash however does not indicate the exact liquidity of the company and adequacy of the cash maintained. For this purpose, we need to look at the figures in context of the current ratio, liquid ratio, cash in terms of days' operational requirement and the percentage of the net cash flow with respect to total current liabilities.

### **5.3.3 ADEQUACY OF THE CASH MAINTAINED**

The proportion of cash in current assets signifies the extent of absolute liquidity of the concern. Strictly speaking, cash and bank balances form the only liquid part of the current assets available for utilisation at any point of time. Moreover, the higher the proportion of cash in the current assets, the higher is the liquidity of the company to pay. Cash in the current assets is the part, which is required in order to meet the day-to-day operational requirements of the enterprise.

A good measure to assess sufficiency of cash is to compute the cash in terms of days' operational requirements. The size of cash is influenced by the pattern of cash flow, the timing and pattern of operating expenses, and other current obligations of the individual firm. Although cash ensures absolute liquidity, a heavy cash buildup, which is higher than the requirement is also not a good sign. A firm should have as much portion of cash as is sufficient for meeting the daily operational requirement. Higher cash than required signifies idle cash for which the firm indirectly incurs the carrying cost of the cash and may result in loss opportunity.

Table V 3.2 shows the cash in terms of days' operational requirements for cash in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V.3.2  
Cash in Terms of Days' Operational Requirements for Cash in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(in Days) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	16	27	3	15	67	42	34	15	22	2	25
b) Intermediate Petrochemical Industries Co. Ltd	95	64	276	272	133	58	69	72	128	40	121
c) Jordan Sulpho- Chemicals Co. Ltd	1	4	19	10	14	57	4	11	5	7	13
<b>Sector-wise Ratio</b>	18	28	13	23	67	43	34	16	23	3	27
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	3	36	77	27	31	25	12	3	4	5	22
b) The Jordan Ceramic Industries Co. Ltd	164	150	32	14	83	26	73	66	140	150	90
c) Jordan Rockwood Industries Co. Ltd	36	10	69	55	70	68	28	367	343	317	136
<b>Sector-wise Ratio</b>	10	42	72	27	35	26	16	13	19	21	28
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	12	6	10	11	12	8	8	72	15	11	16
b) Arab Investment and Int. Trade Co. Ltd	21	11	73	80	68	21	42	187	64	73	64
c) The National Industries Co. Ltd	62	115	66	21	65	21	84	36	27	67	58
<b>Sector-wise Ratio</b>	21	20	24	15	21	11	19	79	24	33	27
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	9	45	26	43	34	139	75	72	105	81	63
b) Dar Al-Dawa Development & Invst. Co. Ltd	22	35	30	69	74	53	214	127	127	130	88
c) The Arab Center for Pharm. & Chemicals Co. Ltd	12	72	132	198	874	153	98	78	186	248	205
<b>Sector-wise Ratio</b>	12	43	36	61	107	109	132	97	122	115	83
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	146	103	19	116	136	259	302	302	179	224	179
b) National Cables & Wire Manuf. Co. Ltd	31	89	104	100	107	118	182	96	81	81	99
c) The Jordan Pipes Manufacturing Co. Ltd	86	8	3	27	37	32	44	178	151	145	71
<b>Sector-wise Ratio</b>	104	72	44	89	103	150	195	187	127	147	122
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	16	4	2	2	2	2	4	19	1	0	5
b) Jordan Tanning Co. Ltd	22	10	10	6	3	1	15	79	36	44	23
c) The Woolen Industries Co. Ltd	13	1	2	1	2	15	28	7	25	16	11
<b>Sector-wise Ratio</b>	17	5	4	3	3	2	12	52	25	25	15
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	122	58	112	20	120	118	142	113	32	17	85
b) The Arab Paper Converting & Trading Co. Ltd	6	60	30	30	145	47	75	116	43	5	56
c) Jordan Printing and Packing Co. Ltd	1	29	1	1	5	2	0	1	6	2	5
<b>Sector-wise Ratio</b>	85	52	84	17	97	76	95	93	30	10	64
<b>Overall Industrial Ratio</b>	21	31	22	29	63	46	46	33	33	20	34

Source: Appendix III

Table V.3.2 reveals that the overall industrial average maintained cash equivalent to 34 days of its operational requirements. The year-wise analysis shows that from 1987 to 1990 the companies maintained a cash balance of about 21 days to 31 days of its operational requirements. In the year 1991 it recorded a sudden increase with the average of cash in terms of days' requirements being 63 days. It then gradually fell over the years and came down to just 20 days in 1996.

An indepth study of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector showed a steep downfall with frequent fluctuation in the size of cash maintained through the period under study which directly led to the reduction in cash maintained for daily operational requirement. As this sector maintained a very high cash size as compared to other sectors, its cash on an average was sufficient to meet operational requirements of just 27 days. Company no. 1c, in particular, maintained cash on an average for about 13 days only. With regard to company no. 1a which had a very high size of cash, we find that when looked from the angle of days' requirements, this was not sufficient to meet even 25 days of requirements on an average. On the other hand, company no. 1b, on an average, maintained cash equivalent to 121 days of its operational requirements. Throughout the period this was well above the sector's average and also the overall industrial average. In 1987 it had cash sufficient for 95 days' operational requirement which shot up to 276 days and 272 days in the years 1989 and 1990 respectively. After that it came down quite sharply to 40 days in 1996 with slight deviations over this period. The main reason for this maintenance of cash requirement in company no. 1b can be found from its inventory position of the comparative years. The percentage of the inventories show that the inventory in 1989 was just 90.10 per cent with regard to that in the base year 1987 and it was 120.78 per cent in the year 1990. Thereafter it picked up and went up to about 281.81 per cent in 1993 and afterwards it came down again to 145.37 per cent in 1996. This inventory trend seems to have had a direct effect on its cash position. As in 1989 the inventory level was on the lower side, the cash was maintained up to 276 days of its operational requirement. As the money

locked up in inventory was comparatively lower, the liquidity seems to be higher. Similarly as the investment in inventory rose, the cash maintained (in terms of operational requirement) went down. In 1994 and 1995 again the amount of investment in inventory came down, which helped in improving the cash position. On the whole we can say that in the Chemical and Petroleum Industrial Sector, the investment in inventory almost doubled which was higher as compared to its sales growth rate over the period of ten years under study and it directly led to a tightened cash position.

As far as the Construction Industrial Sector is concerned, we find that the sector improved its holding cash position in terms of daily operational requirement. The cash maintained which was sufficient to meet operational requirement of 10 days in 1987 went up to 21 days in 1996 with the sector average of 28 days during the ten years of the study. Company no. 2a, in particular, maintained cash of about 22 days of its operational requirements on an average for the period of ten years. For this company, the size of cash was just JD 144 thousand in 1987 and it went up to as high as JD 3,912 thousand in 1989 and again fell to JD 747 thousand in 1996 (Table V.3.1). Due to this factor, the cash maintained which was sufficient to meet operational requirement of 3 days in 1987 has went up to 77 days in 1989. As already explained, although it again came down to meet operational requirement of 5 days in 1996. Company no. 2b and company no. 2c had an average of 90 days and 136 days respectively which is well above their respective sector's average as well as the overall industrial average.

The position of the Consumables and Food Industrial Sector seems to be very similar to that of the Construction Industrial Sector. Its cash, which was sufficient to meet 21 days' operational requirement in 1987, strengthened and was sufficient to cover 33 days' operational requirement in 1996. Company no. 3b, in particular, has fared appreciably well, as its cash maintained was equivalent to 21 days of operational requirement in 1987 which improved substantially and was equivalent to 73 days of operational requirement in 1996. In this sector one finds that the average increase in inventories and receivables was lower than that of total sales. The sector thereby has been able to avoid

excessive blocking and ensure more mobility of the funds. Thus the cash position seems to have improved.

The Pharmaceutical Industrial Sector showed an increasing tendency to maintain a high balance of cash. The cash balance which was sufficient to meet 12 days of operational requirement in 1987 went up to 115 days of operational requirement in 1996. Nearly all the companies of this sector under study excelled in sufficiency to meet the days' operational requirement. The main reason for this factor seems to be the strict control exercised by the sector over the growth of receivables and the inventory. The overall percentage of increase in receivables was lower than that of sales. The sector therefore was able to realise cash and avoid blocking of funds in receivables.

The Engineering Industrial Sector was able to maintain a healthy cash balance in terms of days' operational requirement. In the initial three years under study, the cash maintained was on a gradual decrease when it went down to 44 days' operational requirement in 1989 from 104 days in 1987. From the year 1990 onwards the cash maintained in terms of daily operational requirement was very high and gradually on the rise. In all the years after 1991 the cash maintained was equivalent to more than 100 days' operational requirement. On an average, over the decade, the sector maintained cash equivalent to 122 days' operational requirement. This has also been corroborated by the fact that the percentage of cash with regard to current assets was as high as 29.09 per cent. Throughout the period with a few exceptions, the extent of cash maintained was very high, i.e., above 25 per cent on an average (Table V 3.8). Company no. 5a, in particular, maintained a very high cash balance throughout the period of ten years (with an exception in 1989) and the average cash maintained in the decade was around 179 days. In the case of company no. 5c too, the cash position went up from 3 days in 1989 to 145 days' operational requirement in 1996.

The condition of the Textile Industrial Sector completely deteriorated from 1987 to 1992 as far as the cash maintained and liquidity are concerned. Thereafter it marked a complete turn around and improved its position substantially. The cash maintained in terms of days' operational requirement

which was 17 days in 1987 came down drastically to merely 2 days' requirement in 1992. The period after that witnessed an increase in the cash maintained thereby ensuring a better liquidity as compared to earlier years. Therefore, the cash maintained in terms of days' operational requirement increased to 25 days in 1996. In the case of company no. 6a, however, the cash position was not satisfactory at all. Thus, the cash maintained in terms of days' operational requirement went down from 16 days in 1987 to 0 days in 1996 indicating that at the end of 1996 the cash balance was not even sufficient to meet 1 day's operational requirement. With regard to company no. 6b and company 6c we find that they followed the pattern in line with the whole sector as such.

As far as the Paper and Packing Industrial Sector is concerned, as we have discussed in the preceding paragraph, the sector seemed to have a much lower cash balance than the other individual industrial sectors. But Table V.3.2 shows that this balance was sufficient to meet the operational requirement of cash of about 64 days which is around double the overall industrial average. This may be due to the peculiarity of the type of industry and the pattern of the requirement of the cash in the operations. Looking at the entire period of ten years, one can see a trend of fluctuation in the days' operational requirement for the cash maintained. During the period from 1987 to 1989 the sector seemed to have enjoyed a good cash position in terms of its operational requirements. In the year 1990 there was a sudden fall and the cash maintained was just up to 17 days of the operational requirement. From 1991 to 1994 again the position improved and the cash maintained on an average was more than 90 days' operational requirement. In the last two years under study again the cash maintained in terms of days requirement went down to 30 days and 10 days respectively. Despite all this, the sector on the whole maintained more cash balance in terms of daily operational requirement, and the reason for this lies in the pattern of the receivables maintained in the sector. In this sector, the growth of receivables was up to 127.42 per cent over the ten years against the increase of 158.52 per cent in sales. This clearly indicates that the sector on an average was able to lower the investment in

debtors as compared to the industrial sector and thereby was able to increase the cash maintained in terms of daily requirement.

Financial analysts are of the view that a business enterprise should keep its cash and near cash reserves below the requirements of one month's normal expenditure. If cash and near cash reserves happen to be more than this limit, it may be considered that excessive cash is being carried by the company.<sup>(43)</sup> In view of this, we find that all the industrial companies kept cash either below or much above one month's normal operational requirements. So, as per operational requirements for cash, the size of the cash maintained in most of the industrial companies was excessive, whereas in other industrial companies there was shortage of cash during the period under study.

#### **5.3.4 ADEQUACY OF CASH IN TERMS OF LIQUIDITY AND SOLVENCY**

According to Professor Walter<sup>(44)</sup>, the liquidity and solvency may be judged in two ways: (a) Actual liquidity and solvency (b) Technical liquidity and solvency. The actual liquidity and solvency of the industrial companies is mainly based on the percentage of the net cash flow with regard to current liabilities and coverage of current liabilities. While the technical liquidity and solvency position of the industrial companies is shown through current and liquid ratios.<sup>(45)</sup>

Current Ratio, which is a measure of the short-term solvency of any concern indicates its ability to meet its short term obligations. This means that it determines the extent to which the concern is able to meet its current obligations out of its current assets, i.e., those assets which in an ordinary course, can be converted into cash in a short time span. The higher this ratio is, the higher is the ability of the firm to meet its current obligation and the greater safety to its creditors. Ideally any current ratio of 2:1 indicates a sound position. A liquid ratio is a refined version of current ratio and it considers only the moving portion of the current assets and thereby the inventories are excluded. Ideally if the ratio is 1:1, it is considered satisfactory.

Tables V.3.3 and V.3.4 show the current ratio and the liquid ratio in the industrial companies during the period of the study i.e., 1987 to 1996.

Table V.3.3  
Current Ratio in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	1.55	1.54	1.84	1.48	1.49	1.44	1.38	1.33	1.22	1.15	1.44
b) Intermediate Petrochemical Industries Co Ltd	0.82	0.96	1.13	1.21	1.34	1.28	1.32	1.46	1.25	1.07	1.18
c) Jordan Sulpho- Chemicals Co Ltd	2.35	1.24	1.87	1.84	2.84	1.65	0.97	0.95	0.85	0.98	1.55
<b>Sector-wise Ratio</b>	1.52	1.50	1.76	1.47	1.50	1.43	1.37	1.33	1.21	1.14	1.42
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.67	0.63	0.61	0.46	0.50	0.49	0.52	0.55	0.78	0.84	0.60
b) The Jordan Ceramic Industries Co Ltd	2.15	1.29	1.36	1.66	1.40	1.29	1.24	1.55	1.81	2.50	1.62
c) Jordan Rockwood Industries Co Ltd	0.80	1.04	1.65	2.01	1.59	1.70	1.83	5.35	4.18	4.78	2.49
<b>Sector-wise Ratio</b>	0.70	0.86	0.68	0.52	0.54	0.54	0.57	0.62	0.86	0.93	0.66
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn Co Ltd	1.08	1.15	1.30	1.57	1.49	1.47	1.27	1.05	1.01	1.00	1.24
b) Arab Investment and Int. Trade Co Ltd	1.49	1.39	1.35	2.40	1.40	1.43	1.26	3.00	3.04	2.39	1.91
c) The National Industries Co Ltd	0.41	1.74	1.01	0.46	0.58	0.47	0.55	0.58	3.41	1.36	1.06
<b>Sector-wise Ratio</b>	0.81	1.28	1.22	1.18	1.25	1.22	1.11	1.03	1.37	1.16	1.16
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	1.39	1.35	1.27	1.61	1.71	1.35	2.16	1.95	2.19	2.40	1.74
b) Dar Al-Dawa Development & Invst Co Ltd	1.45	1.46	1.40	1.76	1.63	1.43	3.49	3.23	2.69	3.58	2.21
c) The Arab Center for Pharm & Chemicals Co Ltd	0.62	0.88	1.57	1.45	1.61	2.87	2.36	1.89	2.55	4.46	2.01
<b>Sector-wise Ratio</b>	1.34	1.31	1.32	1.62	1.68	1.44	2.48	2.18	2.37	2.83	1.86
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	1.74	1.31	1.53	2.42	2.10	2.23	1.97	2.07	2.07	1.99	1.94
b) National Cables & Wire Manuf Co Ltd	0.97	2.02	1.52	2.15	2.93	2.04	2.11	1.73	1.57	1.55	1.86
c) The Jordan Pipes Manufacturing Co Ltd	4.95	1.91	1.71	2.28	3.28	2.81	2.15	5.78	2.89	2.56	3.03
<b>Sector-wise Ratio</b>	1.72	1.71	1.58	2.26	2.58	2.25	2.06	2.16	1.94	1.84	2.01
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	1.14	1.13	1.12	1.18	1.67	1.43	1.29	2.31	1.49	1.60	1.44
b) Jordan Tanning Co Ltd	1.35	1.42	1.62	1.40	1.43	1.60	1.92	2.42	1.79	2.98	1.79
c) The Woolen Industries Co Ltd	2.38	2.30	2.56	1.79	1.99	2.99	3.72	6.11	5.78	4.87	3.45
<b>Sector-wise Ratio</b>	1.19	1.18	1.18	1.24	1.61	1.50	1.45	2.42	1.60	1.82	1.52
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	2.19	2.43	3.46	1.55	2.31	4.46	4.23	3.35	2.37	2.23	2.86
b) The Arab Paper Converting & Trading Co Ltd	0.68	0.69	0.91	1.21	6.84	4.98	2.44	5.58	2.48	2.71	2.85
c) Jordan Printing and Packing Co Ltd	1.05	1.02	0.98	1.17	1.14	1.16	1.34	1.42	1.62	1.41	1.23
<b>Sector-wise Ratio</b>	1.65	1.66	2.32	1.44	2.33	3.46	3.19	3.41	2.32	2.32	2.41
<b>Overall Industrial Ratio</b>	1.27	1.27	1.35	1.25	1.28	1.27	1.30	1.31	1.28	1.25	1.28

Source: Appendix IV

Table V.3.4  
Liquid Ratio in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	0.71	0.81	0.74	0.76	0.91	0.80	0.81	0.80	0.83	0.75	0.79
b) Intermediate Petrochemical Industries Co Ltd	0.36	0.22	0.90	0.91	0.60	0.33	0.27	0.50	0.42	0.33	0.48
c) Jordan Sulpho-- Chemicals Co Ltd	0.99	0.40	0.53	0.52	0.40	0.41	0.18	0.16	0.35	0.30	0.42
<b>Sector-wise Ratio</b>	0.69	0.76	0.75	0.76	0.90	0.78	0.78	0.78	0.82	0.74	0.78
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.08	0.10	0.16	0.08	0.12	0.11	0.10	0.07	0.11	0.14	0.11
b) The Jordan Ceramic Industries Co Ltd	0.98	0.63	0.34	0.29	0.50	0.29	0.33	0.43	0.79	1.19	0.58
c) Jordan Rockwool Industries Co Ltd	0.62	0.72	1.30	1.37	1.01	1.18	1.19	3.72	2.72	2.93	1.68
<b>Sector-wise Ratio</b>	0.11	0.13	0.20	0.11	0.14	0.13	0.12	0.11	0.17	0.20	0.14
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co Ltd	0.42	0.55	0.43	0.54	0.46	0.52	0.58	0.38	0.39	0.45	0.47
b) Arab Investment and Int Trade Co Ltd	0.53	0.62	0.80	0.89	0.69	0.77	0.49	1.83	1.24	1.14	0.88
c) The National Industries Co Ltd	0.22	1.34	0.74	0.24	0.37	0.30	0.28	0.33	1.53	0.81	0.61
<b>Sector-wise Ratio</b>	0.34	0.69	0.53	0.44	0.47	0.50	0.51	0.43	0.56	0.56	0.50
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	1.02	1.02	0.89	1.04	1.10	0.89	1.40	1.12	1.53	1.80	1.18
b) Dar Al-Dawa Development & Invt Co Ltd	1.06	1.09	1.05	1.29	1.10	0.90	2.62	2.42	2.02	2.70	1.63
c) The Arab Center for Pharm & Chemicals Co Ltd	0.26	0.31	0.95	0.82	1.23	1.87	1.68	1.39	0.38	2.47	1.14
<b>Sector-wise Ratio</b>	0.97	0.97	0.93	1.07	1.12	0.94	1.70	1.41	1.63	2.07	1.28
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	1.34	0.86	0.77	1.65	1.15	1.81	1.51	1.15	1.16	1.48	1.29
b) National Cables & Wire Manuf Co Ltd	0.31	0.77	0.86	1.20	1.46	1.01	1.22	0.83	0.72	0.76	0.91
c) The Jordan Pipes Manufacturing Co Ltd	2.06	0.24	~0.37	0.40	0.47	0.53	0.40	2.47	0.88	0.99	0.88
<b>Sector-wise Ratio</b>	0.94	0.61	0.68	1.10	1.13	1.26	1.19	1.09	0.88	1.00	0.99
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsteds Mills Co Ltd	0.46	0.34	0.20	0.34	0.50	0.55	0.52	1.01	0.74	0.69	0.53
b) Jordan Tanning Co Ltd	0.57	0.61	0.98	0.85	0.88	1.10	1.30	1.63	1.34	1.74	1.10
c) The Woolen Industries Co Ltd	0.43	0.23	0.22	0.63	0.54	0.91	1.10	1.58	1.53	1.82	0.90
<b>Sector-wise Ratio</b>	0.48	0.37	0.26	0.43	0.61	0.67	0.66	1.14	0.86	0.82	0.63
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	1.42	1.27	2.25	0.69	1.42	2.09	2.17	1.52	1.33	1.33	1.55
b) The Arab Paper Converting & Trading Co Ltd	0.31	0.23	0.47	0.44	3.68	1.46	0.83	2.45	0.65	0.86	1.14
c) Jordan Printing and Packing Co Ltd	0.23	0.34	0.20	0.31	0.30	0.28	0.36	0.38	0.77	-0.07	0.31
<b>Sector-wise Ratio</b>	0.98	0.80	1.41	0.60	1.33	1.40	1.46	1.48	1.01	1.10	1.16
<b>Overall Industrial Ratio</b>	0.57	0.61	0.61	0.61	0.69	0.65	0.70	0.70	0.75	0.73	0.66

Source: Appendix IV

For the ten years under study, these industrial companies had an overall average current ratio and liquid ratio of 1.28:1.00 and 0.66:1.00 respectively. The current ratio was 1.35:1.00 in the year 1989 which is higher than the overall average and it was 1.25:1.00 in the year 1990 which is lower than the overall average. During remaining period the current ratio was quite constant with only marginal variations. While the liquid ratio increased from 0.57:1.00 in 1987 to 0.73:1.00 in 1996. A sector-wise analysis reflects a lot of variations in each sector. The Construction Industrial Sector had the lowest average current ratio and liquid ratio of just 0.66:1.00 and 0.14:1.00 respectively. The Consumables and Food Industrial Sector had an average current ratio and liquid ratio of 1.16:1.00 and 0.50:1.00 respectively which is below the overall industrial average. The Chemical and Petroleum Industrial Sector with a current ratio of 1.42:1.00 fared quite well and all other sectors had a current ratio of well above 1.5:1.00.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial sector had an average current ratio of 1.42:1.00. This ratio was 1.52:1.00 in 1987 and went up to 1.76:1.00 in 1989 and thereafter it registered a constant decrease and came down to a mere 1.14:1.00 in 1996. Interestingly the liquid ratio of the sector was more or less constant over the period and for the decade it was 0.78:1.00. In the case of company no. 1c we find a dismal performance both in current ratio as well as liquid ratio. From 2.35:1.00 in 1987 the current ratio was constantly on the decline (with an exception in 1991) and it went down to 0.98:1.00 in 1996. Similarly the liquid ratio went down to 0.30:1.00 in 1996 from 0.99:1.00 in 1987. The main reason for the poor liquidity management was the large size of inventories. This directly put a stress on the liquidity of the company and thereby the liquidity deteriorated over the years.

The Construction Industrial Sector fared very poorly both the current ratio and the liquid ratio tests. The current ratio over the years on an average

was just 0.66:1.00 and the liquid ratio was 0.14:1.00. Thus a bulk of the current assets probably consisted of inventories and other non-moving items which blocked up the flow of funds.

The Consumables and Food Industrial Sector seems to have improved its position in both the current ratio and the liquid ratio. From 1987 to 1991, the current ratio increased from 0.81:1.00 to 1.25:1.00. Thereafter a gradual decline in the current ratio and with certain variations, it came down to 1.16:1.00 in 1996. The liquid ratio on the other hand went upwards and it was 0.56:1.00 in 1996 as against 0.34:1.00 in 1987. This improvement was mainly possible due to the proper control exercised by the sector over the size of inventories. Thus increase in the investment in inventories over the years was lower than increase in sales. The average increase in sales over the years was 238.60 per cent whereas the corresponding increase in inventory was just about 200 per cent. Moreover, the composition of current assets seems to have improved. That is why in the later period of the decade, although there has been a decline in the current ratio, the liquid ratio does not seem to have been affected much. In the case of company no. 3b and company no. 3c we find that they improved their liquidity position over the years. Thus, company no. 3b, had a current ratio of 1.49:1.00 in 1987, but it increased to 3.04:1.00 in 1995 and came down to 2.39:1.00 in 1996. The liquid ratio over the period also went up from 0.53:1.00 in 1987 to 1.14:1.00 in 1996. Similarly, in the case of company no. 3c, the current ratio went up from 0.41:1.00 in 1987 to 3.41:1.00 in 1995 and came down to 1.36:1.00 in 1996. The liquid ratio also improved from 0.22:1.00 in 1987 to 0.81:1.00 in 1996.

What emerges from the discussion so far is that the Pharmaceuticals Industrial Sector is one of the few sectors, which was able to check disproportionate growth in the size of receivables and also in the size of inventories. This was perhaps the main reason why this sector fared reasonably well as far as the current ratio and the liquid ratios are concerned.

The overall current ratio of the sector which was 1.34:1.00 in 1987 went up to 2.83:1.00 in 1996. Similarly the liquid ratio which was 0.97:1.00 in 1987 went up to 2.07:1.00 in the year 1996. The growth in both the ratios was constant and gradual throughout the period of ten years. The sector seems to have molded this ratios into this type of a situation. Thus, this sector seems to have adopted a proper policy of working capital management and thereby the liquidity position improved constantly. All the companies under study in this sector fared well. Company no. 4c, in particular, staged a remarkable recovery in the current ratio and the liquidity. The current ratio which was just 0.62:1.00 in 1987 steadily rose up to 2.55:1.00 in 1995 and thereafter it shot up to 4.46:1.00. Similarly the liquid ratio which was just 0.26:1.00 in 1987 went up to 2.47:1.00 in the year 1996.

The Engineering Industrial Sector had a current ratio of 2.01:1.00 on an average and the liquid ratio of 0.99:1.00, which indicates healthy position but the trend in which the sector moved is somewhat disturbing. The increase in the inventory level was quite sharp since 1991 onwards. This factor directly affected the liquidity position of the sector in the future years and from 1991 to 1996 there was a fall in the current ratio from 2.58:1.00 to 1.84:1.00. The liquid ratio also went down from 1.26:1.00 in 1992 to 1.00:1.00 in 1996. All the companies in this sector moved in a similar fashion. There was a rise in the current ratio as well as the liquid ratio till 1992 (with marginal ups and downs). But thereafter there was a slump throughout the rest of the period under study. Although the growth of receivables was lower than the growth of the sales, this factor was not sufficient to counter the blockage of funds caused by disproportionate growth in inventories. Thus, although the figures at the end of ten years do not reflect a deteriorated condition, it is certain that they indicate a deteriorating trend.

The Textile Industrial Sector did not enjoy sufficient liquidity in the initial years, but the situation seems to have improved after 1990 and thereafter

there was a regular increase in both the current ratio and the liquid ratio. From 1.24:1.00 in 1990 the overall current ratio went up to 1.82:1.00 in 1996 which indicates an improvement in the conditions. Company no. 6c, in particular, substantially improved its current ratio from 1.79:1.00 in 1990 to 4.87:1.00 in 1996 with an average of 3.45:1.00. The overall liquid ratio of the sector also increased in a similar fashion. The ratio, which was just 0.48:1.00 in 1987, further went down to 0.26:1.00 in 1989. In 1990 it was 0.43:1.00 and thereafter there was a regular upward movement and it reached 0.82:1.00 in the year 1996. Company no. 6c, which had a liquid ratio of just 0.43:1.00 in 1987, recorded a liquid ratio of 1.82:1.00 in the year 1996 thus indicating a continuously improving liquidity of the company and the sector as a whole.

The Paper and Packing Industrial Sector witnessed regular ups and downs in the liquidity positions throughout the period of ten years under study. Although both the current ratio and the liquid ratio were well above the overall industrial average, there were regular hiccups. The main reason for this seems to be the relative growth in receivables and inventories as compared to sales. In certain years we find the increase in the sales is higher than the receivables and in some years we find the opposite trend. Thus, from 1987 to 1994 the increase in sales was more than that of receivables but the increase in inventories was higher than that of sales. From 1994 to 1996, the increase in receivables was higher than the sales and the same in tune of inventory too. The overall average current ratio was 2.41:1.00 and the liquid ratio was 1.16:1.00. The ratios were very high from 1992 to 1994 when the increase in receivables was lower than the increase in sales. Thereafter as the receivables went up, it put some strain on the liquidity and in the corresponding years both the current ratio and the liquid ratio went down. Company no. 7c especially recorded a negative liquid ratio in the year 1996.

Traditionally a current ratio and a liquid ratio of 2:1 and 1:1 respectively are taken as a satisfactory standard for the liquidity and solvency of a firm. It

indicates the soundness of the current financial position of the company and a satisfactory degree of safety provided to creditors. Bankers in India and abroad as a convention use a minimum current ratio of 2:1 as a standard.<sup>(46)</sup> This is endorsed by Myer,<sup>(47)</sup> Pandey,<sup>(48)</sup> Kuchhal,<sup>(49)</sup> Ramamoorthy,<sup>(50)</sup> Mishra,<sup>(51)</sup> Nigam,<sup>(52)</sup> Bolton,<sup>(53)</sup> Howard,<sup>(54)</sup> and Agarwal.<sup>(55)</sup> The overall industrial average of the current ratio and the liquid ratio of Jordan for all the industrial companies taken together was less than 2:1 and 1:1 respectively for the period from 1987 to 1996.

### **5.3.5 ANALYSIS OF CURRENT LIABILITIES POSITION VIS-À-VIS LIQUID FUNDS**

Professor Walter<sup>(56)</sup> has suggested that instead of matching current assets with current liabilities or quick assets with current liabilities, better results can be obtained by matching current obligations with net cash flow. In the long run, net cash flow is more important since they are flows whereas current liabilities only indicate the outstanding obligations on a particular date which are continuously being replaced.

Throughout the analysis of the industrial sectors one witnesses a heavy investment in inventory and excessive blocking of funds in total receivables coupled with increased percentage of bad debts. This evidently put a stress on the cash position of the company and it resulted in reduction in percentage of the net cash flow with regard to current liabilities (Table V.3.5) and also in the percentage of the liquid funds in relation to current liabilities (Table V.3.6).

Tables V.3.5 and V.3.6 show the percentage of net cash flow with regard to current liabilities and the percentage of liquid funds in relation to current liabilities in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V.3.5  
Percentage of Net Cash Flow to the Current Liabilities in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co. Ltd		20.22	17.83	22.53	12.72	6.17	4.64	4.89	4.84	4.57	4.09	10.25
b) Intermediate Petrochemical Industries Co. Ltd		17.23	17.15	22.52	31.06	26.28	21.42	6.46	4.07	-2.08	-15.47	12.87
c) Jordan Sulpho- Chemicals Co. Ltd		123.34	4.77	108.10	78.04	98.91	55.63	16.83	-1.24	-1.55	-15.52	46.73
<b>Sector-wise Ratio</b>		21.28	17.30	24.17	14.89	7.56	5.92	5.13	4.68	4.35	3.56	10.89
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co. Ltd		61.27	39.95	29.78	24.50	20.24	30.90	34.02	33.14	36.17	36.17	34.61
b) The Jordan Ceramic Industries Co. Ltd		76.04	70.45	89.27	85.09	92.10	106.93	86.64	111.62	90.47	142.84	95.15
c) Jordan Rockwool Industries Co. Ltd		-2.89	13.91	56.44	28.18	-20.51	11.74	31.40	11.97	25.67	0.15	15.61
<b>Sector-wise Ratio</b>		60.12	40.23	33.06	26.53	21.94	33.43	36.66	36.58	38.76	40.26	36.75
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri. Co. Ltd		9.97	14.10	21.25	46.11	24.93	22.84	20.06	5.69	9.21	2.91	17.71
b) Arab Investment and Int. Trade Co. Ltd		-13.03	-1.27	-12.73	-8.99	8.19	28.07	4.21	6.20	17.21	14.26	4.21
c) The National Industries Co. Ltd		-16.37	-67.20	55.58	5.55	4.04	12.97	9.18	10.85	46.29	-31.20	2.97
<b>Sector-wise Ratio</b>		-3.63	-1.32	27.12	28.22	17.77	21.21	16.46	6.94	13.44	-2.02	12.42
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf. Co. Ltd		10.24	10.11	19.25	27.07	17.00	13.03	25.85	5.27	19.74	34.14	18.17
b) Dar Al-Dawa Development & Invst. Co. Ltd		18.08	28.10	34.14	52.89	37.77	37.78	70.92	73.39	44.01	67.15	48.42
c) The Arab Center for Pharm. & Chemicals Co. Ltd		7.55	12.70	32.43	11.35	14.90	73.01	47.99	27.64	47.19	53.05	32.78
<b>Sector-wise Ratio</b>		11.33	13.75	23.08	30.97	20.73	21.72	38.29	21.84	28.88	43.85	25.44
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co. Ltd		55.90	56.92	72.18	143.38	100.73	101.66	103.08	91.67	62.42	68.72	85.67
b) National Cables & Wire Manuf. Co. Ltd		13.54	25.32	79.27	119.74	111.57	45.24	32.26	27.12	15.81	10.90	48.08
c) The Jordan Pipes Manufacturing Co. Ltd		72.62	34.93	36.81	27.24	31.37	32.54	30.47	53.56	25.85	14.21	35.96
<b>Sector-wise Ratio</b>		38.10	40.85	64.09	101.17	92.37	66.34	60.58	57.35	31.39	28.22	58.05
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co. Ltd		25.24	17.33	5.12	13.54	25.90	18.25	15.49	26.86	23.83	21.26	19.28
b) Jordan Tanning Co. Ltd		21.19	21.89	45.63	35.64	31.25	38.42	51.23	61.43	27.72	57.25	39.17
c) The Woolen Industries Co. Ltd		14.84	34.98	71.95	25.79	40.58	31.18	28.89	80.41	41.62	64.71	43.50
<b>Sector-wise Ratio</b>		24.36	18.10	9.36	17.67	27.98	22.79	21.38	34.98	24.79	26.01	22.74
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co. Ltd		59.03	57.79	152.35	58.65	176.38	116.56	111.92	80.03	47.53	39.46	89.97
b) The Arab Paper Converting & Trading Co. Ltd		-8.51	-5.16	24.84	35.12	58.53	34.50	15.00	81.02	22.29	20.87	27.85
c) Jordan Printing and Packing Co. Ltd		47.89	26.39	26.38	40.15	36.70	18.10	41.89	30.26	41.06	-9.65	29.92
<b>Sector-wise Ratio</b>		39.41	32.56	95.01	52.08	141.89	72.53	71.95	71.35	37.41	30.78	64.50
<b>Overall Industrial Ratio</b>		28.54	23.01	29.53	24.02	18.34	17.76	18.58	16.58	14.12	12.52	20.30

Source: Appendix IV

Table V 3.6  
Percentage of Liquid Funds to the Current Liabilities in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	(In Percentage )	
										Average of Ten Years	1996
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	14.42	21.13	2.98	9.15	36.49	23.02	16.92	7.21	8.50	0.83	14.06
b) Intermediate Petrochemical Industries Co Ltd	26.69	15.54	82.14	81.25	43.48	13.65	16.55	24.79	24.15	8.18	33.64
c) Jordan Sulpho- Chemicals Co Ltd	1.17	1.45	16.86	7.70	18.14	27.29	1.04	2.71	1.57	1.59	7.95
<b>Sector-wise Ratio</b>	14.97	20.06	11.50	13.52	36.56	22.78	16.65	7.39	8.59	0.93	15.29
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.49	4.77	9.49	3.91	4.78	4.71	2.60	0.63	1.14	1.26	3.38
b) The Jordan Ceramic Industries Co Ltd	76.62	44.77	9.67	5.67	27.38	10.86	21.36	27.48	59.83	90.10	37.37
c) Jordan Rockwool Industries Co Ltd	5.59	2.41	20.85	26.48	14.63	17.99	10.31	179.24	136.19	153.63	56.73
<b>Sector-wise Ratio</b>	2.04	5.79	9.86	4.27	5.59	5.09	3.63	2.96	5.29	6.05	5.06
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agrn. Co Ltd	4.04	2.36	5.06	6.18	7.06	4.72	4.34	21.14	4.78	3.02	6.27
b) Arab Investment and Int. Trade Co Ltd	7.37	7.14	32.66	30.80	17.28	13.43	23.94	137.52	59.10	52.44	38.17
c) The National Industries Co Ltd	5.08	32.92	12.51	4.41	11.83	4.39	16.33	7.08	27.27	26.49	14.83
<b>Sector-wise Ratio</b>	4.76	8.03	9.94	6.54	9.43	5.86	8.47	23.14	10.14	10.53	9.68
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co Ltd	1.51	6.08	3.93	9.06	7.54	22.33	21.96	16.21	27.07	23.18	13.89
b) Dar Al-Dawa Development & Invt. Co Ltd	4.96	8.64	7.83	23.59	28.39	18.10	148.25	96.05	78.69	98.19	51.37
c) The Arab Center for Pharm. & Chemicals Co Ltd	0.63	5.42	26.37	26.80	81.40	64.19	31.71	23.55	102.42	122.63	48.51
<b>Sector-wise Ratio</b>	2.01	6.51	6.27	14.11	24.69	23.50	50.87	32.74	47.38	48.90	25.70
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co Ltd	76.27	66.77	14.68	92.66	67.22	137.69	124.50	104.56	96.44	129.67	91.05
b) National Cables & Wire Manuf. Co Ltd	5.77	39.08	37.89	54.40	74.28	50.08	68.74	36.29	34.21	28.72	42.75
c) The Jordan Pipes Manufacturing Co Ltd	141.14	3.01	1.46	13.46	30.57	29.22	25.80	191.16	67.77	81.07	58.47
<b>Sector-wise Ratio</b>	50.52	36.11	21.06	53.58	63.25	82.65	82.75	77.06	58.96	66.43	59.18
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	3.95	0.81	0.34	0.20	0.61	0.29	0.43	4.51	0.09	0.05	1.13
b) Jordan Tanning Co Ltd	4.45	2.54	3.69	2.70	1.96	0.64	14.12	105.25	41.42	85.57	26.24
c) The Woolen Industries Co Ltd	7.66	1.14	1.70	0.53	0.75	10.31	20.64	6.35	19.09	10.65	7.38
<b>Sector-wise Ratio</b>	4.10	1.01	0.63	0.64	1.00	0.62	3.06	24.67	8.17	9.50	5.34
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	53.08	26.27	73.87	10.18	78.10	114.74	102.74	67.39	17.44	7.84	55.17
b) The Arab Paper Converting & Trading Co Ltd	0.77	6.43	5.44	8.65	165.34	42.06	34.89	161.17	12.44	4.55	44.18
c) Jordan Printing and Packing Co Ltd	0.66	17.38	0.93	1.19	3.89	1.31	0.01	0.56	3.57	2.76	3.23
<b>Sector-wise Ratio</b>	32.81	18.45	42.38	8.89	68.34	67.15	64.56	72.41	13.86	6.53	39.54
<b>Overall Industrial Ratio</b>	11.18	14.43	10.75	11.84	25.29	19.49	18.54	13.37	12.21	6.76	14.39

Source: Appendix IV

On an average, the percentage of net cash flow with regard to the current liabilities of the overall industrial companies in Jordan went down from 28.54 per cent in 1987 to just 12.50 per cent in 1996. With this, the liquid funds of the industries as a whole, which were 11.18 per cent of its current liabilities, went down to a mere 6.76 per cent in 1996. Although in the initial years up to 1991 the percentage of liquid funds with regard to current liabilities increased and went up to 25.29 per cent, it recorded a constant decrease thereafter and was just 6.76 per cent in 1996.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector showed a reduction in the percentage of net cash flow with regard to current liabilities over the period of ten years under study. The percentage which was 21.28 per cent in 1987 rose to 24.17 per cent in 1989 and thereafter there was a gradual decrease in the percentage and it was just 3.53 per cent in 1996. The percentage of liquid funds with regard to current liabilities also went down from 14.97 per cent in 1987 to 0.93 per cent in 1996. Particularly after 1991 this percentage went down sharply. The sector increased its inventory level almost by 100 per cent and the increase in gross receivables went up to 5.77 times over the period of ten years against the corresponding increase in sales of about 2 times. This blocking up of funds had a direct impact on the percentage of net cash flow in respect of current liabilities. In the case of company no. 1c, in particular, we find a sharp decline in the percentage from 123.34 per cent in 1987 to 16.83 per cent in 1993 and after that the percentage was negative. Company no. 1b also seemed to have followed a similar trend, which showed a decline in the percentage from 31.06 per cent in 1990 to 4.07 per cent in 1994 and in the last two years under study it went on negative side.

The Construction Industrial Sector also had a declining trend in the percentage of net cash flow with regard to current liabilities in the first five years under study. Thus, from 60.12 per cent in 1987 the percentage fell to 21.94 per cent in 1991. Thereafter the sector applied more and more funds to current liabilities and the percentage of net cash flow with regard to current liabilities was on the upswing and it was up to 40.26 per cent in 1996. All the companies under this sector followed an almost similar pattern but company no. 2b showed the tendency toward an increase in the percentage of net cash

flow with regard to current liabilities right from the beginning. Thus from 70.45 per cent in 1988 the percentage went up to 142.84 per cent in 1996.

The Consumable and Food Industrial Sector witnessed ups and downs in the percentage of net cash flow with regard to current liabilities over the period of ten years under study. But on the whole, the sector seemed to have improved its position over the years. In the year 1987, the overall percentage was negative and most of the companies seemed not to have applied much funds towards current liabilities. Thereafter the sector seemed to have applied more and more funds towards current liabilities and with certain variations, on an average, the sector maintained the percentage of 12.42 per cent. The percentage of liquid funds with regard to current liabilities also increased from 4.76 per cent in 1987 to 10.53 per cent in 1996. Company no. 3b, in particular, recorded a remarkable upswing after 1990. Till 1990, the percentage of net cash flow with regard to current liabilities was negative and after that with ups and downs there was an increasing trend of applying funds towards current liabilities. In the year 1996, the company applied about 14.26 per cent of net cash flow to current liabilities.

The Pharmaceutical Industrial Sector is one of the few sectors that was able to exercise a strict control on the size of inventories and receivables. Thereby the position of current liabilities improved a lot over the period of ten years. In the sector, the overall increase in the size of inventories and the size of receivables was lower than the increase in the sales. Therefore the sector seemed to have enjoyed more and more liquidity over the period and the percentage of net cash flow with regard to current liabilities increased from a mere 11.33 per cent in 1987 to as high as 43.85 per cent in 1996. The corresponding percentage of liquid funds maintained with regard to current liabilities also moved upwards from a mere 2.01 per cent in 1987 to as high as 48.90 per cent in 1996. In the case of company no. 4c, in particular, we find an appreciable increase in the percentage of net cash flow with regard to current liabilities, and the percentage which was just 7.55 per cent in 1987 went up to 53.05 per cent in 1996. Company no. 4b also reflected a somewhat similar trend.

Thus, control over the size of receivables and inventories helped this sector greatly and thereby the sector ensured more and more liquidity through the operations and paid the current liabilities out of the operations.

The Engineering Industrial Sector recorded an upward trend in the percentage of net cash flow with regard to current liabilities from 1987 to 1990. Thus, the percentage went up from 38.10 per cent in 1987 to 101.17 per cent in 1990. Thereafter, the utilisation of funds towards current liabilities was on the decline. Therefore, the percentage gradually came down from 101.17 per cent in 1990 to just 28.22 per cent in the year 1996. Roughly in tune with this trend, the liquid funds maintained as a percentage to current liabilities has been hovering. From 50.52 per cent in 1987 the percentage of liquid funds maintained to current liabilities went up to 82.75 per cent in the year 1993. And thereafter it gradually came down to about 66.43 per cent in the year 1996. Such a decreasing trend seems to be the direct impact of the increase in inventories as compared to the level of sales. Thus, the increase in sales over the years was up to about 252 per cent and the corresponding increase in the size of inventories was up to more than 350 per cent.

The Textile Industrial Sector on the whole seemed to have maintained its utilisation of funds towards current liabilities. And this utilisation was substantially on the lower side. On an average, the percentage of net cash flow with regard to current liabilities was 22.74 per cent. We find a similar trend in the percentage of liquid funds maintained to total current liabilities. The percentage was 5.34 per cent on an average which itself speaks of inadequate maintenance of cash to meet the current liabilities. The main reason for this appears to be excessive increase in receivables and inventories. Thus, cash generation through operation was poor and it affected the current liability position. A company-wise analysis shows that the companies under this sector moved in slightly different way. Company no. 6b recorded an increase in the percentage of net cash flow with regard to current liabilities from 21.19 per cent in 1987 to 57.25 per cent in 1996. On the other hand, company no. 6a recorded a reduction in the percentage from 25.24 per cent in 1987 to 21.26 per cent in 1996.

The Paper and Packing Industrial Sector had on an average 64.50 per cent of net cash flow with regard to current liabilities. The year-wise position was fluctuating. From 1987 to 1989 the percentage increased from 39.41 per cent to 95.01 per cent. The year 1990 recorded a sharp decrease and the year 1991 recorded a sharp increase up to 141.89 per cent. Thereafter the percentage gradually went down to just 30.78 per cent in 1996. However, the

percentage of liquid funds maintained to current liabilities in 1987 and 1988 was on the lower side. This percentage was appreciably higher in the period from 1991 to 1994. In the years 1995 and 1996 the percentage of liquid funds with regard to current liabilities went down sharply from 72.41 per cent in 1994 to 13.86 per cent in 1995 and 6.53 per cent in 1996. Company no. 7b, in particular, was able to improve its net cash flow with regard to the current liabilities position from -8.51 per cent in 1987 to as high as 81.02 per cent in 1994 and then it came down to 20.87 in 1996.

Thus, from the preceding analysis, it is indicated that the industrial companies in general were not able to generate cash out of their operations to meet the current liabilities. A firm, to be actually liquid and solvent should have 100 per cent or more net cash flow with regard to current liabilities ratio.<sup>(57)</sup> A firm having the percentage of net cash with regard to current liabilities lower than 100 per cent may also be liquid and solvent because a positive ratio of net cash flow to current liabilities always provide additional safety to current creditors. Every firm maintaining a positive ratio of net cash flow to current liability can be considered liquid and solvent.<sup>(58)</sup> However, the higher the ratio, the greater is the degree of liquidity and solvency of the firm. But the overall industrial average of the industrial companies under study revealed a low percentage of net cash flow with regard to current liabilities, i.e., 20.30 per cent during the period 1987 to 1996.

### **5.3.6 COVERAGE OF CURRENT LIABILITIES**

The coverage of current liabilities is based on two aspects: (i) Turnover of current liabilities which means the number of times the cost of goods sold in turned in relation with the current liabilities, and (ii) Profit margin which measures the relationship of profit and sales. The coverage of current liabilities measures the relationship of fund generating capacity of the units and the amount of current liabilities. The higher the coverage, the greater is the safety to the units in paying the debts and this provides strength to them <sup>(59)</sup>

Table V.3.7 shows the coverage of current liabilities in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V.3.7  
Coverage of Current Liabilities in Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Percentage) Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		5.67	4.99	7.05	5.94	1.73	1.50	2.28	2.58	2.70	2.42	3.68
b) Intermediate Petrochemical Industries Co Ltd		12.74	13.62	19.81	27.35	19.54	16.29	0.69	-5.17	-7.17	-20.87	7.63
c) Jordan Sulpho- Chemicals Co Ltd		90.82	-7.34	79.74	59.16	62.19	39.08	3.23	-6.51	-7.67	-22.53	29.02
<b>Sector-wise Ratio</b>		7.10	5.06	9.76	8.10	2.79	2.53	2.26	2.23	2.35	1.76	4.40
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		26.53	11.23	5.55	7.08	6.41	15.98	15.67	16.64	17.38	15.87	13.84
b) The Jordan Ceramic Industries Co Ltd		38.48	48.27	54.92	52.64	76.06	80.53	66.26	80.10	69.83	102.48	66.96
c) Jordan Rockwool Industries Co Ltd		-10.86	6.25	51.75	19.81	-30.86	0.36	15.23	-17.80	2.87	-27.84	0.89
<b>Sector-wise Ratio</b>		25.92	12.12	9.03	8.74	8.08	18.14	18.23	19.31	19.84	19.08	15.85
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn. Co Ltd		3.43	7.77	14.50	36.41	18.70	17.06	13.98	0.64	2.23	-2.74	11.20
b) Arab Investment and Int. Trade Co Ltd		-50.24	-23.38	-26.47	-32.77	2.12	23.24	-4.08	-18.43	-3.20	3.57	-12.96
c) The National Industries Co Ltd		-22.79	-80.35	49.34	1.29	-0.63	7.45	3.62	5.00	28.97	-41.80	-4.99
<b>Sector-wise Ratio</b>		-12.48	-10.78	19.79	20.01	11.95	15.63	10.33	0.80	4.64	-8.86	5.10
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co Ltd		5.35	5.64	16.30	22.81	12.24	9.65	20.50	0.17	12.87	26.80	13.23
b) Dar Al-Dawa Development & Invst Co Ltd		10.45	22.15	30.24	46.52	31.91	34.30	57.93	60.97	33.85	52.55	38.09
c) The Arab Center for Pharm. & Chemicals Co Ltd		-5.90	2.62	23.19	4.29	10.83	60.70	38.98	22.12	23.69	32.55	21.31
<b>Sector-wise Ratio</b>		5.35	8.50	19.50	25.95	15.88	17.66	30.85	15.26	20.11	33.84	19.31
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co Ltd		36.86	35.91	50.90	113.95	82.78	83.91	90.63	79.96	51.12	60.55	68.66
b) National Cables & Wire Manuf Co Ltd		5.38	13.52	75.33	114.27	101.14	38.48	27.05	21.61	10.14	4.05	41.10
c) The Jordan Pipes Manufacturing Co Ltd		50.86	30.49	33.87	22.31	23.79	29.47	28.48	48.48	23.55	11.88	30.30
<b>Sector-wise Ratio</b>		23.80	28.31	56.61	89.46	78.68	55.67	53.01	49.14	24.60	21.68	48.09
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		21.70	14.65	2.68	7.08	23.85	17.74	14.71	23.74	21.86	18.93	16.69
b) Jordan Tanning Co Ltd		16.09	16.66	35.08	31.38	26.62	32.24	42.38	53.75	25.56	47.93	32.77
c) The Woolen Industries Co Ltd		-7.01	7.12	51.51	14.79	28.72	17.82	12.56	47.45	10.33	39.82	22.31
<b>Sector-wise Ratio</b>		20.23	14.76	6.00	11.46	24.82	20.77	18.96	30.27	22.42	22.48	19.22
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		46.16	46.08	121.56	40.18	146.86	33.09	56.05	38.85	22.96	19.98	57.18
b) The Arab Paper Converting & Trading Co Ltd		-16.07	-8.85	19.19	27.80	25.28	11.08	4.52	64.76	17.08	10.05	15.48
c) Jordan Printing and Packing Co Ltd		34.14	14.69	14.60	24.49	25.17	5.89	24.51	18.35	32.49	-26.21	16.81
<b>Sector-wise Ratio</b>		27.87	23.54	74.74	36.06	115.73	21.02	35.88	39.87	21.98	14.11	41.08
<b>Overall Industrial Ratio</b>		11.55	8.40	15.64	14.28	10.50	11.02	11.38	9.94	8.34	6.91	10.80

Source: Appendices III & IV

The overall in the study, it was observed that the current liabilities payment was delayed as a result of which the levels of liabilities had increased. Further there was not enough generation of net profits as compared to the current liabilities. The overall effect of this was that the industries in Jordan ended up in reducing the coverage of current liabilities. The overall industrial companies, the coverage of current liabilities went down from 11.55 per cent in 1987 to 6.91 per cent in 1996, thereby reducing the ability to repay the current obligations.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had performed quite poorly. Thereby the overall sector had reduced funds generation for the repayment and it was noticed that the coverage of current liabilities was badly reduced to 1.76 per cent in 1996 as compared to 7.10 per cent in 1996. All the companies fared badly. And specially company no. 1b and company no. 1c, had net losses in the terminal years under study indicating their inability to pay any of the current liabilities.

The Construction Industrial Sector overall had a higher coverage of current liabilities as compared to the overall industrial average. The coverage of current liabilities was well above 15 per cent on an average. So the sector had enough funds generation to repay the current liabilities although the capacity had reduced over the years in a sense that the coverage of current liabilities reduced from 25.92 per cent in 1987 to 19.08 per cent in 1996. Company no. 2a and company no. 2c, both reduced the respective coverage on the other hand, keeping the current liabilities under control, the coverage of current liabilities increased substantially. As was noticed, the coverage of current liabilities in this case went up from 38.48 per cent in 1987 to 102.48 per cent in 1996 with the average coverage being 66.96 per cent.

The Consumables and Food Industrial Sector overall had lower capacity to generate funds to repay the current liabilities as compared to the overall industrial average. The coverage of current liabilities was on negative side

indicating that there were net losses. The coverage of current liabilities although improved a little, but the overall coverage of current liabilities was always on the lower side. For the sector the coverage of current liabilities of just about 5.10 per cent. Company no. 3b and company no. 3c performed very badly as on average the companies suffered heavy losses indicating operational cash losses. Thereby the coverage of current liabilities was also on the negative side. On the other hand, in the case of company no. 1a, although the coverage went down over the last three years, the overall for the period of ten years, the coverage went up to 11.20 per cent as against in the base year 3.43 per cent.

The Pharmaceutical Industrial Sector, the overall was able to reduce the investment of funds in working capital and as also the payment towards the current liabilities increased. Further the net profitability of the sector improved. Thereby the funds generated are sufficient to pay more and more liabilities. Thereby it was noticed that the coverage of current liabilities improved over the years. For the period of ten years under study, the sector improved the coverage of current liabilities from a meager 5.35 per cent in 1987 to 33.84 per cent in 1996. All the companies under this sector followed the sector's patters with the company no. 4c converting initial losses into profits, thereby increasing the coverage of current liabilities from the negative side in 1987 to 32.55 per cent in 1996. Similarly, company no. 4a and company no. 4b had multiplied their coverage with the respective coverage of current liabilities from 5.35 per cent and 10.45 per cent in 1987 to 26.80 per cent and 52.55 per cent in 1996 respectively.

The Engineering Industrial Sector overall showed the trend to increase profitability for the first half of the decade till 1990. To a large, the sector was successful in doing that. Thereby as we can see, it had generated enough profits to enable them to repay the current liabilities. Therefore it was found that the coverage of current liabilities from 23.08 per cent in 1987 went up as high as 89.46 per cent in 1990. But thereafter as the operations were badly

affected, the ability to generate funds up to the mark was reduced. Thereby the payment of current liabilities also was delayed. As a result of all this, the coverage of current liabilities went down from the year 1990 onwards, the coverage of current liabilities started declining. Thereby we can see the reduced coverage of current liabilities up to 21.68 per cent in 1996. The company-wise however the magnitude of impact was different. For instance, in the case of company no. 5a, the coverage of current liabilities although suffered setbacks in the middle of the decade, in the terminal years it had again improved. Thereby as compared to year 1987 the coverage of current liabilities went up from 36.86 per cent to 60.55 per cent. On the other hand, coverage of current liabilities in company no. 5c showed regular reduction over the period of ten years and thereby the coverage of current liabilities reduced from 50.86 per cent in 1987 to 11.68 per cent in 1996 thus underlining the deteriorating state of affairs.

The Textile Industrial Sector witnessed lots of fluctuations in the operational levels thereby the profitability and funds generation from business both had upwards and downwards trend. As a result of which, the creditors and other liabilities' payment also were not up to the mark. Therefore we find that there were lots of variations in the coverage of current liabilities over the years. But overall the picture states that the coverage of current liabilities for the sector over the years went down. Although in the second half, the coverage of current liabilities comparatively went up, but overall the coverage of current liabilities was slightly reduced from 20.23 per cent in 1987 to decade average of 19.22 per cent. In tune with the sector, company no. 6a, also had reduced its ability to generate sufficient funds, thereby reduced the coverage of current liabilities in the initial years, after which it went up in the second half. And overall picture is that the coverage of current liabilities reduced from 21.70 per cent to 18.93 per cent in 1996. On the other hand, company no. 6b, as a result of keeping the current liabilities under check, and generating sufficient funds over the years, had increased the coverage of current liabilities from 16.09 per

cent in 1987 to 47.93 per cent in 1996. In the similar fashion, company no. 6c, had converted the negative coverage in 1987 into positive and provided a cover of 39.82 per cent in 1996 in the current liabilities.

The condition of overall Paper and Packing Industrial Sector as been quite shaky after the Gulf War. As a result of which the overall profitability although increased in initial years of study, ultimately dried up in the later years. Therefore it could not provide additional cover to the current liabilities. Thus we can see that although in the initial years, the current liabilities cover had increased, in the end, the analysis reveals that overall for the period of ten years, the coverage of current liabilities went down from 27.87 per cent in 1987 to 14.11 per cent in 1996. All the companies showed disturbing performance specially after 1991. Thereby in the case of company no. 7a it was noticed that the coverage of current liabilities went down continuously and it was just 19.98 per cent in 1996 as against 46.16 per cent in 1987, the base year. The company no. 7c, as a result of poor operational performance had incurred net losses in the year 1996. Thereby the coverage of current liabilities showed in the table was on the lower side. The overall average coverage of current liabilities in this case had come down to 16.81 per cent as compared to 34.14 per cent in the base year 1987.

### **5.3.6 CONTROL OF CASH IN THE INDUSTRIAL COMPANIES**

One of the major objectives of cash management from the standpoint of increasing return on investment is to economise on the cash holdings without impairing the overall liquidity requirements of the firm. This can be done by effecting tighter control over cash flows. The following ratios indicate the achievement of the industrial companies in this regard.<sup>(60)</sup>

- i) Ratio of Cash to Current Assets;
- ii) Ratio of Cash Turnover; and
- iii) Rate of Growth in Cash and Sales.

#### **Ratio of Cash to Current Assets**

Table V.3.8 shows the ratio of cash to current assets in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V.3.8  
Cash to Current Assets Ratio in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	9.28	13.68	1.62	6.19	24.47	16.03	12.28	5.41	6.99	0.73	9.67
b) Intermediate Petrochemical Industries Co Ltd	32.72	16.27	72.61	67.05	32.49	10.70	12.50	16.93	19.38	7.66	28.83
c) Jordan Sulpho- Chemicals Co Ltd	0.50	1.17	9.01	4.17	6.39	16.50	1.08	2.85	1.84	1.63	4.51
Sector-wise Ratio	9.85	13.40	6.53	9.22	24.42	15.88	12.16	5.57	7.10	0.82	10.49
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.73	7.59	15.44	8.47	9.62	9.52	4.98	1.15	1.47	1.51	6.05
b) The Jordan Ceramic Industries Co Ltd	35.69	34.76	7.11	3.42	19.56	8.41	17.23	17.71	32.98	36.08	21.30
c) Jordan Rockwool Industries Co Ltd	6.98	2.31	12.63	13.16	9.19	10.57	5.64	33.49	32.59	32.16	15.87
Sector-wise Ratio	2.91	8.84	14.54	8.19	10.39	9.46	6.35	4.74	6.16	6.47	7.81
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn Co Ltd	3.74	2.05	3.91	3.93	4.74	3.21	3.41	20.15	4.75	3.03	5.29
b) Arab Investment and Int. Trade Co Ltd	4.95	5.15	24.18	12.85	12.37	9.41	19.02	45.86	19.46	21.93	17.52
c) The National Industries Co Ltd	12.46	18.94	12.40	9.49	20.25	9.31	29.67	12.32	7.99	19.48	15.23
Sector-wise Ratio	5.88	6.27	8.13	5.53	7.53	4.79	7.63	22.56	7.42	9.08	8.48
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	1.08	4.49	3.10	5.63	4.41	16.57	10.15	8.33	12.37	9.66	7.58
b) Dar Al-Dawa Development & Invst Co Ltd	3.42	5.92	5.59	13.42	17.40	12.62	42.47	29.76	29.23	27.70	18.75
c) The Arab Center for Pharm & Chemicals Co Ltd	1.01	8.03	16.84	18.46	50.56	22.37	13.45	12.47	40.16	27.50	21.08
Sector-wise Ratio	1.50	4.96	4.76	8.69	14.74	16.27	20.53	14.99	20.01	17.28	12.37
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co Ltd	43.72	50.91	9.62	38.23	31.98	61.85	63.31	50.58	46.65	65.13	48.20
b) National Cables & Wire Manuf Co Ltd	5.92	19.32	24.98	25.33	25.36	24.53	31.70	21.03	21.78	18.51	21.84
c) The Jordan Pipes Manufacturing Co Ltd	28.52	1.57	0.85	5.89	9.32	10.39	11.97	33.08	23.46	31.69	15.68
Sector-wise Ratio	29.29	21.07	13.31	23.73	24.55	36.77	40.20	35.72	30.12	36.09	29.09
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	3.48	0.71	0.30	0.17	0.36	0.21	0.34	1.95	0.08	0.03	0.76
b) Jordan Tanning Co Ltd	3.28	1.79	2.28	1.93	1.38	0.40	7.36	43.49	23.16	28.69	11.38
c) The Woolen Industries Co Ltd	3.21	0.49	0.66	0.30	0.38	3.45	5.54	1.04	3.30	2.19	2.08
Sector-wise Ratio	3.43	0.85	0.53	0.52	0.62	0.41	2.12	10.19	5.11	5.23	2.90
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	24.25	10.80	21.33	6.57	33.84	25.70	24.29	20.13	7.34	3.52	17.78
b) The Arab Paper Converting & Trading Co Ltd	1.14	9.37	6.01	7.13	24.16	8.45	14.31	28.90	5.02	1.68	10.62
c) Jordan Printing and Packing Co Ltd	0.03	17.00	0.94	1.01	3.42	1.13	0.01	0.39	2.21	1.96	2.87
Sector-wise Ratio	19.92	11.10	18.28	6.16	29.28	19.43	20.25	21.25	5.98	2.81	15.45
<b>Overall Industrial Ratio</b>	8.83	11.39	7.94	9.44	19.74	15.39	14.25	10.22	9.54	5.42	11.22

Source: Appendices III & IV

It can be seen from Table V.3.8 that on the whole, the industrial companies in Jordan seemed to have lower tendency to keep the current assets in cash form over the period of ten years. The overall industrial average shows that only 11.22 per cent of the current assets were in cash form. Especially after 1991 the liquidity fell sharply, and the percentage of cash which was 19.74 per cent in 1991 regularly moved downwards and in the year 1996 it was just 5.42 per cent. The sector-wise analysis shows that the average percentage of cash with regard to current assets from 1987 to 1996 was the highest at 29.09 per cent in the Engineering Industrial Sector followed by the Paper and Packing Industrial Sector at 15.45 per cent and the lowest at 2.90 per cent in the Textile Industrial Sector as against the overall industrial average of 11.22 per cent for the ten years of the study. The rest of the sectors showed an average lower than the overall industrial average except the Pharmaceuticals Industrial Sector and the Chemical and Petroleum Industrial Sector which were close to the overall industrial average during the period.

An indepth study of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector recorded a steep downfall in the proportion of cash maintained. Although in the initial years under study, the percentage of cash with regard to total current assets had been fluctuating till 1991, but after 1991 there was fall in the cash maintained from 24.42 per cent in 1991 to as low as 0.82 per cent in 1996. Company no. 1a maintained the same trend with its sector. Company no. 1b maintained about 28.83 per cent of its percentage of cash with regard to current assets on an average for the period of ten years. In the first five years it had a very high percentage as compared to the later period. The main reason for such a maintenance of cash requirement in company no. 1b can be analysed from its inventory position of the corresponding years. The percentage trend of the inventories shows that the inventory in 1989 was just 90.10 per cent as compared to that in the base year 1987 and it was 120.78 per cent in the year 1990. Thereafter it picked up and went up to about 281.81 per cent in 1993 from where it came down again to 145.37 per cent in 1996. This inventory trend seems to have had an effect

on its cash position. In 1989, the inventory level was on the lower side, as the money locked up in inventory was comparatively lower, the liquidity was higher. In 1994 and 1995 again the amount of investment in inventory came down, the cash position was healthier. Company no. 1c, in particular, maintained about 4.51 per cent of cash with regard to current asset on an average for the period of ten years. Although from 1989 to 1992 it was above the decade's average of 4.51 per cent with an exception of 1990. In the rest of the years it was very low. In the Chemical and Petroleum Industrial Sector, the investment in inventory almost doubled which was higher as compared to its sales growth rate over the period of ten years under study and it led to a tightened cash position.

As far as the Construction Industrial Sector is concerned, we find that it improved its cash position in terms of percentage to current assets. A year-wise study reveals that the percentage of cash with regard to total current assets which was just 2.91 in 1987 went up to 6.47 in the year 1996. Although the period witnessed many ups and downs in the percentage, the average percentage was 7.81 per cent for the period of ten years. Thus, the period witnessed lots of ups and downs in cash maintained, but the overall position seems to have improved.

The Consumables and Food Industrial Sector also seems to have moved in same direction as the Construction Industrial Sector. The cash, which was 5.88 per cent of the current assets in 1987 increased to 9.08 per cent in 1996. Company no. 3b, in particular, fared appreciably well when its percentage rose from 4.95 per cent in 1987 to 21.93 per cent in 1996. In this sector one finds that the average trend increase in inventories and receivables was lower than that of total sales. The sector thereby was able to avoid excessive blocking and ensure more mobility of the funds. Thereby the cash position seems to have improved.

The Pharmaceutical Industrial Sector showed an increasing tendency to maintain adequate liquidity and to maintain current assets in cash form. The percentage of cash with regard to current assets which was just 1.50 per cent in 1987 went up to 17.28 per cent in 1996. Nearly all the companies of this

sector under study excelled in maintaining an increased proportion of cash to current assets. The main reason for this factor seems to be the strict control exercised by the sector over the growth of receivables and inventory. The overall trend percentage of increase in receivables was lower than that of sales. The sector thereby was able to realise cash and avoid blocking of funds in receivables.

The Engineering Industrial Sector was able to maintain a healthy cash balance in terms of percentage of cash with regard to current assets. This has been corroborated by the fact that the percentage of cash with regard to current assets was as high as 29.09 per cent. Throughout the period, with a few exceptions, the extent of cash maintained was quite high, i.e., nearly above 25 per cent on an average. Company no. 5a in particular maintained a very high percentage of cash with regard to current assets throughout the period of ten years (with an exception in year 1989) and the average percentage maintained in the decade was around 46.20 per cent. Company no. 5c also gradually increased its percentage of cash with regard to current assets from 1.57 per cent in 1988 to 31.69 per cent per cent in 1996.

The Textile Industrial Sector experienced unfavourable condition from 1987 to 1992 as far as cash maintained and liquidity are concerned. Thereafter it marked a complete turn around and improved its position substantially. The percentage of cash maintained to current assets, which was 3.43 per cent in 1987 dramatically came down to 0.41 per cent in 1992 thereby marking heavy buildup in inventories and receivables besides other current assets. The period after that witnessed an increase in cash maintained. The percentage of cash maintained increased from 0.41 per cent in 1992 to 5.23 per cent in 1996 thereby ensuring better liquidity as compared to earlier years. In the case of company no. 6a, however, we find that the deteriorating trend continued throughout the period with the exceptions of 1987 and 1994. Thus, the percentage of cash with regard to total current assets continued to fall throughout the period. From 3.48 per cent in 1987, the percentage went as low

as 0.03 per cent in the year 1996. Company no. 6b and company 6c followed the pattern in line with the whole sector as such.

As far as the Paper and Packing Industrial Sector is concerned, one can see a lot of ups and downs in the percentage of cash with regard to current assets during the period of ten years. During period of 1987 and 1989, the sector maintained sufficient cash to meet its daily operational requirements. In the year 1990, there was a sudden fall and the percentage was just 6.16 per cent. From 1991 to 1994 again the cash position improved and it was on an average more than 20 per cent. In the last two years under study, the cash maintained in terms of percentage with regard to current assets went sharply down to 5.98 per cent and 2.81 per cent respectively. With regard to company no. 6a and company 6b we find that, with slight variations throughout the period under study, both the companies followed a pattern in line with the whole sector. Company no. 7c recorded an average of 2.87 per cent which is well below the sector's average and the overall industrial average during the period under study.

Thus, the industrial companies as a whole had a fluctuating trend in the percentage of cash to current assets during the period under study. In the initial period, i.e., from 1987 to 1991, the percentage of cash with regard to current assets increased from 8.83 per cent to 19.74 per cent. Thereafter it declined to 5.42 per cent in 1996. But compared to the cash position in 1987, the percentage of cash with regard to current assets in all the years was higher except in 1989 and 1996 when it declined a little. It is well known that the proportion of cash to total current assets directly affects the profitability of a company. The lower the proportion, the greater is the profitability of the company. A downward trend in this ratio over a period indicates tighter control whereas an upward trend reveals a slack control over such resources.<sup>(61)</sup> For example, during the last twenty years, U.S.A. has witnessed an ever increasing sophistication in cash management and the trend has been to reduce cash balances to the minimum possible level thus lowering the cost of holding.<sup>(62)</sup> This trend is due to the increasing cost of borrowings, higher return on

marketable securities and the ever increasing requirements for working capital, due to the rapid expansion of business activities.<sup>(63)</sup>

In this light, we may conclude that there was scope for most of the industrial companies to reduce the share of cash in the total current assets, specially in the case of company no., 1b, 2b, 2c, 3b, 3c, 4b, 4c, 5a, 5b, 5c, and 7a. In these companies, the average percentage of cash with regard to current assets was between 15.23 per cent and 46.20 per cent. Although in 1989, the percentage was 72.61 in the case of company no. 1b but it reduced to 7.66 per cent.

It can be observed from the above analysis that the average percentage of cash with regard to current assets in most of the industrial companies was much higher than the overall industrial average. This, on the one hand, shows a sound liquid position while, on the other hand, it shows that a huge amount of cash balances remained idle in the company which could have been profitably utilized. A look at the turnover of cash in the industrial companies may clear this further. The turnover of cash is derived by dividing the operational requirements for cash by the cash balances in the industrial companies at the end of the year. It is shown in Table V.3.9.

#### **Ratio of Cash Turnover**

Cash turnover in general indicates the efficiency with which cash, i.e., the liquid funds of an organisation have been put to use. The higher the turnover, the higher is the optimal utilization of cash and liquid funds. But at times this higher turnover also indicates that the cash maintained is lower than the operational requirement of the cash or that the operational requirement is more than the cash maintained. On the other hand, where the turnover is on the lower side, it indicates either inefficient use or idleness of the cash maintained.

Table V.3.9 shows the turnover of cash in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V 3.9  
Turnover of Cash to in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	( In Times)	
										1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	22.35	13.30	120.00	23.61	5.45	8.66	10.63	24.36	16.51	148.73	38.36
b) Intermediate Petrochemical Industries Co Ltd	3.83	5.72	1.32	1.34	2.75	6.24	5.31	5.07	2.84	9.21	4.36
c) Jordan Sulpho- Chemicals Co Ltd	327.78	94.04	19.21	36.43	26.92	6.45	102.96	33.35	70.35	53.74	77.12
<b>Sector-wise Ratio</b>	20.71	13.15	28.75	15.57	5.43	8.57	10.59	23.38	16.15	131.36	27.37
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	144.61	10.06	4.76	13.43	11.68	14.60	30.29	126.59	85.44	79.43	52.09
b) The Jordan Ceramic Industries Co Ltd	2.23	2.43	11.38	26.88	4.41	14.19	4.98	5.56	2.61	2.43	7.71
c) Jordan Rockwool Industries Co Ltd	10.19	35.20	5.31	6.70	5.20	5.33	13.09	0.99	1.07	1.15	8.42
<b>Sector-wise Ratio</b>	35.52	8.70	5.06	13.45	10.39	14.19	22.22	28.41	19.05	17.47	17.44
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri Co Ltd	31.43	61.99	36.80	33.86	29.73	48.16	43.60	5.09	23.76	31.78	34.62
b) Arab Investment and Int. Trade Co Ltd	17.07	31.90	4.97	4.56	5.39	17.21	8.68	1.95	5.66	4.99	10.24
c) The National Industries Co Ltd	5.92	3.17	5.51	17.13	5.62	17.03	4.36	10.22	13.28	5.44	8.77
<b>Sector-wise Ratio</b>	17.49	18.66	15.26	23.69	17.04	32.66	19.39	4.61	14.93	11.02	17.48
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	40.81	8.14	13.86	8.48	10.66	2.63	4.87	5.08	3.48	4.53	10.23
b) Dar Al-Dawa Development & Invt Co Ltd	16.94	10.33	12.08	5.31	4.92	6.89	1.71	2.86	2.87	2.82	6.67
c) The Arab Center for Pharm & Chemicals Co Ltd	30.45	5.04	2.76	1.84	0.42	2.38	3.71	4.65	1.96	1.47	5.47
<b>Sector-wise Ratio</b>	30.72	8.46	10.15	5.98	3.40	3.34	2.76	3.78	2.99	3.17	7.47
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	2.50	3.54	19.38	3.14	2.68	1.41	1.21	1.21	2.04	1.63	3.87
b) National Cables & Wire Manuf Co Ltd	11.65	4.09	3.50	3.65	3.40	3.10	2.00	3.79	4.51	4.49	4.42
c) The Jordan Pipes Manufacturing Co Ltd	4.27	48.35	105.28	13.57	9.87	11.40	8.31	2.05	2.41	2.52	20.80
<b>Sector-wise Ratio</b>	3.50	5.08	8.23	4.08	3.55	2.44	1.87	1.95	2.89	2.48	3.61
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	22.67	85.56	149.71	218.33	151.30	192.07	100.71	19.10	485.59	0.00	142.51
b) Jordan Tanning Co Ltd	16.65	37.82	35.29	61.12	120.48	498.59	23.79	4.64	10.16	8.38	81.69
c) The Woolen Industries Co Ltd	28.47	250.49	151.82	296.75	207.30	24.69	13.17	52.13	14.59	23.10	106.25
<b>Sector-wise Ratio</b>	21.74	74.98	96.74	106.77	135.55	188.25	30.94	6.97	14.60	14.84	69.14
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	3.00	6.27	3.25	18.58	3.05	3.09	2.56	3.22	11.38	21.54	7.59
b) The Arab Paper Converting & Trading Co Ltd	58.28	6.12	12.12	12.26	2.51	7.73	4.86	3.14	8.48	70.25	18.58
c) Jordan Printing and Packing Co Ltd	273.55	9.27	168.97	175.59	43.20	125.73	0.00	350.53	32.19	101.81	128.08
<b>Sector-wise Ratio</b>	3.98	6.62	4.10	19.72	3.43	4.29	3.52	3.66	11.09	33.99	9.44
<b>Overall Industrial Ratio</b>	17.61	11.81	16.67	12.70	5.75	7.94	8.00	10.94	10.94	18.40	12.07

Source: Appendix III

The general trend in Jordan's industry in respect of cash turnover present a mixed picture. The overall industrial figures show that the average cash turnover for the period under study was 12.07 times as against 17.61 times in 1987. But the yearly movements show somewhat different trends in the two halves. Thus from 1987 to 1991, the turnover gradually came down from 17.61 times to 5.75 times. In the corresponding period we can see similar reduction in receivables turnover and inventory turnover. The main reason for this is that the level of operations did not increase in tune with the corresponding increase in cash maintained. In other words, one can say that the cash maintained was at a higher level as compared to the operational. This has been again corroborated by the fact that the cash maintained in terms of days operational requirements went up from 21 days to 63 days in the corresponding period (Table V.3.2). The period after 1991 shows a completely different picture when the cash turnover increased from 5.75 times in 1991 to 18.40 times in 1996. The corresponding period was also marked by the fact that the increase in net sales was higher than the increase in total cash maintained (Table V.3.10). Cash maintained in terms of days operational requirement also came down from 63 days to 20 days. A sector-wise study reveals different results and their magnitude in various sectors.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had an average cash turnover of 27.37 times for the ten years under study. The trend of cash turnover was quite similar to the overall industrial trend. The turnover reduced from 20.71 times in 1987 to 5.43 times in 1991. Thereafter it witnessed the reverse trend and the turnover gradually moved upwards and in the year 1996, it was exceptionally high, i.e., 131.36 times. This period is marked by a sudden and disproportionate increase in receivables and the inventory levels as compared to the percentage of sales growth. This put a stress on the cash position and thereby the cash turnover also went up. This indicates that the total operational

requirement of cash was much higher than the size of the cash or the liquid funds maintained. Cash maintained in terms of days operational requirement went down and in 1996 the maintained cash was just sufficient to meet the operational requirement of 3 days as against 67 days in 1991. All the companies in this sector performed in a somewhat similar fashion. In the case of company no. 1c, the frequency of variations was quite high. Although the overall average was in tune with the sector's trend, the deviation levels were quite high in the company. The cash turnover which was 327.78 times in 1987, suddenly came down to 19.21 times in 1989. Thereafter there were constant ups and downs in the turnover. In 1992, it was 6.45 times and suddenly in 1993 it was 102.96 times. In the year 1996, it was 53.74 times with the decade's average of 77.12 times. These variations indicate somewhat inconsistent cash management policies adopted by the company.

The Construction Industrial Sector faced many ups and downs over the decade in respect of the industrial cash turnover ratio. In the initial years from 1987 to 1989, the turnover came down from 35.52 times to 5.06 times. In the year 1991, the turnover was 10.39 times which gradually went up to 28.41 times in 1994, after which it again rolled down to 17.47 times in 1996. This uneven trend is also observed in the trend percentage of the inventories and the receivables as compared to the growth of sales. Thus the operations were not at all consistent with the level of the working capital maintained. In other words, the sector was not able to apply its working capital in an optimum manner, which resulted in reduction of the cash turnover ratio. The cash maintained in 1987 was equivalent to 10 days of operational requirements and in 1989, with reduction in cash turnover, the cash maintained was about 72 days of operational requirements. This indicates excessive idle cash or inefficient utilization. Thereafter with cash turnover going upwards from 1991 onwards, the cash maintained in terms of operational requirements came down and in the year 1996 the cash maintained was about 21 days' requirements.

Such a deviation in the cash position is simulated due to the disproportionate level of the receivables maintained inconsistent with that of the sales. The individual figures of the companies are very different from each other. This may be due to the difference in the magnitude of the operations of each of the company concerned. Company no. 2a, throughout maintained lower cash in terms of the operational requirements. Thereby the turnover throughout was on the higher side as compared to the sector's average. The cash turnover which was as high as 144.61 times in 1987 suddenly slumped down to 4.76 in 1989. The period after 1991 to 1994 again had a rising turnover and it rose to 126.59 times in 1994. On the other hand, company no. 2b seems to have maintained a very high level of cash and so the average turnover was on the lower side, i.e., of 7.71 times. In the case of company no. 2c, in last three years, the cash maintained was more than 300 days of operations, whereas it was less than 75 days in the initial 7 years. The cash turnover, thus, was quite low in the last 3 years.

As in the case of the Construction Industrial Sector, the Consumables and Food Industrial Sector also witnessed ups and downs in the cash maintained and thereby also in the cash turnover. The overall turnover for the decade was 17.48 times. In the year 1987, the turnover was 17.49 times and with ups and downs over the years it went up to 32.66 times in 1992. The next two years witnessed a sudden downfall and the cash turnover was at its lowest at 4.61 times in 1994 after which it again recovered and in the year 1996 it was 11.02 times. This again can be explained from the levels of operations and corresponding inventories and receivables trend. The operations were not in tandem with those of the inventory and the receivables and vice versa. All the companies somehow behaved in tune with the behavior of the sector as a whole. The year 1992 did exceptionally well in the sales and operational performance and thereby the turnover of cash in all the companies in that particular year was on the higher side. On the other hand, there was a sharp

reduction in sales in 1994 which had a direct impact on the cash turnover and most of the companies recorded a reduction in their respective cash turnover to the lowest level of the decade.

In the Pharmaceuticals Industrial Sector, the cash turnover went down over the years. However, this was not due to inefficient application of the liquid funds. The study indicates that this is the only sector which was able to keep the growth of inventory and receivables under control. The sector has substantially reduced its receivables level over the years and thereby the sector seemed to have enjoyed more and more liquidity. This excess inflow of cash seems to have made an impact on the cash turnover. The operations did not go up at the same pace at which cash reserves went up, thereby the cash turnover went down over the years. The cash turnover in the year 1987 was 30.72 times which came down to 10.15 times in 1989. After that there was a sharp reduction in 1990 when the turnover was 5.98 times. The period after 1990 also witnessed a reduction in cash turnover although the reduction was not as sharp as in 1990. In the year 1996, the cash turnover was 3.17 times. All the companies, substantially reduced their respective cash turnovers over the years. Especially in company no. 4a and company no. 4c, the reduction was substantial. In the case of company no. 4a, the turnover was as high as 40.61 times in 1987 and it was as low as 4.53 times in 1996. Whereas in the case of company no. 4c, the turnover, which was 30.45 times in 1987, came down to as low as 1.47 times in 1996.

The Engineering Industrial Sector also witnessed a reduction in cash turnover over the years, although the reduction was not substantial. For the period of ten years, the overall turnover was 3.61 times. The sector had a cash turnover of 3.50 times in 1987 which came down to 2.48 times in 1996. In the initial years, the turnover seems to have improved till 1989 when it was 8.23 times. The period from 1990 to 1993 registered a regular downward movement in cash turnover and in 1993 the turnover was at its lowest of 1.87 times. The

period after 1993 showed a bit of recovery when the cash turnover touched 2.48 in 1996. Company no. 5c had a trend similar to that of the sector. But the company's performance was exceptional in 1989 when its cash turnover went as high as 105.28 times as compared to 4.27 times in 1987. After that, in tune with the sector, the cash turnover reduced gradually until the last two years which showed some improvement. In 1996, the company had a cash turnover of 2.52 times. On the other hand, company no. 5b followed the trend of the sector but the year-wise performance was different at times. The sector improved its cash turnover in the initial three years whereas company no. 5b continued on the path of deterioration in cash turnover right from 1987 to 1993 when the turnover came down from 11.65 times to 2 times. However, after that the turnover gradually improved and in 1996 it was 4.49 times.

The Textile Industrial Sector as whole witnessed two sharp trends as far as cash turnover is concerned. The cash turnover was 21.74 times in 1987. This recorded a sharp upward movement till the year 1992 when the turnover was as high 188.25 times. Thereafter a downward trend started. From 1992 to 1996, the cash turnover sharply went down to 14.84 times in 1996, and in 1994 the turnover was exceptionally low at 6.97 times. Such a performance was due to the cash levels maintained by the sector as a whole. From 1987 to 1992, the cash maintained in terms of days' operational requirement fell sharply to just 2 days in 1992 from 17 days in 1987. Thereby, throughout this period, the sector maintained a relatively lower amount of cash. However, the operations continued to increase. This enabled the sector to improve the corresponding cash turnover during this period of time. Afterwards as the cash reserves of the sector started increasing, the corresponding cash turnover went down. If we study the company-wise position, we find that as against the sector's average, company no. 6a increased its cash turnover especially in the year 1995 when it was 485.59 times (which is exceptionally high due to remarkable accumulation of funds from operations in the last two years under study) as compared to

22.67 times in 1987. On the other hand, the performance of company no. 6b and company no. 6c was somewhat similar to that of the sector. From 1987 to 1991-92, the cash turnover went up and thereafter it fell sharply.

The Paper and Packing Industrial Sector as a whole multiplied its cash turnover over the years. But in the year-wise analysis we find that in some years there were odd downward movements. Cash turnover for the sector in 1987 was 3.98 times, which gradually improved to 19.72 times in 1990. Thereafter it sharply came down to 3.66 times in 1994. But the period after that again recorded an increase in the cash turnover and it went up to 11.09 times in 1995. The year 1996 recorded an exceptionally improved performance on the cash turnover front when its turnover zoomed to all time high of 33.99 times. But this trend is due to a mixed effect of some increase in operation and a partial reduction in the cash level maintained. Company no. 7b applied a major chunk of its resources in acquisition of fixed assets in the last 2 or 3 years, thereby the operations of the company seem to have increased in the following years. The company in the last 2 or 3 years increased its funds from operations as well. Thus we can say that whatever resources the company had, were utilised quite efficiently in the last 2 or 3 years. And so in the last 3 years the company substantially improved its cash turnover from 3.14 times in 1994 to 70.25 times in 1996. In the case of company no. 7a, however, the story is somewhat different. This company also remarkably increased its cash turnover in the last three years under study. But a closer analysis reveals that it is not due to improvement in the operations of the company. It is the worsening cash position of the company (working capital depleted sharply in the last 2 or 3 years) that made the corresponding cash turnover increase.

#### **Rate of Growth in Cash and Sales**

Table V.3.10 shows the growth rate in cash and sales in the industrial companies during the period of the study i.e., 1987 to 1996.

**Table V.3.10**  
**Growth Rate in Cash and Sales in the Industrial Companies**  
**During 1987 to 1996.**

*(Value in Thousand JD.)*

YEARS	TOTAL CASH	TOTAL SALES
1987	15,176 (100.00)	353,749 (100.00)
1988	22,696 (149.55)	355,803 (100.58)
1989	18,452 (121.59)	429,986 (121.55)
1990	27,794 (183.15)	496,918 (140.47)
1991	64,971 (428.13)	525,061 (148.43)
1992	58,545 (385.79)	623,713 (176.32)
1993	60,986 (401.87)	672,144 (190.01)
1994	46,246 (304.74)	685,973 (193.92)
1995	47,512 (313.08)	734,661 (207.68)
1996	28,216 (185.93)	755,086 (213.45)
<b>Grand Total</b>	390,593	5,633,095
<b>Overall average</b>	(274.87)	(165.82)

Source: Appendix III

**Note : Figures in Brackets Indicate Growth Rate in Total Cash and Total Sales.**

Table V.3.10 shows that there was a positive correlation between the growth rate in total cash and total sales in the industrial companies during the period 1987 to 1996. The average percentage of growth in cash was 274.87 per cent and the average percentage of growth in sales was 165.82 per cent during the period under study. This indicates that the average growth rate in cash was more than that in sales.

Growth in sales is generally accompanied by larger cash and bank balances.<sup>(64)</sup> There exists a positive correlation between sales and cash holdings. However, sound cash management should ensure that the rate of growth in cash holding is lower than that of sales. Sprankle suggests that

actual cash holdings should increase by more than the square root of sales. The rule is that as sales increase, cash also increases but at a lower rate. A downward trend in cash with regard to sales over the years indicates an effective control over cash flows.<sup>(65)</sup> But on the contrary, the cash holding in the industrial companies increased at a more rapid rate than the rate of increase in sales. This indicates a loose control over the cash in the industrial companies during the period under study.

In short, we can conclude from the above discussion that on the whole the liquidity position and the current ratio of the industrial companies in Jordan depict that the inventories and receivables are increasing faster than sales. This increase was compensated by the fact that the percentage of net cash flow with regard to total current liabilities increased in tandem. The industry as a whole was not able to improve its liquidity position. There was heavy blocking of funds in inventories and receivables and due to this the free movement of funds was restricted. This burden directly affected the current liabilities. It can be further stated that most of the companies did not even meet the norms, i.e., 2:1 for current ratio and 1:1 for liquidity ratio. This indicates the urgent need for improvement measures.

One really wonders as to how the industries managed to maintain such heavy inventories and receivables without much deterioration in the liquid ratio, how the operations could be continued; and from where the funds were gathered (although not generated) to run the affairs of the companies. The answers to all these questions can be found in the financing patterns adopted by the companies. This financing aspect forms a part of the total working capital management. In total working capital management, there is a segment called financing of the working capital, which reveals every angle of financing pattern adopted by the companies.

SECTION - IV

ANALYSIS

AND

INTERPRETATION

OF DATA RELATED

TO THE WORKING

CAPITAL FINANCE

### 5.4.1 INTRODUCTION

Financing of the working capital constitutes one of the most important ingredients of the total working capital management. Anyhow arranging sources is a tactical issue which requires a thoroughly professional management approach and as such if the management fails, the company may find itself in a debt trap although it may have a good position of current assets on paper. This section attempts to present an introduction about working capital finance. It also focuses on the analysis and interpretation of data related to the objective to analyse the adequacy of working capital finance, its various sources and availability of bank credit. Working finance means the excess of current assets over current liabilities excluding short-term bank borrowings in the industrial companies.<sup>(66)</sup>

Working capital consists of two portions viz., permanent and temporary working capital. Permanent working capital consists of that portion of the working capital, which remains with the organisation for ever. This is the minimum inventory, which any firm is required to maintain and other minimum investment in current assets which is necessary for smooth running of the affairs of the firm. Of course this requirement changes with respect to operations of the particular concern. There is no fixed or standard ratio as to the maintenance of composition of the permanent level in total working capital. Any portion of the working capital over and above this permanent level is termed as temporary working capital. Financing of the working capital consists of long term loan, short term loan and partly the internal accruals. Efficiency of the working capital finance can be judged from the following methods:

- ⇒ **Requirements of Working Capital.**
- ⇒ **Financing of Working Capital Requirements.**
- ⇒ **Bank Finance Recommended by the Tandon Study Group.**
- ⇒ **Adequacy of Working Capital Finance.**
- ⇒ **Factors Affecting the Size of Working Capital Finance.**
- ⇒ **Profitability of the Industrial Companies.**
- ⇒ **Sources and Application of Funds.**

### 5.4.2 REQUIREMENTS OF WORKING CAPITAL

The requirements of working capital in the industrial companies are shown through the size of working capital finance in each sector and its related companies during the period under study.

Table V.4.1 shows the size of working capital finance of the industrial companies during the period under study, i.e., 1987 to 1996.

Table V.4.1  
The Size of Working Capital Finance of the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total
(Value in Thousand JD)												
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		35,055	38,898	54,854	52,441	59,856	67,298	67,633	63,905	52,486	45,944	538,370
b) Intermediate Petrochemical Industries Co Ltd		1,732	2,915	4,303	4,442	2,929	5,163	5,094	4,263	3,756	3,439	38,037
c) Jordan Sulpho-- Chemicals Co Ltd		1,435	2,330	1,281	1,899	2,135	1,690	1,994	3,003	2,991	2,717	21,475
Sub--Total		38,223	44,144	60,438	58,782	64,921	74,151	74,722	71,171	59,233	52,099	587,882
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		11,307	15,474	17,670	14,976	19,573	14,288	13,322	15,210	23,569	30,505	175,912
b) The Jordan Ceramic Industries Co Ltd		702	535	1,130	1,860	1,174	1,074	1,128	2,776	3,213	4,200	18,792
c) Jordan Rockwood Industries Co Ltd		108	270	1,562	1,127	918	891	1,056	2,121	2,140	2,102	12,296
Sub--Total		12,117	16,279	20,361	17,963	21,665	16,253	16,506	20,108	28,942	36,807	207,000
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri. Co Ltd		3,075	3,459	3,579	5,942	9,010	9,689	6,754	8,363	7,852	6,657	64,380
b) Arab Investment and Int Trade Co Ltd		698	644	538	626	1,689	2,213	1,084	2,141	2,198	2,160	13,989
c) The National Industries Co Ltd		-353	1,182	538	966	1,489	1,242	1,772	2,084	4,216	3,014	16,161
Sub--Total		3,420	5,285	4,654	7,535	12,197	13,144	9,610	12,589	14,266	11,831	94,530
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co Ltd		10,093	10,626	10,436	15,571	15,052	13,319	22,411	21,727	17,802	18,142	155,178
b) Dar Al-Dawa Development & Invt Co Ltd		2,304	2,740	4,031	5,095	4,634	5,588	12,028	11,665	12,439	12,609	73,133
c) The Arab Center for Pharm & Chemicals Co Ltd		96	159	1,998	2,459	2,868	2,954	3,512	3,654	1,880	3,812	23,191
Sub--Total		12,492	13,525	16,465	23,125	22,553	21,860	37,952	37,046	31,921	34,562	251,502
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co Ltd		2,290	1,720	2,318	3,556	4,605	5,467	6,247	7,805	4,954	4,119	42,882
b) National Cables & Wire Manuf Co Ltd		-58	1,767	2,786	4,849	5,169	4,633	7,258	5,734	4,751	4,339	41,227
c) The Jordan Pipes Manufacturing Co Ltd		1,991	3,613	4,540	4,401	3,743	3,858	4,536	5,329	6,353	5,154	43,518
Sub--Total		4,223	7,100	9,644	12,806	13,516	13,958	18,042	18,868	16,058	13,611	127,626
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		2,545	5,143	7,744	6,742	6,153	8,771	8,881	11,070	13,893	13,218	84,160
b) Jordan Tanning Co Ltd		813	791	906	1,397	1,185	1,698	1,915	2,549	3,063	3,330	17,647
c) The Woolen Industries Co Ltd		219	288	366	400	513	726	1,011	1,051	1,218	1,236	6,998
Sub--Total		3,578	6,191	9,017	8,538	7,851	11,194	11,808	14,671	18,174	17,784	108,805
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		2,561	2,629	4,453	2,098	3,030	3,803	4,114	3,957	4,650	5,120	36,415
b) The Arab Paper Converting & Trading Co Ltd		389	598	747	832	1,083	1,133	1,359	2,001	3,393	2,944	14,480
c) Jordan Printing and Packing Co Ltd		202	277	252	298	381	541	343	385	621	253	3,553
Sub--Total		3,153	3,505	5,451	3,228	4,494	5,478	5,816	6,343	8,664	8,317	54,449
<b>GRAND TOTAL</b>		77,204	96,030	126,030	131,977	147,198	156,038	174,455	180,595	177,257	175,012	1,441,795

Source Appendix IV

The companies in Jordan have shown the tendency of nearly doubling the size of working capital finance over the period of ten years under study. Thus the working capital finance, which was Jordanian Dinar (JD) 77,204 thousand in 1987, went up to JD 175,012 thousand in 1996. Individual companies and sector-wise performance may vary but the tendency more or less remained the same and that is of increasing working capital finance over the period of ten years. The increase was substantial from 1989 to 1994 and after that it showed a decreasing trend in the last two years.

An indepth analysis of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector, in tune with the overall industries increased the working capital finance from JD 38,223 thousand in 1987 to JD 52,099 thousand in 1996, which is an increase of about 36 per cent. All the companies under this sector under study have shown more or less similar increasing trend.

The Construction Industrial Sector recorded an increase of about 200 per cent in the working capital finance over the years and thereby the working capital finance nearly trebled over the period of ten years. The working capital finance which was JD 12,117 thousand in 1987 shot up to JD 36,807 thousand in 1996 with upward and downward movements during the decade. But the growth was considerable in the last two years as against the overall industrial trend. In the case of company no. 2c, which had a working capital finance of just JD 108 thousand in 1987, suddenly shot up to JD 2,102 thousand in 1996. Similarly company no. 2b substantially increased the level of working capital finance from JD 702 thousand in 1987 to as high as JD 2,102 thousand in 1996.

The Consumables and Food Industrial Sector, in line with the overall trend, increased its working capital finance level over the decade. All the companies under this sector showed a similar trend although not in exact proportions. On the whole, the sector increased its level of working capital finance from JD 3,420 thousand in 1987 to JD 11,831 thousand in 1996 which was again an increase of about more than 200 per cent. Company no. 3c especially showed a remarkable growth in this as it had a negative working capital finance in 1987 that rose up to JD 3,014 thousand in 1996.

The Pharmaceuticals Industrial Sector, although not equivalent to the overall figure of the industries, recorded an increase in the working capital finance over the decade. There were lots of ups and downs over the years.

This trend is largely attributable to the inventory management and receivables management by the sector. As we saw earlier, this was one of the few sectors, which was able to keep the growth of the receivables and the inventories under control. Thereby the working capital finance of this sector increased. The growth percentage was not abnormal although as said earlier, there were upward and downward trends over the decade. The working capital finance rose to JD 34,562 thousand in 1996 from JD 12,492 thousand in 1987. Company no. 4a however reduced its working capital finance over the years in contrast to the general trend. The working capital finance reduced from JD 10,093 thousand in 1987 to JD 18,142 thousand in 1996. As against this, the other companies in this sector under study showed a remarkable increase over the years. Especially company no. 4c had a working capital finance of JD 96 thousand in 1987 which rose to JD 3,812 thousand in 1996.

In the Engineering Industrial Sector, the working capital finance increased by more than three times over the ten years. The overall working capital finance level rose to JD 13,611 thousand from JD 4,223 thousand in 1987. Each of the companies picked up for the study showed an increasing trend albeit in different proportions. Thus in the case of company no. 5a, the working capital finance which was JD 2,290 thousand in 1987 gradually rose to JD 7,605 thousand in 1994 after which it came down to JD 4,119 thousand in 1996. Company no. 5b, on the other hand, had a negative working capital finance in 1987, which rose to JD 7,258 thousand in 1993 after which it registered a downfall to rest at JD 4,339 thousand in 1996. Similarly an increasing trend is observed in company no. 5c with a downfall in the terminal year.

All the companies in the Textile Industrial Sector showed an increase of about 4 times over the period of ten years in the working capital finance. The overall working capital finance of the sector went up from JD 3,578 thousand in 1987 to JD 17,784 thousand in 1996.

The Paper and Packing Industrial Sector had doubled the working capital finance from 1987 to 1996. This sector had a reduced level of working capital finance in 1996 as compared to 1995. The overall average shows that from 1987 to 1995 with the exception of 1990, the working capital finance level gradually increased from JD 3,153 thousand to JD 8,664 thousand in 1995. The year 1996 registered a slight downfall when the working capital finance level was JD 8,317 thousand. Company no. 7a, like the sectorian average with

few deviations recorded a gradual growth from JD 2,561 thousand in 1987. It continued the growth trend till 1996 when it was JD 5,120 thousand. Company no. 7c, on the other hand, although showed signs of growth in the working capital finance level, the trend was quite fluctuating. Although the average working capital finance increased over the years but the company witnessed lots of ups and downs. This trend in this particular company may be due to particular circumstances in the company.

From the preceding analysis we find that a static position of the working capital finance was maintained by the companies in Jordan. Apart from the size of the working capital finance, we will not be able to explain anything or comment on the working capital finance position unless we look at the mode of finances adopted and see whether the level maintained is sufficient for a smooth running of the affairs. Now we will discuss the pattern of the working capital finance and the sufficiency of the working capital finance maintained.

### **5.4.3 FINANCING OF WORKING CAPITAL REQUIREMENTS**

Working capital can be financed through owned funds or through outside sources. The sources in turn can be categorized as long term sources or short term sources. Working capital can be divided into permanent working capital and temporary working capital. Traditionally it is held that the permanent part of the working capital should be financed through long term sources and the temporary working capital should be financed mostly through short term sources and it should be maintained by generating adequate internal sources.

Long term sources can be long term loan from bank or any outside financiers or it can even be owned sources like share capital. On the other hand short term sources may take the form of short term loan from bank or a cash credit limit or any other outside source. Sound financial policies do suggest that the outside sources should be applied in working capital only for the purpose of accumulating the required working capital. And maintaining the working capital should be done through generating adequate internal sources, i.e., generating adequate profits. Excess dependence on the outside agencies indicate nothing but the internal weakness of the company and inability of the management to maintain the business activity level as also the current assets.

Table V.4.2 shows the size and percentage of long term loan as a source of working capital finance of the industrial companies during the period under study, i.e., 1987 to 1996.

**Table V 4.2**  
**The Size and Percentage of Long Term Loan as a Source of Working Capital Finance in the Industrial Companies During 1987 to 1996.**  
*(Value in Thousand JD.)*

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total / Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co		25,873 (73.81)	29,550 (75.97)	40,770 (74.32)	44,891 (85.60)	55,597 (92.88)	62,755 (93.25)	82,297 (92.11)	58,898 (92.17)	46,831 (89.23)	36,683 (79.84)	464,146 (84.92)
b) Intermediate Petrochemical Industrial Co		(0.00)	(0.00)	(0.00)	558 (12.55)	1,186 (40.49)	1,181 (22.87)	1,277 (25.06)	1,432 (33.60)	894 (23.82)	240 (6.98)	6,768 (18.54)
c) Jordan Sulpho- Chemicals Co		111 (7.76)	695 (29.80)	498 (38.85)	916 (48.26)	1,365 (63.94)	822 (48.62)		(0.00)	(0.00)	(0.00)	4,407 (23.72)
<b>Sub--Total</b>		25,985 (67.98)	30,245 (68.51)	41,267 (68.28)	46,365 (78.88)	58,149 (89.57)	64,758 (97.33)	63,574 (85.08)	60,331 (84.77)	47,725 (80.57)	36,923 (70.87)	475,321 (78.18)
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
b) Jordan Ceramic Industrial Co		416 (59.28)	39 (7.20)	(0.00)	168 (9.06)	649 (55.30)	(0.00)	(0.00)	(0.00)	606 (18.86)	936 (22.29)	2,815 (17.20)
c) Jordan Rockwood Industrial Co		(0.00)	(0.00)	78 (4.99)	583 (51.73)	517 (56.34)	485 (52.27)	407 (38.53)	1,374 (64.77)	1,731 (80.88)	1,781 (84.72)	6,937 (43.42)
<b>Sub--Total</b>		416 (3.44)	39 (0.24)	78 (0.38)	751 (4.18)	1,166 (5.38)	465 (2.86)	407 (2.47)	1,374 (6.83)	2,337 (8.08)	2,717 (7.38)	9,751 (4.12)
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agri Co		(0.00)	231 (6.69)	602 (16.82)	1,877 (31.59)	2,078 (23.08)	4,334 (44.73)	1,835 (27.17)	403 (4.81)	(0.00)	(0.00)	11,359 (15.48)
b) Arab Investment and Int Trade Co		325 (46.66)	277 (43.06)	220 (40.89)	557 (88.95)	480 (28.45)	419 (18.95)	321 (29.61)	1,654 (77.26)	1,550 (70.50)	1,358 (62.86)	7,162 (50.73)
c) The National Industrial Co		*--	(0.00)	15 (2.76)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	3,264 (77.42)	920 (30.52)	4,198 (11.07)
<b>Sub--Total</b>		325 (9.52)	509 (9.63)	836 (17.97)	2,434 (32.30)	2,558 (20.97)	4,753 (36.16)	2,156 (22.43)	2,057 (16.34)	4,814 (33.74)	2,277 (19.25)	22,720 (21.83)
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co		3,265 (32.35)	3,643 (34.28)	2,592 (24.84)	5,368 (34.48)	9,559 (63.51)	6,963 (52.28)	15,301 (68.27)	15,436 (71.04)	15,584 (87.54)	15,103 (83.25)	92,814 (55.18)
b) Dar Al-Dawa Development & Invt Co		973 (42.24)	906 (33.07)	1,200 (29.78)	2,472 (48.51)	1,988 (42.89)	1,611 (28.83)	10,333 (85.91)	9,681 (82.99)	11,210 (90.11)	10,680 (84.71)	51,054 (58.90)
c) Arab Center for Pharm & Chemicals		(0.00)	(0.00)	224 (11.20)	163 (6.61)	115 (4.019)	2,449 (62.91)	2,639 (75.13)	2,989 (81.81)	1,157 (68.85)	3,578 (93.87)	13,313 (42.44)
<b>Sub--Total</b>		4,238 (33.93)	4,549 (33.63)	3,792 (23.03)	7,840 (33.90)	11,547 (51.20)	11,023 (50.43)	28,273 (74.50)	28,106 (75.87)	27,950 (87.56)	29,361 (84.95)	156,679 (54.90)

Contd . . .

Continue Table V.4.2

INDUSTRIAL COMPANIES / YEARS		(Value in Thousand JD.)										Total / Average of Ten Years	
		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996		
<b>5) Engineering Industrial Sector</b>													
a) Arab Aluminium Industry Co		906 (39 56)	60 (3 49)	498 (21 47)	1,402 (39 43)	3,107 (67 47)	3,779 (69 11)	6,166 (98 70)	5,077 (66 76)	3,857 (77 86)	2,772 (67 31)		27,625 (55 12)
b) National Cables & Wire Manuf Co		— (0 00)	1,208 (68 35)	676 (24 25)	1,966 (40 55)	4,092 (79 17)	4,833 (100 00)	7,258 (100 00)	5,142 (89 67)	3,513 (73 94)	3,509 (80 87)		31,996 (65 68)
c) Jordan Pipes Manufacturing Co		1,844 (92 67)	1,820 (50 37)	2,136 (47 03)	2,820 (64 09)	3,047 (81 40)	3,103 (80 44)	3,239 (71 40)	5,290 (99 26)	4,668 (73 44)	3,556 (68 99)		31,520 (72 91)
Sub-Total		2,750 (85 13)	3,088 (43 49)	3,308 (34 31)	6,189 (48 33)	10,246 (75 80)	11,515 (82 50)	16,663 (92 36)	15,509 (83 08)	12,038 (74 95)	9,837 (72 27)		91,141 (67 22)
<b>6) Textile Industrial Sector</b>													
a) The Jordan Worsted Mills Co		196 (7 70)	441 (8 58)	923 (11 91)	1,158 (17 18)	4,196 (68 19)	3,124 (35 62)	2,441 (27 48)	8,226 (74 31)	4,814 (34 65)	6,094 (46 10)		31,613 (33 17)
b) Jordan Tanning Co		284 (34 91)	315 (39 88)	365 (40 23)	168 (12 05)	741 (62 54)	1,045 (61 54)	1,426 (74 48)	1,846 (72 42)	2,136 (69 74)	2,570 (77 18)		10,896 (64 50)
c) The Woolen Industrial Co		131 (59 53)	118 (45 65)	149 (40 72)	170 (42 59)	246 (48 04)	587 (80 87)	881 (67 09)	950 (80 33)	998 (81 91)	1,120 (90 65)		5,349 (66 74)
Sub-Total		611 (17 07)	874 (14 12)	1,436 (15 93)	1,497 (17 53)	5,184 (66 02)	4,756 (42 49)	4,747 (40 21)	11,022 (75 13)	7,948 (43 73)	9,784 (55 02)		47,859 (38 72)
<b>7) Paper &amp; Packing Industrial Sector</b>													
a) Jordan Paper and Cardboard Factories		1,810 (70 65)	2,266 (86 17)	2,772 (62 25)	1,492 (71 11)	1,756 (57 95)	2,385 (62 70)	3,168 (76 99)	3,275 (82 76)	3,233 (69 53)	2,284 (44 62)		24,439 (68 47)
b) Arab Paper Converting & Trading Co		(0 00)	(0 00)	(0 00)	(0 00)	419 (38 69)	986 (86 99)	804 (59 13)	1,867 (93 29)	2,455 (72 35)	1,953 (66 33)		8,463 (41 68)
c) Jordan Printing and Packing Co		13 (6 25)	(0 00)	(0 00)	(0 00)	(0 00)	19 (3 57)	22 (6 40)	92 (23 91)	248 (39 85)	105 (41 69)		499 (12 17)
Sub-Total		1,822 (57 80)	2,266 (64 65)	2,772 (50 85)	1,492 (46 20)	2,175 (48 40)	3,390 (61 89)	3,993 (68 66)	5,233 (82 51)	5,935 (68 50)	4,343 (52 21)		33,421 (80 16)
Grand Total		36,148 (46 82)	41,569 (43 29)	53,491 (42 44)	66,567 (50 44)	91,024 (61 84)	100,660 (64 51)	119,813 (68 68)	123,632 (68 46)	108,745 (61 35)	95,242 (54 42)		836,891 (56 22)
Overall Industrial Ratio													

Source: Appendix IV

Note 1. FIGURES IN PARENTHESES INDICATE PERCENTAGE OF LONG TERM LOAN AS A SOURCE OF WORKING FINANCE.

2 \* — = INDICATES NEGATIVE WORKING CAPITAL FINANCE.

Looking at the overall industrial average, we find that the industrial companies in Jordan show an increasing tendency to working capital finance through long term loan over the ten years under study. The percentage of long term loan as a source of working capital finance went up from 46.82 per cent in 1987 to 54.42 per cent in 1996 thus showing a higher and higher tendency to depend upon long term loan. One of the reasons for this is the insufficient ploughing back of the funds from operations. The percentage of funds from operations in working capital finance went down from 33.55 per cent in 1987 to just 17.71 per cent in 1996 (Table V.4.3). However sector-wise performance on this front varied at times.

An indepth analysis of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector, in tune with the overall industrial trend, increased the percentage of long term loan as a source of working capital finance. It increased from 67.98 in 1987 to 70.87 in 1996 with slight ups and downs over the years. The percentage of funds from operations as a source of working capital finance reduced from 28.36 in 1987 to 8.98 in 1996. Thus one can say that the dependence on outside sources was on the increase rather than applying the internal sources for the purpose of financing working capital.

As indicated by fund flow, company no. 1a was able to finance most of their requirements through funds from operations. But again there was a regular addition to the fixed assets. Hence we find that long term loan was also put to use. On an average, 84.92 per cent of the working capital was financed through long term loan whereas the proportion was about 73.81 per cent in 1987. On the other hand, company no. 1b, for the first few years of operation used funds from operations as a financing source. Thereby absolutely no long term loan was applied for financing working capital. But from the year 1990 onwards, the regular decrease in funds from operations prompted the company to depend upon the long term loan for financing working capital. In the year 1991, the share of long term loan was as high as 40.49 per cent. Subsequently the increase in funds from operations in 1993 and reduction in working capital level maintained, made it possible for the company to reduce its long term loan share in the overall working capital finance. And in the year 1996, the long term loan constituted just 6.98 per cent of the total working capital finance.

Company no. 1c also in the initial years, mostly put funds from operations into business for funding requirements. Thereby in the year 1987, the long term loan for the working capital finance was just about 7.76 per cent. Subsequently the reduction in the funds from operations, compelled the company to increase long term loan for the working capital finance. In the year 1991, the long term loan was as high as 63.94 per cent. The period after 1991 witnessed a substantial reduction in the working capital maintained and an excessive dependence on bank borrowings. Later there was an introduction of additional share capital. This had an overall effect of reducing the long term loan for the working capital finance. And thereby from 1993 onwards, the company had not financed any of its working capital through long term loan.

As far as the Construction Industrial Sector is concerned, the overall tendency appears to be more and more inclined towards outside borrowings rather than funds from operations. The percentage of funds from operations went down from 95.76 per cent in 1987 to just about 42.41 in 1996. During the period, the long term loan percentage doubled, thereby underlining the increased share of outside sources in total working capital finance although the overall percentage was on the lower side. Company no. 2a did not finance any of the working capital requirements through the long term loan. The company mostly banked upon the funds from operations and where the funds from operations were not sufficient, the deficiency was fulfilled through cash credits. On the other hand, company no. 2c relied heavily on the long term loan. Till 1988, the company did not finance any of the working capital finance through this source, but after that funding through long term loan was regular. In most of the years subsequent to 1988 we find that financing the working capital from long term loan was more than 50 per cent. And in the last three years under study, the funds from operations almost dried up and the cash credits also were on the lower side. Thereby the long term borrowings made up most of the working capital finance. In the year 1996, 84.72 per cent of the finances were made out of long term loan.

The Consumables and Food Industrial Sector which had about 9.52 per cent share of long term loan in working capital finance in 1987 increased the percentage to 19.25 in 1996 thereby showing an increasing dependence on long term loan to finance the working capital. This was a direct result of

reduction in funds from operations and corresponding lowering down of cash credit share. Company no 3a had sufficient funds from operations in the year 1987, thereby the percentage of long term finance in the year was nil. Subsequently additional working capital was financed through long term loan because most of the funds from operations generated, were applied for increasing the activity level and for making additions to fixed assets. In the last three years, there was a reduction in the working capital maintained. And thereby in the year 1995 and 1996, most of the working capital finances were arranged from short term loan and long term loan. As far as company no. 3b is concerned, the overall picture seems to be gloomy with regard to the funds from operations. In most of the years, there was cash loss or if there was profit, the level was not high. Thereby most of the working capital finance was made out of the long term loan. In the years from 1987 to 1990, there were cash losses thereby the dependence on long term loan increased from 46.66 per cent to 88.95 per cent. Subsequently, as there were cash profits and pouring in of the capital, the borrowing were repaid to a great extent. Thereby the percentage of long term loan in working capital finance was on a declining trend and it was just 18.95 per cent in 1992. Subsequently we find that a reduction in operational profits prompted an increase in long term loan and in the last three years, recovery in the funds from operations reduced the dependence on term borrowings. In the year 1996 the percentage of long term loan in the total working capital finance was up to 62.86 per cent. Company no. 3c throughout the period relied mostly upon the funds from operations and cash credit for financing the working capital requirements. Thereby long term loan was on the lower side. The year 1995 recorded a sudden slump in the funds from operations, which prompted the company to introduce additional share capital, and thereby 77.42 per cent of the working capital finance was financed through long term loan. In the year 1996, an increased share of cash credit resulted in the reduction of long term loan percentage to 30.52 per cent.

As far as the Pharmaceutical Industrial Sector is concerned, the share of long term loan as source of the working capital finance went up in each of the companies selected. The main reason for this seems to be the reduction in cash credits availed by the companies in this sector. All the companies, although reduced their borrowings, whatever long term funds they had, were

mostly applied to working capital requirements. Thus although the level of long term borrowings went down, their respective percentage as a source of working capital finance went up as borrowings were substituted by share capital. On the whole, we can see that the percentage of long term loan as a source of working capital finance went up from 33.93 per cent in 1987 to 84.95 per cent in 1996.

All the companies under this sector, went on increasing their long term loan over the period of ten years for financing purposes. Company no. 4a for instance, had 32.35 per cent of the working capital finance financed through long term loan while in the year 1996, the percentage was as high as 83.25 per cent. Similarly company no. 4b almost doubled its long term loan share over the years from 1987 to 1996. Company no. 4c, on the other hand, had no share of working capital finance financed from long term loan in the year 1987. But from the year 1989, the long term loan started picking up gradually over the years and in the year 1996 we find that the percentage of long term finance in working capital finance was about 93.87 per cent.

The Engineering Industrial Sector also in tune with the overall trend increased the share of long term loan as a source of working capital finance. From 65.13 per cent in 1987 the percentage rose to 72.27 in 1996. Although the overall increase may appear to be marginal we find a big share of the working capital finance as long term loan in 1996. This trend was prompted by the corresponding share of cash credit in the working capital finance over the years and at times there was also reduction in funds from operations applied for working capital finance. In case of company no. 5a, the long term loan constituted 39.56 per cent in the total working capital finance and the company went on increasing the relative share over the years. In the year 1993 we find that about 98.70 per cent of the working capital finance was arranged through long term loan. This was abnormally high as the portion of funds from operations in the total working capital finance was absolutely zero. In the year 1996, the percentage of long term loan was 67.31 per cent of the total working capital finance. Company no. 5b had no long term loan applied for working capital finance in 1987. But from 1989 onwards the company applied most of the amount for working capital finance through long term loan. Company no. 5c

showed a somewhat reverse trend. The percentage of long term loan went down from 92.64 per cent in 1987 to 68.99 per cent in the year 1996.

The Textile Industrial Sector more than trebled its share of long term loan for the purpose of working capital finance over the years. Thus the percentage of long term loan which was 17.07 in 1987 went up over the years and in the year 1996 it was 55.02 per cent. One of the reasons for this appears to be the continuous fluctuations in the funds from operations. The percentage of the funds from operations over the years witnessed regular ups and downs over the decade and from 15.61 per cent in 1987 the relative percentage went down to 13.37 per cent in 1996 with a decade average of about 11.58 per cent. A company-wise comparison shows that in the case of company no. 6a (Table V.4.38), there were mostly positive funds from operations but later the investment in fixed assets went up perhaps for increasing the operational activity level. Further purchases of investment went up throughout the period of ten years. Thereby the company had to mobilise the share capital for funding increased requirements. Hence the percentage of long term loan in the total working finance went up from 7.70 per cent in 1987 to 46.10 per cent in the year 1996. Whereas in the case of company no. 6b the methodology application of the funds was on a somewhat different note. Whatever existing long term loan they had was more and more applied to working capital finance thereby the percentage of long term loan as a source of working capital finance went up over the years from 34.91 per cent in 1987 to 77.18 per cent in 1996. Company no. 6c in the later period increased its working capital level and during the years there were considerable additions to the fixed assets. These requirements were initially financed by existing sources and generating operational profits. But the company looked up to the share capital and borrowings for financing its requirements. The overall picture shows that the working capital finance was increasingly taken care of by the long term loan. The share of long term loan in the total working capital finance went up from 59.53 per cent in 1987 to 90.65 per cent in 1996.

The Paper and Packing Industrial Sector also witnessed ups and downs in the proportion of the long term loan portion in the total working capital finance over the years. Thus in the year 1987 the share of long term loan was

57.80 per cent which rose to 68.66 per cent in 1993 and then in the last three years under study, the share came down to 52.21 per cent in 1996 with the decade average of 60.17 per cent. The main reason for such a trend was the upward and downward movements of the funds from operations. Company no. 7a initially had lower profits as compared to the investment it had made in fixed assets and working capital. This additional requirement was fulfilled by introducing share capital and taking the help of outside borrowing. Thereby initially the percentage of long term loan as source of total working capital finance was as high as 86.17 per cent in 1988. Subsequently, with upward movement of funds from operations the percentage of long term loan had a fluctuating trend. With this the share of long term loan in the total working capital finance reversed. In the year 1996 we find the share of long term loan in the total working capital finance at around 44.62 per cent. Company no. 7b had a sluggish trend in the first two years, which may be initial years of operation after those operations seemed to have picked up. In the last years, the increased requirement of fixed assets and working capital was financed from the share capital. Thereby the percentage of long term finance in working capital finance, which started picking up from 38.69 per cent in 1991 increased up to 66.33 per cent in 1996. In company no. 7c initially there was funding through share capital. After that funds from operations picked up which were applied to finance fixed assets. In the later period, increased working capital was financed through long term loan. The sector applied more long term loan towards the working capital than other sources although in the last two years, the trend was reversed. In the whole, we find that on an average, the long term finances constituted 60.17 per cent of the working capital finances.

Apart from the long term loan, the funds from operations constitute the major contributory towards working capital. These are necessarily generated by the organisations through the operations. These are necessarily the owners sources and constitute the short term means of financing.

Table V 4.3 shows the size and the percentage of funds from operations as a source of working capital finance of the industrial companies during the period under study, i.e., 1987 to 1996.

**Table V.4.3**  
**The Size and Percentage of Funds from Operations as a Source of Working Capital Finance in the Industrial Companies During 1987 to 1996.**  
*(Value in Thousand JD.)*

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total / Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co		9,182 (26 19)	9,348 (24 03)	9,389 (17 12)	7,550 (14 40)	4,259 (7 12)	4,543 (6 75)	5,336 (7 89)	5,006 (7 83)	5,655 (10 77)	4,678 (10 19)	64,945 (13 23)
b) Intermediate Petrochemical Industrial Co		688 (38 58)	827 (28 36)	1,431 (33 26)	978 (22 04)	182 (6 22)	293 (5 68)	303 (5 94)	90 (2 11)	-- (0 00)	-- (0 00)	4,773 (14 22)
c) Jordan Sulpho- Chemicals Co		989 (68 90)	(0 00)	653 (50 97)	705 (37 15)	529 (24 78)	698 (41 27)	517 (25 92)	(0 00)	(0 00)	(0 00)	4,091 (24 90)
Sub--Total		10,839 (28 36)	10,174 (23 05)	11,473 (18 98)	9,235 (15 71)	4,970 (7 66)	5,534 (7 46)	6,156 (8 24)	5,096 (7 16)	5,655 (9 55)	4,678 (8 98)	73,809 (13 51)
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories		11,307 (100 00)	9,937 (84 22)	4,666 (26 41)	10,771 (71 92)	8,344 (42 63)	10,491 (73 43)	13,322 (100 00)	11,413 (75 03)	14,423 (61 15)	12,738 (41 76)	107,412 (65 65)
b) Jordan Ceramic Industrial Co		245 (34 91)	248 (46 32)	873 (77 26)	1,092 (58 72)	230 (19 58)	1,074 (100 00)	1,890 (88 84)	2,332 (84 00)	1,981 (61 65)	2,873 (68 39)	12,838 (63 97)
c) Jordan Rockwood Industrial Co		50 (48 95)	175 (84 73)	835 (53 43)	221 (19 59)	(0 00)	93 (10 50)	226 (21 36)	607 (28 63)	162 (7 58)	(0 00)	2,370 (25 28)
Sub--Total		11,602 (95 76)	10,360 (83 64)	6,374 (31 30)	12,084 (67 27)	8,573 (39 57)	11,659 (71 74)	15,437 (93 53)	14,352 (71 38)	16,567 (57 24)	15,610 (42 41)	122,619 (63 38)
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn Co		381 (12 38)	391 (11 30)	518 (14 48)	1,214 (20 43)	2,053 (22 79)	(0 00)	1,380 (20 14)	251 (3 01)	582 (7 41)	556 (8 35)	7,307 (12 03)
b) Arab Investment and Int. Trade Co		(0 00)	(0 00)	(0 00)	(0 00)	126 (7 46)	472 (21 32)	(0 00)	53 (2 47)	63 (2 86)	160 (7 40)	874 (4 15)
c) The National Industrial Co		(0 00)	972 (82 26)	(0 00)	344 (35 63)	278 (18 57)	1,242 (100 00)	342 (19 27)	2,084 (100 00)	179 (4 25)	(0 00)	5,442 (36 00)
Sub--Total		381 (11 14)	1,363 (25 79)	518 (11 14)	1,559 (20 89)	2,458 (20 15)	1,714 (13 04)	1,702 (17 71)	2,389 (18 97)	824 (5 78)	716 (8 05)	13,623 (15 05)
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co		952 (9 43)	714 (6 72)	2,672 (25 60)	4,182 (26 86)	1,228 (8 16)	752 (5 64)	1,294 (5 77)	902 (4 15)	(0 00)	2,346 (12 93)	15,042 (10 53)
b) Dar Al-Dawa Development & Invt Co		113 (4 91)	581 (21 20)	881 (21 86)	1,337 (26 24)	1,058 (22 83)	1,441 (25 80)	1,402 (11 65)	1,680 (14 40)	(0 00)	1,606 (12 74)	10,099 (16 16)
c) Arab Center for Pharm & Chemicals		(0 00)	(0 00)	604 (30 21)	200 (8 12)	259 (9 03)	487 (16 48)	688 (19 01)	609 (16 69)	503 (29 92)	234 (8 13)	3,563 (13 56)
Sub--Total		1,065 (8 52)	1,295 (9 57)	4,157 (25 25)	5,719 (24 73)	2,545 (11 28)	2,680 (12 26)	3,363 (8 86)	3,192 (8 62)	503 (1 57)	4,186 (12 11)	28,704 (12 28)

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Continue Table V 4.3

Continue Table V 4.3													
INDUSTRIAL COMPANIES / YEARS													
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total / Average of Ten Years		
(Value in Thousand JD.)													
5) Engineering Industrial Sector													
a) Arab Aluminum Industry Co	645 (28 14)	720 (41 85)	883 (38 10)	2,047 (57 55)	1,391 (30 20)	1,581 (28 92)	(0 00)	2,479 (32 59)	1,097 (22 14)	1,346 (32 69)	12,188 (31 22)		
b) National Cables & Wire Manuf Co	—	481 (27 24)	2,110 (75 75)	2,883 (59 45)	1,076 (20 83)	(0 00)	(0 00)	592 (10 33)	1,238 (26 06)	830 (19 13)	9,211 (23 88)		
c) Jordan Pipes Manufacturing Co	147 (7 36)	436 (12 07)	558 (12 30)	318 (7 22)	153 (4 06)	145 (3 76)	33 (0 74)	39 (0 74)	192 (3 02)	25 (0 49)	2,047 (5 18)		
Sub-Total	1,086 (25 71)	1,637 (23 06)	3,552 (36 83)	5,247 (40 98)	2,620 (19 38)	1,726 (12 37)	33 (0 19)	3,110 (16 66)	2,527 (15 74)	2,201 (16 17)	23,741 (20 71)		
6) Textile Industrial Sector													
a) The Jordan Worsted Mills Co	462 (18 15)	506 (9 84)	286 (3 70)	500 (7 42)	(0 00)	948 (10 81)	677 (7 63)	811 (7 32)	2,320 (16 70)	1,727 (13 07)	8,238 (9 46)		
b) Jordan Tanning Co	81 (9 92)	67 (8 46)	172 (19 01)	600 (42 95)	390 (32 92)	530 (31 25)	446 (23 30)	661 (25 94)	603 (19 67)	621 (18 66)	4,172 (23 21)		
c) The Woolen Industrial Co	16 (7 21)	43 (16 80)	122 (33 37)	80 (20 11)	98 (19 15)	39 (5 39)	11 (1 04)	81 (7 67)	93 (7 67)	29 (2 32)	612 (12 07)		
Sub-Total	558 (15 61)	616 (9 95)	581 (6 44)	1,181 (13 83)	488 (6 22)	1,518 (13 56)	1,134 (9 61)	1,552 (10 58)	3,016 (16 60)	2,377 (13 37)	13,022 (11 58)		
7) Paper & Packing Industrial Sector													
a) Jordan Paper and Cardboard Factories	366 (14 30)	247 (9 38)	1,595 (35 81)	(0 00)	1,129 (37 26)	1,036 (27 24)	687 (16 70)	349 (8 82)	90 (1 94)	981 (19 15)	6,479 (17 06)		
b) Arab Paper Converting & Trading Co	(0 00)	(0 00)	250 (33 53)	204 (24 53)	570 (52 64)	79 (6 96)	83 (6 08)	119 (5 94)	151 (4 46)	241 (8 20)	1,698 (14 23)		
c) Jordan Printing and Packing Co	5 (2 60)	74 (26 65)	71 (28 19)	120 (40 15)	97 (25 42)	78 (14 35)	122 (35 60)	88 (22 97)	119 (19 21)	119 (0 00)	774 (21 52)		
Sub-Total	371 (11 78)	321 (9 15)	1,916 (35 15)	324 (10 04)	1,796 (39 96)	1,193 (21 77)	892 (15 33)	556 (8 77)	361 (4 16)	1,222 (14 69)	8,952 (17 08)		
Grand Total	25,903 (33 55)	25,766 (26 83)	28,571 (24 57)	35,348 (28 78)	23,451 (15 93)	26,024 (16 68)	28,717 (16 46)	30,247 (16 75)	29,453 (16 62)	30,990 (17 71)	284,469 (21 19)		
Overall Industrial Ratio													

Source: Appendix IV

Note 1. FIGURES IN PARENTHESES INDICATE PERCENTAGE OF FUNDS FROM OPERATIONS AS A SOURCE OF WORKING FINANCE.  
 2 \* — = INDICATES NEGATIVE WORKING CAPITAL FINANCE

In the overall industrial scenario, we find an increasing participation of outsiders' sources in the working capital finances. This is due to the fact that the funds from operations show mostly a declining trend. Over the years, the funds from operations as a sources of working capital finance reduced from 33.55 per cent in 1987 to just about 17.71 per cent in 1996.

An indepth analysis of each sector and its group of companies indicates that in the Chemical and Petroleum Industrial Sector the percentage of funds from operations in the total working capital finance reduced from 28.36 per cent in 1987 to 8.98 per cent in 1996. This is a substantial reduction. This is due to the fact that the funds from operations went down from JD 10,839 thousand in 1987 to JD 4,678 thousand in 1996. The burden of financing the working capital thereby was transferred on to the outsiders. In the case of company no. 1a, the financing of working capital was increasingly arranged out of long term loan. Funds from the operations, on the other hand, showed a deteriorating trend. The funds from operations reduced from JD 9,182 thousand in 1987 to JD 4,678 thousand in 1996. Thereby the funds from operations as a financing tool, reduced its share from 26.19 per cent in 1987 to 10.18 per cent in 1996. Similarly, company no. 1b reduced the percentage of funds from operations from 38.58 per cent in 1987 to just 2.11 per cent in 1994 and in fact in the last two years under study no share of the financing was possible out of funds from operations. Also in the case of company no 1c, the funds from operations as a source of working capital finance went down from 68.90 per cent in 1987 to 25.92 per cent in 1993 and completely dried up in the terminal years. So on the whole there is a deteriorating picture of funds from operations, and financing was mostly arranged out of long term loan and cash credits.

As far as the Construction Industrial Sector is concerned, we find that the sector preferred to apply more and more outside borrowings than funds from operations for working capital finance. The funds from operations although seemed to increase in numerical figures, the actual financing needs also went up. Thereby we find that the funds from operations increased from JD 11,602 thousand in 1987 to JD 15,610 thousand in 1996, and the

corresponding working capital requirements went substantially higher. Therefore the percentage of funds from operations in the total working capital finance went down from 95.76 per cent in 1987 to just about 42.41 per cent in 1996. As seen in the case of company no. 2a, the working capital finance was wholly managed out of funds from operations in 1987. Over the years, there seems to be a reducing tendency to apply funds from operations towards working capital finance. Thereby in 1996, the funds from operations contributed just 41.76 per cent of the working capital finance. Similarly, in the case of company no. 1c we find that the percentage of funds from operations dropped. In the year 1987 we find that 46.95 per cent of the working capital finance was arranged out of funds from operations but as the sources itself witnessed upward and downward trends over the decade, the relative percentage in total working capital finance went on a downward path. And in 1995 the share of funds from operations was just up to 7.58 per cent. In fact in 1996, the percentage of funds from operations almost dried up. On the other hand, company no. 2b produced results different from others. In this case the percentage of funds from operations went up over the years from 34.91 per cent in 1987 to 68.39 per cent in 1996.

The Consumables and Food Industrial Sector showed an increasing dependence on long term loan to finance the working capital. The main reason for this also was the reduction in the relative participation of funds from operations in the total working capital finance. The funds from operations went down from 11.14 per cent in 1987 to 6.05 per cent in 1996. The company-wise results however are different at times. In the case of company no. 3a, over the decade, we see wide fluctuations in the funds from operations generation. In the terminal years, we see a comparatively lesser flow of the funds from operations compared to the first half of the decade. Thereby the percentage of funds from operations with regard to the total working capital finance went down. In the case of company no. 3b, although the funds from operations as a source of working capital finance increased over the years, the overall participation was always on the lower side. In the first four years, the

percentage of funds from operations in the total working capital finance was nil but it picked up in the later half. In the year 1996, about 7.40 per cent of the total working capital finance was arranged out of funds from operations indicating a revival of operational performance in the last 3 to 4 years. In the case of company no 3c, the participation of funds from operations was fluctuating over the years as the sources generation was not consistent. The funds from operations were applied on ad-hoc basis. Overall in the ten years, about 36 per cent of the total working capital finance was financed from funds from operations.

The Pharmaceutical Industrial Sector increased the funds from operations over the decade. The overall performance of the sector was satisfactory in managing the sources. The sector reduced the abnormal levels of inventories and receivables. Thereby the operations could be conducted quite smoothly and funds from operations went up from 8.52 per cent in 1987 to 12.11 per cent in 1996. Company no. 4a increased its share of funds from operations in the total working capital finance marginally over the years and this witnessed lots of swings on either side. The overall percentage of funds from operations went up from 9.43 per cent in 1987 to 12.93 per cent in 1996. Similarly in the case of company no. 4c, initially, the whole of the working capital finance was arranged by cash credit. But we can see an increase in the percentage of funds from operations from 0 per cent to an average of 13.56 for the ten years. Although this is below the mark, the trend is satisfactory as compared to 1987. In the case of company 4b also, we find that the percentage of corresponding funds from operations went up from 4.91 per cent in 1987 to 12.74 per cent in 1996 indicating an overall upward trend.

The Engineering Industrial Sector also in tune with the overall trend reduced the short term loan in the overall working capital finance. The funds from operations reduced the contribution from 25.71 per cent in 1987 to 15.74 per cent in 1996. The sector seemed to have been affected by the Gulf War as the funds from operations as a source of working capital finance started reducing in the period during and after 1991. A company-wise study reveals

that in the case of company no. 5a, the funds from operations as a percentage to the working capital finance went slightly up from 28.14 per cent in 1987 to 32.69 per cent in 1996. In the case of company no. 5b, the funds from operations, which in the first 3 to 4 years showed improvement, started drying up and just 23.88 per cent of the working capital finance was arranged out of funds from operations. The operations especially had the worst effect of the Gulf War as during that period the sources almost dried up. We find similar trends in company no. 5c where funds from operations in the initial years were on increase, affected poorly in and after 1991. Thereafter they were on the lower side. We can see that the funds from operations, which were 7.36 per cent in 1987, although initially increased their share, ultimately went down to 0.49 per cent in 1996

The Textile Industrial Sector also reduced the investment of short term finances in the working capital finance over the years. The funds from operations reduced from 15.61 per cent in 1987 to 13.37 per cent in 1996 with the overall average of 11.58 per cent. Thus we can say that there was an increase in operational level and funds but they were not sufficient to finance the additional working capital. The year-wise and company-wise comparison shows that the performance was a typical one. Company no. 6a, in the initial years, the corresponding funds from operations went down from 18.15 per cent in 1987 to 0 per cent in 1991. Thus the reduction in funds from operations was meted out of the cash credit finances. Afterwards the percentage of cash credit gradually reduced. In 1996 we find the corresponding funds from operations increasing their share up to 13.07 per cent. In the case of company no. 6b, the overall percentage of funds from operations with respect to the total working capital finance went up from 9.92 per cent in 1987 to 18.66 per cent in 1996. In the case of company no. 6c, we find an initial increase in funds from operations percentage in the total working capital finance from 7.21 per cent in 1987 to 20.11 per cent in 1990. But after that there was continuous reduction which reached 1.04 per cent in 1993. Thereafter again the relative percentage went up in the future years.

In the case of the Paper and Packing Industrial Sector the share of the short term loan in the total working capital finance increased. Alongwith this the funds from operations also increased. The overall picture reveals that corresponding funds from operations went up from 11.78 per cent in 1987 to 14.69 per cent in 1996. This also showed improvement till 1991 when the relative share of funds from operations was 39.96 per cent but after that there were reduced funds from operations which reduced their relative percentage in the total working capital finance to just 4.16 per cent in 1995. In the last year the operations seemed to improve with the funds from operations contributing about 14.69 per cent in the total working capital finance. Company no. 7a performed in line with the overall trend of increasing the percentage of funds from operations up to 37.26 per cent in 1991 from 14.30 per cent in 1987. Thereafter the effect of the Gulf War made a dent in the operational performance thereby the relative percentage in the total working capital finance went down to just 1.96 per cent in 1995. In the last year under study, however, we see a sign of revival of efficiency with the increase in funds from operations and their share in total working capital finance went up to 19.15 per cent. In the case of company no 7b, although in the first five years the funds from operations showed improvements and contributed 52.64 per cent of the working capital finance in 1991, ultimately, they dried up and in 1996, the percentage was just 8.20 per cent. In the case of company no. 7c, there was regular increase of operational participation till 1990. The later half of the decade witnessed reduction in funds from operations thereby the reduced percentage of the funds from operations in total working capital finance.

Apart from the long term loan and the funds from operations, bank finance is also an important source for the total working capital requirements for the operations. The quantum of finance from the bank differs from industry to industry depending upon the financial policies laid down by the government.

Table V 4.4 shows the size and percentage of cash credit as a source of working capital finance of the industrial companies during the period under study, i.e., 1987 to 1996.

Table V 4.4

The Size and Percentage of Cash Credit as a Source of Working Capital Finance in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total / Average of Ten Years
		(Value in Thousand JD.)										
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co		(0.00)	(0.00)	4.695	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	4.594	9.278 (1.85)
b) Intermediate Petrochemical Industrial Co		1,064 (61.42)	2,089 (71.64)	2,872 (66.74)	2,905 (65.41)	1,561 (53.30)	3,689 (71.45)	3,515 (69.00)	2,741 (64.29)	2,861 (76.18)	3,199 (93.02)	26,496 (69.25)
c) Jordan Sulpho- Chemicals Co		335 (23.34)	1,636 (70.20)	130 (10.18)	277 (14.59)	241 (11.28)	171 (10.11)	1,477 (74.08)	3,003 (100.00)	2,991 (100.00)	2,717 (100.00)	12,977 (51.38)
<b>Sub-Total</b>		1,399 (3.66)	3,724 (8.44)	7,697 (12.74)	3,182 (5.41)	1,802 (2.78)	3,860 (5.21)	4,992 (6.68)	5,744 (6.07)	5,852 (9.88)	10,499 (20.15)	48,752 (8.30)
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories		(0.00)	5,536 (35.78)	13,003 (73.59)	4,205 (28.08)	11,229 (57.37)	3,796 (26.57)	(0.00)	3,798 (24.97)	9,165 (38.85)	17,767 (58.24)	68,501 (34.35)
b) Jordan Ceramic Industrial Co		41 (5.81)	249 (46.48)	257 (22.74)	599 (32.22)	285 (25.11)	(0.00)	238 (11.16)	444 (16.00)	626 (19.40)	391 (9.32)	3,140 (18.83)
c) Jordan Rockwood Industrial Co		57 (53.05)	95 (35.27)	649 (41.57)	323 (28.68)	401 (43.66)	332 (37.23)	424 (40.11)	140 (6.60)	247 (11.53)	321 (15.28)	2,989 (31.30)
<b>Sub-Total</b>		98 (0.81)	5,881 (36.12)	13,909 (68.31)	5,128 (28.55)	11,925 (55.04)	4,128 (25.40)	661 (4.01)	4,382 (21.79)	10,038 (34.68)	18,480 (50.21)	74,630 (32.49)
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn Co		2,695 (87.62)	2,837 (62.02)	2,459 (68.70)	2,851 (47.98)	4,878 (54.15)	5,355 (55.27)	3,559 (52.69)	7,709 (92.18)	7,270 (92.59)	6,101 (91.65)	45,714 (72.48)
b) Arab Investment and Int Trade Co		372 (53.34)	367 (56.94)	316 (59.02)	69 (11.05)	1,082 (84.09)	1,322 (59.73)	763 (70.39)	434 (20.27)	586 (26.64)	642 (29.74)	5,954 (45.12)
c) The National Industrial Co		—	210 (17.74)	524 (97.24)	622 (64.37)	1,221 (81.43)	(0.00)	1,431 (80.73)	(0.00)	773 (18.33)	2,094 (69.48)	6,873 (42.93)
<b>Sub-Total</b>		3,067 (89.67)	3,413 (64.58)	3,299 (70.89)	3,542 (47.01)	7,181 (58.88)	6,677 (50.80)	5,752 (59.86)	8,143 (64.89)	8,628 (60.48)	8,838 (74.70)	58,541 (64.16)
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co		5,782 (57.29)	3,269 (59.00)	5,172 (49.56)	6,020 (38.66)	4,264 (28.33)	5,804 (42.07)	5,817 (25.95)	5,389 (24.80)	2,218 (12.46)	693 (3.82)	47,227 (34.19)
b) Dar Al-Dawa Development & Inv't Co		1,218 (52.86)	1,253 (45.73)	1,949 (48.36)	1,287 (25.25)	1,588 (34.28)	2,535 (45.37)	293 (2.44)	304 (2.61)	1,230 (9.89)	323 (2.56)	11,980 (26.93)
c) Arab Center for Pharm & Chemicals		96 (100.00)	159 (100.00)	941 (47.10)	1,332 (54.15)	246 (8.56)	18 (0.61)	206 (5.86)	55 (1.51)	21 (1.23)	(0.00)	3,074 (31.91)
<b>Sub-Total</b>		7,095 (56.80)	7,662 (56.79)	8,062 (48.97)	8,639 (37.36)	6,098 (27.04)	8,157 (37.31)	6,316 (16.64)	5,748 (15.52)	3,468 (10.86)	1,015 (2.94)	62,282 (31.02)

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Continue Table V 4.4  
(Value in Thousand JD)

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Total / Average of Ten Years
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminium Industry Co		740 (32.29)	940 (54.65)	937 (40.43)	107 (3.016)	107 (2.33)	107 (1.96)	81 (1.30)	49 (0.64)	(0.00)	(0.00)	3,069 (13.66)
b) National Cables & Wire Manuf Co		78 (0.00)	78 (4.41)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	78 (0.44)
c) Jordan Pipes Manufacturing Co		(0.00)	1,357 (37.57)	1,846 (40.67)	1,263 (28.70)	543 (14.52)	609 (15.79)	1,264 (27.86)	(0.00)	1,495 (23.53)	1,573 (30.52)	9,951 (21.92)
Sub--Total		740 (17.52)	2,375 (33.45)	2,784 (28.86)	1,370 (10.70)	651 (4.81)	717 (5.13)	1,345 (7.46)	49 (0.26)	1,495 (9.31)	1,573 (11.56)	13,098 (12.91)
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsteds Mills Co		1,887 (74.15)	4,196 (81.58)	6,535 (84.39)	5,083 (75.40)	1,957 (31.81)	4,698 (53.57)	5,763 (64.89)	2,033 (18.37)	6,759 (48.65)	5,397 (40.83)	44,309 (57.36)
b) Jordan Tanning Co		449 (55.16)	408 (51.60)	369 (40.76)	629 (45.00)	54 (4.54)	122 (7.21)	43 (2.22)	42 (1.64)	324 (10.59)	139 (4.16)	2,578 (22.30)
c) The Wooden Industrial Co		73 (33.25)	97 (37.55)	95 (25.92)	149 (37.30)	168 (32.81)	100 (13.74)	120 (11.87)	21 (2.00)	127 (10.42)	87 (7.03)	1,037 (21.19)
Sub--Total		2,409 (67.32)	4,701 (75.93)	7,000 (77.63)	5,861 (68.64)	2,179 (27.76)	4,920 (43.95)	5,926 (50.19)	2,096 (14.29)	7,210 (39.67)	5,623 (31.62)	47,925 (49.70)
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories		386 (15.05)	117 (4.44)	86 (1.94)	606 (28.89)	145 (4.78)	383 (10.06)	260 (6.31)	333 (8.42)	1,327 (527.067071)	1,855 (36.23)	5,497 (14.47)
b) Arab Paper Converting & Trading Co		389 (100.00)	598 (100.00)	496 (66.47)	626 (75.47)	94 (8.67)	89 (6.05)	473 (34.79)	16 (0.78)	787 (23.20)	750 (25.47)	4,299 (44.09)
c) Jordan Printing and Packing Co		164 (91.15)	203 (73.35)	181 (71.81)	179 (59.85)	284 (74.58)	444 (82.08)	199 (58.08)	204 (53.12)	254 (40.93)	147 (58.31)	2,280 (66.32)
Sub--Total		959 (30.41)	918 (26.20)	763 (14.00)	1,413 (43.76)	523 (11.64)	895 (16.34)	931 (16.01)	553 (8.72)	2,368 (27.33)	2,752 (33.09)	12,076 (22.75)
Grand Total		15,766 (20.42)	29,694 (29.86)	43,515 (34.53)	29,135 (22.08)	30,360 (20.63)	29,354 (18.81)	25,924 (14.86)	26,716 (14.79)	39,060 (22.04)	48,780 (27.87)	317,303 (22.59)
<b>Overall Industrial Ratio</b>												

Source: Appendix IV

Note: 1. FIGURES IN PARENTHESES INDICATE PERCENTAGE OF CASH CREDIT (SHORT TERM LOAN) AS A SOURCE OF WORKING FINANCE.

2. \* - = INDICATES NEGATIVE WORKING CAPITAL FINANCE.

So far, we have seen that there was an increasing tendency to apply the external funds for working capital finance. Thereby, apart from the long term loan, the short term borrowings like cash credits also rose over the decade. Looking at the industrial figures, we find that cash credit as a source of total working capital finance went up from 20.42 per cent in 1987 to 27.87 per cent in 1996. In the company-wise and Sector-wise figures, we can notice some deviation in the relative performance.

An indepth analysis of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector reduced the percentage of funds from operations as to working capital finance. This reduction is quite substantial. Although the share of long term loan went up, it was not sufficient to meet the increasing working capital finance requirement. Therefore the sector also increased its dependence on cash credits from bank. And the percentage of cash credit as a means of finance jumped from 3.66 per cent in 1987 to 20.15 per cent in 1996. Although the figure in 1996 appears to be exceptionally high, the overall average of the sector, which was 8.30 per cent indicates an increased share of cash credit in working capital finance. Thus one can say that the dependence on outside sources was on the increase rather than applying the internal sources for the purpose of financing working capital. Company no. 1a, occasionally depended upon the cash credit as a source. Thereby only in 2 years (i.e., 1989 and 1996) the cash credit limits were availed by the company. Mostly the finance was arranged out of long term loan apart from the funds from operations. In the case of company no. 1b there was a fall in the percentage of funds from operations from 38.58 per cent in 1987 to 0 per cent in the last two years under study. The burden here mostly was transferred to cash credit and the cash credit which was 61.42 per cent of the working capital finance in 1987 went up to 93.02 per cent of the total finance in 1996. Similarly, in company no. 1c, as the funds from operations as a source of working capital finance dried up in the terminal years, it depended excessively upon the cash credit and the percentage of cash credit, which was 23.34 per cent of the working capital finance in 1987, rose to 100 per cent in 1996.

The Construction Industrial Sector preferred to apply more and more outside borrowings rather than funds from operations for financing the working

capital. The percentage of funds from operations went down. The financial needs thereby were fulfilled by cash credits. The percentage of cash credit in the total working capital finance went up from 0.81 per cent in 1987 to 50.21 per cent in 1996. As seen in the case of company no. 2a, initially the working capital finance was mostly managed out of funds from operations. But after a passage of time, the operational sources started reducing therefore cash credit, which was zero in 1987, went up over the years and it was as high as 58.24 per cent in 1996. Thus dependence on cash credit on the increase. On the other hand, in the case of company no. 2b, the cash credit as a percentage of working capital finance fluctuated up and down over the years. Similarly, in the case of company no. 2c, in the last years, cash credit as a source of working capital finance went down from 53.05 per cent in 1987 to 15.28 per cent in 1996. In the relative period, the funds from operations also reduced which underlines tendency to depend excessively upon long term finances rather than the short term loan.

The Consumables and Food Industrial Sector showed an increasing dependence on long term loan to finance the working capital. With this the dependence on cash credit which was as high as 89.67 per cent in 1987 went down to 74.40 per cent in 1996. The company-wise results however were different at times. In the case of company no. 3a, the percentage of cash credit in the total working capital finance went up from 87.62 per cent in 1987 to 91.65 per cent in 1996. The reason for this increase was again funds from operations which over the years relatively went down. Thus we can say that in the short run the cash credit replaced the reducing funds from operations for financing funds. In the case of company no. 3b, the cash credit as a tool for working capital finance also reduced from 53.34 per cent in 1987 to 29.74 per cent in 1996. In the case of company no. 3c, the working capital financing was mostly done through short term sources, but the composition of the sources kept varying over the years. In the year 1987 and in 1988, the participation of cash credit for working capital finance was the lowest. But gradually the proportion started picking up. After that we see that the percentage of cash credit in the total working capital finance was mostly on the higher side. Thus, the cash credit as a percentage of working capital finance for the ten years was

42.93 per cent. The proportion however was fluctuating during the different years.

The Pharmaceutical Industrial Sector increased the funds from operations over the decade. There was a reduction in cash credit availed by the companies in this sector. The percentage of cash credit, which was 56.80 per cent in 1987, went down to 2.94 per cent in 1996. Apart from the funds from operations, the sector thereby relied mostly on the long term loan for financing working capital. In the case of company no. 4a, there was a huge reduction in the cash credit availed, whereby the cash credit as a source for working capital finance went down from 57.29 per cent in 1987 to just 3.82 per cent in 1996. The corresponding financing was increasingly provided by the funds from operations and mostly by the long term loan. Similarly, in the case of company no. 4c, initially, the whole amount of the working capital finance was arranged by cash credit. But over the years, there was a decrease in the percentage of cash credit. The corresponding percentage regularly went down and in the year 1996, no share of the working capital finance was arranged out of cash credits. Similarly, in the case of company no. 4b also the percentage of cash credit went down from 52.86 per cent in 1987 to 2.56 per cent in 1996. This was marginally substituted by the operations and mostly by the long term loan

The Engineering Industrial Sector also in tune with the overall trend reduced the short term finances in the overall working capital finance. From 17.52 per cent in 1987 the cash credit percentage went down to 11.56 per cent in 1996. In the case of company no. 5a, the funds from operations as a percentage in the working capital finance slightly went up over the years. The corresponding cash credit percentage went down substantially from 32.29 per cent in 1987 to 0 per cent in 1996. In the case of company no. 5b also the reliance on cash credit was almost nil. Thereby no amount of the working capital finance was arranged out of cash credit except in 1988 where the percentage was just 4.41 per cent. In the case of company no. 5c, the overall dependence on cash credit was fluctuating and in certain years we find cash credit up to 40 per cent of the total working capital finance and in certain years the percentage was almost zero. For the ten years period under the study, the percentage of cash credit as a financing source for working capital finance was

21.92 per cent. The fluctuation was largely attributable to the variations in the funds from operations generated by the company. The overall picture is one of excessive reliance on long term funds for financing working capital.

The Textile Industrial Sector also reduced the investment of short term finances in the working capital finance over the years. The percentage of cash credit went down from 67.32 per cent in 1987 to 31.62 per cent in 1996. Thereby the reliance on long term loan was on the increase. The company-wise analysis shows a mixed picture over the years. In the case of company no. 6a, in the initial years, the cash credit went up from 74.15 per cent in 1987 to 84.39 per cent in 1989. Thus the corresponding reduction in funds from operations were replaced with the cash credit finances. Afterwards, with the corresponding increase in the share of funds from operations, the percentage of cash credit gradually reduced and went down to 40.83 per cent in 1996. In the case of company no. 6b, the overall percentage of funds from operations in the total working capital finance went up. Thereby the corresponding cash credit percentage, substantially went down from 55.16 per cent in 1987 to 4.16 per cent in 1996. In the case of company no. 6c, the percentage of cash credit went down from 33.25 per cent in 1987 to a meagre 7.03 per cent in 1996. The reduction was substantial especially after the Gulf War period. After this we find that the burden of financing the working capital was mostly borne by the long term loan.

In the case of the Paper and Packing Industrial Sector, the share of the short term sources in the total working capital finance increased. The cash credit in the working capital finance went up from 30.41 per cent in 1987 to 33.09 per cent in 1996. Thereby the dependence on long term loan was reduced over the years. Company no. 7a initially depended heavily on the long term loan. Thereby initially the percentage of cash credit went down just to 1.94 per cent in 1989. But in the later years, the percentage of Cash credit went up and increased up to 36.23 per cent in 1996. In the case of company no. 7b, in the year 1987, 100 per cent of the working capital finance was arranged out of cash credit. But it gradually reduced and in the post war period, the reduction was substantial. So in the year 1994 we find that the percentage of cash credit was just about 0.78 per cent. For the decade as a whole, the share of cash credit reduced from 100 per cent in 1987 to 25.47 per cent in 1996. In the

case of company no. 7c, we find that the cash credit went down from 91.15 per cent in 1987 to 58.31 per cent in 1996.

The overall financing pattern adopted by the industrial sector reveals a story of a diminishing pattern of the funds from operations. In most of the companies we find that the funds from operations as a source of the total working capital went down over the years. Although the operations were in increasing trend in the initial 3 to 4 years, with the Gulf War having its impact on the operations, the position deteriorated in the post war period. Similarly we find that in certain companies, cash credits replaced the funds from operations for financing needs. But this also was occasional, as in most of the companies the share of cash credits in total working capital finance also reduced over the years. The burden of financing mostly was shifted onto the long term loan like the share capital and in many cases to borrowings. Thus we can say that on the whole the dependence on external long term loan increased.

#### **5.4.4 BANK FINANCE RECOMMENDED BY THE TANDON STUDY GROUP**

Excess of bank borrowing on the basis of the permissible bank borrowings in the industrial companies according to the first and second methods of financing of the working capital norms of the Tandon Study Group are shown in Tables V.4.5, V.4.6, V.4.7, V.4.8.

##### **Excess of Bank Borrowings on Overall Basis (First Method of Lending, as Recommended by Tandon Study Group)**

The first method of lending as recommended by Tandon Study Group emphasizes the fact that 25 per cent of the working capital gap (i.e., excess of current assets over current liabilities) should be financed through long term loan. And the bank finance should not exceed the remaining portion of the working capital gap, i.e., bank finance should not exceed 75 per cent of the working capital gap. Anything above this level should be treated as excess bank borrowing.

Table V.4 5 shows the excess bank borrowings on the overall basis of permissible bank borrowings in the industrial companies during the period under study, i.e., 1987 to 1996 as per the financing methods recommended by Tandon Study Group (First Method).

Table V.4.5  
Excess Bank Borrowings on the Basis of Permissible Bank Borrowings in the Industrial Companies  
During 1987 to 1996 as per the Financing Method of Tandon Study Group. (First Method)

Sr. No	Particulars	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
1	Current assets	171,830	199,180	232,503	294,295	329,075	380,465	427,920	452,330	498,285	520,705	3,506,588
2	Trade credit and provisions	94,625	103,151	106,473	162,319	181,878	224,427	253,466	271,734	321,028	345,694	2,064,793
3	Working capital gap (1 - 2)	77,204	96,030	126,030	131,977	147,198	156,038	174,455	180,595	177,257	175,012	1,441,795
4	25 per cent of above from long term sources	19,301	24,007	31,507	32,994	36,799	39,009	43,614	45,149	44,314	43,753	360,449
5	Maximum bank borrowings permissible (3 - 4)	57,903	72,022	94,522	98,982	110,398	117,028	130,841	135,447	132,943	131,259	1,081,346
6	Actual bank borrowings	41,065	54,141	65,204	72,493	75,031	75,912	75,460	74,217	68,243	71,841	673,608
7	Excess bank borrowings (6 - 5)	0	0	0	0	0	0	0	0	0	0	0
8	Percentage of excess bank borrowings to actual bank borrowings	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Source Appendix IV

The sectors in Jordan as a whole show that the bank finance did not exceed the stipulated limit as recommended in the first method of lending. In all the ten years under study we find that the borrowings from bank were below the maximum permissible limit. In fact the relative share of bank finance in the working capital gap went down over the years. Thereby we find that in the year 1987 when the Maximum Permissible Bank Finance (MPBF) was JD 57,903 thousand, a whopping amount of JD 41,065 thousand was utilized as bank borrowing. This percentage comes to more than 70 per cent. Thereafter gradually, the industrial sector reduced its percentage of bank-borrowing in the total working capital gap. And in the year 1996, the actual bank borrowings were just 55 per cent of the MPBF. Out of the total MPBF of JD 131,259 thousand, only JD 71,841 thousand was financed through bank borrowings. On the basis of the overall study for the ten years, one can state that the industrial companies utilized about 62 per cent of their MPBF limits. The total of MPBF for the ten years was JD 1,081,346 thousand whereas the actual bank borrowings were JD 673,608 thousand.

It is interesting to note that the current assets went up to about 3 times in 1996 as compared to that in 1987. In the corresponding period, the trade creditors and provisions went up to around 4 times. Thus the load of incremental current assets was partially shifted onto the trade creditors and provisions. We saw that the industrial companies in Jordan as a whole increased their proportion of long term loan in working capital finance. The overall effect of this was that the level of bank borrowings for the purpose of working capital finance went down.

**Excess of Bank Borrowings on Sector-wise and on the Basis of its related industrial companies (First Method of Lending, as Recommended by Tandon Study Group)**

Table V.4 6 shows the excess bank borrowings on the basis of permissible bank borrowings in the industrial companies during the period under study, i.e., 1987 to 1996 as per the financing methods recommended by Tandon Study Group (First Method)

Table V.4.6  
Excess Bank Borrowings on the Basis of Permissible Bank Borrowings in the Industrial Companies  
During 1987 to 1996 as per the Financing Method of Tandon Study Group. (First Method).

INDUSTRIAL COMPANIES/PARTICULARS	1	2	3	4	5	6	7	8
	Current assets	Trade credit and provisions	Working capital gap (1-2)	25 per cent of above from long term sources	Maximum bank borrowings permissible (3-4)	Actual bank borrowings	Excess bank borrowings (6-5)	Percentage of excess bank borrowings to actual bank borrowings
(Value in Thousand JD.)								
<b>1) Chemical &amp; Petroleum Industrial Sector</b>								
a) Jordan Petroleum Refinery Co. Ltd	2,004,641	1,486,271	538,370	134,592	403,777	9,278	0	0.00
b) Intermediate Petrochemical Industries Co. Ltd	56,573	18,536	38,037	9,509	28,528	29,433	905	3.07
c) Jordan Sulpho- Chemicals Co. Ltd	34,229	12,754	21,475	5,389	16,108	14,851	0	0.00
Sub-Total	2,095,443	1,497,561	597,882	149,470	448,411	53,363	0	0.00
<b>2) Construction Industrial Sector</b>								
a) The Jordan Cement Factories Co. Ltd	329,618	153,705	175,912	43,978	131,934	399,288	267,354	66.96
b) The Jordan Ceramic Industries Co. Ltd	36,290	17,498	18,792	4,698	14,094	5,215	0	0.00
c) Jordan Rockwood Industries Co. Ltd	16,586	4,290	12,296	3,074	9,222	3,319	0	0.00
Sub-Total	382,494	175,494	207,000	51,750	155,250	407,823	252,573	61.93
<b>3) Consumables &amp; Food Industrial Sector</b>								
a) The Industrial Commercial & Agn. Co. Ltd	100,934	36,554	64,380	16,095	48,285	46,831	0	0.00
b) Arab Investment and Int. Trade Co. Ltd	18,034	4,045	13,989	3,497	10,492	5,954	0	0.00
c) The National Industries Co. Ltd	23,125	6,965	16,161	4,040	12,120	22,139	10,019	45.25
Sub-Total	142,094	47,564	94,530	23,633	70,898	74,923	4,026	5.37
<b>4) Pharmaceuticals Industrial Sector</b>								
a) The Arab Pharmaceuticals Manuf. Co. Ltd	261,131	105,954	155,178	38,794	116,383	47,227	0	0.00
b) Dar Al-Dawa Development & Inv. Co. Ltd	110,047	36,913	73,133	18,283	54,850	11,980	0	0.00
c) The Arab Center for Pharm. & Chemicals Co. Ltd	40,724	17,533	23,191	5,798	17,394	3,990	0	0.00
Sub-Total	411,902	160,400	251,502	62,876	188,627	63,197	0	0.00
<b>5) Engineering Industrial Sector</b>								
a) Arab Aluminum Industry Co. Ltd	80,157	37,275	42,882	10,720	32,161	3,089	0	0.00
b) National Cables & Wire Manuf. Co. Ltd	92,404	51,177	41,227	10,307	30,920	78	0	0.00
c) The Jordan Pipes Manufacturing Co. Ltd	54,770	11,252	43,518	10,860	32,639	9,951	0	0.00
Sub-Total	227,331	99,705	127,626	31,907	95,720	13,098	0	0.00
<b>6) Textile Industrial Sector</b>								
a) The Jordan Worsted Mills Co. Ltd	131,964	47,804	84,160	21,040	63,120	44,309	0	0.00
b) Jordan Tanning Co. Ltd	33,947	16,300	17,647	4,412	13,235	2,579	0	0.00
c) The Woolen Industries Co. Ltd	8,400	1,401	6,998	1,750	5,249	1,037	0	0.00
Sub-Total	174,311	65,506	108,805	27,201	81,604	47,925	0	0.00
<b>7) Paper &amp; Packing Industrial Sector</b>								
a) Jordan Paper and Cardboard Factories Co. Ltd	49,997	13,581	36,415	9,104	27,312	5,497	0	0.00
b) The Arab Paper Converting & Trading Co. Ltd	17,396	2,916	14,480	3,620	10,860	5,298	0	0.00
c) Jordan Printing and Packing Co. Ltd	5,621	2,068	3,553	888	2,665	2,484	0	0.00
Sub-Total	73,014	18,565	54,449	13,612	40,837	13,279	0	0.00

Source: Appendix IV

The industrial companies as a whole did not exceed their MPBF criteria, but the sector-wise and company-wise study presents a somewhat different picture

An indepth analysis of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector had MPBF of about JD 448,411 thousand whereas the actual bank borrowings was JD 53,363 thousand. Company no. 1a had just JD 9,278 thousand as bank borrowings against the MPBF of JD 403,777 thousand. On the other hand, the bank borrowings in the case of company no. 1b exceeded the MPBF limit. The actual bank borrowings was JD 29,433 thousand as against the MPBF of JD 28,528 thousand. This company reduced the funds from operations for the working capital finance. Thereby the bank finance seems to have increased. The excess portion of bank borrowings was 3.07 per cent of the actual borrowings.

The Construction Industrial Sector exceeded its bank finance over and above the MPBF criterion. The working capital gap was JD 207,000 thousand and the MPBF was 155,250 thousand. And the actual bank finance was as high as JD 407,823 thousand which is on excess of JD 252,573 thousand. The excess portion in the actual bank borrowings was up to 61.93 per cent. Company no. 2b and company no. 2c had not exceeded the MPBF and utilized slightly above 35 per cent of the MPBF. But the bank borrowings in the case of company 2a was much more than the MPBF. As against the MPBF of JD 131,934 thousand, the actual bank borrowings was JD 399,288 thousand. Thus the excess bank borrowings was 66.96 per cent of the actual bank borrowings.

The Consumables and Food Industrial Sector exceeded its MPBF in bank borrowings. The sector had a total working capital gap of JD 94,530 thousand and against it the MPBF was JD 70,898 thousand. The actual bank borrowings of the sector was JD 74,923 thousand. Thereby 5.37 per cent of the borrowings was in excess. The company-wise analysis shows that company no. 3a had the bank borrowings much nearer to the MPBF. The MPBF in this case was JD 48,285 thousand whereas actual bank borrowings touched JD

46,831 thousand. On the other hand, company no. 3b utilized nearly half of the MPBF. Against the working capital gap of JD 13,989 thousand, the MPBF was JD 10,492 thousand. And the actual bank borrowings were JD 5,954 thousand. Thus the borrowings from bank were much below the prescribed margin. Company no. 3c, in tune with the sector, exceeded its bank borrowings over the MPBF. The company had JD 12,120 thousand as MPBF and the actual bank borrowings were JD 22,139 thousand. Thus 45.25 per cent of the total bank finance constitutes the excess portion.

The Pharmaceutical Industrial Sector as we saw earlier in the study increased its collection from receivables and comparatively reduced its investment in inventories. The sector thereby enjoyed more and more liquidity. Instead of looking at outside sources, the sector was able to generate more and more cash out of the operations over the years. The bank finance in the total working capital gap was also much lower than the prescribed MPBF. Therefore we find that the sector did not utilize even 34 per cent of their MPBF. The sector has MPBF of JD 188,627 thousand whereas the actual bank borrowings were just JD 63,197 thousand. All the companies under this sector showed similar performance. Company no. 4a had bank borrowings of just JD 47,227 thousand against the MPBF of 116,383 thousand. While company no. 4b and company no. 4c showed a much better performance as far as the percentage of finance is concerned. Both the companies financed just about 20 per cent of their working capital gap through bank finance. In the case of company no. 4b the MPBF was JD 54,850 thousand whereas the actual bank borrowings were JD 11,980 thousand. Company no. 4c had a bank finance of JD 3,990 thousand against the MPBF of 17,394 thousand.

The Engineering Industrial Sector was another sector which had a very small amount of the working capital financed through the bank borrowings. The sector applied the bank borrowings for the purpose of financing the working capital only to the extent of about 10 per cent of the total working capital gap. The working capital gap was JD 127,626 thousand, the MPBF was JD 95,720 thousand and the actual bank finances were just JD 13,098 thousand. The sector depended mostly on the long term finances and on the internal cash

accruals for financing the working capital. All the companies featured similarly as far as financing the working capital is concerned. Company no. 5b for instance had the bank borrowings of just JD 78 thousand whereas the working capital gap was JD 41,227 thousand. The maximum bank finance was JD 30,920 thousand. Similarly company no. 5a and company no. 5c had very small portions of their total working capital gap financed through bank borrowings. Company no. 5a had the bank borrowings of JD 3,069 thousand against MPBF of 32,161 thousand. In the case of company no. 5c, the MPBF was JD 32,639 thousand and actual bank finance was JD 9,951 thousand.

Just like most of the sectors, the Textile Industrial Sector did not exceed its maximum limit for the bank finance. The sector had MPBF of JD 81,604 thousand whereas the actual bank finance was just JD 47,925 thousand. The working capital gap in this instance was JD 108,805 thousand. Thus less than 50 per cent of the working capital was financed through bank finance. All the companies followed the same pattern of financing. Thereby the bank finance took a back seat. In the case of company no. 6b, for instance, out of the total working capital gap of JD 17,647 thousand, only JD 2,579 thousand was financed by bank borrowings. The percentage comes to just about 15 per cent. Similarly in the case of company no. 6c, the bank borrowings were just JD 1,037 thousand in the total working capital gap of JD 6,998 thousand and the MPBF was JD 5,249 thousand. In the case of company no. 6a, out of the working capital gap of JD 84,160 thousand, the MPBF was JD 63,120 thousand and the actual bank borrowings stood at JD 44,309 thousand

The Paper and Packing Industrial Sector financed less than 25 per cent of the working capital through bank borrowings. Thereby the bank borrowings was much less than the actual MPBF as set by the first method of lending. The overall working capital gap was JD 54,449 thousand and the MPBF portion was JD 40,837 thousand. The actual bank borrowings stood at JD 13,279 thousand. The company-wise analysis shows that all the companies had their bank borrowings below the MPBF level. The percentage of the bank finance in the respective working capital was although different. Company no. 7a had the total working capital gap of JD 36,415 thousand and the MPBF stood at JD

27,312 thousand, whereas actually only 15 per cent of the working capital was arranged by bank finances. The actual bank finance was just JD 5,497 thousand. Similarly in the case of company no. 7b, the bank finance was about half of the MPBF. The actual bank finance was JD 5,298 thousand where the MPBF was JD 10,860 thousand. In the case of company no. 7c, on other hand, although the bank borrowings were less than the MPBF, the percentage of bank finance in total working capital gap was more than the other companies. Out of the total working capital gap of JD 3,553 thousand, the MPBF was JD 2,665 thousand and the actual bank finance was JD 2,484 thousand.

**Excess of Bank Borrowings on Overall Basis (Second Method of Lending, as Recommended by Tandon Study Group)**

According to the first method of lending suggested by Tandon committee, at the most 75 per cent of the working capital gap should be financed by the bank borrowings and 25 per cent should be financed through long term loan. In the second method of lending, the concept of working capital gap was done away with. Instead the committee proposed that 25 per cent of the total current assets should be financed through long term loan. For the balance current assets, bank finance should be provided after deducting current liabilities. The balance, which remains after deducting the trade creditors and provisions, should be the MPBF.

In the study so far, we have seen that according to the first method of lending, the companies did not exceed their MPBF limit. We have also seen that the burden of the excessive current assets was shifted to current liabilities most of the times. Therefore after deducting the current liabilities from 75 per cent of the total current assets, in most of the years, the bank borrowings exceeded the MPBF limits. The main reason for this difference in results according to the second method is the simple fact that the current liabilities were comparatively higher than the corresponding current assets.

Table V.4.7 shows the excess bank borrowings on the overall basis of permissible bank borrowings in the industrial companies during the period under study i.e., 1987 to 1996 as per the financing methods recommended by Tandon Study Group (Second Method)

Table V.4.7  
Excess Bank Borrowings on the Basis of Permissible Bank Borrowings in the Industrial Companies  
During 1987 to 1996 as per the Financing Method of Tandon Study Group. (Second Method).

Sr No	Particulars	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	TOTAL
1	Current assets	171,830	199,180	232,503	294,295	329,075	380,465	427,920	452,330	498,285	520,705	3,506,588
2	25 per cent of above from long term sources	42,957	49,795	58,126	73,574	82,269	95,116	106,980	113,082	124,571	130,176	876,647
3	Balance (1 - 2)	128,872	149,385	174,377	220,721	246,807	285,348	320,940	339,247	373,714	390,529	2,629,941
4	Trade credit and provisions	94,625	103,151	106,473	162,319	181,878	224,427	253,466	271,734	321,028	345,694	2,064,793
5	Permissible bank borrowings (3 - 4)	34,247	46,235	67,904	58,403	64,929	60,922	67,475	67,513	52,686	44,835	565,148
6	Actual bank borrowings	41,065	54,141	65,204	72,493	75,031	75,912	75,460	74,217	68,243	71,841	673,608
7	Excess bank borrowings (6 - 5)	6,818	7,907	0	14,090	10,102	14,991	7,985	6,704	15,557	27,006	108,460
8	Percentage of excess bank borrowings to actual bank borrowings.	16.60	14.60	0.00	19.44	13.46	19.75	10.58	9.03	22.80	37.59	16.10

Source. Appendix IV

The overall picture shows that the companies exceeded their bank finances over and above the MPBF limit set according to the second method of lending. The excessive portion of the actual finances also increased over the years. In the year 1987, the actual bank finance was JD 41,065 thousand whereas the MPBF was JD 34,247 thousand. Thus 16.60 per cent of the total finances constituted the excess part. Over the years this excess percentage kept moving upwards and downwards. Thus in the initial years up to 1992, the excess portion in actual bank finance was on the increase (except in 1989 when there was no excessive bank finance). And in 1992 the excess percentage went up to 19.75 per cent. In the next two years, this percentage came down and in 1994 it was 9.03 per cent. But in the last two years, the companies seemed to have an overall increase in the bank finances and thereby in the last two years, the actual bank borrowings exceeded the MPBF limit by more than 20 per cent. Thus in 1996, the actual bank borrowings were JD 71,841 thousand against the MPBF of JD 44,835 thousand. The excess percentage of the total finance was as high as 37.59 per cent. In the ten years under study, the maximum permissible bank finance was JD 565,148 thousand and the actual bank borrowings were at JD 673,608 thousand. Thus JD 108,460 thousand were in excess, which constituted 16.10 per cent of the actual total finances.

**Excess of Bank Borrowings, Sector-wise and on the Basis of its related industrial companies Basis (Second Method of Lending, as Recommended by Tandon Study Group)**

Table V.4.8 shows the excess bank borrowings on the basis of the permissible bank borrowings in the industrial companies during the period under study i.e., 1987 to 1996 as per the financing methods recommended by Tandon Study Group (Second Method)

**Table V.4.8**  
**Excess Bank Borrowings on the Basis of Permissible Bank Borrowings in the Industrial Companies**  
**During 1987 to 1996 as per the Financing Method of Tandon Study Group (Second Method)**

INDUSTRIAL COMPANIES / PARTICULARS	1	2	3	4	5	6	7	8
	Current assets	Trade credit and provisions	Working capital gap (1-2)	25 per cent of above from long term sources	Maximum bank borrowings permissible (3-4)	Actual bank borrowings	Excess bank borrowings (6-5)	Percentage of excess bank borrowings to actual bank borrowings
<b>( Value in Thousand JD.)</b>								
<b>1) Chemical &amp; Petroleum Industrial Sector</b>								
a) Jordan Petroleum Refinery Co Ltd	2,004,641	501,160	1,503,481	1,466,271	37,209	9,278	0	0.00
b) Intermediate Petrochemical Industries Co Ltd	56,573	14,143	42,430	18,536	23,894	28,433	5,539	18.82
c) Jordan Sulpho- Chemicals Co Ltd	34,228	8,557	25,672	12,754	12,918	14,651	1,734	11.83
Sub-Total	2,095,443	523,861	1,571,582	1,497,561	74,021	53,363	0	0.00
<b>2) Construction Industrial Sector</b>								
a) The Jordan Cement Factories Co Ltd	329,618	82,404	247,213	153,705	93,508	399,288	305,780	76.58
b) The Jordan Ceramic Industries Co Ltd	36,290	9,073	27,218	17,498	9,720	5,215	0	0.00
c) Jordan Rockwood Industries Co Ltd	16,586	4,147	12,440	4,290	8,149	3,319	0	0.00
Sub-Total	382,494	95,623	286,870	175,494	111,377	407,823	296,446	72.69
<b>3) Consumables &amp; Food Industrial Sector</b>								
a) The Industrial Commercial & Agri Co Ltd	100,934	25,234	75,701	36,554	39,147	46,931	7,684	16.41
b) Arab Investment and Int. Trade Co Ltd	18,034	4,509	13,526	4,045	9,481	5,954	0	0.00
c) The National Industries Co Ltd	23,125	5,781	17,344	6,965	10,379	22,139	11,760	53.12
Sub-Total	142,094	35,523	106,570	47,564	59,007	74,923	15,917	21.24
<b>4) Pharmaceuticals Industrial Sector</b>								
a) The Arab Pharmaceuticals Manuf Co Ltd	261,131	65,283	195,848	105,954	89,895	47,227	0	0.00
b) Dar Al-Dawa Development & Invt Co Ltd	110,047	27,512	82,535	36,913	45,622	11,980	0	0.00
c) The Arab Center for Pharm. & Chemicals Co Ltd	40,724	10,181	30,543	17,533	13,010	3,990	0	0.00
Sub-Total	411,902	102,976	308,927	160,400	148,527	63,197	0	0.00
<b>5) Engineering Industrial Sector</b>								
a) Arab Aluminium Industry Co Ltd	80,157	20,039	60,118	37,275	22,843	3,069	0	0.00
b) National Cables & Wire Manuf Co Ltd.	92,404	23,101	69,303	51,177	18,126	78	0	0.00
c) The Jordan Pipes Manufacturing Co Ltd	54,770	13,693	41,078	11,252	29,825	9,951	0	0.00
Sub-Total	227,331	56,833	170,498	99,705	70,794	13,098	0	0.00
<b>6) Textile Industrial Sector</b>								
a) The Jordan Worsted Mills Co Ltd	131,964	32,991	98,973	47,804	51,169	44,309	0	0.00
b) Jordan Tanning Co Ltd	33,947	8,487	25,461	16,300	9,160	2,579	0	0.00
c) The Woolen Industries Co Ltd	8,400	2,100	6,300	1,401	4,898	1,037	0	0.00
Sub-Total	174,311	43,578	130,733	65,506	65,228	47,925	0	0.00

Source: Appendix IV

An indepth analysis of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector showed an excessive tendency of depending on long term finances for the purpose of financing the working capital. As seen in Table V.4.2, the sector financed over 75 per cent of the working capital through long term loan. Thereby the sector did not exceed its MPBF limit in bank borrowings as recommended by the second method of lending. The sector had MPBF of JD 74,021 thousand and the actual bank borrowings stood at JD 53,363 thousand. The companies in this sector at times showed divergent results. Company no. 1b for instance had just 16.54 per cent of the finance arranged through long term loan (Table V.4.2). Therefore the percentage of bank finances naturally went up. Thereby the company had more bank borrowings than the MPBF. The MPBF in this case was JD 23,894 thousand whereas the actual borrowings touched JD 29,433 thousand. The excess portion constituted 18.82 per cent of the actual borrowings. Similarly in the case of company no. 1c, the relative percentage of long term loan was at a lower level. The bank finance exceeded the MPBF limit by JD 1,734 thousand which is 11.83 per cent of the actual borrowings. Company no. 1a though, had the borrowings under the MPBF level.

The Construction Industrial Sector exceeded the bank finance by a large amount. The maximum finance was JD 111,377 thousand whereas the actual bank finance stood as high as JD 407,823 thousand. Thus around 72.69 per cent of the borrowing was in excess amount. This sector had a very low percentage of long term finance. Thereby the proportion of bank finance comparatively went up. Company no. 2a had absolutely no long term loan for working capital finance. Most of the finance was arranged through cash credit and funds from operations. The company thereby exceeded the MPBF by a very large amount. The actual bank borrowings were JD 399,288 thousand as against the MPBF of JD 93,508 thousand. So the excess portion contributed nearly 76.58 per cent of the total bank finance. On the other hand, there were relatively higher percentage of long term loan. Company no. 2b had bank borrowings up to JD 5,215 thousand where the MPBF was JD 9,720 thousand. On the other hand, company no. 2c, which had MPBF of JD 8,149 thousand

had actual bank finance of JD 3,319 thousand. Thereby both the companies did not exceed their bank finances over the MPBF

The Consumables and Food Industrial Sector as we saw earlier in the study, had a very high percentage of the cash credit as a source of working capital finance. Thereby it was but natural that the sector exceeded the relative MPBF limit. The maximum bank finance in this case was JD 59,007 thousand whereas the actual bank finance stood at JD 74,923 thousand. Thereby the sector had 21.24 per cent of the borrowings as excess bank finances. Company no. 3c had a very small portion of finance from long term loan. Therefore the burden of financing the working capital was on the bank borrowings. Thus the company exceeded its overall bank borrowings. The company had MPBF of JD 10,379 thousand whereas the actual bank finance was JD 22,139 thousand. And the excess finance constituted 53.12 per cent of the total finance. Similarly, company no. 3a had 16.41 per cent of the excess finance when its bank borrowings stood at JD 46,831 thousand against the MPBF of JD 39,147 thousand. On the other hand, company no. 3b had no excess bank finance.

As we discussed earlier, as per the first method of lending, the Pharmaceutical Industrial Sector enjoyed excessive internal cash accruals during the period. Thereby the outside borrowings under this sector were at a comparatively lower level. Therefore the sector did not exceed the bank finance in the decade according to the second method of lending as well. The sector had MPBF of JD 148,527 thousand and the actual bank borrowings were JD 63,197 thousand. All the companies performed very well in the debtors and inventory management. Thereby the borrowings for the purpose of bank finance also were under proper check. Hence all the companies had their bank borrowings well under the prescribed MPBF limits.

The Engineering Industrial Sector also increased its long term loan over the years and thereby the contribution of long term loan was at high levels in the decade. The bank finance and borrowings were on the lower side. As we saw, according to the first method of lending, the sector as a whole kept the bank borrowings well under the MPBF limits. Similarly, according to the second method, the finances were well under the MPBF limit. The sector had the

MPBF of JD 70,794 thousand and the actual bank borrowings were just JD 13,098 thousand. Thus even 20 per cent of the limit was not utilized by the sector. The company-wise data shows that the companies financed more than 55 per cent working capital through long term loan besides the internal cash accruals. Therefore all the companies had their bank finances under the set level. Company no. 5a had the MPBF of JD 22,843 thousand and the actual finance was JD 3,069 thousand. Company no. 5b had finance of just JD 78 thousand against MPBF of 18,126 thousand. On the other hand, company no. 5c had the finance of JD 9,951 thousand, well below the set margin of JD 29,825 thousand.

The Textile Industrial Sector had the bank finance under the limit, but the utilization of the limit was above 75 per cent as against the Engineering Industrial Sector which did not utilize even 20 per cent of the MPBF. The sector had about 50 per cent of the working capital finance from the cash credit finance. Therefore the percentage of bank finance naturally went up. But it is still lower than the MPBF limit. The sector had the bank borrowings to the tune of JD 47,925 thousand against the maximum of JD 65,228 thousand. The company-wise analysis shows that the company no. 6a had MPBF of JD 51,169 thousand and the actual finance was 44,309 thousand. Company no. 6b had the borrowings of JD 2,579 thousand against the MPBF of JD 9,160 thousand. Similarly in the case of company no. 6c, the finance was JD 1,037 thousand against the MPBF of JD 4,898 thousand. The relative lower percentage of the bank finance in the case of company no. 6b and company no. 6c resulted from the fact that the share of the long term loan in the working capital increased. Thereby obviously the bank finance was on the lower side.

The Paper and Packing Industrial Sector, like most of the other sectors preferred the long term loan for the purpose of finances. The sector had 60.17 per cent of contribution from these sources (Table V.4.2) and therefore the cash credit finance was at 22.75 per cent (Table V.4.4). So we can see that the sector as such did not exceed its MPBF of JD 36,195 thousand. Its actual bank finance was JD 13,279 thousand. The company-wise study reveals that company no. 7c had just about 12 per cent finance from long term loan. Therefore this company exceeded the bank borrowings. The actual borrowings

in this company were JD 2,484 thousand and the relative MPBF was JD 2,148 thousand. Thus 13.55 per cent of the borrowings was in excess. Company no. 7a, on the other hand, had its borrowing well under control. Its actual borrowings were JD 5,497 thousand and the MPBF was JD 23,916 thousand. Similarly, in the case of company no. 7b, the bank borrowings were JD 5,298 thousand against the maximum of JD 10,131 thousand.

The third method of financing of the Tandon Study Group is similar to the second method with the only difference that the core current assets should be financed out of long term funds i.e., owned funds plus term borrowing. The third method would mean a further reduction in bank borrowings and strengthening of the current ratio. But due to the problem of determining the core current assets, the permissible bank borrowings under the third method have not been shown.

The present method for calculating bank finance is the projected turnover method, according to which 25 per cent of the projected turnover should be commuted on working capital requirement of which at least  $\frac{4}{5}$  should be provided by bank and the balance  $\frac{1}{5}$  should be brought by the promoter as margin money. This method is applicable in case the units having working capital limit more than JD 10,000 thousand at present. According to this new method, not a single sector and its related companies had excessive bank finance

#### **5.4.5 ADEQUACY OF WORKING CAPITAL FINANCE**

We have so far discussed the size of the working capital finance in the industrial sector and we also discussed the pattern and mode of the working capital finance adopted by the companies. But the study will not be complete unless we ascertain and verify the adequacy of the working capital finance maintained. The adequacy of working capital is to be judged in terms of production requirements and sales values which is explained below:

Table V.4.9 shows the working finance in terms of months' cost of production for the industrial companies during the period under study, i.e., 1987 to 1996

Table V.4.9  
Working Capital Finance in Terms of Months' Cost of Production of the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Months)										Average of Ten years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	1.97	2.23	2.94	2.57	2.90	2.59	2.48	2.24	1.82	1.57	2.33
b) Intermediate Petrochemical Industries Co Ltd	4.91	7.73	6.49	6.52	6.88	12.83	13.40	11.57	16.82	14.47	10.16
c) Jordan Sulpho- Chemicals Co Ltd	5.09	6.40	3.30	3.96	4.74	4.54	6.40	7.90	6.24	8.27	5.68
<b>Sector-wise Ratio</b>	2.08	2.42	3.07	2.73	3.02	2.77	2.88	2.44	2.01	1.74	2.49
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	4.38	6.83	7.42	4.58	4.90	3.18	2.42	2.71	4.02	5.13	4.56
b) The Jordan Ceramic Industries Co Ltd	7.01	4.93	5.15	6.28	4.68	2.91	5.48	5.41	6.87	7.63	5.63
c) Jordan Rockwood Industries Co Ltd	2.90	4.57	11.59	9.17	14.59	12.50	10.97	26.88	25.69	26.10	14.49
<b>Sector-wise Ratio</b>	4.45	6.69	7.44	4.87	5.03	3.29	2.76	3.24	4.51	5.60	4.79
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co Ltd	6.75	6.75	5.89	6.03	5.92	5.39	3.54	6.69	6.62	6.82	6.04
b) Arab Investment and Int. Trade Co Ltd	7.72	4.90	5.84	11.47	13.38	5.40	4.85	10.28	9.39	8.72	8.13
c) The National Industries Co Ltd	*	12.82	5.20	4.02	7.60	5.23	7.43	7.23	9.34	9.15	6.80
<b>Sector-wise Ratio</b>	5.15	7.00	5.79	5.88	6.61	5.38	4.05	7.20	7.62	7.62	6.23
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co Ltd	16.63	19.18	11.13	14.70	13.92	11.57	16.80	17.24	16.12	15.63	15.28
b) Dar Al-Dawa Development & Inv. Co Ltd	12.57	10.67	9.45	9.25	7.92	7.44	11.52	9.54	9.55	10.81	9.87
c) The Arab Center for Pharm. & Chemicals Co Ltd	3.22	3.31	15.66	20.98	21.03	13.68	13.65	9.41	8.38	20.67	13.00
<b>Sector-wise Ratio</b>	15.24	15.75	11.04	13.39	12.51	10.32	14.40	12.90	12.24	13.72	13.15
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co Ltd	6.28	3.21	3.47	5.50	6.84	7.08	7.22	9.33	6.16	5.43	6.05
b) National Cables & Wire Manuf. Co Ltd	*	7.48	4.54	6.76	8.80	7.71	9.56	6.10	4.29	4.87	6.01
c) The Jordan Pipes Manufacturing Co Ltd	7.59	11.72	9.21	11.52	10.35	7.68	8.88	14.47	17.88	12.99	11.23
<b>Sector-wise Ratio</b>	5.51	6.57	5.43	7.33	8.34	7.44	8.45	8.79	7.08	6.65	7.16
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	6.74	12.01	17.39	17.50	12.52	19.34	22.25	21.64	24.27	17.56	17.12
b) Jordan Tanning Co Ltd	11.98	10.28	8.91	5.12	2.22	2.40	3.27	3.50	2.50	3.42	5.36
c) The Woolen Industries Co Ltd	10.36	7.98	9.10	8.98	10.58	10.35	12.87	17.22	20.68	18.43	12.66
<b>Sector-wise Ratio</b>	7.67	11.52	15.35	12.15	7.31	9.08	11.10	11.27	9.79	9.91	10.52
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	9.77	10.21	11.13	4.47	6.15	10.54	12.96	11.93	10.35	12.24	9.97
b) The Arab Paper Converting & Trading Co Ltd	10.95	15.13	12.22	11.77	17.13	14.58	14.73	10.60	20.86	8.33	13.63
c) Jordan Printing and Packing Co Ltd	3.59	4.44	4.14	3.69	4.33	6.00	4.29	5.20	10.15	3.94	4.98
<b>Sector-wise Ratio</b>	8.91	9.75	10.44	5.20	6.98	10.36	11.88	10.67	12.87	9.95	9.70
<b>Overall Industrial Ratio</b>	3.19	3.96	4.56	4.21	4.49	3.91	4.09	4.10	3.92	3.87	4.03

Source: Appendices IV & V

Note: (\* —) = INDICATES NEGATIVE WORKING CAPITAL FINANCE

Table V 4 9 shows overall working capital finance in terms of month's cost of production increased from 3.19 months in 1987 to 3.87 months in 1996. This increase appears to be marginal as the overall average for the ten years was 4.03 months. All the industrial sectors with the exception of the Pharmaceuticals Industrial Sector behaved in a similar fashion. Although in the last 1 or 2 years there was a decreasing trend as compared to the previous years. In the decade as a whole, there was an increase in working capital finance maintained in terms of month's cost of production. One of the most important reasons for this was the disproportionate increase in the level of the inventory maintained and the poor management in checking the disproportionate growth of the receivables in the sector. In the sector, the working capital finance in terms of months' cost of production over the years went up although the sector-wise and company-wise analysis may show slight change in positions.

An indepth analysis of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector had a working capital finance of 2.08 months' cost of production, and over the decade on an average the working capital finance maintained was about 2.49 months. At one time in 1989, it went as high as 3.07 months. This sector witnessed a disproportionate growth in the inventory and the level of receivables as compared to the growth in sales. This seems to be the main reason for the increase in the working capital finance maintained in terms of months cost of production. Company no. 1b, in particular, recorded a considerable increase in the working capital finance maintained. Thus the working capital finance which was equivalent to 4.91 months' cost of production in 1987, shot up to 14.47 months in 1996. In the case of company no. 1a, we find two trends. Till the year 1991, one can find an increasing trend of working capital finance maintained. Thus from 1.97 months in 1987, the working capital finance in terms of months' cost of production went up to 2.90 in 1991 because the period witnessed a heavy build up of current assets. During the period after 1991, which was essentially influenced by the Gulf War, the cost of production rose in addition to the fact that there was regular depletion of the working capital finance maintained.

Therefore from 1991 to 1996, the working capital finance maintained went down from 2.90 to 1.57 months' cost of production. On the other hand, in the case of company no. 1c, the working capital finance maintained went up from 5.09 months in 1987 to 8.27 months in 1996, indicating heavy investment in the working capital as compared to the production level.

The Construction Industrial Sector also registered an increase in the working capital finance in terms of months' cost of production, though the average increase in the ten years was marginal. This movement witnessed ups and downs over the years. The sector had three trends over the decades, which were influenced mostly by the Gulf War. From 1987 to 1989, the operations were going on smoothly and with borrowed funds in companies, the working capital finance went up from 4.45 months to 7.44 months' cost of production. During the period after that most of the working capital maintained was depleted as the funds were applied towards repaying borrowed funds. The working capital finance maintained thereby went down to 5.03 months in 1991. The trend continued and due to the Gulf War crisis, the level of the working capital finance fell as compared to the cost of production. Thus the working capital finance further went down to 2.76 months' cost of production in 1993. The period after 1993 showed some improvement and recovery in the financial conditions. An adequate level of working capital finance could be achieved and therefore in 1996, the working capital finance maintained rose to 5.60 months. In company-wise figures also we find a somewhat similar trend. In the case of company no. 2a, the working capital finance went up from 4.38 months to 7.42 months in 1989 which went further down to 2.42 months' cost of production in 1993 after which it recovered and in the year 1996, the working capital finance reached 5.13 months' cost of production. Company no. 2b and company no. 2c also showed such trends of improvement in the working capital finance maintained in the initial years which was hampered due to the crisis in the middle of the decade and in the later part we find recovery and improvement in the working capital finance level maintained.

The Consumables and Food Industrial Sector performance in the same pattern as the industrial sector with an increase in the overall working capital

finance. Here there were three trends, the first one showing an increase in the working capital finance in the initial years, then a drop in the corresponding figure in the middle of the decade and finally in the terminal years an improved performance and recovery of the working capital finance level maintained. The overall working capital finance in terms of months' cost of production increased from 5.15 months in 1987 to 6.61 months in 1991 after which it went down to 4.05 months in 1993, and thereafter there was improvement till 1996 when the working capital finance maintained rose to 7.62 months' cost of production in 1996. Individual companies under the study however performed in different ways. Company no. 3a on an average for the ten years reduced its working capital finance from 6.75 months to 6.04 months' cost of production. In this company there was regular addition to fixed assets and during the later period the funds were heavily applied in the investment purchases. Thereby the corresponding working capital finance for the decade went down due to application of less funds towards working capital. In the case of company no. 3b there was mostly a reducing trend of working capital maintained in terms of months' cost of production. The reason was somewhat similar to that of company no. 3a. Here also we find that the funds from operations and borrowed funds were increasingly applied towards addition of fixed assets. Thereby the corresponding working capital level dropped. Except in 1990 and 1991, we find that from 1987 to 1993 there was continuous reduction in working capital finance maintained in terms of months' cost of production. The figure went down from 7.72 months in 1987 to 4.85 months in 1993. After that in 1994 there was introduction of share capital, which was applied for replenishing the reduced level of working capital finance, and hence the position improved from 1994 to 1996 therefore we find an increased level of working capital finance as compared to the previous years. In the year 1996, the working capital finance maintained was equivalent to 8.72 months' of cost of production.

The Pharmaceuticals Industrial Sector marked the period of ten years under study with effective control on the growth of the receivables and the inventories. The sector was able to keep the growth of both receivables and

inventories under that of the sales. Thereby there was lesser and lesser blockage of funds in the working capital over the years. The working capital finance maintained in terms of months' cost of production went down from 15.24 months in 1987 to 13.72 months in 1996. The funds released out of excessive working capital were applied mostly to acquisition of fixed assets and increasing the overall operational level. Further the levels of borrowings was also brought down. Company no. 4a and company no. 4b performed in a pattern similar to that of the sector. In the case of company no. 4a, in the initial years, the funds were mostly applied towards fixed assets, and thereby the production capacity increased. Hence the corresponding working capital finance maintained lowered down. From 1987 to 1992 therefore we find that the working capital finance maintained in terms of cost of production went down from 16.63 months to 11.57 months. In 1992 and 1993, introduction of share capital enabled the company to reinvest funds in the working capital. So the working capital finance maintained went up to 17.24 months in 1994. After that the figure again came down to 15.53 months' cost of production in 1996. But company no. 4c had a somewhat different picture. The overall working capital finance in terms of months' cost of production increased in this case as compared to 1987. This company in particular increased its investment of inventories over the period as compared to sales. Thereby the increase in receivables was lower than that of sales and it was not able to offset the corresponding rise in the inventory level, which was well above the growth of sales. The company could not raise the level of production up to the level of the investment in inventory. Thereby the working capital finance maintained increased from 3.22 months in 1987 to an overall average of 13 months' cost of production for the ten years and in fact the level of working capital finance in 1996 was as high as 20.67 months' cost of production.

Like most of the industrial sectors, the Engineering Industrial Sector also increased its working capital finance maintained over the years. Just like the Pharmaceutical Industrial Sector, this sector also was able to keep the growth of receivables under check but the position of inventories was abnormally high as compared to that of sales. The higher investment in inventories superseded

the lesser investment in receivables and the overall working capital finance maintained in terms of months' cost of production increased from 5.51 months in 1987 to 6.65 months in 1996 with the decade average of 7.16 months. Company no. 5a although showed a reducing trend in the initial years because a substantial portion of the funds was applied towards addition to fixed assets and for repaying the loans. Therefore the corresponding working capital finance level came down from 6.28 months to 3.47 months in 1989. But after that the application in current assets gradually increased and in 1994, the working capital finance was on the higher side which rose to 9.33 months. In the last two years again, the addition to fixed assets caused depletion of working capital finance maintained to 5.43 months' cost of production in 1996. Although in the year 1996 the level was lower than that of 1987, the overall average increased over the years. A somewhat similar trend of working capital finance level maintained, was found in company no. 5b Company no. 5c, in the initial years applied most of the funds in current assets. Thereby the working capital finance maintained went up from 7.59 months in 1987 to 11.52 months' cost of production in 1990. Thereafter higher investment in fixed assets caused lower levels of working capital finance maintained and in 1993, the working capital finance was 8.88 months' cost of production. During the later part of 1993, there was issue of share capital at a handsome premium. These proceeds were again applied in current assets thereby the working capital finance suddenly went up to 14.47 months' cost of production in 1994. In the last two years, enhancement of the capacity level caused depletion in the working capital finance, which came down to 12.99 months' cost of production in 1996.

The Textile Industrial Sector increased its corresponding investment in the working capital levels over the years. The corresponding operational level was much lower than the investment in current assets. Thereby the working capital finance maintained over the years went up from 7.67 months in 1987 to 9.91 months' cost of production in 1996. In the case of company no. 6a, most of the funds from operations were applied towards enhancing the working capital levels. Therefore with the exception of the year 1991 we find that the

working capital levels continuously went up (In 1991 there were operational losses and heavy purchases of investments, which caused the working capital level to drop). Thereby the working capital maintained went up from 6.74 months in 1987 to 17.56 months in 1996. Similarly, in the case of company no. 6c, the heavy investment in current assets made the working capital finance maintained rise from 10.36 months in 1987 to 18.43 months' cost of production in 1996. Company no. 6b however has a different story on record. This company reduced the overall investment in the working capital as compared to its sales. Thereby the working capital finance maintained went down from 11.98 months in 1987 to 3.42 months in 1996.

The Paper and Packing Industrial Sector also showed an increasing tendency of blocking the funds in current assets. The working capital finance maintained in terms of months' cost of production moved up from 8.91 months in 1987 to 9.95 months in 1996. In the case of company no. 7a, for instance, we find that the working capital finance continuously went up in most of the years. The working capital finance maintained went from 9.77 months' cost of production in 1987 to 12.24 months in 1996. Of course, in 1990 and during 1994-1995, the corresponding working capital finance levels reduced, and the reason for this was the purchase of fixed assets and investment in the relative years. But the overall tendency appears to be of increasing investment in the working capital. Similarly, in the case of company no. 7b, we find an increasing tendency to invest in current assets. Thereby with ups and downs over the years we find that the average working capital finance maintained was 13.63 months' cost of production as compared to 10.95 months in 1987. Especially in the year 1995 we find that the inventory was maintained at abnormally higher levels and so the overall working capital finance maintained was as high as 20.86 months' cost of production. The relationship of the working capital finance and sales in the industrial companies is shown in Table V.4.10

Table V.4.10 shows the working capital finance in terms of months' value of sales of the industrial companies during the period under study, i.e., 1987 to 1996.

Table V.4.10  
Working Capital Finance in Terms of Months' Value of Sales of the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	( In Months )										Average of Ten years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
1) Chemical & Petroleum Industrial Sector											
a) Jordan Petroleum Refinery Co. Ltd	172	190	240	201	220	207	198	176	136	112	185
b) Intermediate Petrochemical Industries Co. Ltd	408	679	448	492	539	1178	1213	882	1448	1275	856
c) Jordan Sulpho- Chemicals Co. Ltd	369	620	230	303	380	383	508	755	504	747	480
Sector-wise Ratio	180	208	248	213	230	222	214	192	151	125	198
2) Construction Industrial Sector											
a) The Jordan Cement Factories Co. Ltd	285	436	469	313	358	200	157	182	271	334	301
b) The Jordan Ceramic Industries Co. Ltd	456	312	352	483	245	196	358	373	378	481	363
c) Jordan Rockwool Industries Co. Ltd	177	309	636	606	1270	821	716	2020	1889	2225	1067
Sector-wise Ratio	289	428	470	336	360	209	179	218	300	365	315
3) Consumables & Food Industrial Sector											
a) The Industrial Commercial & Agn. Co. Ltd	534	550	462	491	458	431	256	553	505	541	478
b) Arab Investment and Int. Trade Co. Ltd	713	396	519	974	1026	442	402	858	797	739	687
c) The National Industries Co. Ltd	—	998	459	310	612	467	596	560	969	877	585
Sector-wise Ratio	428	581	468	475	513	436	300	590	630	634	505
4) Pharmaceuticals Industrial Sector											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	1142	1194	757	1009	928	735	1193	1535	897	883	1027
b) Dar Al-Dawa Development & Invnt. Co. Ltd	1012	774	697	622	617	574	936	771	820	888	771
c) The Arab Center for Pharm. & Chemicals Co. Ltd	237	207	910	1225	1172	727	839	648	535	1480	798
Sector-wise Ratio	1084	1024	756	902	862	685	1060	1061	837	926	920
5) Engineering Industrial Sector											
a) Arab Aluminium Industry Co. Ltd	479	269	289	410	504	545	488	648	464	411	452
b) National Cables & Wire Manuf. Co. Ltd	—	743	289	408	605	644	749	524	370	428	476
c) The Jordan Pipes Manufacturing Co. Ltd	588	988	644	1061	920	628	804	1033	1497	1086	925
Sector-wise Ratio	428	571	390	518	621	598	647	670	579	547	557
6) Textile Industrial Sector											
a) The Jordan Worsted Mills Co. Ltd	503	1069	1705	1329	921	1223	1172	1555	1350	1541	1236
b) Jordan Tanning Co. Ltd	932	711	682	399	185	207	272	303	221	309	422
c) The Woollen Industries Co. Ltd	702	707	707	674	789	883	1163	1581	1972	1229	1041
Sector-wise Ratio	573	978	1411	931	571	691	763	905	734	873	843
7) Paper & Packing Industrial Sector											
a) Jordan Paper and Cardboard Factories Co. Ltd	703	694	683	298	416	895	957	827	754	1087	731
b) The Arab Paper Converting & Trading Co. Ltd	916	1367	764	732	1332	1143	996	868	1593	709	1042
c) Jordan Printing and Packing Co. Ltd	281	365	334	295	334	531	341	422	917	405	423
Sector-wise Ratio	659	703	661	351	486	875	872	793	965	877	724
Overall Industrial Ratio	262	324	352	319	336	300	311	316	290	278	309

Source: Appendices IV & V

Note - ( \* — ) = INDICATES NEGATIVE WORKING CAPITAL FINANCE

So far we have studied the working capital finance maintained with respect to the cost of production. Now let us try to analyse the working capital finance with respect to the months' value of sales. The overall working capital finance maintained in terms of cost of production and in terms of months' value of sales will be the same unless there is much deviation in the corresponding margin of sales or disproportionate selling and distribution cost. In the last table we found that in the industrial sector, the working capital finance maintained in terms of months' cost of production went up over the years. But as against this the working capital finance in terms of months' value of sales went down. The reason for this can be attributed to the margin on sales which went up over the years. Thus, on the whole, in the industrial sector we find that the working capital finance in terms of months' value of sales went up from 2.62 months in 1987 to 2.78 months in 1996.

As we saw, in the Chemical and Petroleum sector, the working capital finance maintained in terms of cost of production went up in the initial years and after 1991, the downward trends started. Similarly, here we can find that till the year 1991, the working capital finance maintained in terms of months' value of sales went up from 1.80 to 2.30 months. And after that the corresponding working capital depleted thereby the working capital finance maintained went down to 1.25 months in 1996. Company no. 1b, in particular, had a substantial increase in working capital finance maintained. In this case the working capital finance which was equivalent to 4.08 months' value of sales in 1987, went up to 12.75 months' value of sales in 1996. In the case of company no. 1a, we find two trends. Till the year 1991, one can find an increasing trend of working capital finance maintained. The working capital finance in 1987 was 1.72 months' value of sales, it went up to 2.20 months in 1991 due to heavy investment in current assets. During the period after 1991, which was essentially influenced by the Gulf War, there was a rise in the cost of production besides the fact that there was regular depletion of the working capital finance maintained. Therefore from 1991 to 1996, the working capital finance maintained went down from 2.20 months to 1.12 months' value of sales. On the other hand, one finds in the case of company no. 1c that the working capital finance maintained went up from 3.69 months in 1987 to 7.47 months' value of sales in 1996, indicating heavy investment in working capital as compared to the sales level achieved.

The Construction Industrial Sector also increased the working capital finance maintained in terms of months sales over the period of ten years. Due to the impact of the war, there were lot of fluctuations in the levels maintained. As mentioned above, there were three trends over the decade. From 1987 to 1989, the operations were going on in a proper way hence alongwith the loans taken by the companies, the working capital finance went up from 2.89 months to 4.70 months' value of sales. During the period after that, there was a fall in most of the working capital finance levels, because the funds were applied towards repaying the loan already taken. The working capital finance maintained thereby went down to 1.79 months' value of sales in 1993. The period after 1993 showed certain improvements and recovery in financial conditions. Thereby the adequate working capital finance level was maintained therefore we find that the working capital finance maintained went up to 3.65 months in 1996. The companies also behaved in a similar fashion. In the case of company no. 2a, the working capital finance went up from 2.85 months in 1987 to 4.69 months' value of sales in 1989 which went down to 1.57 months' value of sales in 1993 after which it again went up in the year 1996 to 3.34 months' value of sales. Company no. 2b and company no. 2c also performed in similar ways, increasing the working capital finance maintained in the initial years. And after 1991 both the companies reduced the corresponding level till 1993. And in the last three years again growth in working capital finance maintained was witnessed.

Like many of the other industrial sectors, the Consumables and Food Industrial Sector increased the overall working capital finance maintained in terms of months' value of sales. Here also there were three trends, firstly an increase in the working capital finance in the initial years, then maintaining of a lower level of working capital till 1993 and in the last three years an increased level of the working capital finance maintained. The overall working capital finance in terms of months' value of sales increased from 4.26 months in 1987 to 5.13 months in 1991 after which it went down to 3 months in 1993, and thereafter we again find an increasing trend in maintaining the working capital which went up to 6.34 months' value of sales in 1996. The company-wise figures are somewhat different. Company no. 3a, on an average for the ten years, reduced its working capital finance from 5.34 months' value of sales in 1987 to 4.78 months. In the initial years, there was regular addition to fixed

assets and in the terminal years, the application of funds was much more towards investment purchases. Thereby the corresponding working capital finance level depleted due to lesser application of funds towards working capital. As in the case of company no. 3a, we find that in the case of company no. 3b also, funds from operations and borrowed funds were mostly utilised for addition of fixed assets. Therefore the corresponding working level went down. Mostly from 1987 to 1993 there was reduction in working capital finance maintained in terms of months value of sales. From 7.13 months' value of sales, the working capital finance maintained went down to 4.02 months. In 1994 we find that the share capital introduced was applied for increasing the level of working capital finance. Thereby from 1994 to 1996 the working capital finance maintained increased as compared to the previous years. In the year 1996 the working capital finance maintained was 7.39 months' value of sales. Company no. 3c also had an overall increasing tendency to apply funds towards working capital in the terminal years

The Pharmaceuticals Industrial Sector was able to reduce the disproportionate growth of the receivables and the inventories. The sector was able to keep the growth of both receivables and inventories under that of the sales. Thereby investment in the working capital showed a downward trend. The working capital finance maintained in terms of months' value of sales went down from 10.84 months in 1987 to about 9.26 months in 1996. The excess liquidity generated through this operation was utilised for the acquisition of fixed assets which in turn increased the operational level. A bulk of the funds generated was also applied to repay the loans already taken. In the case of company no. 4a, in the initial years, there was heavy acquisition of fixed assets and thereby the production capacity increased. On the other hand, the corresponding working capital finance maintained went down. From 1987 to 1992 therefore we find that the working capital finance maintained in terms of months' value of sales reduced from 11.42 months to 7.35 months. In 1992 and 1993, the additional share capital issued made it easy for the company to replenish working capital. So the working capital finance maintained went up to 15.35 months in 1994 but this proved to be a temporary trend as after that the working capital finance maintained again came down. On the other hand, in the case of company no. 4c, the results were far different from company no. 4a. The overall working capital finance in terms of months' value of sales was on

the higher side as compared to the initial years. The investment in inventories was on a higher side than the sales growth. The company could not raise the level of production to the level of investment in inventory. Thereby the working capital finance maintained increased from 2.37 months in 1987 to 14.80 months' value of sales in 1996

The Engineering Industrial Sector also showed an increasing tendency to invest more funds in working capital over the years. Despite checking the growth of receivables, the funds blocked in inventories were abnormally higher than the sales. Thereby the overall working capital finance maintained from 1987 to 1996 went up from 4.28 months' value of sales to 5.47 months. In company no. 5a and company no. 5b we find a very similar picture. In the case of company no. 5a, addition to fixed assets and repayment of the loans helped in reducing the working capital finance in the initial years. Therefore the working capital finance level came down from 4.79 months to 2.89 months' value of sales in 1989. But after that the investment in working capital regularly increased and in 1994 we can see that the working capital finance maintained was equivalent to 6.48 months' value of sales. In the terminal years under study, the addition to fixed assets caused reduction of working capital finance maintained to 4.11 months' value of sales in 1996. In the case of company no. 5c, in the initial years, investment in working capital was on the increase. Thereby the working capital finance maintained went up from 5.88 months in 1987 to 10.61 months' value of sales in 1990. Thereafter investment in fixed assets increased so we find lower levels of working capital finance maintained. The effect of this was that in 1993, the working capital finance was 8.04 months' value of sales. In 1993, issue of share capital with premium made the way for the company to reinvest current assets thereby the working capital finance went up to 10.33 months' value of sales in 1994. In the last two years, enhancement of the capacity level caused depletion in the corresponding working capital.

The Textile Industrial Sector showed a tendency to increase the working capital levels over the years. The corresponding operational level was much lower than the level of working capital maintained. Thereby the working capital finance maintained over the years went up from 5.73 months' value of sales in 1987 to 8.73 months in 1996. In the case of company no. 6a, funds were utilised for raising the working capital levels. Thereby the working capital

maintained went up from 5.03 months' value of sales in 1987 to 15.41 months in 1996. So in the case of company no. 6c also, the relative higher investment in working capital increased the working capital finance maintained from 7.02 months in 1987 to 12.29 months' value of sales in 1996. In the case of company no. 6b, we find a different trend as compared to other companies in the sector. This company reduced the overall investment in working capital as compared to sales. Thereby the working capital finance maintained went down from 9.03 months' value of sales in 1987 to 3.09 months in 1996.

Like the Textile Industrial Sector, the Paper and Packing Industrial Sector as a whole also showed an increasing tendency of applying funds in working capital. This led to an increase in the working capital finance maintained in terms of months' value of sales from 6.59 months in 1987 to 8.77 months in 1996. In the case of company no. 7a, the working capital finance increased during most of the years. Therefore the working capital finance maintained in terms of months' value of sales rose from 7.03 months in 1987 to 10.87 months in 1996. Although in some of the middle years, the corresponding level went down due to the purchase of fixed assets and investments, the overall working capital increased. Similarly, in the case of company no. 7b, the corresponding investment in working capital went up to an average of 10.42 months from 9.16 months' value of sales in 1987. In the year 1996 although the working capital level depleted a little due to heavy acquisition of fixed assets, we find an overall increasing trend of investing in working capital.

#### **5.4.6 FACTORS AFFECTING THE SIZE OF WORKING CAPITAL FINANCE**

Working capital is one of the most important ingredients for a smooth running of the day-to-day operations of a company. The level should be sufficient so that there is no shortage of funds. On the other hand, it should not be so high that the funds are idle and for which the company might end up paying a heavy price. Growth of the total output and the total sales are the important factors affecting the working capital finance.

Table V.4.11 shows the growth of working capital finance, the total output and the total sales in the industrial companies during the period under study, i e , 1987 to 1996.

Table V.4.11

**Growth of Working Capital Finance, the Total Output and the Total Sales  
in the Industrial Companies During 1987 to 1996.**

Years	Total Working Finance		Total Value of Production		Total Sales	
	Value (In 000 JD )	Growth Rate in Relation to Previous Year	Value ( In 000 JD )	Growth Rate in Relation to Previous Year	Value ( In 000 JD.)	Growth Rate in Relation to Previous Year
1987	77,204	--	290,251	--	353,749	--
1988	96,030	24	290,954	0	355,803	1
1989	126,030	31	331,441	14	429,986	21
1990	131,977	5	375,984	13	496,918	16
1991	147,198	12	393,650	5	525,061	6
1992	156,038	6	479,313	22	623,713	19
1993	174,455	12	511,409	7	672,144	8
1994	180,595	4	528,841	3	685,973	2
1995	177,257	(2)	542,252	3	734,661	7
1996	175,012	(1)	542,515	0	755,086	3

Source: Appendices III & IV

**Note: Figures in the brackets indicate negative growth rate.**

As depicted by the Table V.4 11, the amount of the working capital finance was quite inconsistent with the amount of the respective total sales during the period. Similarly, the trend of sales and working capital finance was completely inconsistent. But on the production front, the trend was quite consistent with that of sales. Thus, the study reveals that the sales growth was on an upward spree in the years from 1989 to 1992 when the production also naturally went up. But surprisingly, the working capital finance was not as consistent as the sales and production. In the terminal years we find that there was a slight growth in sales and production and the total working capital finance went down. The main reason for this appears to be the disproportionate working capital finance in the earlier years as compared to the sales. The sales growth in 1993 was 8 per cent as compared to 19 per cent in 1992. But the working capital finance increased from 6 per cent to 12 per cent in 1993. Thereby it appears that to compensate the increase in the earlier years, although the sales increased a little in the last two years, the level of the

corresponding working capital finance went down. This indicates that some other factors were responsible for the change in the working capital finance of the industrial companies

The quick turnover of working capital reduced the excessive working capital finance. But the total turnover of working capital declined to 1.43 times in 1991 from 1.90 times in 1987. It rose to 1.46 times in 1992 and again declined to 1.38 times and 1.34 times in 1993 and 1994 respectively, while in the last two years, of the study the turnover of working capital remained at 1.31 times (Table V.5.2). This indicates that the main cause of the excessive working capital finance during 1988 and 1989, was the slower turnover of the working capital during this period. The increasing turnover of working capital during 1992 led to a decline in working capital finance in terms of months' cost of production and value of sales (Table V.4.9 and V.4.10).

Other related factors having an impact on the growth of the working capital finance are explained below:

### **Terms of Purchase and Sales**

Terms of purchase and sales policies are important determinants of the requirements of the working capital.<sup>(67)</sup> One of the reasons for the excessive working capital finance in the industrial companies is the unfavourable terms of purchase and sales and other credit ratios during the period under study. This is reflected in the average collection period and the average payment period. Further more this idea is also backed by the percentage of creditors for goods supplied with regard to the total raw materials consumed.

Table V.4.12 shows the average collection period and the average payment period in the industrial companies during the period under study, i.e., from 1987 to 1996.

**Table V.4.12**  
**The Average Collection Period and the Average Payment Period in the Industrial Companies During 1987 to 1996.**

INDUSTRIAL COMPANIES / YEARS	( In days )										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co	53 (93)	64 (125)	57 (97)	85 (159)	76 (186)	83 (185)	102 (205)	118 (209)	144 (261)	155 (298)	93 (181)
b) Intermediate Petrochemical Industrial Co	10 (142)	7 (143)	3 (136)	4 (142)	12 (113)	50 (54)	29 (109)	43 (31)	57 (108)	88 (26)	30 (100)
c) Jordan Sulpho- Chemicals Co	54 (59)	87 (127)	24 (41)	37 (64)	10 (25)	19 (136)	31 (127)	39 (151)	81 (91)	95 (173)	48 (100)
<b>Sector-wise Ratio</b>	52 (94)	63 (126)	54 (88)	81 (156)	73 (181)	81 (183)	100 (203)	116 (206)	143 (258)	154 (295)	92 (179)
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories	15 (480)	14 (567)	18 (643)	9 (1761)	15 (1405)	12 (693)	11 (633)	11 (473)	8 (724)	14 (906)	13 (828)
b) Jordan Ceramic Industrial Co	21 (124)	17 (191)	12 (196)	16 (94)	17 (77)	18 (53)	10 (111)	16 (81)	18 (121)	22 (83)	17 (113)
c) Jordan Rockwood Industrial Co	128 (339)	127 (296)	157 (150)	131 (159)	312 (426)	217 (381)	166 (135)	244 (163)	207 (185)	197 (100)	189 (233)
<b>Sector-wise Ratio</b>	17 (420)	16 (436)	25 (411)	14 (773)	19 (781)	16 (431)	13 (415)	14 (305)	12 (441)	16 (396)	16 (481)
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri Co	36 (67)	43 (26)	30 (20)	46 (19)	29 (38)	35 (26)	55 (78)	31 (109)	24 (72)	61 (146)	39 (60)
b) Arab Investment and Int Trade Co	74 (47)	43 (51)	32 (78)	48 (145)	127 (94)	55 (47)	17 (50)	39 (59)	35 (19)	60 (55)	53 (84)
c) The National Industrial Co	103 (427)	208 (125)	184 (400)	66 (79)	83 (50)	58 (49)	30 (30)	60 (29)	80 (15)	111 (13)	98 (122)
<b>Sector-wise Ratio</b>	51 (137)	64 (46)	43 (73)	50 (36)	41 (42)	40 (32)	50 (71)	37 (88)	36 (51)	70 (97)	49 (67)
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co	346 (358)	367 (405)	346 (488)	270 (293)	268 (330)	228 (323)	242 (146)	327 (462)	238 (272)	281 (279)	291 (336)
b) Dar Al-Dawa Development & Invt Co	315 (235)	272 (335)	243 (395)	170 (233)	139 (236)	152 (261)	114 (185)	144 (201)	153 (225)	169 (152)	188 (246)
c) Arab Center for Pharm & Chemicals	181 (2298)	125 (1454)	129 (683)	182 (226)	175 (238)	132 (146)	232 (260)	240 (352)	104 (381)	151 (261)	165 (630)
<b>Sector-wise Ratio</b>	334 (357)	327 (418)	297 (478)	231 (276)	222 (303)	193 (295)	195 (170)	234 (370)	195 (261)	229 (236)	246 (316)

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INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten Years
5) Engineering Industrial Sector												
a) Arab Aluminium Industry Co		31 (64)	15 (45)	7 (9)	6 (9)	7 (16)	12 (21)	10 (16)	13 (23)	16 (22)	20 (24)	14 (25)
b) National Cables & Wire Manuf Co		88 (504)	67 (242)	73 (163)	60 (90)	56 (36)	66 (140)	89 (211)	77 (218)	64 (238)	99 (335)	74 (218)
c) Jordan Pipes Manufacturing Co		28 (0 4)	43 (7)	56 (16)	47 (15)	17 (3)	21 (2)	22 (2)	36 (3)	31 (8)	26 (13)	33 (7)
Sector-wise Ratio		40 (138)	33 (78)	47 (69)	39 (46)	28 (21)	31 (56)	40 (85)	43 (114)	40 (132)	53 (151)	39 (89)
6) Textile Industrial Sector												
a) The Jordan Worsted Mills Co		90 (224)	81 (200)	103 (254)	156 (298)	127 (204)	189 (252)	204 (271)	251 (296)	276 (387)	299 (313)	178 (270)
b) Jordan Tanning Co		165 (137)	140 (66)	129 (28)	80 (77)	102 (112)	101 (76)	96 (54)	33 (35)	62 (56)	35 (16)	94 (66)
c) The Woolen Industrial Co		34 (24)	21 (11)	20 (22)	100 (14)	87 (32)	93 (14)	94 (12)	136 (24)	144 (23)	151 (151)	88 (19)
Sector-wise Ratio		98 (205)	88 (170)	102 (207)	123 (195)	113 (148)	140 (135)	149 (136)	133 (122)	153 (151)	152 (130)	125 (160)
7) Paper & Packing Industrial Sector												
a) Jordan Paper and Cardboard Factories		63 (126)	118 (152)	114 (97)	57 (108)	42 (11)	49 (33)	56 (26)	66 (53)	58 (10)	63 (56)	69 (67)
b) Arab Paper Converting & Trading Co		136 (133)	56 (97)	69 (78)	56 (7)	37 (11)	60 (71)	52 (27)	39 (9)	27 (108)	50 (31)	58 (57)
c) Jordan Printing and Packing Co		32 (4)	27 (24)	32 (32)	33 (23)	32 (21)	35 (20)	37 (23)	33 (32)	161 (96)	42 (54)	46 (33)
Sector-wise Ratio		65 (112)	99 (130)	101 (88)	54 (81)	41 (13)	49 (39)	52 (26)	55 (27)	59 (49)	56 (44)	63 (61)
Overall Industrial Ratio		59 (108)	69 (132)	66 (109)	79 (157)	71 (172)	75 (172)	87 (187)	100 (200)	116 (236)	128 (267)	85 (174)

Source Appendices II &amp; III

Note 1 Figures in the brackets indicate average payment period

2 DUE TO UNAVAILABILITY OF DATA FOR PURCHASES, DATA FOR RAW MATERIALS CONSUMED HAS BEEN USED FOR THIS TABLE.

As seen in the case of receivables management, the companies in Jordan were not able to check the disproportionate growth of the receivables and thereby most of the companies ended up increasing the average collection period over the years. In the companies in Jordan, the average collection period increased from 59 days in 1987 to 128 days in 1996. This was the result of the overall liberal and inefficient collection policies adopted by the companies. The average payment period also went up from 108 days in 1987 to 267 days in 1996. Thus from overall view, one can conclude that the burden of increasing the inventories and debtors was transferred to the creditors and other outside liabilities.

An indepth study of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector increased its average collection period by 3 times that of 1987. Thus from 52 days in 1987, the average collection period went up to 154 days in 1996. The sector was too liberal towards the receivables and thereby was not able to collect the payment in time. In the same period, the average payment period also went up from 94 days to 295 days. Thus the burden of maintaining heavy current assets was passed on partly to the creditors of the company as there was reduction in funds from receivables. However, company no. 1b has some different calculations on its records. As stated earlier in the financing pattern, this company in the later period increased the percentage of cash credit in total working capital finance. Thereby the burden on creditors of this company seems to have eased the average payment period came down from 142 days in 1987 to 26 days in 1996. The company was able to reduce the levels of the payable. Other companies in this sector followed a pattern very similar to the sector's pattern. In case of company no. 1a, the average collection period went up from 53 days in 1987 to 155 days in 1996, whereas the average payment period rose from 93 days to a whopping 298 days. On the other hand, the average collection period and average payment period both went up by 3 times in 1996 as compared to 1987.

The Construction industrial Sector had a somewhat similar average collection period in the ten years although the average payment period

reduced sharply in the last 4 to 5 years under study. Company no. 2a and company no. 2b both had a steady average collection period over the years and although the decade average collection period in both the cases reduced a little, the deviations thereof throughout the period were not substantial. In the case of company no. 2a, the average payment period went up from 480 days in 1987 to 906 days in 1996. On the other hand, in case of company no. 2b, since the proportion of cash credit increased over the years, the average payment period in the corresponding years reduced from 124 days in 1987 to 83 days in 1996. Company no. 2c showed different trends in terms of the average payment period and the average collection period. In this case we find that the average collection period went up from 128 days in 1987 to 197 days in 1996 as a result of excessive credit given to the debtors, but the average payment period went down from 339 days to just about 100 days in 1996 thereby indicating a higher tendency to apply cash towards current liabilities.

The Consumables Industrial Sector showed somewhat similar trends in the average collection period and the average payment period although in the year 1996, the figures were not consistent with the overall trend. If we look at the overall picture for the ten years, the average collection period was 49 days as compared to 51 days in 1987. Similarly the average payment period on an average was 67 days as against 137 days in 1987. Individually, all the companies performed in their own ways. Thus in the case of company no. 3a, both the average collection period and the average payment period increased over the years. The average collection period which was 36 days in 1987, rose up to 61 days in 1996 due to comparative lesser collection from debtors. Thereby partially, the creditors payment was also held up. So the corresponding average payment period went up from 67 to 146 days. On the other hand, company no. 3c was appreciably able to reduce both the average collection period and the average payment period over the years. On an average, company no. 3c reduced the average collection period from 103 days in 1987 to 98 days and during the same period, there was a remarkable reduction in the average payment period, which was reduced from 427 days in 1987 to just 122 days. Thus regular collection from the receivables from the

debtors, enabled the company to repay its creditors on time. Company no. 3b reduced the average collection period but there was no improvement in the payment front. The average payment period thereby went up from 47 days in 1987 to 55 days in 1996.

The Pharmaceutical industrial Sector performed appreciably well in inventory and receivables management as far as checking the abnormal growth is concerned. The sector was able to reduce the average collection period from 334 days in 1987 to 229 days in 1996. Thereby the average payment period was brought down from 357 days in 1987 to 236 days in 1996. All the companies under this sector performed quite well and especially full credit goes to company no. 4c as far as reducing the average payment period is concerned. In the initial years, the company had an abnormally high average period of about 2298 days, which was substantially brought down to just 261 days in 1996. The company benefited as a result of improvised collection policy. Company no. 4a and company no. 4b were also not lagging behind. In the case of company no. 4a, the average collection period was brought down to 281 days in 1996 from 346 days in 1987. As a result of increased collection of receivables, the company seemed to have enough funds to repay the creditors. Thereby the creditors payment period, i.e., the average payment period was also on the lower side as compared to the initial years. In the year 1987, the average payment period was 358 days which was brought down to 279 days in 1996.

The Engineering Industrial Sector increased the average collection period but the increase was not substantial and can be ignored but there was a lot of fluctuation over the years. The average collection period for the ten years was 39 days as against 40 in 1987. On the other hand, it reduced the average payment period, although the figures and the trend in the terminal years were disturbing. The average payment period was reduced to 89 days as against 138 days in 1987. But from 1993 onwards, the average payment period gradually picked up and in 1996 it was an all time high at 151 days. Individually, company no. 5a reduced both the average collection period and the average payment period over the years. As against the average collection

period of 31 days in 1987, it was 20 days in 1996. The company seemed to have tightened control over the receivables. Similarly due to an increased tendency to apply cash towards creditors, the corresponding average payment period was down to 24 days in 1996 as compared to 64 days in 1996. Company no. 5b also reduced the average payment period over the years. Company no. 5c produced different results. Although the average collection period in 1996 was lower than that in 1987, the overall average collection period went up to 33 days on average as compared to 28 days in 1987 as the company had a poor control over the receivables. Actually in this company, in the initial years the average collection period suddenly increased which made the overall average collection period to be on the higher side. But in the later part, the reduction in average collection period started and thereby for the year 1996, the corresponding average collection period went down. On the other hand, due to a reducing tendency to repay the liabilities, the average payment period in this case went up over the years.

The Textile Industrial Sector, in tune with the general trend increased the average collection period from 98 days in 1987 to 152 in 1996 thus pointing towards inefficient management. And despite reduction in the percentage of cash credit, the sector was able to reduce the average payment period. The main reason for this was the increased share of long term resources in the total working capital finance. The sector thus used Long term resources as a substitute for the relative short term resources. The average payment period reduced from 205 days in 1987 to 130 days in 1996. Individually, company no. 6a performed badly on both the counts, i.e., on collection policy and repayment policy, thereby increasing both the average collection period and the average payment period over the years. The average collection period multiplied to 299 days in 1996 as compared to 90 days in 1996. This put a stress directly on the payment position and the average payment period also went up over the years. On the other hand, company no. 6b fared well in both areas and as a result of tighter control over the years, its average collection period reduced from 165 days in 1987 to 35 days in 1996 and the increased funds thereby enabled the

Table V 4.13

Creditors for Goods Supplied as a Percentage of Total Raw Materials Consumed in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	25 58	34 38	23 74	43 46	50 88	50 73	56 05	57 18	71 58	81 56	49 51
b) Intermediate Petrochemical Industries Co. Ltd	38 78	39 31	37 25	38 96	31 07	14 73	29 82	8 45	29 52	7 01	27 49
c) Jordan Sulpho- Chemicals Co. Ltd	16 19	34 92	11 36	17 52	6 84	37 76	34 72	41 50	24 82	47 47	27 31
<b>Sector-wise Ratio</b>	25 69	34 49	24 01	42 81	49 69	50 08	55 55	56 47	70 65	80 75	49 02
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	131 39	155 21	176 05	482 48	384 84	189 79	173 41	129 67	198 38	248 22	226 95
b) The Jordan Ceramic Industries Co. Ltd	33 94	52 25	53 74	25 69	21 23	14 52	30 43	22 17	33 23	22 63	30 98
c) Jordan Rockwool Industries Co. Ltd	92 95	81 07	41 18	43 55	116 65	104 34	37 02	44 78	50 57	27 29	63 94
<b>Sector-wise Ratio</b>	114 94	119 53	112 52	211 83	213 93	118 17	113 67	83 58	120 74	108 43	131 73
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	18 37	7 07	5 45	5 07	10 37	7 11	21 50	29 17	19 69	40 10	16 39
b) Arab Investment and Int. Trade Co. Ltd	13 01	14 02	21 29	39 60	22 98	12 99	13 74	16 15	5 31	15 01	17 41
c) The National Industries Co. Ltd	117 00	34 22	109 65	21 72	13 70	13 30	8 29	7 92	4 03	3 65	33 35
<b>Sector-wise Ratio</b>	37 45	12 47	20 13	9 76	11 55	8 75	19 57	24 22	13 91	26 64	18 44
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	98 16	110 95	133 62	80 27	90 39	88 45	40 12	126 51	74 61	76 31	91 94
b) Dar Al-Dawa Development & Invst. Co. Ltd	64 43	91 84	108 31	63 74	64 79	71 63	50 57	55 17	61 53	41 64	67 36
c) The Arab Center for Pharm. & Chemicals Co. Ltd	629 54	398 33	187 10	62 39	65 34	40 03	71 13	96 36	104 27	71 49	172 60
<b>Sector-wise Ratio</b>	97 85	114 59	131 05	75 52	82 93	80 73	46 47	101 38	71 52	64 68	86 67
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co. Ltd	17 47	12 26	2 59	2 55	4 42	5 67	4 43	6 20	6 03	6 44	6 81
b) National Cables & Wire Manuf. Co. Ltd	138 00	66 39	44 66	24 53	9 99	38 25	57 92	59 62	65 27	91 84	59 65
c) The Jordan Pipes Manufacturing Co. Ltd	0 12	2 03	4 26	4 03	0 87	0 43	0 63	0 95	2 31	3 62	1 93
<b>Sector-wise Ratio</b>	37 85	21 47	18 88	12 48	5 69	15 34	23 37	31 32	36 28	41 43	24 41
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	61 49	54 77	69 50	81 76	55 86	69 13	74 21	81 11	106 04	85 72	73 96
b) Jordan Tanning Co. Ltd	37 42	17 96	7 67	21 15	30 80	20 70	14 69	9 69	15 48	4 26	17 98
c) The Woolen Industries Co. Ltd	6 62	2 98	6 14	3 91	8 74	3 91	3 33	6 55	6 16	3 93	5 23
<b>Sector-wise Ratio</b>	56 30	46 64	56 85	53 42	40 68	36 90	37 71	33 40	41 43	35 62	43 89
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	34 43	41 62	26 61	29 04	3 10	8 95	7 19	14 63	2 77	15 37	18 37
b) The Arab Paper Converting & Trading Co. Ltd	36 38	26 66	21 50	1 96	3 11	19 51	7 38	2 59	29 81	8 56	15 75
c) Jordan Printing and Packing Co. Ltd	1 06	6 69	8 87	6 17	5 72	5 59	6 35	8 90	26 30	14 93	9 06
<b>Sector-wise Ratio</b>	30 62	35 70	24 10	22 33	3 46	10 61	7 11	7 42	13 33	12 18	16 68
<b>Overall Industrial Ratio</b>	29 72	36 25	29 91	43 03	47 03	47 13	51 22	54 77	64 77	73 25	47 71

Source Appendix III

Note: DUE TO UNAVAILABILITY OF DATA FOR PURCHASES, DATA FOR RAW MATERIALS CONSUMED HAS BEEN USED FOR THIS TABLE.

Over the years, the tendency to repay the creditors' payment went down. As a result, the average payment period went up, which ultimately increased the percentage of creditors to the raw materials consumed. The overall percentage of creditors went up from 29.72 per cent in 1987 to 73.25 per cent in 1996

An indepth study of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector behaved in same fashion as the overall industrial sector in holding up the payment to creditors, as a result of which the percentage of creditors to raw materials consumed went up from 25.69 in 1987 to 80.75 per cent in 1996. Company no.1b, in particular, increased the bank borrowings and thereby was able to procure funds from that source and the creditors payments were released. Thereby it is seen that in this case the percentage of creditors to raw materials consumed was down from 38.78 per cent in 1987 to 7.01 per cent in 1996.

The Construction Industrial Sector had a tendency to procure the material and delay the payments. The payments at times were delayed by more than a year. Therefore it is found that the creditors percentage in the total raw materials consumed was more than 100 per cent in most of the years. The overall percentage of creditors in the total raw materials consumed was 131.73 per cent for the sector. Company no. 2a had the highest tendency to defer the payments. Thereby the percentage of creditors to the total raw materials consumed was more than 100 per cent in the ten years under study. The overall percentage was as high 226.95 per cent. Company no. 2b and company no. 2c, by increasing the finances from long term sources and cash credits were able to reduce the percentage of creditors to raw materials consumed over the period of ten years.

The Consumables and Food Industrial Sector reduced the average payment period and made more and more payments to the creditors. Thereby the percentage of creditors to total raw materials consumed came down from 37.45 per cent in 1987 to 26.64 per cent in 1996. Company no. 3c by

increasing the cash credits levels and long term loan reduced the creditors levels remarkably. Thereby the percentage of creditors to raw materials consumed went down from 117 per cent to 3.65 per cent. On the other hand, company no. 3a and company no. 3b, increased their average payment period thereby the percentage of creditors to total raw materials went up in 1996 as compared to 1987.

The Pharmaceuticals Industrial Sector, by reducing the excessive investment in receivables and inventories was able to generate more and more cash, which was applied towards repaying the creditors. Thereby the percentage of creditors in the total raw materials consumed went down from 97.85 per cent in 1987 to 64.68 per cent in 1996. All the companies performed in the pattern which was the same sector, while company no. 4c performed in a remarkably appreciable way. In this company, the percentage of creditors was reduced smartly from 629.54 per cent in 1987 to 71.49 per cent in 1996.

The Engineering Industrial Sector, overall has increased the average payment period slightly over the years. Thereby the percentage of creditors to the total raw materials consumed increased from 37.85 per cent in 1987 to 41.43 per cent in 1996, thus showing a slight increase. Company no. 5a and company no. 5b, over the years performed in a fashion similar to the sectors trend, i.e., they reduced the percentage of creditors to raw materials consumed. Company no. 5c, on the other hand, although had lower levels of creditors, but the overall average payment period went up a little. Therefore the percentage of creditors in the total raw materials also increased from 0.12 per cent in 1987 to 3.62 per cent in 1996.

In the Textile Industrial Sector, the dependence on long term loan and the cash credits was on the higher side. Thereby the sector had procured funds sufficient to repay the creditors for goods. Thereby the percentage of creditors in the total raw materials consumed went down over the years. the overall percentage went down from 56.30 per cent in 1987 to 35.62 per cent in 1996. Company no. 6b and company no. 6c both reduced their respective

percentage of creditors to total raw materials consumed. On the other hand, company no. 6a have produced completely different results. In this case, the company chose to delay the payment towards creditors. Thereby the average payment period in this case went up over the years. Therefore the percentage of creditors in the total raw materials consumed went up over the years from 61.49 per cent in 1987 to 85.72 per cent in 1996.

Like the most of the sectors, the Paper and Packing Industrial Sector also banked upon the cash credit limits and long term resources for financing purposes. Thereby the sector seemed to have enough cash to reduce the average payment period over the years. As a result of this, the percentage of creditors in the total raw materials consumed over the years went down. It can be observed that all the companies in this sector had the creditors percentage of about 34 to 36 per cent of the raw materials consumed. And at end of the decade, all the companies reduced their respective percentages. The overall average percentage of the creditors for the decade for all the companies was below 20 percentage of the respective raw materials consumption.

#### **5.4.7 PROFITABILITY OF THE INDUSTRIAL COMPANIES**

The analysis of the profits and losses of the industrial companies may be studied from the following view points:

1. Gross profit and loss on capital employed.
2. Net profit and loss on capital employed. *(Due to absence of net worth, the percentage of net profit and loss on capital employed has been shown)*

##### **Gross Profit and Loss on Capital Employed**

Gross profits and losses are the difference between sales and cost of sales excluding interest, administration and selling expenses of the industrial companies during the period under study.

Table V.4 14 shows the percentage of gross profit and loss on capital employed in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.4.14  
Percentage of Gross Profit and Loss on Capital Employed in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co. Ltd		9.59	9.39	11.84	13.67	8.96	8.43	9.21	10.13	10.03	8.51	9.98
b) Intermediate Petrochemical Industries Co. Ltd		11.88	12.94	23.77	22.04	15.32	10.92	8.99	7.80	5.01	1.36	11.98
c) Jordan Sulpho- Chemicals Co. Ltd		27.92	9.26	30.15	27.03	20.40	21.70	12.27	5.60	8.87	2.04	16.52
Sector-wise Ratio		10.37	9.58	13.45	14.62	9.54	8.89	9.25	9.92	9.88	8.23	10.37
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co. Ltd		8.58	8.61	8.86	10.78	12.33	15.73	21.45	19.31	20.03	19.77	14.52
b) The Jordan Ceramic Industries Co. Ltd		12.86	12.92	22.36	22.35	30.04	31.73	25.62	30.44	31.71	31.11	25.12
c) Jordan Rockwool Industries Co. Ltd		9.29	15.77	34.67	23.25	3.91	13.68	21.24	8.40	9.15	6.08	14.55
Sector-wise Ratio		8.66	8.81	9.82	11.42	12.88	16.37	21.70	19.75	20.51	20.24	15.00
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn. Co. Ltd		14.95	14.66	21.62	29.83	29.37	30.64	40.30	18.08	22.32	14.02	23.58
b) Arab Investment and Int. Trade Co. Ltd		1.42	3.55	4.19	4.96	9.69	21.29	12.69	8.59	11.60	13.50	9.15
c) The National Industries Co. Ltd		-5.17	1.18	1.31	21.51	11.43	9.05	15.75	18.70	12.30	-3.60	8.25
Sector-wise Ratio		7.13	8.78	13.00	24.12	22.95	25.61	32.63	16.70	18.42	9.46	17.88
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf. Co. Ltd		12.43	14.77	16.43	16.51	17.20	19.33	22.15	14.05	19.05	24.33	17.62
b) Dar Al-Dawa Development & Invt. Co. Ltd		11.33	19.39	21.03	30.09	15.09	18.92	15.03	13.40	10.60	13.24	16.81
c) The Arab Center for Pharm. & Chemicals Co. Ltd		4.44	10.08	20.45	17.86	16.34	33.38	24.96	20.89	28.26	15.14	19.18
Sector-wise Ratio		11.54	15.08	17.67	19.44	16.62	20.65	20.25	14.70	16.80	19.87	17.26
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminium Industry Co. Ltd		16.62	19.21	20.27	29.83	26.13	25.25	32.72	27.52	15.57	15.04	22.82
b) National Cables & Wire Manuf. Co. Ltd		6.69	8.64	42.83	45.39	29.86	18.09	13.80	13.57	9.25	6.29	19.44
c) The Jordan Pipes Manufacturing Co. Ltd		17.78	23.38	31.38	14.71	11.41	17.65	19.40	13.66	12.82	8.48	17.07
Sector-wise Ratio		14.06	17.27	32.57	32.85	24.61	20.89	21.74	19.13	12.21	10.05	20.54
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co. Ltd		22.15	16.94	9.88	14.76	29.94	21.98	19.62	17.34	20.51	18.93	19.20
b) Jordan Tanning Co. Ltd		12.50	13.69	21.26	22.97	24.94	27.68	29.48	28.30	24.61	23.56	22.90
c) The Woolen Industries Co. Ltd		8.49	13.84	25.71	14.12	22.51	13.11	14.89	11.42	9.38	14.77	14.82
Sector-wise Ratio		18.99	16.19	12.32	16.62	28.08	22.79	21.39	19.19	20.80	19.57	19.59
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co. Ltd		21.36	26.72	38.76	46.80	26.33	8.26	14.35	18.03	20.55	7.17	22.83
b) The Arab Paper Converting & Trading Co. Ltd		4.87	6.07	28.21	28.76	11.76	12.36	13.35	14.33	12.01	10.87	14.26
c) Jordan Printing and Packing Co. Ltd		21.28	17.04	17.47	24.05	25.57	11.38	22.77	17.86	4.73	-1.61	16.06
Sector-wise Ratio		18.75	21.85	35.20	41.20	24.48	9.16	14.94	17.13	16.16	8.06	20.70
Overall Industrial Ratio		10.01	10.37	13.82	15.81	13.76	14.27	16.28	14.59	14.53	12.93	13.64

Source: Appendices III & IV

Over the years, in industrial sector the overall gross margin went up which shows that the gross profit as a percentage of capital employed also went up. The overall percentage of gross profit on capital employed went up from 10.01 per cent in 1987 to the decade average of 13.64 per cent.

An indepth study of each sector and its related companies indicates that in the Chemical and Petroleum Industrial Sector although the gross margin over the years went up, but the corresponding capital employed increased in a greater magnitude. Thereby the percentage of gross profit on capital employed reduced from 10.37 per cent in 1987 to 8.23 per cent in 1996. All the companies reduced their percentage of gross profit on capital employed.

In the case of the Construction Industrial Sector, the efficiency of utilisation of capital improved as suggested by the increase in the capital employed turnover. Thereby we can see that the percentage of gross profit on capital employed also went up from 8.66 per cent in 1987 to 20.24 per cent in 1996. Company no. 2a and company no. 2b, both increased their respective gross profits over the capital employed, but company no. 2c had a slightly different story to tell in the terminal years of study. In the last three years under study the gross margin went down. Thereby we can see that the percentage of gross profit on capital employed also went down in the last three years. But the overall average for the ten years shows that the percentage of gross profit on capital employed went up to 14.55 per cent as compared to 9.29 per cent in 1987.

With the improvement in the turnover of capital employed and increased gross margin, the Consumables and Food Industrial Sector increased the percentage of gross profit on the capital employed to 17.88 per cent on an average as compared to 7.13 per cent in 1987. All the companies improved the respective percentage of gross profit over the years. The overall increase in company no. 3a went up to 23.58 per cent on an average as compared to

14.95 per cent in 1987. On the other hand, company no. 3c, which had a lower gross profitability in the initial years went on to increase the percentage of gross profit on capital employed to 8.25 per cent on average. Although this is less than the overall industrial average but the trend certainly indicates an improvement.

The Pharmaceutical Industrial Sector reduced the investment in receivables and inventories and thereby tried to reduce the excessive investment in current assets. As a result the turnover of capital employed went up over the years besides the fact that the gross margin also improved over the years. Therefore for the ten years under study, the percentage of gross profit on capital employed went up. The overall percentage of gross profit went up from 11.54 per cent in 1987 to 19.87 per cent in 1996. All the companies under this sector followed the sector's pattern in improving the gross profitability on the capital employed over the years.

In the Engineering Industrial Sector, the average percentage on gross profit went up over the years, the trend was disturbing in the last three years. Thus from 1987 to 1993, the gross profit percentage increased from 14.06 per cent to 21.74 per cent with a reduced margin and a reduction in capital employed turnover, the percentage of gross profit to the total capital employed went down to 10.05 per cent in 1996. There was apparently a recessionary trend in the sector in the last three years as all the companies have reduced their comparative percentage in the last three years. Thus we can see that in the case of company no. 5a the percentage of gross profit increased from 16.62 per cent in 1987 to 32.72 per cent in 1993, thereafter, the percentage went down to 15.04 per cent in 1996. Similarly company no. 5b and company no. 5c increased their respective percentage of gross profit till the year 1993 and reduced the percentage in the last three years.

In the Textile Industrial Sector, the percentage of gross profit on capital employed increased from 18.99 per cent in 1987 to 28.08 per cent in 1991. But thereafter under the effect of the Gulf War, the overall operations suffered and thereby the percentage of gross profit went down to 19.57 in 1996. We observe similar trends in company no. 6a and company no. 6c where the percentage of gross profit went up from 1987 to 1991 and reduced thereafter. However, company no. 6b managed to survive through the difficult period after 1991, perhaps due to the area of operations and the composition of receivables. Thereby this company continued to increase its percentage on gross profit from 12.50 per cent in 1987 to 29.48 per cent in 1993. But thereafter the percentage reduced a little.

The Paper and Packing Industrial Sector showed improvement till the year 1990 with an increased gross margin and increased percentage of the gross profit in capital employed. But like the other sector, the operations of this sector also suffered from the war in the period after 1991. Thereby we can see that the corresponding percentage of gross profit in the capital employed went down over the years. The percentage of gross profit on capital employed went down from 18.75 per cent in 1987 to 8.06 per cent in 1996. Both company no. 7a and company no. 7c reduced their percentage of gross profit over the years. In fact company no. 7c incurred gross loss in the year 1996. On the other hand, with the improvement in the capital employed turnover and the gross margin, company no. 7b increased the percentage of gross profit in the capital employed from 4.87 per cent to 10.87 per cent over the period of ten years.

**Percentage of Net Profit and Loss on Capital Employed**

Table V 4.15 shows the percentage of net profit and loss on capital employed in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.4.15  
Percentage of Net Profit and Loss on Capital Employed in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
1) Chemical & Petroleum Industrial Sector											
a) Jordan Petroleum Refinery Co. Ltd	257	242	299	347	103	093	148	172	200	179	204
b) Intermediate Petrochemical Industries Co. Ltd	644	729	1126	1520	818	795	032	-196	-312	-989	417
c) Jordan Sulpho-- Chemicals Co. Ltd	1314	-296	1783	1711	1115	1279	190	-323	-420	-1102	525
Sector-wise Ratio	315	245	419	465	161	154	144	146	171	129	235
2) Construction Industrial Sector											
a) The Jordan Cement Factories Co. Ltd	396	210	125	226	251	598	642	648	569	503	417
b) The Jordan Ceramic Industries Co. Ltd	647	976	1664	1461	2322	2563	2158	2326	1869	2079	1807
c) Jordan Rockwool Industries Co. Ltd	-316	189	1838	482	-913	010	411	-208	044	-370	117
Sector-wise Ratio	392	229	208	276	313	672	734	730	636	585	477
3) Consumables & Food Industrial Sector											
a) The Industrial Commercial & Agri. Co. Ltd	159	354	596	1591	938	827	804	040	135	-170	527
b) Arab Investment and Int. Trade Co. Ltd	-960	-504	-536	-421	077	961	-130	-325	-054	080	-181
c) The National Industries Co. Ltd	-2207	-1671	1829	106	-046	590	288	444	577	-1341	-143
Sector-wise Ratio	-660	-367	716	950	622	814	595	048	208	-429	250
4) Pharmaceuticals Industrial Sector											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	227	255	882	964	490	512	679	006	407	799	522
b) Dar Al-Dawa Development & Invt. Co. Ltd	524	1189	1758	2114	1209	1486	1200	1341	922	1079	1282
c) The Arab Center for Pharm. & Chemicals Co. Ltd	-210	114	817	182	516	1449	1219	912	506	514	602
Sector-wise Ratio	229	395	1030	1114	647	852	897	507	591	882	712
5) Engineering Industrial Sector											
a) Arab Aluminium Industry Co. Ltd	989	1151	1653	2962	2915	2989	3919	3245	1412	1425	2266
b) National Cables & Wire Manuf. Co. Ltd	264	383	3838	4074	2498	1423	971	899	403	158	1491
c) The Jordan Pipes Manufacturing Co. Ltd	711	1307	1678	822	592	863	1129	724	680	345	885
Sector-wise Ratio	720	966	2540	2925	2287	1942	2081	1801	820	681	1676
6) Textile Industrial Sector											
a) The Jordan Worsted Mills Co. Ltd	1647	1187	228	578	1391	1205	1027	926	1369	1109	1067
b) Jordan Tanning Co. Ltd	745	723	1434	1680	1541	1664	1804	1852	1213	1312	1397
c) The Woolen Industries Co. Ltd	-133	151	1240	500	975	411	234	534	128	617	466
Sector-wise Ratio	1321	1050	453	828	1406	1265	1133	1091	1264	1117	1093
7) Paper & Packing Industrial Sector											
a) Jordan Paper and Cardboard Factories Co. Ltd	1543	1497	2775	1763	3041	351	701	602	561	551	1338
b) The Arab Paper Converting & Trading Co. Ltd	-1099	-712	1323	1472	259	168	143	800	496	205	305
c) Jordan Printing and Packing Co. Ltd	1351	657	655	1066	1239	290	927	680	1240	-725	738
Sector-wise Ratio	1105	1001	2363	1634	2540	318	635	656	599	352	1120
Overall Industrial Ratio	357	292	570	645	492	547	576	495	436	364	477

Source Appendices III & IV

The industrial companies in Jordan showed a tendency to increase the net margin on sales over the years. Further, the capital employed turnover also improved. Thereby we can see that the net profit as a percentage of capital employed went up from 3.57 per cent in 1987 to the decade average of 4.77 per cent.

An indepth study of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector reduced the net margin on sales, besides the fact that the turnover of capital employed went down. Thereby we find that the net profit on capital employed also went down from 3.15 per cent in 1987 to 1.29 per cent in 1996. All the companies showed a reducing trend with company no. 1c, showing the maximum impact as it had net losses in the last three years under study.

In case of the Construction Industrial Sector, the efficiency of utilisation of capital improved as suggested by the increase in the capital employed turnover. Thereby the net margin on sales reduced a little, the percentage of net profit on capital employed went up from 3.92 per cent in 1987 to 5.85 per cent in 1996. Company no. 2a and company no. 2b, both followed the sector's pattern. Company no. 2c improved its percentage on net profit till the year 1993. But thereafter as a result of net losses, the net margin also was on the negative side.

The Consumables and Food Industrial Sector increased the net margin on sales as also the turnover of capital employed. Thereby the percentage of net profit on the capital employed rose to 2.50 per cent on an average as compared to net losses in the initial years. All the companies improved their respective percentage of gross profit over the years. The overall increase in company no. 3a was up to 5.27 per cent as against 1.59 per cent in 1987. On the other hand, company no. 3b and company no. 3c, both reduced their

respective percentage of net losses on capital employed over the years. Thus the overall net profitability in the sector was on the lower side but the trend suggests improvement as compared to the initial years under study.

The Pharmaceutical Industrial Sector, by reducing the investment in receivables and inventories improved the turnover of capital employed. Apart from this, the net margin also went up over the years. Therefore for the ten years under study, the percentage of net profit on capital employed went up to 7.12 per cent as against 2.29 per cent in 1987. All the companies under this sector followed the sector's pattern in improving the net profitability on the capital employed over the years.

In the Engineering Industrial Sector, the net margin improved over the decade, although the trend was disturbing in the last three years. Thus from 1987 to 1993, the net profit percentage increased from 7.20 per cent to 20.81 per cent with reduced margin and reduction in capital employed turnover, the percentage of net profit to the total capital employed went down to 6.81 per cent in 1996. As stated in the above analysis, the sector apparently went through a recessionary trend in the last three years as all the companies reduced their comparative percentages in the last three years.

In the Textile Industrial Sector, the percentage of net profit on capital employed showed improvement till 1991 with some fluctuations. But thereafter, the overall operations suffered and thereby the trend was reversed. As a result, the percentage of net profit went down to 10.93 per cent on an average. We observe similar trends in company no. 6a and company no. 6c where the percentage of net profit went up from 1987 to 1991 and reduced thereafter. However company no. 6b managed to convert the initial lower profits into higher levels in the later years. Thereby the overall net profit on capital

employed improved over the years up to 13.97 per cent as against 7.45 per cent in 1987

The Paper and Packing Industrial Sector improved the percentage of net profit till the year 1990 with an increase in the percentage of net profit in capital employed. But like the other sectors, this sector was also affected by the war crisis thereby we can see that the corresponding percentage of net profit on capital employed went down over the years. For the sector, the percentage of net profit on capital employed went down from 11.05 per cent in 1987 to 3.52 per cent in 1996. Both company no. 7a and company no. 7c reduced their overall net profitability. Company no. 7c incurred heavy losses in the year 1996. On the other hand, as a result of improvement in the capital employed turnover and the net margin, company no. 7b increased the percentage of net profit on capital employed over the period of ten years and converted losses into profits. The average percentage of net profit on capital employed was 3.05 per cent.

Connecting the profitability with internal financing, it is clear that proper internal financing depends upon sound profitability of the industrial companies. The industrial companies are required to have sufficient earning power which depends on price policy, cost efficiency, balanced factor proportion and above all a most efficient working capital management. Unless these inter related factors are assured, substantial internal financing is not yielded. The earning power of the industrial companies is shown in Table V.4.16.

### **Earning Power**

Table V.4.16 shows the earning power of the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.4.16  
Earning Power of the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	Average of Ten years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>										
a) Jordan Petroleum Refinery Co. Ltd	2.43	2.60	3.74	6.50	1.36	0.41	0.96	1.57	2.32	1.14
b) Intermediate Petrochemical Industries Co. Ltd	8.30	10.24	19.72	18.37	10.94	7.85	5.19	3.08	0.54	-2.99
c) Jordan Sulpho- Chemicals Co. Ltd	19.72	-0.07	20.54	16.54	11.98	15.59	4.61	-0.35	1.69	-4.73
Sector-wise Ratio	3.36	2.91	5.61	7.57	2.08	1.12	1.18	1.55	2.26	0.94
<b>2) Construction Industrial Sector</b>										
a) The Jordan Cement Factories Co. Ltd	6.71	6.60	4.81	6.45	7.44	9.59	14.53	12.90	12.11	10.27
b) The Jordan Ceramic Industries Co. Ltd	6.66	9.71	18.19	16.37	25.97	27.35	22.20	25.27	24.28	23.59
c) Jordan Rockwool Industries Co. Ltd	2.34	5.95	19.87	11.25	-5.81	2.64	6.76	-0.39	0.08	-3.94
Sector-wise Ratio	6.66	6.67	5.54	6.91	7.95	10.23	14.89	13.36	12.60	10.85
<b>3) Consumables &amp; Food Industrial Sector</b>										
a) The Industrial Commercial & Agri. Co. Ltd	5.54	6.95	13.33	21.05	16.29	15.15	16.49	2.33	5.95	0.02
b) Arab Investment and Int. Trade Co. Ltd	-5.79	-3.83	-1.56	-0.16	4.48	14.43	3.05	1.27	2.07	3.62
c) The National Industries Co. Ltd	-11.60	-3.54	-3.22	15.98	6.00	2.64	8.01	9.29	7.81	-2.29
Sector-wise Ratio	-1.08	1.95	6.18	16.62	12.52	13.06	13.32	3.28	5.79	-0.01
<b>4) Pharmaceuticals Industrial Sector</b>										
a) The Arab Pharmaceuticals Manuf. Co. Ltd	6.60	7.79	10.05	8.64	9.36	9.93	10.50	4.03	16.43	10.99
b) Dar Al-Dawa Development & Invt. Co. Ltd	8.45	14.11	18.65	27.29	12.85	16.82	12.96	11.34	8.48	10.46
c) The Arab Center for Pharm. & Chemicals Co. Ltd	2.17	7.31	16.32	13.89	12.76	20.40	14.86	12.06	8.46	6.23
Sector-wise Ratio	6.46	8.78	12.23	13.02	10.61	12.72	11.72	7.15	13.14	10.36
<b>5) Engineering Industrial Sector</b>										
a) Arab Aluminum Industry Co. Ltd	13.39	15.87	15.17	25.29	21.23	20.95	28.48	23.47	11.34	11.65
b) National Cables & Wire Manuf. Co. Ltd	2.84	5.19	38.96	41.39	24.90	14.19	9.52	8.87	5.27	1.79
c) The Jordan Pipes Manufacturing Co. Ltd	9.94	18.60	25.31	11.30	7.71	13.68	15.88	11.01	10.45	5.99
Sector-wise Ratio	9.55	13.47	27.69	28.81	19.93	16.81	17.61	15.04	8.45	6.33
<b>6) Textile Industrial Sector</b>										
a) The Jordan Worsted Mills Co. Ltd	14.84	12.07	5.67	11.89	25.87	19.28	15.93	13.60	16.90	15.28
b) Jordan Tanning Co. Ltd	6.24	6.73	14.15	16.41	16.20	17.90	18.94	18.15	16.37	13.77
c) The Woolen Industries Co. Ltd	1.62	3.57	17.86	9.80	17.72	7.83	4.76	6.19	3.59	8.09
Sector-wise Ratio	11.86	10.67	7.51	12.81	22.66	18.17	15.69	14.01	16.03	14.52
<b>7) Paper &amp; Packing Industrial Sector</b>										
a) Jordan Paper and Cardboard Factories Co. Ltd	15.39	20.36	33.28	38.14	21.78	1.23	7.63	10.67	12.45	1.19
b) The Arab Paper Converting & Trading Co. Ltd	2.78	-0.70	20.07	20.92	5.52	5.08	4.52	9.10	8.08	4.64
c) Jordan Printing and Packing Co. Ltd	14.07	10.12	10.07	17.42	18.79	4.14	14.91	11.80	0.02	-7.80
Sector-wise Ratio	13.25	15.35	29.16	32.91	19.53	2.07	7.80	10.38	9.83	1.98
<b>Overall Industrial Ratio</b>	5.53	5.85	8.11	9.96	7.45	7.06	8.35	7.06	7.39	5.13

Source: Appendices III & IV

We have seen that in the industrial companies, the overall turnover of capital employed and fixed assets turnover improved as compared to 1987. Thereby we find that the overall earning power also increased over the years although in the later years we find a reverse trend in some sectors. In the industrial sector as a whole, we find that both the capital employed turnover and the net margin over the period of ten years went up. Thereby the overall earning power also went up. Thus the earning power for the overall industries was 7.19 as against 5.53 in the base year 1987. The sector-wise analysis reveals some divergent trends.

An indepth analysis of each sector and its related companies reveals that in the Chemical and Petroleum Industrial Sector, although the capital employed turnover went up slightly, there was a reduction in the net margin over the years. Thereby the earning power of the sector went down from 3.36 per cent in 1987 to 0.94 per cent in 1996. All the companies showed a similar trend of reducing the earning power over the years. But the reduction in company no. 1b and company no. 1c was quite significant as a result of a substantial reduction in the net margin and there were losses in the terminal years. Thus the earning power in terminal years was on the negative side.

The Consumables and Food Industrial Sector had large fluctuations in the net margin over the years as we noticed in the analysis. Thereby the earning power also moved in tune with the net margin. Thus in the initial years as a result of increase in the net margin, the corresponding earning power of the sector went up from a negative figure to 16.62 per cent in 1990. But thereafter as a result of the Gulf War, the operations suffered reducing the net margin obtained by the sector. Thereby the earning power of the sector also went down. The overall earning power of the sector was 7.16 per cent. All the companies showed similar trends of increasing their margins till the year 1990. After that all the companies reduced their corresponding earning power.

In the complete analysis, we find that the Pharmaceutical Industrial Sector performed in a satisfactory manner and it was one of the few sectors which somehow survived the Gulf War crisis. Thereby the net margin of the sector over the years went up and so did the capital employed turnover. This had a very good effect on the earning power of the sector as the earning power went up over the period of ten years. Although the Gulf War had made an impact on the earning power, the overall trend was increasing. The earning power of the sector went up from 6.46 per cent in 1987 to 10.36 per cent in 1996. In the companies under this sector, we find an increase in the earning power over the years.

In the Engineering Industrial Sector, the net margin and the capital employed turnover went upwards till 1994. Thereby the relative earning power also went up. In the last two years under study, as a result of a reduction in the gross margin and an increase in the cost of sales, the net margin reduced a little. Thereby the earning power also went down. But the overall average speaks of an increase in the earning power of the sector. Thus we find that the average earning power for the sector was 16.37 per cent as against 9.55 per cent in the base year. Company no. 5a and company no. 5b both improved their earning power over the years. But the performance of company no. 5b was remarkably good on this count. The earning power rose from 2.64 per cent in 1987 to 15.27 per cent on an average.

The overall trend in the Textile Industrial Sector was that of increase in the earning power. Here also there were two phases. But the overall effect was that the average earning power of the sector went up from 11.96 per cent in 1987 to 22.66 per cent in 1991. Thereafter as a result of increased cost of sales, the net margin over the years went down a little. The corresponding earning power also went down to 14.52 per cent in 1996. Company no. 6a increased its overall earning power to 15.13 per cent as compared to 14.84 per cent in 1987. Similarly in company no. 6b we find that the overall earning

power went up. But company no. 6c scored a point over the other companies. In this company initially the earning power was quite low. In 1987, which was just 1.62 per cent. This multiplied over the years, and in the year 1996 it was 8.09 per cent.

The Paper and Packing Industrial Sector performed poorly on the operational front. As we observed, the gross margin of the sector over the year went down. On the other hand, the cost of sales went completely out of check. Thereby the net margin of the sector suffered heavily. This directly made a dent in the earning power of the sector. Although the earning power went up in the initial years, the overall earning power went down from 13.25 per cent in 1987 to 1.98 per cent. Company no. 7c seems to have been hit hard by the overall trend as in the last year under study, the excessive cost of sales left the company at net losses. Thereby the earning power of the company was on the negative side. Company no. 7a also reduced its overall earning power especially after 1991. Thus we can see that in 1996 the earning power was just 1.19 per cent as compared to 15.39 per cent in 1987. In the case of company no. 7b, there was a slightly different story. In this case, the overall capital employed turnover went up over the years under study. This enabled the company to improve its earning power over the years. Thus we can find that the earning power went up from 2.78 per cent in 1987 to 4.64 per cent in 1996.

This situation will be more clear from an indepth analysis of the net margin and turnover of capital employed which are shown in Tables V.4.17 and V.4.18.

#### **Net Margin on Sales**

Table V.4.17 shows the percentage of net margin on sales of the industrial companies during the period under study, i.e., from 1987 to 1996

Table V.4.17  
Percentage of Net Margin on Sales in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	1.38	1.56	1.93	3.90	0.86	0.26	0.65	1.04	1.65	0.88	1.41
b) Intermediate Petrochemical Industries Co. Ltd	12.79	18.18	21.51	22.14	16.21	16.36	10.79	4.59	1.44	-6.88	11.71
c) Jordan Sulpho- Chemicals Co. Ltd	23.76	-0.12	18.19	14.59	10.19	20.89	5.12	-0.70	2.14	-8.44	8.46
<b>Sector-wise Ratio</b>	2.02	1.86	3.07	4.74	1.34	0.74	0.82	1.07	1.66	0.74	1.81
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	27.73	29.41	19.48	19.82	19.95	19.33	23.68	23.02	21.46	17.52	22.14
b) The Jordan Ceramic Industries Co. Ltd	12.35	23.17	28.41	24.54	32.59	32.04	35.18	32.55	28.26	28.24	27.73
c) Jordan Rockwool Industries Co. Ltd	7.55	14.44	20.63	16.46	-19.09	5.75	10.80	-1.19	0.22	-12.32	4.92
<b>Sector-wise Ratio</b>	26.88	28.78	20.55	20.04	20.48	20.03	24.21	23.51	21.81	18.17	22.45
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	7.09	8.13	13.19	17.93	11.60	10.71	10.64	2.71	6.20	0.03	8.82
b) Arab Investment and Int. Trade Co. Ltd	-17.18	-6.56	-3.93	-0.66	9.54	12.11	3.67	2.05	2.95	5.02	0.70
c) The National Industries Co. Ltd	-29.97	-11.29	-10.20	18.69	9.26	3.71	10.51	10.35	10.71	-4.41	0.73
<b>Sector-wise Ratio</b>	-1.84	2.98	8.66	17.33	11.22	10.33	10.04	3.97	6.67	-0.01	6.93
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	16.16	19.87	21.98	17.30	18.32	19.11	20.07	11.04	28.59	18.66	19.11
b) Dar Al-Dawa Development & Invst. Co. Ltd	14.79	20.03	24.01	30.68	18.15	23.34	19.13	14.48	11.34	14.23	19.02
c) The Arab Center for Pharm. & Chemicals Co. Ltd	13.77	28.05	32.81	33.95	39.24	27.53	23.05	17.48	11.23	14.07	24.12
<b>Sector-wise Ratio</b>	15.81	20.39	23.61	22.87	20.23	21.47	20.08	13.57	20.31	16.66	19.50
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	18.12	16.13	12.72	22.63	22.44	21.38	27.94	29.05	14.87	17.12	20.24
b) National Cables & Wire Manuf. Co. Ltd	5.84	10.59	35.62	34.38	26.34	19.78	14.97	12.82	7.16	2.96	17.05
c) The Jordan Pipes Manufacturing Co. Ltd	8.84	24.38	22.79	15.06	8.91	11.38	16.75	13.28	18.27	8.18	14.79
<b>Sector-wise Ratio</b>	12.82	17.50	24.52	27.01	21.44	18.26	21.16	19.75	11.83	9.65	18.39
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	15.69	18.31	12.20	21.65	34.72	31.48	27.00	28.04	31.94	32.91	25.40
b) Jordan Tanning Co. Ltd	13.24	10.60	19.83	14.10	9.61	9.18	10.78	9.20	7.20	6.26	10.90
c) The Woolen Industries Co. Ltd	2.41	4.78	20.74	12.93	23.35	10.84	8.01	13.89	8.92	12.84	11.87
<b>Sector-wise Ratio</b>	14.68	16.18	14.27	18.20	22.48	19.14	18.56	17.67	17.52	17.81	17.65
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	19.27	24.19	33.04	27.91	26.53	2.24	14.11	18.50	16.66	2.03	18.45
b) The Arab Paper Converting & Trading Co. Ltd	6.46	-1.82	25.42	21.68	9.35	7.55	5.37	11.55	19.21	5.84	11.06
c) Jordan Printing and Packing Co. Ltd	14.26	10.75	10.79	14.23	16.43	4.21	13.88	12.46	0.04	-9.73	8.73
<b>Sector-wise Ratio</b>	17.38	19.85	30.10	25.63	23.77	3.40	12.29	15.81	16.01	2.93	16.72
<b>Overall Industrial Ratio</b>	6.86	7.44	8.89	10.41	7.78	6.85	8.08	7.14	7.50	5.39	7.64

Source: Appendix III

Over the years, the net margin on sales went up. Thus the average net margin for the decade was 7.64 per cent as against the 6.86 per cent of the base year 1987. An indepth and sector-wise analysis shows some different trends across the sectors

An indepth study of each sector and its related companies indicates that the Chemical and Petroleum Industrial Sector, in the first half of the decade increased its net margin percentage from 2.02 per cent in 1987 to 4.74 per cent in 1990. But thereafter in the aftermath of the Gulf War, the overall cost went very high. Thereby the net margin over the years went down from 1991 onwards. Thus in 1996, the net margin was just 0.74 per cent of the net sales. All the companies under the sector showed a similar trend. Company no. 1b and company no. 1c, had a very high profitability in the initial years. But ultimately both the companies ran into losses in the year 1996.

The Construction Industrial Sector had another picture to present. This sector, over the years was getting considerably high gross margins well above 30 per cent (Table V.4.21). With a high margin there is always a danger of higher risk. As it is rightly said "high profitability means high risk". In this sector there was a reduction in the gross margin over the years. Although the corresponding cost of sales went down, the effect of reduction in the gross margin was much more than the reduction in the cost of sales. Hence the net margin for the sector went down over the years. The overall average of net margin for the sector was 22.45 per cent as against 26.88 per cent in 1987. Company no. 2a also, in tune with the sector's trend reduced the overall margin from 27.73 per cent in 1987 to 17.52 per cent in 1996. Company no. 2c as a result of high overhead cost ran into losses in the later years. On the other hand, company no. 2b performed in a completely different way. The company increased its gross margin and kept the cost of sales under control. Thereby the net margin of the company went up over the years from 12.35 per cent in 1987 to an average of 27.73 per cent for the decade.

The Consumables and Food Industrial sector as seen in the above table analysis, had a very high percentage of cost of sales. Further the gross margin was always fluctuating. Thereby the net margin of the sector was always on the lower side and uncertain. Thus in the initial years, the higher cost of sales led

the sector into lower profits and occasionally into losses and the net margin of the sector was always on the lower side. Afterwards an increase in the gross margin and a comparative reduction in the overhead cost enabled the sector to improve the net margin. And the net margin in the year 1990 was 17.33 per cent. But after that again due to the adverse impact of the Gulf War the net margin of the sector went down and in the year 1996, there were again losses as represented by a negative margin.

The Pharmaceutical Industrial Sector performed quite well by reducing the overall percentage of cost of sales in the total sales. Further the gross margin on sales also went up. Therefore the overall net margin of the sector also improved over the years. Thus the net margin of the sector was 15.81 per cent in the year 1987 and the margin for the ten years on an average went up to 19.50 per cent. Again in this, case due to the impact of the Gulf War, the net margin in the second half of the decade reduced as compared to the first half, but the overall increase in the margin is evident. Company no. 4a had an overall net margin of 19.11 per cent as compared to 16.16 per cent in 1987. Similarly in the case of company no. 4b and company no. 4c the overall net margin went up over the years. Especially in the case of company no. 4c, the net margin reduced a little in the last three years, but the overall net margin went up to an appreciably higher figure. The net margin of the company in 1987 was about 13.77 per cent and on an average for the ten years, it went up to 24.12 per cent.

The Engineering Industrial Sector had an increasing trend in the net margin for the decade. An increase in the gross margin and a reduction in the cost of sales enabled the company to increase its net margin over the years. However again in the last three years, a comparative reduction in the gross margin coupled with an increase in the percentage of cost of sales reduced the net margin. The overall net margin of the sector increased to an average of 18.39 per cent as against 12.82 per cent in 1987. All the companies also showed a tendency to increase their respective net margins over the years. Especially company no. 5b had a remarkable average net margin of 17.05 per cent as compared to just about 5.84 per cent in 1987.

Like the Engineering Industrial Sector, the Textile Industrial Sector also reduced the percentage of the cost of sales in the total sales and increased its gross margin over the years. Thereby the net margin of the sector went up. For the sector, the overall net margin was 14.68 per cent in 1987 and it went up to 17.81 per cent in 1996. The average for the decade was even higher. Company no. 6a and company no. 6c both behaved in a similar fashion to that of the sector. On the other hand, company no. 6b had a poor operational performance in the sense that the gross margin over the years went down. Besides this, the corresponding cost of sales went up. Therefore the net margin of the company went down from 13.24 per cent in 1987 to 6.26 per cent in 1996.

The Paper and Packing Industrial Sector seemed to have increased its net margin in the first part of the decade. But from 1991 onwards, the increased cost of overheads coupled with the reduced gross margin led to a heavy reduction in the net margin in the next five years. Thus the net margin, from 17.38 per cent in 1987 went up to 25.63 per cent in 1990. Thereafter the net margin went down over the years. In the case of company no. 7a, the net margin went up to 26.53 per cent in 1990 as against 19.27 per cent in 1987. But after that there was a reduction in the net margin in comparison to that in 1990. However, the overall net margin reduce to 18.45 per cent on an average. On the other hand, in the case of company no. 7c, the net margin over the years on an average went down to 8.73 per cent from 14.26 per cent in 1987. This was mainly due to an abnormal increase in the cost of sales as compared to the gross margin.

Earning power is determined by the multiplication of net margin and turnover of capital employed.<sup>(68)</sup> Turnover of capital employed has a greater impact on the earning power of the industrial companies. This is shown in Table V.4.18.

#### **Turnover of Capital Employed**

Table V.4.18 shows the turnover of capital employed in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.4.18  
Turnover of Capital Employed in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	(In Times) Average of Ten years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	1.75	1.67	1.94	1.67	1.60	1.57	1.48	1.51	1.41	1.30	1.59
b) Intermediate Petrochemical Industries Co Ltd	0.85	0.56	0.92	0.83	0.67	0.48	0.48	0.67	0.37	0.43	0.61
c) Jordan Sulpho- Chemicals Co Ltd	0.83	0.62	1.13	1.13	1.18	0.75	0.90	0.49	0.79	0.50	0.83
<b>Sector-wise Ratio</b>	1.66	1.56	1.83	1.60	1.55	1.51	1.43	1.46	1.37	1.27	1.52
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.24	0.22	0.25	0.33	0.37	0.50	0.61	0.56	0.56	0.59	0.42
b) The Jordan Ceramic Industries Co Ltd	0.54	0.42	0.64	0.67	0.80	0.85	0.63	0.78	0.86	0.84	0.70
c) Jordan Rockwool Industries Co Ltd	0.31	0.41	0.75	0.68	0.29	0.46	0.63	0.32	0.35	0.32	0.45
<b>Sector-wise Ratio</b>	0.25	0.23	0.27	0.34	0.39	0.51	0.61	0.57	0.58	0.60	0.44
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co Ltd	0.78	0.85	1.01	1.17	1.40	1.41	1.55	0.86	0.96	0.80	1.08
b) Arab Investment and Int. Trade Co Ltd	0.34	0.58	0.40	0.25	0.47	1.19	0.83	0.62	0.70	0.72	0.61
c) The National Industries Co Ltd	0.39	0.31	0.32	0.86	0.65	0.71	0.76	0.90	0.73	0.52	0.61
<b>Sector-wise Ratio</b>	0.59	0.65	0.71	0.96	1.12	1.27	1.33	0.83	0.87	0.71	0.90
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co Ltd	0.41	0.39	0.46	0.50	0.51	0.52	0.52	0.36	0.57	0.59	0.48
b) Dar Al-Dawa Development & Invt. Co Ltd	0.57	0.70	0.78	0.89	0.71	0.72	0.68	0.78	0.75	0.73	0.73
c) The Arab Center for Pharm. & Chemicals Co Ltd	0.16	0.26	0.50	0.41	0.33	0.74	0.64	0.69	0.75	0.44	0.49
<b>Sector-wise Ratio</b>	0.41	0.43	0.52	0.57	0.52	0.59	0.58	0.53	0.65	0.62	0.54
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co Ltd	0.74	0.98	1.19	1.12	0.95	0.98	1.02	0.81	0.76	0.68	0.92
b) National Cables & Wire Manuf. Co Ltd	0.45	0.49	1.09	1.20	0.95	0.72	0.64	0.69	0.74	0.60	0.76
c) The Jordan Pipes Manufacturing Co Ltd	1.13	0.76	1.11	0.75	0.87	1.20	0.95	0.83	0.57	0.73	0.89
<b>Sector-wise Ratio</b>	0.75	0.77	1.13	1.07	0.93	0.92	0.83	0.76	0.71	0.66	0.85
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	0.95	0.66	0.46	0.55	0.75	0.61	0.59	0.48	0.53	0.46	0.60
b) Jordan Tanning Co Ltd	0.47	0.63	0.75	1.16	1.69	1.95	1.76	1.97	2.27	2.20	1.49
c) The Woollen Industries Co Ltd	0.67	0.75	0.86	0.76	0.76	0.72	0.59	0.45	0.40	0.63	0.66
<b>Sector-wise Ratio</b>	0.81	0.66	0.63	0.70	1.01	0.95	0.85	0.79	0.91	0.82	0.80
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	0.80	0.84	1.01	1.37	0.82	0.55	0.54	0.58	0.75	0.58	0.78
b) The Arab Paper Converting & Trading Co Ltd	0.43	0.38	0.79	0.97	0.59	0.67	0.84	0.79	0.42	0.79	0.67
c) Jordan Printing and Packing Co Ltd	0.99	0.94	0.93	1.22	1.14	0.98	1.07	0.95	0.52	0.80	0.96
<b>Sector-wise Ratio</b>	0.76	0.77	0.97	1.28	0.82	0.61	0.63	0.66	0.61	0.67	0.78
<b>Overall Industrial Ratio</b>	0.81	0.79	0.91	0.96	0.96	1.03	1.03	0.99	0.99	0.95	0.94

Source: Appendices III & IV

The overall turnover of capital employed for the industrial companies in Jordan went up from 0.81 times in 1987 to 1.03 times in 1993 and thereafter it came down to 0.95 times in 1996. Thus till 1993, the utilization of capital was quite effective but thereafter the capital was not applied optimally.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector reduced its turnover of capital employed over the years from 1.66 times in 1987 to 1.27 times in 1996 thus indicating poor utilisation of the capital employed. In other words, the capital maintained was higher than the operational level achieved. This pattern appears to be uniform in the sector as a whole as all the companies under this sector performed in similar ways. In the case of company no. 1a, for instance, the turnover went down from 1.75 times in 1987 to 1.30 times in 1996. Similarly in the case of company no. 1b, the overall turnover went down. In the case of company no. 1c, although there was a favourable trend till 1991, but it faded away after 1991 and the turnover went down from 0.83 times in 1987 to 0.50 times in 1996.

The Construction Industrial Sector over the period of ten years increased its turnover of capital employed from 0.25 times in 1987 to 0.60 times in 1996. Thereby we can say that the net sales achieved over the years were more as compared to the capital maintained. In the case of company no. 2a although there were reverse trends in some of the years, the turnover of capital employed went up from 0.24 times in 1987 to 0.59 times in 1996. Similarly, in the case of company no. 2b, the turnover went up from 0.54 times in 1987 to 0.84 times in 1996. Company no. 2c, although in the terminal years had a downward trend, which may be due to adverse conditions that the company was operating in, the average turnover went up to 0.45 times as compared to 0.31 times in 1987. Although in the terminal years, the trend was on the negative side.

The Consumables and Food Industrial Sector increased its efficiency on capital employed. It was on an average at 0.90 times as compared to 0.59 times in 1987. But a closer look reveals that from 1987 to 1993, the capital employed turnover of the company seems to have improved a lot. However, the trend after 1993 is a bit demoralising. From 1993 to 1996, there was a

gradual reduction in the capital employed turnover which went down substantially from 1.33 times in 1993 to 1.71 times in 1996. This trend was found in almost all the companies of this sector. The main problem with this sector was that the sales of the sector from 1987 to 1993 showed an upward trend and thereafter there were regular slumps in the sales target achieved. This was the problem of the sector. Thereby all the companies increased their turnover of capital employed up to 1993 and thereafter the reduction in the sales growth caused ripples in the turnover of capital employed and the turnover went down gradually.

The Pharmaceutical Industrial Sector seems to have enjoyed good fortunes on the overall efficiency of the working capital. As seen in other segments, the sector over the years improved its working capital management and the management deserves a part for a remarkable turnaround performance. Thereby the capital employed turnover also went up from 0.41 times in 1987 to 0.62 times in 1996. All the companies increased their turnover of capital employed. Company no. 4b and company no. 4c, reduced their respective turnover in the middle of the decade. This seems to be the effect of a reduction in the comparative operational level achieved due to the adverse impact of the Gulf War. But thereafter, the turnover again improved indicating that the reduction in turnover was a temporary phase, which was properly taken care of in the later years.

The Engineering Industrial Sector as a whole, reduced the capital employed turnover from 0.75 times in 1987 to 0.66 times in 1996. One can clearly demarcate two phases in the sector. In the initial 4 to 5 years, the turnover of capital employed was on an increase indicating proper running of the business. But due to the overall adverse conditions in the environment, the sector could not achieve the sales in comparison to the capital maintained. Thereby from 1991 onwards, the turnover of capital employed went down. In the case of company no. 5a we find that the turnover went up from 0.74 times in 1987 to 1.12 times in 1990 but after that it gradually decreased and in 1996 it was 0.68 times. Similarly in company no. 6b we find that the turnover increased from 0.45 times in 1987 to 1.20 times in 1990 and thereafter it reduced to 0.60 times in 1996. In the case of company no. 6c, the turnover was

always fluctuating indicating disproportionate capital maintained and the sales achieved. But on the whole, we find that the turnover reduced over the years.

As far as the Textile Industrial Sector is concerned, the turnover of capital employed improved. But the improvement or growth was not consistent and as such there were regular ups and downs in the ratio over the ten years. The utilisation of the capital was sporadic. The overall turnover of capital employed increased from 0.81 times in 1987 to 1.01 times in 1991 but thereafter it gradually decreased up to 0.82 times in 1996. Thus the overall growth was not substantial. In the case of company no. 6a, the turnover of capital employed reduced continuously from 1987 to 1996. In contrast to this, company no. 6b showed an increase in its turnover from 0.47 times in 1987 to 2.20 times in 1996. The company somehow seems to have survived the adverse trend in the middle of the decade. In the case of company no. 6c, the turnover initially increased but after that it gradually decreased over the years.

The Paper and Packing Sector did not fare well at all in utilisation of the capital employed. Initially, the turnover of capital employed reflected some signs of improvement, when it reached to 1.28 times in 1990 as compared to 0.76 times in 1987. But thereafter there was a gradual decline in the capital employed turnover and in the year 1996 it was as low as 0.67 times. The sector as a whole was also badly affected by the Gulf War as is depicted from the figures, though in the terminal years, one can see some signs of recovery. In the case of company no. 7a, the turnover increased from 0.80 times in 1987 to 1.37 times in 1990 but thereafter it gradually reduced to 0.58 times in 1996. Similarly in company no. 7c, the turnover initially increased but from 1991 onwards, it recorded a gradual reduction.

The turnover of capital employed is determined by the turnover of working capital and fixed capital. The analysis of the turnover of working capital shows that it had a declining trend from 1987 to 1996 (Table V.5.2). The turnover of fixed capital is shown in Table V.4.19.

#### **Turnover of Fixed Assets**

Table V.4.19 shows the turnover of fixed assets in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.4 19

## Turnover of Fixed Capital in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Times)										Average of Ten years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	6.58	7.53	9.10	12.54	15.85	15.42	15.24	17.16	17.80	20.95	13.82
b) Intermediate Petrochemical Industries Co Ltd	1.11	1.16	2.57	2.54	1.53	1.28	1.26	1.50	0.83	0.89	1.47
c) Jordan Sulpho- Chemicals Co Ltd	1.28	1.26	1.99	2.44	2.41	2.06	2.10	0.94	1.48	0.96	1.69
Sector-wise Ratio	5.60	6.29	7.70	10.25	12.28	12.53	12.67	12.98	13.69	15.78	10.98
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0.27	0.25	0.29	0.39	0.47	0.61	0.79	0.71	0.76	0.80	0.53
b) The Jordan Ceramic Industries Co Ltd	1.04	1.28	1.12	1.45	1.39	1.67	1.06	1.41	1.67	1.97	1.41
c) Jordan Rockwool Industries Co Ltd	0.40	0.60	1.80	1.34	0.55	0.88	1.26	0.98	1.12	1.05	1.00
Sector-wise Ratio	0.28	0.27	0.32	0.42	0.50	0.64	0.81	0.74	0.80	0.84	0.56
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn Co Ltd	1.56	1.80	2.16	3.75	5.55	4.91	5.77	2.54	2.47	2.10	3.26
b) Arab Investment and Int Trade Co Ltd	0.47	0.83	0.55	0.36	0.95	3.01	1.39	1.31	1.44	1.56	1.19
c) The National Industries Co Ltd	0.64	0.49	0.50	1.39	1.13	1.19	1.41	1.84	2.28	0.92	1.18
Sector-wise Ratio	1.03	1.16	1.28	2.18	3.20	3.56	3.72	2.18	2.24	1.63	2.22
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	1.00	1.02	1.47	1.61	1.63	1.84	1.85	1.37	1.87	2.08	1.57
b) Dar Al-Dawa Development & Invt Co Ltd	2.11	3.25	4.61	7.05	2.89	1.90	2.45	2.72	2.81	2.79	3.26
c) The Arab Center for Pharm & Chemicals Co Ltd	0.20	0.37	1.11	1.06	1.39	2.35	2.45	3.13	1.66	1.50	1.52
Sector-wise Ratio	0.97	1.11	1.73	2.03	1.83	1.91	2.09	1.97	2.13	2.24	1.80
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	1.43	1.70	2.37	3.02	3.64	4.84	8.32	5.09	4.72	4.04	3.82
b) National Cables & Wire Manuf Co Ltd	0.87	1.15	4.82	5.14	3.42	2.93	2.60	2.45	1.96	1.53	2.69
c) The Jordan Pipes Manufacturing Co Ltd	3.64	4.25	7.36	4.73	4.70	6.80	6.64	6.99	5.60	6.01	5.66
Sector-wise Ratio	1.58	1.85	3.90	4.08	3.70	4.30	4.57	3.71	2.91	2.52	3.31
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsteds Mills Co Ltd	6.83	7.93	9.96	16.07	27.56	20.01	5.93	5.01	7.79	7.57	11.46
b) Jordan Tanning Co Ltd	1.27	1.65	2.22	4.62	9.70	11.35	9.59	11.86	15.03	11.99	7.93
c) The Woolen Industries Co Ltd	1.23	1.48	2.25	1.92	2.33	2.32	2.05	1.43	1.42	2.57	1.90
Sector-wise Ratio	3.70	4.13	4.98	6.63	11.63	11.29	6.35	6.24	9.25	8.40	7.26
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	2.98	4.02	4.81	4.83	1.57	1.04	1.16	1.20	1.79	1.51	2.49
b) The Arab Paper Converting & Trading Co Ltd	0.80	0.86	2.10	2.70	1.97	2.72	3.69	2.54	1.51	1.78	2.07
c) Jordan Printing and Packing Co Ltd	1.69	1.73	1.67	2.50	2.59	2.30	2.18	2.00	1.36	1.31	1.93
Sector-wise Ratio	2.20	2.63	3.63	4.02	1.68	1.28	1.47	1.50	1.67	1.60	2.17
<b>Overall Industrial Ratio</b>	1.35	1.44	1.81	2.25	2.45	2.82	3.09	2.93	3.13	3.27	2.45

Source: Appendices III &amp; IV

The overall picture shows that the turnover of fixed capital went up over the years. But this does not lead one to infer that the position has improved as the fixed assets are taken always at net value. In the industrial companies in Jordan as a whole, the fixed assets turnover went up from 1.35 times in 1987 to 3.27 times in 1996. The company-wise and sector-wise analysis although reveals different trends.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector increased its fixed assets turnover from 5.60 times in 1987 to 15.78 times in 1996. The increase was regular and gradual. The company-wise figures however are different. In the case of company no. 1a, the turnover continuously increased from 6.58 times in 1987 to 20.95 times in 1996. On the other hand, in the case of company no. 1b and company no. 1c, we have two different trends. In the case of company no. 1b, the turnover increased from 1.11 times in 1987 to 2.54 times in 1990 but in 1991 the Gulf War had an impact on the overall operations and thereby the turnover went down to 0.89 times in 1996. Similarly in the case of company no. 1c, the turnover increased up to 1990 and after that registered a continuous decline.

The Construction Industrial Sector increased the overall fixed assets turnover. The increase was quite regular except in 1991. But otherwise one can see a constant increase in the fixed assets turnover from 1987 to 1996. The overall fixed assets turnover went up from 0.28 times in 1987 to 0.84 times in 1996. All the companies performed in similar ways. Thereby company no. 2a increased its fixed assets turnover from 0.27 times in 1987 to 0.80 times in 1996. Similarly company no. 2b and company no. 2c improved their turnover position. In company no. 2b, we find the fixed assets turnover increasing from 1.04 times in 1987 to 1.97 times in 1996. Similarly in company no. 2c, the fixed assets turnover went up from 0.40 times in 1987 to 1.05 times in 1996.

The Consumables and Food Industrial Sector improved its efficiency in fixed assets turnover. But the trend was somewhat abnormal. The turnover went up from 1987 to 1993. But thereafter the corresponding reduction in sales growth reduced the turnover. The turnover increased from 1.03 times in 1987 to 3.72 times in 1993. But thereafter with the reduction in the operational level achieved, the fixed assets turnover went down to 1.63 times in 1996. This

trend was found in almost all the companies. In the case of company no. 3a, the fixed assets turnover went up from 1.56 times in 1987 to 5.77 times in 1993 but reduced thereafter and in 1996, it was 2.10 times. Similarly in company no. 3b the turnover increased from 0.47 times in 1987 to 3.01 times in 1992 thereafter it gradually reduced. On the other hand, the fixed assets turnover in the case of company no. 3c, increased up to 1995 but suddenly slumped in the year 1996.

The Pharmaceutical Industrial Sector improved its operational efficiency remarkably and thereby the fixed assets turnover also multiplied. The fixed assets turnover went up from 0.97 times in 1987 to 2.24 times in 1996. All the companies followed the trend with the company no. 4a, improving the turnover from 1 times in 1987 to 2.08 times in 1996. Similarly in the case of company no. 4b, the turnover improved from 2.11 times in 1987 to 2.79 times in 1996. In the case of company no. 4c, although in the last two years we see a downward trend, the overall growth was remarkable. The turnover increased from 0.20 times in 1987 to 3.13 times in 1994 and thereafter although it came down to 1.50 times in 1996, the overall trend was really appreciable.

The Engineering Industrial Sector as a whole increased its fixed assets level throughout the period. In all the years under study, there was addition to fixed assets, perhaps in anticipation of an increasing activity level. But this seems not to have worked well for the sector. Although the fixed assets turnover showed improvement in the initial years, there was a slump on this account in the last 4 to 5 years. Thereby it seems that in the last 4 to 5 years, the utilisation of fixed assets was not proper as compared to earlier years and therefore the turnover increased from 1.58 times in 1987 to 4.57 times in 1993, which went down thereafter to 2.52 times in 1996. Company no. 5a, in tune with the overall sector, improved its fixed assets turnover from 1.43 times to 8.32 times in 1993, which gradually reduced to 4.04 times in 1996. Company no. 5b also witnessed appreciable improvement till 1992 but after that it faded away. Company no. 5c also showed a similar trend but the impact was on the lower side. Thus the turnover went up from 3.64 times in 1987 to 6.99 times in 1994 but in two years thereafter it slightly came down to 6.01 times in 1996.

The Textile Industrial Sector initially improved its fixed assets turnover. But in the later period, the companies in this sector show addition of fixed

assets, which were not utilised properly. Also there was an impact of the Gulf War which impaired the growth to some extent. And therefore the fixed asset turnover was on a downward path in the later years under study. Thus the turnover went up from 3.70 times in 1987 to 11.29 times in 1992 but thereafter with the reduction in the efficient utilization, the turnover came down to 8.40 times in 1996. All the companies showed similar trends. In the case of company no. 6a, for instance, the turnover improved from 6.83 times in 1987 to 27.56 times in 1991. But the Gulf War hampered the operations thereby the turnover gradually reduced there after to 7.57 times in 1996. On the other hand, company no. 6b and company no. 6c also showed increasing trends till the middle of the decade which was marred by the Gulf War thereafter. But in the terminal years there was some recovery as the turnover again showed some improvement.

The Paper and Packing Industrial Sector, was guilty of inefficient utilization of fixed assets especially after 1990. Thus in all the companies we find that the fixed assets turnover went up till 1990. But thereafter like the overall trend, the operations suffered a lot thereby the fixed assets turnover took a back seat. The overall turnover went up from 2.20 times in 1987 to 4.02 times in 1990. Thereafter as a result of the Gulf war, the utilization of the existing fixed assets suffered and the fixed assets turnover went down to 1.47 times in 1993. Thereafter there were some signs of revival as the turnover improved a little to 1.60 times in 1996. All the companies behaved in a similar fashion. In the case of company no. 7a, the turnover improved from 2.98 times in 1987 to 4.83 times in 1990. This company recorded reduction till 1992 when it was 1.04 times. But thereafter it again improved till 1996 when it was 1.51 times. Thus, in the later period, there were favourable signs. On the other hand, in the case of company no. 7b, the turnover improved from 0.80 times in 1987 to 3.69 times in 1993. But thereafter there was a continuous reduction up to 1.78 times in 1996. Similarly, in the case of company no. 7c, although the turnover improved till 1992, it depleted continuously till 1996.

#### **Cost of Sales in the Total Sales**

Table V.4.20 shows the percentage of cost of sales in the total to sales in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.4.20  
Percentage of Total Cost of Sales in the Total Sales in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996 Average of Ten years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>										
a) Jordan Petroleum Refinery Co Ltd	98 64	98 47	98 20	96 28	99 16	99 75	99 35	98 97	98 36	99 18
b) Intermediate Petrochemical Industries Co Ltd	90 07	86 81	82 22	81 91	87 92	90 89	100 22	103 40	109 91	126 71
c) Jordan Sulphate - Chemicals Co Ltd	79 27	106 06	84 83	86 45	90 98	79 56	99 92	108 27	106 24	122 03
<b>Sector-wise Ratio</b>	98 12	98 37	97 27	95 59	98 78	99 36	99 37	99 13	98 56	99 56
<b>2) Construction Industrial Sector</b>										
a) The Jordan Cement Factories Co Ltd	89 55	87 94	98 38	92 02	89 49	86 10	79 47	80 67	82 77	87 91
b) The Jordan Ceramic Industries Co Ltd	88 71	77 34	72 17	77 05	68 31	68 38	67 61	70 69	73 88	72 89
c) Jordan Rockwool Industries Co Ltd	101 75	91 63	75 93	87 61	129 40	101 38	93 79	104 40	102 49	116 29
<b>Sector-wise Ratio</b>	89 70	87 54	95 17	90 79	88 28	85 06	78 94	80 14	82 22	86 87
<b>3) Consumables &amp; Food Industrial Sector</b>										
a) The Industrial Commercial & Agn. Co Ltd	96 19	95 83	90 85	85 44	91 15	91 65	91 69	101 27	100 07	108 54
b) Arab Investment and Int. Trade Co Ltd	121 17	110 24	107 41	106 70	96 43	89 78	100 64	102 34	101 17	99 16
c) The National Industries Co Ltd	146 10	135 80	129 71	89 83	100 52	105 87	98 93	97 74	92 95	123 34
<b>Sector-wise Ratio</b>	107 27	103 61	97 15	87 16	92 48	92 80	93 11	100 78	98 84	109 79
<b>4) Pharmaceuticals Industrial Sector</b>										
a) The Arab Pharmaceuticals Manuf. Co Ltd	92 09	88 46	86 02	90 81	89 86	85 84	81 57	97 83	87 84	84 68
b) Dar Al-Dawa Development & Inv. Co Ltd	91 12	83 89	80 92	73 14	86 54	80 37	84 10	86 67	89 54	86 50
c) The Arab Center for Pharm. & Chemicals Co Ltd	99 53	81 63	72 54	74 05	66 10	74 32	137 18	83 56	91 29	86 67
<b>Sector-wise Ratio</b>	92 16	86 84	83 30	83 86	86 69	82 70	88 97	90 69	88 80	85 51
<b>5) Engineering Industrial Sector</b>										
a) Arab Aluminum Industry Co Ltd	85 36	85 60	88 83	77 99	77 65	78 66	72 08	70 95	85 13	82 88
b) National Cables & Wire Manuf. Co Ltd	94 16	89 41	64 38	65 62	73 66	80 22	85 03	87 18	92 84	96 99
c) The Jordan Pipes Manufacturing Co Ltd	91 79	76 75	79 56	87 31	94 45	90 32	85 12	88 40	83 71	96 37
<b>Sector-wise Ratio</b>	89 09	83 73	76 65	73 61	79 22	82 21	79 22	80 56	88 48	91 20
<b>6) Textile Industrial Sector</b>										
a) The Jordan Worsted Mills Co Ltd	87 30	84 92	96 10	90 94	72 19	72 58	78 85	79 17	73 47	77 18
b) Jordan Tanning Co Ltd	89 14	90 93	81 40	86 03	91 25	91 53	89 89	91 23	93 12	94 02
c) The Woolen Industries Co Ltd	102 12	98 69	81 31	89 69	79 66	91 21	94 45	87 24	94 07	88 74
<b>Sector-wise Ratio</b>	88 30	86 77	91 85	88 98	81 44	83 12	84 79	85 77	84 98	86 67
<b>7) Paper &amp; Packing Industrial Sector</b>										
a) Jordan Paper and Cardboard Factories Co Ltd	82 19	78 01	69 48	74 93	76 19	101 30	89 04	83 69	86 55	103 59
b) The Arab Paper Converting & Trading Co Ltd	120 79	126 06	84 88	88 49	98 59	98 82	98 93	89 26	84 19	97 23
c) Jordan Printing and Packing Co Ltd	85 74	89 25	89 21	85 77	83 57	95 79	86 12	87 54	99 96	109 73
<b>Sector-wise Ratio</b>	86 15	83 94	73 11	77 80	79 07	100 01	90 63	85 73	87 00	101 21
<b>Overall Industrial Ratio</b>	96 23	95 52	94 09	92 07	94 34	94 54	93 47	94 15	94 21	96 27

Source Appendix II

We have seen that in the industrial companies, the percentage of raw materials consumption in the total cost of production went down over the years by about 2 per cent. As the raw materials is an important constituent of the total cost, and its percentage went down, the percentage of cost of sales with regard to the sales also went down from 1987 to 1996. Although in the year 1996, the percentage looks higher, the average percentage of cost of sales in sales for the ten years was 94.49 per cent as against 96.23 per cent in the year 1987. Thus one can say that the overall percentage of the cost of sales in the total sales went down. The sector-wise performance although was different.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector increased its percentage of cost of sales in the total sales. The main reason for this was perhaps the more reduction in the relative material contribution in total cost of production. The raw materials was on the higher side as compared to other expenses. Thereby the increase in percentage of materials caused the relative increase in the percentage of the cost of sales in the total sales. Thus there was an increase from 98.12 per cent in 1987 to 99.56 per cent in 1996. The company-wise trend however was different. Company no. 1a increased the cost of sales from 98.64 per cent in 1987 to 99.18 per cent in 1996. On the other hand, in the case of company no. 1b and company no. 1c, we can see that the corresponding overheads were completely out of check especially after 1991. Therefore the cost of sales increased abnormally after 1991 and 1992. Therefore in company no. 1b, the total cost of sales went up from 90.07 per cent of the sales in 1987 to 126.71 per cent in 1996. Similarly in company no. 1c, the cost of sales went up from 79.27 per cent to 122.03 per cent.

In the Construction Industrial Sector, we find that the cost of raw materials was on the lower side as compared to other costs. The percentage of the cost of raw materials also went down as compared to the year 1987. Besides this, the overall sector controlled the other expenses effectively. Thus the percentage of the cost of sales in the total sales went down over the years. Although in the initial years, it seemed to increase but ultimately it went down.

Thus from 89.70 per cent in 1987, the percentage of the cost of sales went down to 86.87 in 1996. Company 2a reduced the cost of sales from 89.55 per cent in 1987 to 87.91 per cent in 1996. The average cost of sales for the decade was even lower than this. Similarly in the case of company no. 2b, although there was a slight increase during the later years, the cost of sales went down from 88.71 per cent in 1987 to 72.89 per cent in 1996. In the case of company no. 1c, the corresponding cost of raw materials was higher than the overall sector. Further there were abnormal administrative and financial overheads. Therefore the overall cost of sales was always on the higher side. The cost of sales reduced from 101.75 per cent in 1987 to 87.61 per cent in 1990. But thereafter the Gulf War put a tremendous stress on the operating conditions of the company and so the expenses went very high. Thus the cost of sales went as high as 116.29 per cent of the sales in 1996.

The Consumables and Food Industrial Sector, we find that for the ten years under study, the overall cost of sales went down as compared to the figures in 1987. But the trend was disturbing especially after 1991. From 1987 to 1990, we can see a reduction in the corresponding percentage of cost of sales. But after that due to the adverse operating conditions, the cost of sales went higher and higher. For the sector, the overall percentage of the cost of sales came down from 107.27 per cent in 1987 to 87.16 per cent in 1990. But thereafter it went up to 109.79 per cent in 1996. Companies under the sector behaved in a somewhat similar fashion. Thus company no. 3a reduced its cost of sales from 96.19 per cent in 1987 to 85.44 per cent in 1990. But after that the cost of sales gradually increased to 108.54 per cent in 1996. In the case of company no. 3b and company no. 3c, the cost of sales usually exceeded the sales. Thereby most of the times the percentage was always on the higher side. For instance, in company no. 3c, the cost of sales was 146.10 per cent in 1987. Thus the company was running into heavy losses. Thereafter the percentage gradually came down to 89.83 per cent in 1990. But due to the impact of the war, the percentage again went up in the next 2 years to 105.87 per cent in 1992. Thereafter the company seems to have controlled the

overheads to some extent. Therefore we can see a gradual decrease in the corresponding percentage of the cost of sales in the sales.

The Pharmaceutical Industrial Sector performed quite satisfactorily in controlling the cost of sales over the years. Thereby generally we can see the reducing trend. Although the percentage of cost of sales went up around the middle of the decade, which was somewhat obvious, the average cost of sales went gradually down from 92.16 in 1987 to 85.51 per cent in 1996. One can see this as the sector's overall phenomenon, as all the companies reduced their corresponding percentage of cost of sales over the years.

The Engineering Industrial sector reduced its relative cost of sales over the years, but in the last 3 to 4 years we can see an increasing trend due to an increase in the corresponding percentage of material consumption with regard to the cost of production. Thus the cost of sales came down from 89.09 per cent in 1987 to 79.22 per cent in 1993. But thereafter the relative percentage went up to 91.20 per cent in 1996. Company no. 5a was able to reduce the percentage of cost of sales from 85.36 per cent in 1987 to 70.95 per cent in 1994. But the relative cost of raw materials went up in the next years and so the percentage of cost of sales in sales also jumped up to 82.88 per cent in 1996. A somewhat similar trend is found in company no. 5c. On the other hand in case of company no. 5b, along with the cost of raw materials, the overheads went up which made the overall cost go up in the last 5 years. Thus in company no. 5b, the percentage of the cost of sales in the sales first came down from 94.16 per cent in 1987 to 65.62 per cent in 1990, but thereafter it gradually reached to 96.99 per cent in 1996

Although in the later years, the Textile Industrial Sector increased the corresponding cost of sales, the overall trend was otherwise. The sector reduced the relative percentage of the cost of sales to the total sales from 1987 to 1996. Interestingly this sector witnessed an increase in the relative percentage of material consumption during the same period. Thereby one can infer that although the cost of material went up, a strict control over the administrative and other overheads enabled the sector to reduce the overall

percentage of the cost of sales to the total sales. The sector reduced the percentage of the cost of sales from 88.30 per cent in 1987 to 86.67 per cent in 1996. Company no. 6a, for instance, reduced its percentage of cost of sales from 87.30 per cent in 1987 to 77.18 per cent in 1996. The reduction was much more significant in company no. 6b where the cost of sales was as high as 102.12 per cent in 1987, and it went down over the years to 88.74 per cent in 1996. In the case of company no. 6b, we have different trends. In this case, the increase in material consumption was quite substantial. Thereby the overheads seemed to have reduced, but the increase in the overall cost of material was enough to offset the reduction in overheads. Thus the overall cost of sales went up from 89.14 per cent in 1987 to 94.02 per cent in 1996.

The Paper and packaging Industrial sector recorded an increased proportion of raw materials consumption substantially over the period under study. The overall effect of this fact was that the percentage of the cost of sales for the sector also went up over the years. From 1987 to 1996 it went up from 86.15 per cent to 101.21 per cent. From the year 1991, alongwith the increase in the cost of material, the overheads cost became very high. Thereby we can see that there was a slight reduction in the percentage of the cost of sales till 1991, ultimately after 1991, the cost of sales went abnormally high. Company no. 7a, for instance, reduced the percentage of cost of sales from 82.19 per cent in 1987 to 76.19 in 1991 but after that it witnessed an increase up to 103.59 per cent in 1996. Similarly, there was an increase in the cost of sales in company no. 7c. In the case of company no. 7b, the cost of sales in 1987 was 120.79 per cent which is abnormally high. The company was able to bring down this percentage to 97.23 per cent in 1996. Although this percentage was also on the higher side, numerically one can say that the percentage reduced slightly over the years.

**Gross Margin on Sales**

Table V.4.21 shows the percentage of gross margin on sales in the industrial companies during the period under study, i.e., from 1987 to 1996

Table V.4.21  
Percentage of Gross Margin on Sales in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS		1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	Average of Ten years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>												
a) Jordan Petroleum Refinery Co Ltd		5.47	5.63	6.11	8.21	5.60	5.36	6.22	6.70	7.13	6.53	6.30
b) Intermediate Petrochemical Industries Co Ltd		17.99	22.97	25.93	26.56	22.71	22.76	18.69	11.65	13.40	3.13	18.58
c) Jordan Sulpho- Chemicals Co Ltd		33.62	14.98	26.70	23.85	17.34	29.07	13.63	11.32	11.23	4.06	18.58
<b>Sector-wise Ratio</b>		6.23	6.15	7.36	9.16	6.16	5.90	6.45	6.82	7.24	6.49	6.80
<b>2) Construction Industrial Sector</b>												
a) The Jordan Cement Factories Co Ltd		35.47	38.33	35.04	33.09	33.04	31.70	34.94	34.47	35.49	33.72	34.53
b) The Jordan Ceramic Industries Co Ltd		23.84	30.82	34.92	33.52	37.69	37.16	40.60	39.22	36.92	37.25	35.20
c) Jordan Rockwood Industries Co Ltd		29.97	38.26	46.47	34.01	13.33	29.82	33.95	26.01	26.31	19.03	29.72
<b>Sector-wise Ratio</b>		34.96	37.99	35.68	33.16	33.17	32.06	35.29	34.76	35.51	33.89	34.65
<b>3) Consumables &amp; Food Industrial Sector</b>												
a) The Industrial Commercial & Agn Co Ltd		19.13	17.16	21.39	25.41	20.92	21.66	25.99	21.06	23.27	17.60	21.36
b) Arab Investment and Int. Trade Co Ltd		4.23	6.07	10.43	19.97	20.62	17.87	15.29	13.88	16.49	18.72	14.35
c) The National Industries Co Ltd		-13.35	3.77	4.16	25.16	17.64	12.72	20.67	20.82	16.87	-6.96	10.15
<b>Sector-wise Ratio</b>		12.08	13.43	18.22	25.14	20.56	20.24	24.60	20.18	21.21	13.25	18.89
<b>4) Pharmaceuticals Industrial Sector</b>												
a) The Arab Pharmaceuticals Manuf Co Ltd		30.41	37.65	35.93	33.07	33.67	37.20	42.32	38.52	33.13	41.31	36.32
b) Dar Al-Dawa Development & Invt Co Ltd		~19.83	27.52	27.07	33.63	21.32	26.26	22.18	17.11	14.18	18.02	22.73
c) The Arab Center for Pharm & Chemicals Co Ltd		28.23	38.69	41.09	43.65	50.25	45.04	38.72	30.26	37.52	34.16	38.76
<b>Sector-wise Ratio</b>		28.25	34.99	34.10	34.14	31.68	34.86	34.68	27.91	25.96	31.95	31.85
<b>5) Engineering Industrial Sector</b>												
a) Arab Aluminum Industry Co Ltd		22.49	19.54	16.99	26.69	27.61	25.77	32.09	34.06	20.43	22.10	24.77
b) National Cables & Wire Manuf Co Ltd		14.80	17.63	39.15	37.70	31.59	25.22	21.72	19.61	12.67	10.41	23.04
c) The Jordan Pipes Manufacturing Co Ltd		15.81	30.65	28.25	19.61	13.17	14.68	20.47	16.48	22.40	11.58	19.31
<b>Sector-wise Ratio</b>		18.87	22.44	28.65	30.80	26.47	22.68	26.13	25.12	17.10	15.33	23.38
<b>6) Textile Industrial Sector</b>												
a) The Jordan Worsted Mills Co Ltd		23.41	25.69	21.25	26.87	40.18	35.90	33.26	35.76	38.76	40.78	32.19
b) Jordan Tanning Co Ltd		26.51	21.56	23.28	19.73	14.79	14.19	16.74	14.35	10.82	10.71	17.77
c) The Woolen Industries Co Ltd		12.64	18.51	29.66	18.64	29.65	18.14	25.07	25.63	23.29	23.45	22.49
<b>Sector-wise Ratio</b>		23.30	24.55	23.41	23.61	27.83	24.00	25.29	24.22	22.74	24.00	24.30
<b>7) Paper &amp; Packing Industrial Sector</b>												
a) Jordan Paper and Cardboard Factories Co Ltd		26.74	31.74	38.47	34.24	32.07	15.08	26.53	31.27	27.48	12.25	27.59
b) The Arab Paper Converting & Trading Co Ltd		11.32	15.83	35.73	29.80	19.94	18.38	15.84	18.19	28.54	13.67	20.73
c) Jordan Printing and Packing Co Ltd		21.57	18.12	18.72	19.66	22.35	11.56	21.19	18.86	9.07	-2.01	15.91
<b>Sector-wise Ratio</b>		24.60	28.26	36.34	32.09	29.81	15.03	23.54	26.09	26.34	11.94	25.40
<b>Overall Industrial Ratio</b>		12.42	13.19	15.15	16.54	14.38	13.86	15.75	14.76	14.73	13.60	14.44

Source Appendix III

In the industrial companies in Jordan, the overall gross margin on sales went up as compared to that of 1987. For the ten years under study, the average gross margin on sales was 14.44 per cent as compared to 12.42 per cent in 1987. Here again we find that the margin went up from 12.42 per cent in 1987 to 16.54 per cent in 1990. But in 1991, there was a sudden fall and the gross margin came down to 14.38 per cent which further slid to 13.86 per cent in 1992. Although in 1994 we see an increase in the gross margin but after that the margin went down. In 1996, the gross margin on sales was 13.60 per cent.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector increased its gross margin on sales from 6.23 per cent in 1987 to 9.16 per cent 1990. Thereafter the margin came down sharply and despite some favourable years, the overall downward trend continued. In the year 1996, the per cent was 6.49 per cent of the sales. For the ten years, the overall margin was 6.80 per cent. All the companies had similar trends on record. In the case of company no. 1a, the gross margin on sales increased from 5.47 per cent in 1987 to 8.21 per cent in 1990 and after that it came down to 6.53 per cent in 1996. Company no. 1b and company no. 1c had a substantial reduction in the gross margin in the period after 1991. For instance, in the case of company no. 1b, the gross margin in 1987 was 17.99 per cent and it went up to 26.56 per cent in 1990 but after that the margin drastically came down to 3.13 per cent in 1996. Similarly, in the case of company no. 1c, the margin reduced from 23.85 per cent in 1990 to 4.06 per cent in 1996.

The Construction Industrial Sector had a gross margin of more than 30 per cent which is considerably high. But the trend was decreasing in most of the years under study. Thus from 34.96 per cent in 1987, the gross margin gradually came down to 32.06 per cent in 1992. The downward trend of the margin continued with some exceptions and in the year 1996 the margin came down to 33.89 per cent in comparison to the year 1987. In individual companies also we find different trends. In the case of company no. 2a, for instance, the gross margin on sales was 35.47 per cent in the year 1987. It gradually came down to 33.72 per cent in the year 1996. In the case of company no. 2c also we find that the figures of 1996 were lower than the figures in 1987. But the overall performance had mixed trends. In the initial three years, the gross margin on sales went from 29.97 per cent in 1987 to a

whopping 46.47 per cent in 1989. But in the next two years, it suddenly came down to just about 13.33 per cent in 1991. In the next two years again, there was an increase in the gross margin percentage to 33.95 per cent in 1993. And in the terminal years again, a downward trend was observed as the margin came down to 19.03 per cent in 1996. Such upward and downward trends may be the results of the uncertainties prevailing in the operational circumstances of the sector. We can find a similar trend in company no. 2b. So one can infer that the margin in this sector was on the higher side but it was quite volatile and prone to circumstantial conditions.

The Consumables and Food Industrial Sector improved its performance in the field of gross margin. In the initial years under study the gross margin was on the lower side. Thus, in 1987, the overall gross margin on sales was 12.08 per cent. This gradually improved till 1990 when it nearly doubled as compared to 1987 and reached 25.14 per cent. Thereafter, the Gulf War crisis marred the growth of the gross margin and except in 1992, the gross margin gradually came down to reach 13.25 per cent in 1996. For the ten years, the overall gross margin was 18.89 per cent. Most of the companies showed somewhat similar performance. In case of company no. 3a, for instance, the overall gross margin on the average went up to 21.36 per cent as compared to 19.13 per cent in 1987. In case of company no. 3b, on the other hand, the gross margin increased from a meager 4.23 per cent in 1987 to 20.62 per cent in 1991. Thereafter although there was a reduced margin obtained till 1994, this was on account of the Gulf War. But after that the margin again improved in the last 3 years from 13.88 per cent in 1994 to 18.72 per cent in 1996. Thus, apart from the impact of the Gulf War, the overall gross margin achieved by the company improved over the years. Company no. 3c although initially showed a trend similar to that of company 3b, in the end the growth seems to have faded away in the terminal years. Thus we can see that from 1987 to 1990, the negative margin was converted into a positive one to 25.16 per cent. But thereafter, with the war having its impact, the margin reduced continuously, the gross margin again was on the negative side in 1996, although in 1993 and 1994, the company seemed to have recovered a little.

The Pharmaceutical Industrial Sector improved its gross margin on sales over the years. The gross margin recorded an appreciable increase from 1987 to 1993 apart from a small adverse impact in 1991. Thus the margin went up from 28.25 per cent in 1987 to 34.68 per cent in 1993. Thereafter the margin

went down slightly which shows an overall recession in the industry, but again it recovered and in the year 1996 it was 31.95 per cent. The overall industrial trend was also found in each of the industries. Thus in company no. 4a, from 30.41 per cent in 1987 the gross margin reached as high as 42.32 per cent in 1993 and in the recession period up to 1995 it came down to 33.13 per cent. But again it jumped up to 41.31 per cent in 1996. Similarly, in the case of company no. 4b and company no. 4c we find an increasing trend from the initial years up to the middle of the decade and a recovery of the margin in the terminal years after the recession period in and around 1994.

In the Engineering Industrial Sector, there was a flourishing period from 1987 to the middle of the decade. Thereafter due the overall adverse environment, the prospect of an increase in the margin faded away continuously. However, in 1993, there was a faint sign of revival of fortunes but this proved to be temporary as the gross margin thereafter again went down regularly. It went up from 18.87 per cent in 1987 to 30.80 per cent in 1990. Thereafter in and after 1991 there was a reduction in the margin except in 1993 when it increased. After that the margin came down to 15.33 per cent in 1996. In the case of company no. 5a, overcoming the initial adverse trend, the margin increased from 22.49 per cent in 1987 to 27.61 per cent in 1991. Thereafter the margin went down to 22.10 per cent in 1996. For the ten years as a whole, the gross margin was 24.77 per cent. Similarly in the case of company no. 5b, the margin increased from 14.80 in 1987 to 37.70 per cent in 1990. After that it witnessed a regular slump and in 1996 the margin was as low as 10.41 per cent.

The Textile Industrial Sector improved its gross margin on sales over the years, which recorded an increase from 23.30 per cent in 1987 to 24 per cent in 1996. Company-wise study reveals that in the case of company no. 6a, the margin went up from 23.41 per cent to 40.18 per cent in 1991. Thereafter due to increase in the corresponding cost of production, the gross margin came down to 33.26 per cent in 1993. The margin again seems to have staged a recovery and in 1996 it was 40.78 per cent. Similarly, in the case of company no. 6c, we find favourable results till the middle of the decade. In the subsequent period, after some adverse results, the gross margin ultimately again went up in the terminal years. On the other hand, in the case of company no. 6b, we find an overall reducing trend of gross margin. Except in some years, the trend was continuously depressing. Thus from 26.51 per cent in

1987, the gross margin touched a point as low as 10.71 per cent in 1996 with the average at 17.77 per cent.

In case of the Paper and Packing Industrial Sector, the gross margin obtained was fluctuating over the decade. In the initial years, there were improvements but after that there was a downfall. And this cycle was repeated in the remaining years. Thus one can infer that with a better performance initially the gross margin increased from 24.60 per cent to 36.34 per cent in 1989. Thereafter as the cost of production went up, the margin came down and the downfall was quite sharp in the year 1992, being the first year after the war. Thereby in 1992 the margin was as low as 15.03 per cent. But after this period, there were favourable results till 1995 when the gross margin again shot up to 26.34 per cent. The year 1996 seems to have had a major impact on the industrial sector as the margin suddenly came down to an all time low at 11.94 per cent. This year all the companies fared quite poorly indicating a high cost of production as compared to the sales, which was perhaps the direct result of the prevailing recession.

All the companies performed in a somewhat similar fashion. In the case of company no. 7a, the margin initially went up from 26.74 per cent in 1987 to 34.24 per cent in 1990. Thereafter it came down to 15.08 per cent in 1992. Afterwhich although it increased in the next 2 to 3 years remarkably, ultimately in tune with the sector's trend, the margin came down drastically in 1996 to 12.25 per cent. Similarly in company no. 7b, initially the margin increased from 11.32 per cent in 1987 to 35.73 per cent in 1989. But in the middle of the decade, the adverse trend brought the margin down to 15.84 per cent in 1993. In the terminal year 1996, again the margin reduced to 13.67 per cent. Company no. 7c presented the worst possible results as initially the margin increased just like the other companies, but ultimately the cost of production went completely out of control and in the year 1996 the gross margin was on the negative side.

**Raw Materials Cost to Total Production Cost**

Table V.4.22 shows the percentage of raw materials cost to cost of production in the industrial companies during the period under study, i.e., from 1987 to 1996.

Table V.4.22  
Percentage of Raw Materials Cost to Cost of Production in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	92 07	91 74	92 02	93 41	93 30	94 38	94 48	94 53	94 35	93 71	93 40
b) Intermediate Petrochemical Industries Co. Ltd	89 13	89 74	92 58	90 88	86 73	85 73	83 74	82 55	74 51	79 73	85 53
c) Jordan Sulpho- Chemicals Co. Ltd	87 49	85 44	73 87	83 78	83 38	79 13	74 48	79 83	83 48	77 23	80 81
<b>Sector-wise Ratio</b>	91 94	91 58	91 69	93 11	92 96	94 03	94 11	94 19	94 02	93 42	93 10
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	5 27	3 42	5 79	3 45	3 09	4 39	4 37	4 72	3 87	2 48	4 09
b) The Jordan Ceramic Industries Co. Ltd	23 39	23 70	29 57	36 24	38 96	35 90	35 60	35 41	37 52	38 41	33 47
c) Jordan Rockwool Industries Co. Ltd	41 90	45 36	51 55	51 06	37 26	37 09	38 71	34 70	38 84	38 14	41 46
<b>Sector-wise Ratio</b>	6 44	5 35	9 95	7 67	5 68	7 22	6 95	7 64	6 78	5 93	6 96
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	68 04	69 65	74 58	79 58	84 88	81 68	82 07	73 58	79 67	75 82	76 96
b) Arab Investment and Int. Trade Co. Ltd	72 49	82 20	85 90	89 54	83 53	93 88	90 73	83 83	86 12	79 44	84 78
c) The National Industries Co. Ltd	79 89	86 59	70 74	77 44	75 98	71 77	68 45	66 86	83 82	101 25	76 28
<b>Sector-wise Ratio</b>	70 77	74 22	75 38	79 61	83 83	82 76	81 52	73 69	81 48	81 79	76 50
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	88 67	67 68	79 99	78 67	73 19	79 63	60 59	57 52	70 65	72 52	70 91
b) Dar Al-Dawa Development & Invt. Co. Ltd	53 57	50 67	39 59	50 56	46 39	46 38	33 62	29 96	35 02	38 42	42 42
c) The Arab Center for Pharm. & Chemicals Co. Ltd	19 94	31 72	26 75	44 20	40 75	44 48	58 28	65 72	32 62	37 64	40 21
<b>Sector-wise Ratio</b>	63 53	60 58	63 88	67 37	62 04	64 26	49 68	46 89	49 93	54 18	58 23
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminium Industry Co. Ltd	70 20	77 51	81 23	78 43	77 72	67 57	75 89	76 48	80 45	87 38	77 29
b) National Cables & Wire Manuf. Co. Ltd	96 14	83 36	95 57	90 09	85 30	84 32	85 76	93 58	91 70	79 31	88 51
c) The Jordan Pipes Manufacturing Co. Ltd	82 86	83 84	87 05	85 24	85 57	87 49	86 67	82 66	81 98	82 77	84 61
<b>Sector-wise Ratio</b>	79 25	80 59	87 80	84 71	82 21	78 27	81 98	85 13	86 19	82 97	82 91
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	75 92	75 21	83 52	84 40	78 66	81 55	92 62	66 96	83 04	79 60	80 15
b) Jordan Tanning Co. Ltd	62 58	72 86	63 35	85 13	87 82	87 73	84 52	88 01	91 90	93 08	81 70
c) The Woolen Industries Co. Ltd	65 20	71 38	75 44	78 27	79 55	80 12	77 61	63 61	72 34	74 26	74 30
<b>Sector-wise Ratio</b>	73 49	74 64	79 48	84 29	83 26	85 02	87 05	78 83	88 55	86 72	82 13
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	58 38	60 05	57 01	61 10	63 99	46 48	44 23	44 08	63 41	73 02	57 27
b) The Arab Paper Converting & Trading Co. Ltd	71 06	79 02	76 34	82 95	79 71	80 91	78 10	122 08	86 54	85 24	84 40
c) Jordan Printing and Packing Co. Ltd	44 52	34 97	48 21	56 03	65 37	62 23	50 15	53 09	86 54	64 16	56 53
<b>Sector-wise Ratio</b>	58 20	57 78	58 48	62 93	65 72	54 23	51 58	69 98	71 10	77 50	62 75
<b>Overall Industrial Ratio</b>	79 52	79 92	80 47	79 81	77 90	79 49	77 14	76 88	77 62	77 08	78 58

Source Appendix III

Over the period of ten years, as we have seen, the overall gross margin initially went up and in the period after 1991, there was a reduction in the comparative margin. The gross margin is generally affected by the cost of production, in which the major component is the raw materials consumed. Thereby it becomes important to study how the percentage of raw materials varied with respect to the cost of production.

For the ten years under study, the consumption of raw materials was 78.58 per cent of the total cost of production, as compared to 79.52 per cent in the year 1987. This indicated that the overall cost of raw materials went down over the years. But this should be viewed from another angle. The percentage of material consumption indicates an increase in other production cost. Thereby we can say that the processing costs in the industrial companies in Jordan went up by about 2 per cent from 1987 to 1996.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector increased its percentage of raw materials in the total cost of production. From 1987 to 1994, we can see a regular increase in the cost of raw materials from 91.94 per cent to 94.19 per cent. Thereafter a sudden increase in the overheads brought the percentage of cost of raw materials down to 93.42 per cent of the cost of production in 1996.

The Engineering Industrial Sector showed a tendency to increase the contribution of material in the total cost of production. Thereby we can see that the consumption of material went up from 79.25 per cent in 1987 to 82.97 per cent of the cost of production in 1996. Although this witnessed some ups and downs the overall trend was rising. Since this trend was observed in the sector as a whole, the reason for this may be the steady increase in the material procurement. In the case of company no. 5a, for instance, we find a regular increase in the percentage of cost of raw materials to the total cost of production. The percentage went up from 70.20 per cent in 1987 to 87.38 per cent in 1996. Similarly, in the case of company no. 5c, with some fluctuations, cost of raw materials as a percentage to the total cost of production went up from 82.86 per cent in 1987 to 84.61 per cent on an average. Company no. 5b, however, shows a different trend. The company reduced the percentage of

material in the total cost of production. But the percentage was always high as compared to other companies in the sector and yet we can see that there was a reduction on this count. This indicates an improvement in the overall material utilisation. Thus the percentage of cost of raw materials reduced from 96.14 per cent in 1987 to 79.31 per cent in 1996 of the cost of production.

Like the Engineering Industrial Sector, the Textile Industrial Sector also increased the percentage of material in the total cost of production. But the increase was more than that of the Engineering Industrial Sector. Except in the year 1991, when due to war conditions, the overheads went up, the percentage of material regularly increased. This may be the result of the steady price increase over the years. Thus from 1987 to 1996, we find that the percentage of raw materials went up from 73.49 per cent to 86.72 per cent. All the companies followed somewhat similar trends although the magnitude of the change may be different. For instance, the overall increase in cost of raw materials in company no. 6a was from 75.92 per cent to 79.90 per cent but in the case of company no. 6b and company no. 6c, the increase was quite substantial. In company no. 6b, the percentage of material went up from 62.58 per cent in 1987 to 93.08 per cent in 1996. Similarly in 6c, the consumption went up from 65.20 per cent in 1987 to 74.26 per cent in 1996.

In the Paper and Packing Industrial Sector, although the overall percentage of material consumption went up, we find two trends operating. From 1987 to 1991, the pre-war period, we find that the percentage of cost of raw materials went up from 58.20 per cent to 62.93 per cent. Thereafter in the post war environment, the overheads went up and so the relative percentage went down to 51.86 per cent in 1993. Thereafter again we find that the renewed prices and control on the expenses, increased the percentage of material to 77.50 per cent of the cost of production in 1996. The companies under this sector also performed in a pattern very similar to the sector's trend. In the case of company no. 7a, for instance, the material consumption went up from 59.38 per cent in 1987 to 63.99 per cent in 1991 which reduced to 44.08 per cent in 1994. Thereafter in tune with the overall trend, the percentage again went up to 73.02 per cent of the cost of production in 1996. A similar

increasing trend was found in company no. 7b where the overall percentage of raw materials in the total cost of production went up from 71.06 per cent in 1987 to 85.24 per cent in 1996.

#### 5.4.8 SOURCES AND APPLICATION OF FUNDS

**TABLE V.5.23**  
**FUND FLOW STATEMENT OF JORDAN PETROLEUM REFINERY**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 1a)**

*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	4,426	--	5,697	--	3,870	12,439	2,748	--	--	10,722
2 Issue of Share Capital	--	--	--	--	--	--	--	--	--	--
3 Fund From Operation	9,182	9,348	9,389	7,550	4,259	4,543	5,336	5,006	5,655	4,678
4 Sale of Fixed Assets	--	--	--	--	--	--	--	--	--	--
5 Sale of Investment	--	--	--	--	--	--	--	--	--	--
6 Share Premium	--	--	--	--	--	--	--	--	--	--
7. Decrease in Net Working Capital	--	--	--	--	--	--	203	4,284	11,906	12,482
<b>TOTAL FUND PROVIDED</b>	<b>13,608</b>	<b>9,348</b>	<b>15,086</b>	<b>7,550</b>	<b>8,129</b>	<b>16,982</b>	<b>8,287</b>	<b>9,290</b>	<b>17,562</b>	<b>27,881</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	--	1,305	--	4,151	--	--	--	3,188	12,076	--
2 Cash Loss From Operation	--	--	--	--	--	--	-	--	--	--
3 Addition to Fixed Assets	2,489	4,428	3,861	1,514	1,231	10,108	8,287	5,944	5,428	27,881
4 Purchase of Investment	--	--	--	--	--	--	--	158	58	--
5 Increase in Net working Capital	11,119	3,615	11,225	1,884	6,898	6,873	--	--	--	--
<b>TOTAL FUNDS UTILIZED</b>	<b>13,608</b>	<b>9,348</b>	<b>15,086</b>	<b>7,550</b>	<b>8,129</b>	<b>16,982</b>	<b>8,287</b>	<b>9,290</b>	<b>17,562</b>	<b>27,881</b>

Source: Annual Reports

Throughout the period of ten years under study, company no. 1a was able to generate funds from operations for the purpose of application. Besides this, there was enough amount of the borrowed funds over the years. The application of funds, in the first 4 to 5 years is in complete contrast with the last years. In the first three years under study, from 1987 to 1989, the funds from operations increased from Jordanian Dinar (JD) 9,182 thousand to JD 9,389 thousand. These funds were increasingly applied towards working capital because the company was not able to keep a proper check on the increasing level of receivables and inventories. Moreover there were some additions to the fixed assets for which the long term borrowings were taken help of. As compared to the first three years, the funds from operations were seriously

affected especially after 1991 due to the Gulf War. Thereby from JD 9,389 thousand in 1989 the funds from operations went down to JD 4,678 thousand in 1996. From 1992 onwards we can see a heavy addition to the fixed assets. In 1992 therefore we find the acquisition of fixed assets up to JD10,108 thousand. And in the year 1996, it was as high as JD 27,881 thousand. All this resulted in increasing the application of funds and fixed capital thereby most of the working capital was depleted in the last 3 to 4 years. Apart from this, funds from borrowings were applied for this purpose. Thus in 1992, the borrowed funds were JD 12,439 thousand and in 1996, an amount of JD 10,722 thousand was borrowed. Although there was generation of funds from operations, initially the application of funds towards the working capital was much more than the funds generated. This additional investment was made out of the borrowed funds. The company had an excessive amount of funds locked in inventories and receivables. Subsequently, in the last 4 to 5 years, with the major addition to fixed assets, application of funds towards working capital reduced considerably. Besides this, most of the finance was arranged through long term borrowings.

**TABLE V.4.24**  
**FUND FLOW STATEMENT OF INTERMEDIATE PETROCHEMICAL**  
**INDUSTRIES CO. LTD. DURING 1987 TO 1996. (Company no. 1b)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	67	--	--	--	--	--	--	--	--	--
2. Issue of Share Capital	500	--	--	--	--	--	--	--	--	--
3 Fund From Operation	668	827	1,431	979	182	293	303	90	--	--
4. Sale of Fixed Assets	--	--	--	--	--	--	--	--	--	--
5 Sale of Investment	--	--	--	--	--	--	--	--	--	40
6 Share Premium	--	--	--	--	--	--	--	--	--	--
7. Decrease in Net Working Capital	--	--	--	--	168	--	--	57	628	654
<b>TOTAL FUND PROVIDED</b>	<b>1,235</b>	<b>827</b>	<b>1,431</b>	<b>979</b>	<b>351</b>	<b>293</b>	<b>303</b>	<b>147</b>	<b>628</b>	<b>694</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	--	282	62	322	122	--	--	--	--	--
2. Cash Loss From Operation	--	--	--	--	--	--	--	--	92	630
3 Addition to Fixed Assets	41	31	214	43	229	162	172	97	111	65
4. Purchase of Investment	--	--	--	15	--	25	25	50	425	--
5 Increase in Net working Capital	1,195	514	1,156	598	--	106	105	--	--	--
<b>TOTAL FUNDS UTILIZED</b>	<b>1,235</b>	<b>827</b>	<b>1,431</b>	<b>979</b>	<b>351</b>	<b>293</b>	<b>303</b>	<b>147</b>	<b>628</b>	<b>694</b>

Source: Annual Reports

In the initial three years, sufficient funds were generated from operations. Further in the year 1987, there was introduction of the share capital. Company no. 1b thereby seemed to have had enough sources of funds. But the application of funds was mostly concentrated in the accumulation of working capital. As is seen in the table, in the year 1987 the funds from operations were JD 668 thousand whereas the share capital was introduced to the tune of JD 500 thousand apart from the borrowed funds. Approximately the whole of this amount was invested in the working capital. For the period of ten years, the company applied a huge amount towards inventories. In the year 1988, the generated funds from operations was JD 827 thousand and a major chunk of this was applied in increasing the inventory level. Thereby the addition to the working capital was up to JD 514 thousand. But in this year, a part of the amount was applied towards repaying the debts and thereby the borrowings were reduced to the extent of JD 282 thousand. From 1990 onwards, although there were funds from operations, they were mostly reduced and again applied for raising the working capital. Till 1991, part of the funds was also applied towards repaying the debts. But after 1991, the repayment completely stopped and thereby the funds were applied for acquiring fixed assets. In the last 3 to 4 years, the funds from operations completely dried up and in fact, in 1995 and 1996, there were operational losses to the tune of JD 92 thousand and JD 630 thousand respectively. But the addition to the assets continued. Besides this, in the later period, the company also started purchasing investments. In the year 1995 for instance the investment purchased was worth JD 425 thousand. All this resulted in the depletion of the working capital and in the last two years therefore the working capital reduced by JD 628 thousand in 1995 and JD 654 thousand in 1996 respectively.

**TABLE V.4.25**  
**FUND FLOW STATEMENT OF JORDAN SULPHO-CHEMICALS**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 1c)**

*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	---	---	---	---	---	---	---	705	---	797
2 Issue of Share Capital	33	73	872	55	1	---	---	---	---	503
3 Funds from Operation	989	---	653	705	529	698	517	---	---	---
4 Sale of Fixed Assets	---	---	---	---	---	---	---	---	---	---
5 Sale of Investment	---	---	---	---	---	---	---	---	---	---
6. Decrease in Net Working Capital	---	406	---	---	---	375	1,619	136	489	---
7 Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>1,021</b>	<b>479</b>	<b>1,525</b>	<b>760</b>	<b>530</b>	<b>1,073</b>	<b>2,136</b>	<b>841</b>	<b>489</b>	<b>1,300</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	55	110	136	140	152	165	180	---	371	---
2. Cash Loss From Operation	---	42	---	---	---	---	---	220	39	631
3 Addition to Fixed Assets	503	327	173	49	93	857	1,927	591	5	39
4 Purchase of Investment	---	---	---	100	13	50	29	30	75	---
5 Increase in Net Working Capital	463	---	1,216	472	273	---	---	---	---	630
<b>TOTAL FUNDS UTILIZED</b>	<b>1,021</b>	<b>479</b>	<b>1,525</b>	<b>760</b>	<b>530</b>	<b>1,073</b>	<b>2,136</b>	<b>841</b>	<b>489</b>	<b>1,300</b>

Source: Annual Reports

In the first year, i.e., in 1987 the company no. 1c had funds from operations to the extent of JD 989 thousand. These were mostly applied for acquisition of fixed assets, perhaps in anticipation of an increase in the operational level. Thereby a part of the funds was also applied for increasing inventories. But the anticipation proved to be wrong and the company registered a reduction in the sales turnover next year in 1988. This resulted in the depletion of the working capital to the tune of JD 406 thousand. During this year, the company incurred cash losses up to JD 42 thousand. The deficiency was covered out of additional issue of share capital. In the subsequent years, there were positive funds from operations. But the volume was much lower than that of 1987. The funds from operations were maximum up to JD 705 thousand in 1990. But with this, again the funds were applied heavily in inventories. This resulted in an unnecessary accumulation and the working capital level continued to touch higher and higher figures. The additional share

capital issued from 1989 to 1991 also got stuck in the inventories. During the period after 1991, there was a major addition to the fixed assets amounting to JD 857 thousand in 1992 and JD 1,957 thousand in 1993. Despite this, there were cash losses in the last three years. Therefore additions to the assets coupled with the downfall in sales had an adverse impact on the working capital. The cash losses in the year 1994 were JD 220 thousand and in the year 1996, they were as high as JD 631 thousand. Hence on the working capital front, we find that there was a regular depletion in the working capital maintained from 1992 to 1995. The heavy cash losses in the year 1996 however prompted the company to introduce additional share capital of JD 503 thousand. Besides this, there were borrowed funds amounting to JD 797 thousand. This enabled the company to wipe out the cash crunch and increase the working capital by JD 630 thousand.

**TABLE V.4.26**  
**FUND FLOW STATEMENT OF THE JORDAN CEMENT FACTORIES**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 2a)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	3,188	--	17,500	--	--	--	--	--	12,056	1,123
2 Issue of Share Capital	--	--	--	--	10,444	--	--	--	--	--
3 Fund From Operation	13,320	9,937	4,666	10,771	8,344	10,491	17,212	11,413	14,423	12,738
4. Sale of Fixed Assets	--	349	--	--	--	--	--	--	--	--
5 Sale of Investment	--	--	7	10	--	--	7	--	--	--
6 Share Premium	--	--	--	--	--	--	--	--	--	--
7 Decrease in Net Working Capital	--	--	--	16,043	6,132	--	1,687	--	--	--
<b>TOTAL FUND PROVIDED</b>	<b>16,508</b>	<b>10,286</b>	<b>22,173</b>	<b>26,823</b>	<b>24,920</b>	<b>10,491</b>	<b>18,906</b>	<b>11,413</b>	<b>26,480</b>	<b>13,861</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	--	7,787	--	24,622	23,868	1,799	16,391	6,672	--	--
2 Cash Loss From Operation	--	--	--	--	--	--	--	--	--	--
3 Addition to Fixed Assets	482	--	315	2,201	921	8,391	2,516	3,011	7,827	9,842
4 Purchase of Investment	--	34	--	--	131	5	--	334	788	153
5 Increase in Net working Capital	16,026	2,465	21,858	--	--	296	--	1,395	17,865	3,866
<b>TOTAL FUNDS UTILIZED</b>	<b>16,508</b>	<b>10,286</b>	<b>22,173</b>	<b>26,823</b>	<b>24,920</b>	<b>10,491</b>	<b>18,906</b>	<b>11,413</b>	<b>26,480</b>	<b>13,861</b>

Source. Annual Reports

In the year 1987, company no 2a had the funds from operations to the amount of JD 13,320 thousand besides the borrowed amount of JD 3,188

thousand. With a minor addition to fixed assets, most of the funds were applied towards the working capital. Subsequently in 1988 and 1989, as the sales level went down, obviously the funds from operations shrank. In 1988, the funds from operations were JD 9,937 thousand. A major part of JD 7,787 thousand was applied in repaying the borrowings. Thereby the addition in the working capital was much less as compared to the previous year. In 1989, the funds from operations further deteriorated and the company seems to have anticipated an increase in the sales in the future years. Thereby despite lower operational performance, it maintained a high working capital. This was possible due to the funds borrowed by the company in 1989. In this year, the borrowed funds were JD 17,500 thousand thus underlining the excessive financing of the working capital through borrowed funds. The funds from operations were just JD 4,666 thousand. In 1990, although the funds from operations went up to JD 10,771 thousand, the company preferred to repay the borrowings. Thereby the repayment to the extent of JD 10,771 thousand was possible due to the depletion of the working capital by JD 16,043 thousand. This year was marked by a reduction in the receivables level maintained as compared to the previous years. In 1991, as the funds from operations were reduced to JD 8,344 thousand, an additional share capital was introduced by JD 10,444 thousand to repay the borrowings to the extent of JD 23,868 thousand. This year also witnessed a reduction in the working capital by JD 6,132 thousand. In the subsequent years, with the routine increase in sales level, the company was able to draw operational profits sufficient to finance its operational needs. During the later period in 1995 and 1996 one finds that apart from the increased funds from operations, the company borrowed external funds to acquire fixed assets. The addition to fixed assets in the two years were JD 7,827 thousand and JD 9,842 thousand, thus suggesting future expansion plans of the company. Thereby the working capital maintained also went up by JD 17,865 thousand in 1995 and by JD 3,866 thousand in 1996.

**TABLE V.4.27**  
**FUND FLOW STATEMENT OF JORDAN CERAMIC INDUSTRIES**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 2b)**

(Value in Thousand JD.)

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	295	990	30	318	---	---	1,148	---	---	---
2 Issue of Share Capital	---	---	---	---	500	---	---	---	---	---
3 Funds from Operation	245	248	873	1,092	230	1,226	1,890	2,332	1,981	2,873
4 Sale of Fixed Assets	---	---	---	---	---	---	---	---	---	---
5 Sale of Investment	---	---	---	---	---	---	---	---	---	---
6 Decrease in Net Working Capital	---	376	---	---	388	173	---	---	---	---
7 Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>540</b>	<b>1,614</b>	<b>902</b>	<b>1,410</b>	<b>1,118</b>	<b>1,399</b>	<b>3,038</b>	<b>2,332</b>	<b>1,981</b>	<b>2,873</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	---	---	---	---	381	303	---	735	803	610
2 Cash Loss From Operation	---	---	---	---	---	---	---	---	---	---
3.Addition to Fixed Assets	431	1,614	524	828	737	1,095	2,929	640	445	1,101
4 Purchase of Investment	4	---	---	---	---	---	---	---	---	---
5. Increase in Net Working Capital	105	---	378	582	---	---	109	957	733	1,162
<b>TOTAL FUNDS UTILIZED</b>	<b>540</b>	<b>1,614</b>	<b>902</b>	<b>1,410</b>	<b>1,118</b>	<b>1,399</b>	<b>3,038</b>	<b>2,332</b>	<b>1,981</b>	<b>2,873</b>

Source: Annual Reports

In the case of company no. 2b, the overall increase in the level of inventory and the receivables was higher than the corresponding growth in sales. But the addition to the working capital was not substantial. The reason can be found from fund flow positions of the company for the ten years. In the initial years, the funds from operations were on the lower side. However, the company invested heavily in fixed assets. For instance, in the year 1987, the funds from operations were JD 245 thousand and the actual addition to the fixed assets was JD 431 thousand. This was possible due to external borrowings of JD 295 thousand. In the year 1988 also the addition to fixed assets was JD 1,614 thousand, which was possible due to borrowed funds of JD 990 thousand. A further release of JD 376 thousand out of the working capital contributed to the increased of financing of fixed assets. In the next two years, as the funds from operations increased, a major portion of funds was applied towards the working capital apart from the addition to fixed assets. The year 1992 and 1993 reflected a major expansion in activity. In these years the

addition to fixed assets were JD 1,095 thousand and JD 2,929 thousand respectively. In the year 1993, the additional investment was possible to a great extent due to the external loans to the tune of JD 1,148 thousand. Subsequently we regularly find increased levels of operation and thereby increased funds from operations. Hence, the company was able to repay the borrowed funds to a large extent in the years from 1994 to 1996.

**TABLE V.4.28**  
**FUND FLOW STATEMENT OF JORDAN ROCKWOOL INDUSTRIES**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 2c)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	41	---	---	---	---	---	---	---	---	---
2. Issue of Share Capital	---	---	---	---	---	---	---	1,153	---	---
3 Funds from Operation	50	175	835	221	---	93	226	607	162	---
4. Sale of Fixed Assets	---	---	46	---	20	---	---	---	---	---
5 Sale of Investment	---	---	---	---	---	---	---	---	---	27
6 Decrease in Net Working Capital	---	---	---	---	273	---	---	---	88	112
7. Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>92</b>	<b>175</b>	<b>881</b>	<b>221</b>	<b>293</b>	<b>93</b>	<b>226</b>	<b>1,760</b>	<b>250</b>	<b>139</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	---	---	---	15	105	44	91	52	127	98
2. Cash Loss From Operation	---	---	---	---	188	---	---	---	---	32
3. Addition to Fixed Assets	15	7	---	99	---	8	61	160	81	9
4. Purchase of Investment	---	---	---	---	---	---	---	199	42	---
5 Increase in Net Working Capital	77	168	881	107	---	42	74	1,349	---	---
<b>TOTAL FUNDS UTILIZED</b>	<b>92</b>	<b>175</b>	<b>881</b>	<b>221</b>	<b>293</b>	<b>93</b>	<b>226</b>	<b>1,760</b>	<b>250</b>	<b>139</b>

Source: Annual Reports

Company no. 2c showed a tendency to increase its receivable level, and this increase is more than the increase in the operational level. But apart from the receivables, the inventories maintained by the company were abnormally higher than the corresponding sales level. So the investment in the working capital increased disproportionately over the years. Thereby most of the funds of the company were locked up. So the company was not able to raise its activity level. In the year 1987, the funds from operations were JD 50 thousand whereas the borrowed funds were JD 41 thousand. Most of the funds so

generated were applied to the working capital. And the working capital increased by JD 77 thousand. Subsequently as the sales level increased, the funds from operations also increased. But surprisingly this added amount was also applied towards the inventories. Strangely, the sale proceeds of fixed assets in 1989, which were JD 46 thousand, were also applied for increasing the inventory levels. This increased burden had a deteriorating impact on the funds from operations, and so the funds from operations reduced to JD 221 thousand. Perhaps, the company had plans for expansion and hence the investment in fixed assets was about JD 99 thousand. But in the year 1991, the increased investment in fixed assets did not yield anything, on the contrary the company suffered cash loss to the tune of JD 188 thousand. This resulted in depletion of the working capital by JD 273 thousand. But in the next three years, the company recovered a little and cash profits were generated. Thereby in the year 1994 we find more and more funds applied for replenishing the working capital level. And thereby there was an increase in the working capital maintained by JD 1,349 thousand apart from the addition of fixed assets valued at JD 160 thousand. This was financed out of the funds from operations of JD 607 thousand and the balance, through raising additional share capital of JD 1,153 thousand. The company somehow was not able to utilise the additional investment in fixed assets. And thereby despite addition of fixed assets in 1994, the funds from operations in 1995 went down to JD 162 thousand. This resulted in reducing the working capital level by JD 88 thousand, because a part of the funds was also applied towards repayment of the borrowings. Further in the year 1996, there were cash losses up to JD 32 thousand, thus underlining poor efficiency in utilization of fixed assets. Thereby, the working capital went down further by JD 112 thousand.

**TABLE V.4.29**  
**FUND FLOW STATEMENT OF THE INDUSTRIAL COMMERCIAL AND**  
**AGRICULTURAL CO. LTD. DURING 1987 TO 1996. (Company no. 3a)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	--	--	257	835	134	1,481	3	--	--	--
2 Issue of Share Capital	--	--	--	--	--	1,534	--	--	--	--
3. Fund From Operation	381	391	518	1,214	2,053	--	1,360	251	582	556
4 Sale of Fixed Assets	--	--	--	--	--	--	--	--	--	--
5 Sale of Investment	--	--	--	--	--	--	--	--	--	259
6. Share Premium	--	--	--	--	--	--	--	--	--	--
7 Decrease in Net Working Capital	--	--	--	--	--	--	1,139	2,541	572	87
<b>TOTAL FUND PROVIDED</b>	<b>381</b>	<b>391</b>	<b>775</b>	<b>2,049</b>	<b>2,187</b>	<b>3,015</b>	<b>2,502</b>	<b>2,793</b>	<b>1,154</b>	<b>903</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	177	--	--	--	--	--	--	74	138	573
2 Cash Loss From Operation	--	--	--	--	--	197	--	--	--	--
3 Addition to Fixed Assets	31	19	277	78	897	1,778	712	2,316	748	329
4 Purchase of Investment	--	--	--	--	250	837	1,790	402	269	--
5. Increase in Net working Capital	173	371	498	1,971	1,040	203	--	--	--	--
<b>TOTAL FUNDS UTILIZED</b>	<b>381</b>	<b>391</b>	<b>775</b>	<b>2,049</b>	<b>2,187</b>	<b>3,015</b>	<b>2,502</b>	<b>2,793</b>	<b>1,154</b>	<b>903</b>

Source: Annual Reports

The company no. 3a, on overall basis, performed quite well in the case of the working capital as depicted in the fund flow statement of the company for the ten years. Both inventories and receivables were properly controlled and although at times they increased higher than the increase in sales, the overall picture shows that the growth of receivables and inventories was not at all disproportionate. However, in the last 3 to 4 years of analysis we do find that the inventory levels increased above the growth rate in sales. In the initial two years from 1987 to 1988, the company was operating satisfactorily as in both the years there were funds from operations generations. The Operating funds for the two years were at JD 381 thousand and JD 391 thousand respectively. These were applied to repay the loan to the extent of JD 177 thousand and for acquiring the fixed assets on routine basis. Apart from that, there was a routine increase in the working capital level. In 1989, the funds from operations went

up to JD 518 thousand. These funds, coupled with the borrowed funds of JD 257 thousand, enabled the company to expand its activity levels by adding the fixed assets to the tune of JD 277 thousand. This showed its effect in the next year, i.e., 1990 when the funds from operations suddenly jumped to JD 1214 thousand. This trend continued in the next year, i.e., 1991 when the funds from operations generated were as high as JD 2,053 thousand. This year, the company again raised its activity level by an assets acquisition exercise of JD 897 thousand. Thereby the corresponding working capital maintained also was at higher levels, i.e., by JD 897 thousand. Besides fixed assets and working capital, the company also applied a part of the funds towards investment. In the next year 1992, due to the adverse effect of the Gulf War, the operations suffered a jolt, and the company suffered cash losses of JD 197 thousand. Keeping in mind the aim of revival in future, the company again resorted to addition of fixed assets by pumping in additional funds and external borrowings. Besides fixed assets, an amount of JD 837 thousand was applied for acquiring investments. Thereby in 1993 the operating cash was again up to JD 1,360 thousand. This was the post Gulf War scenario and there was a feeling of uncertainty, which might have prompted the company to purchase more and more investments, which added to the secured income source. Thereby, again out of the funds generated from operations, the company applied a major portion for having additional investments. In the last three years, one can observe regular operational profits being generated although the levels were quite low. Besides this, there was regular addition of fixed assets. Therefore the corresponding working capital also was depleted. Thus most of the financing was made out of increasing current liabilities and creditors.

**TABLE V.4.30**  
**FUND FLOW STATEMENT OF ARAB INVESTMENT AND INTERNATIONAL**  
**TRADE CO. LTD. DURING 1987 TO 1996. (Company no. 3b)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	345	---	2	405	---	---	49	---	---	---
2. Issue of Share Capital	---	---	---	---	---	---	---	1,562	15	---
3. Funds from Operation	---	---	---	---	126	472	---	53	63	160
4. Sale of Fixed Assets	---	---	---	---	---	---	---	---	---	---
5. Sale of Investment	---	---	---	---	---	---	25	---	1	---
6. Decrease in Net Working Capital	4	51	58	---	---	---	571	---	95	95
7. Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>349</b>	<b>51</b>	<b>60</b>	<b>405</b>	<b>126</b>	<b>472</b>	<b>644</b>	<b>1,615</b>	<b>173</b>	<b>255</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	---	31	---	---	5	152	---	73	63	185
2. Cash Loss From Operation	282	9	57	37	---	---	350	---	---	---
3. Addition to Fixed Assets	3	11	2	3	71	34	295	155	110	70
4. Purchase of Investment	---	---	---	---	---	---	---	---	---	---
5. Increase in Net Working Capital	---	---	---	366	50	286	---	1,387	---	---
6. Share Redemption	65	---	---	---	---	---	---	---	---	---
<b>TOTAL FUNDS UTILIZED</b>	<b>349</b>	<b>51</b>	<b>60</b>	<b>405</b>	<b>126</b>	<b>472</b>	<b>644</b>	<b>1,615</b>	<b>173</b>	<b>255</b>

Source: Annual Reports

For the company no. 3b, the funds from operations were initially quite dismal. In the initial years up to 1990, the company sustained regular operational losses as it was not able to curb the expenses. This resulted in depletion of the working capital maintained, partially due to the decrease in the comparative levels maintained and partially due to the increase in current liabilities. Moreover there was dependence on the borrowed funds. In the years 1991 and 1992, there was a recovery and generation of funds from operations to the tune of JD 126 thousand and JD 472 thousand respectively. The funds so generated were applied partially for acquiring fixed assets and partially for increasing the depleted working capital. The working capital went up smartly. In these years, there was a total addition to fixed assets of JD 105 thousand. Besides this, a part of the funds, (up to a total of JD 157 thousand) was also applied towards repayment of the borrowed funds. This trend suffered a jolt in the year 1993 as there were cash losses from the operations up to JD 350 thousand. This continued trend prompted the company to carryout the

expansion plans, and by reducing the working capital levels, the company acquired fixed assets of about JD 295 thousand. Further in 1994, the share capital was introduced up to JD 1,562 thousand which was used to replenish the working capital depleted till date. This plan seems to have succeeded as in the last three years there was an increase in the generation of funds from operations.

**TABLE V.4.31**  
**FUND FLOW STATEMENT OF THE NATIONAL INDUSTRIES**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 3c)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	---	2,051	---	---	288	---	---	---	172	634
2. Issue of Share Capital	---	---	---	71	129	---	---	---	4,980	---
3. Funds from Operation	---	972	---	344	278	2,757	342	2,161	179	
4 Sale of Fixed Assets	---	---	32	---	---		---	---	---	---
5 Sale of Investment	---	---	---	68	15	---	3	---	---	70
6 Decrease in Net Working Capital	708	---	680	---	---	---	---	241	---	2,523
7 Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>708</b>	<b>3,023</b>	<b>713</b>	<b>483</b>	<b>710</b>	<b>2,757</b>	<b>345</b>	<b>2,401</b>	<b>5,331</b>	<b>3,227</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	126	---	103	---	---	628	93	---	---	---
2 Cash Loss From Operation	495	---	610	---	---	---	---	---	---	838
3.Addition to Fixed Assets	84	29	---	78	40	152	49	115	57	2,389
4. Purchase of Investment	3	---	---	---	---	5	---	406	52	---
5. Increase in Net Working Capital	---	2,995	---	405	670	1,972	203	---	5,221	---
6. Share Redemption	---	---	---	---	---	---	---	1,880	---	---
<b>TOTAL FUNDS UTILIZED</b>	<b>708</b>	<b>3,023</b>	<b>713</b>	<b>483</b>	<b>710</b>	<b>2,757</b>	<b>345</b>	<b>2,401</b>	<b>5,331</b>	<b>3,227</b>

Source: Annual Reports

The company no. 3c had variations in the sales levels maintained and also the expenses management was improper. Therefore, there was no trend as such in the pattern of funds generated. Thus in the initial years of the decade, at times there were operational cash losses incurred. In year 1988 although there were cash profits of JD 972 thousand and borrowed funds of JD 2,051 thousand, the funds so accumulated were not properly applied and the entire amount was applied for addition of the working capital. In the year 1989 there were again cash losses and thereby there was reduction in the working capital maintained by JD 680 thousand. The company seemed to mend its ways of operations and thereby, in the subsequent years there was generation

of funds from operations up to 1995. During the period, there was regular application of funds towards fixed assets. But as the funds generated were not sufficient for the fixed assets, the company resorted to outside borrowings and issue of share capital. In the year 1990 and 1991, a total amount of JD 200 thousand was raised out of share capital. Similarly in 1995, a huge issue of share capital of JD 4,980 thousand apart from the borrowed funds of JD 172 thousand helped the company in its operational exercise. Further the working capital maintained was increased to a large extent. Although in the year 1996, there were cash losses of JD 838 which depleted the working capital by JD 2,523 thousand. The funds which were accumulated in 1995, alongwith the borrowed funds of JD 634 thousand in 1996, enabled the company to make a substantial addition to the activity level. During the period, there was an addition to the fixed assets of about JD 2,389 thousand, indicating a huge expansion plan on the cards.

**TABLE V.4.32**  
**FUND FLOW STATEMENT OF THE ARAB PHARMACEUTICALS**  
**MANUFACTURING CO. LTD. DURING 1987 TO 1996. (Company no. 4a)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	885	--	--	1,217	1,597	--	--	522	580	57
2 Issue of Share Capital	--	--	--	--	--	2,000	2,000	--	--	--
3 Fund From Operation	952	714	2,672	4,182	1,228	752	1,294	902	--	2,346
4 Sale of Fixed Assets	--	--	--	--	--	--	--	--	--	--
5 Sale of Investment	--	--	18	59	80	--	--	--	165	25
6 Share Premium	--	--	--	--	--	--	9,500	--	--	--
7 Decrease in Net Working Capital	--	--	--	--	--	3,072	--	257	754	--
<b>TOTAL FUND PROVIDED</b>	<b>1,837</b>	<b>714</b>	<b>2,690</b>	<b>5,459</b>	<b>2,905</b>	<b>5,824</b>	<b>12,794</b>	<b>1,681</b>	<b>1,499</b>	<b>2,428</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	--	214	421	--	--	2,859	2,480	--	--	--
2 Cash Loss From Operation	--	--	--	--	--	2,300	--	--	783	--
3 Addition to Fixed Assets	137	454	1,361	1,172	918	599	1,082	1,589	717	509
4 Purchase of Investment	--	--	--	--	--	66	352	92	--	--
5. Increase in Net working Capital	1,699	46	907	4,286	1,987	--	8,879	--	--	1,919
<b>TOTAL FUNDS UTILIZED</b>	<b>1,837</b>	<b>714</b>	<b>2,690</b>	<b>5,459</b>	<b>2,905</b>	<b>5,824</b>	<b>12,794</b>	<b>1,681</b>	<b>1,499</b>	<b>2,428</b>

Source: Annual Reports

In the Pharmaceutical Industrial Sector, professional working capital management and regular growth in sales enabled the sector to improve the overall performance over the period of ten years. As is seen in the case of

company no. 4a, there were regular generations of funds through operations over the years. From 1987 to 1990, the funds from operations increased from 952 thousand to 4,182 thousand. Further in 1987 and 1990, there were borrowed funds of JD 885 thousand and JD 1,217 thousand respectively. This enabled the company to regularly add to its fixed assets and increase its operational level. As seen in the fund flow of 1989 and 1990, there were additions to fixed assets of JD 1,361 thousand and JD 1,172 thousand respectively. Apart from this, the company repaid the borrowed funds to some extent. The period after this had a slight impact of the war and thereby the operational profits reduced. Yet the company repaid the loans to a great extent in 1992 and 1993. This was possible due to the additional share capital of JD 2,000 thousand, which was pumped in. In the year 1993, the share premium of JD 9,500 thousand was collected along with the share capital. This enabled the company to replenish its working capital by JD 8,879 thousand. In the period after 1993, there was generation of operational profits. Beside this, in 1994 and 1995, the company borrowed loans and applied them to acquire fixed assets for activity expansion.

**TABLE V.4.33**  
**FUND FLOW STATEMENT OF DAR AL-DAWA DEVELOPMENT**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 4b)**

*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	--	--	281	116	711	446	--	--	--	--
2 Issue of Share Capital	--			600			900		3,000	--
3. Fund From Operation	113	581	881	1,337	1,058	1,441	1,402	1,680	--	1,606
4 Sale of Fixed Assets	--	--	--	--	--	--	--	--	--	--
5. Sale of Investment	--	--	--	--	--	--	--	--	--	207
6 Share Premium	--	--	--	1,050	--	--	8,100	--	--	--
7 Decrease in Net Working Capital	85	--	--	--	764	--	--	375	154	--
<b>TOTAL FUND PROVIDED</b>	<b>198</b>	<b>581</b>	<b>1,162</b>	<b>3,104</b>	<b>2,532</b>	<b>1,888</b>	<b>10,402</b>	<b>2,055</b>	<b>3,154</b>	<b>1,813</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	106	87	--	--	--	--	453	313	278	380
2 Cash Loss From Operation	--	--	--	--	--	--	--	--	2,033	--
3 Addition to Fixed Assets	91	94	552	1,380	2,532	1,521	773	1,057	440	338
3 Purchase of Investment	--	--	16	--	--	359	494	686	403	--
4 Increase in Net working Capital	--	400	594	1,723	--	7	8,682	--	--	1,095
<b>TOTAL FUNDS UTILIZED</b>	<b>198</b>	<b>581</b>	<b>1,162</b>	<b>3,104</b>	<b>2,532</b>	<b>1,888</b>	<b>10,402</b>	<b>2,055</b>	<b>3,154</b>	<b>1,813</b>

Source: Annual Reports

Performance wise, company no. 4b did better although the numerical figures were on the lower side as compared to company no. 4a. This is due to the difference in the magnitude of operations of the companies. With the exception of the year 1995, there were regular positive funds from operations. And over the years, the funds generated increased. Thus the funds generated from operations in 1987 were JD 113 thousand and except a slight reduction in the post Gulf War years, the overall funds generated regularly increased and in the year 1994 the funds generated were as high as 1,680 thousand. Further, with the issue of share capital in 1990 and 1993, the funds accumulation increased. This was further strengthened by borrowing of funds up to 1992. So we can say that on the whole, the funds accumulated were quite sufficient. This enabled the company to conduct the operations smoothly and by making regular additions to fixed assets, the overall activity level also increased to a great extent. Such a performance enabled the company to repay its loans in the years from 1993 to 1996. The reverse trend was observed only in the year 1995 when there were cash losses from operation up to JD 2,033 thousand. But the funds shortage was compensated out of the fresh issue of share capital in that year and additional funds of JD 3,000 thousand were collected. And thereby the position recovered in 1996 when the funds from operations resurfaced and the company had profits up to JD 1,606 thousand.

**TABLE V.4.34**  
**FUND FLOW STATEMENT OF THE ARAB CENTER FOR PHARMACEUTICALS**  
**AND CHEMICALS CO. LTD. DURING 1987 TO 1996. (Company no. 4c)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	136	23	--	--	--	--	--	145	--	--
2 Issue of Share Capital	172	298	1,130	--	1,000	--	--	--	--	--
3 Fund From Operation	--	--	604	200	259	487	668	609	503	234
4 Sale of Fixed Assets	--	--	--	--	--	--	--	--	--	--
5 Sale of Investment	--	--	--	--	--	--	--	--	--	--
6 Share Premium	--	--	--	--	300	--	--	--	--	--
7. Decrease in Net Working Capital	131	83	--	--	--	--	--	--	--	--
<b>TOTAL FUND PROVIDED</b>	<b>439</b>	<b>404</b>	<b>1,734</b>	<b>200</b>	<b>1,559</b>	<b>487</b>	<b>668</b>	<b>754</b>	<b>503</b>	<b>234</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	--	--	130	61	47	25	41	--	41	47
2 Cash Loss From Operation	191	151	--	--	--	--	--	--	--	--
3. Addition to Fixed Assets	248	253	47	69	16	148	193	347	362	11
4 Purchase of Investment	--	--	--	--	--	--	63	115	--	63
5. Increase in Net working Capital	--	--	1,557	69	1,496	313	371	292	99	114
<b>TOTAL FUNDS UTILIZED</b>	<b>439</b>	<b>404</b>	<b>1,734</b>	<b>200</b>	<b>1,559</b>	<b>487</b>	<b>668</b>	<b>754</b>	<b>503</b>	<b>234</b>

Source: Annual Reports

As compared to company no. 4a and company no. 4b, company no. 4c had a smaller area of operations. But the trend of performance in the company was equally good. As seen from the fund flow, initially the activity level was on the lower side. Thereby the company had operational cash losses in the initial years. The losses in 1987 and 1988 were JD 191 thousand and JD 151 thousand respectively. This ultimately resulted in a reduction in the working capital. But the addition of share capital and borrowed funds in these years enabled the company to increase its operations and performance. The funds so accumulated were applied for purchasing the fixed assets. Thereby we can see that there were funds from operations in the year 1989 to the tune of the JD 604 thousand. This year there was additional issue of share capital, which enabled the company to increase its working capital by JD 1,557 thousand. Besides this, the loans were repaid up to JD 130 thousand. Although the operational profit reduced in 1990, the borrowings were repaid to the extent of JD 61 thousand. In year 1991, the working capital maintained was increased by JD 1,496 thousand through additional issue of share capital of JD 1,000 thousand. In the years after 1991, we can see a steady increase in funds from operations generated and thereby regular addition to the fixed assets and the working capital levels in consonance with the growth rate in sales and operational requirements. In the year 1995 although the funds from operations went down, this appears to be the sector's trend as all the companies in this sector showed similar features.

**TABLE V.4.35**  
**FUND FLOW STATEMENT OF ARAB ALUMINIUM CO. LTD.**  
**(ARAL) DURING 1987 TO 1996. (Company no. 5a)**

*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	---	---	---	---	---	---	---	---	351	316
2. Issue of Share Capital	---	---	---	---	---	---	2,000	---	---	---
3. Funds from Operation	645	720	883	2,047	1,391	1,581	---	2,479	1,097	1,346
4. Sale of Fixed Assets	---	---	---	39	---	---	---	---	---	---
5. Sale of Investment	---	---	---	---	---	---	---	---	---	---
6. Decrease in Net Working Capital	---	771	---	---	---	---	---	---	1,761	835
7. Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>645</b>	<b>1,491</b>	<b>883</b>	<b>2,085</b>	<b>1,391</b>	<b>1,581</b>	<b>2,000</b>	<b>2,479</b>	<b>3,209</b>	<b>2,497</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	288	790	188	107	107	107	81	---	---	---
2. Cash Loss From Operation	---	---	---	---	---	---	610	---	---	---
3. Addition to Fixed Assets	300	701	103	---	145	162	285	884	3,209	2,497
4. Purchase of Investment	---	---	---	---	---	450	---	---	---	---
5. Increase in Net Working Capital	56	---	592	1,978	1,139	862	1,023	1,594	---	---
<b>TOTAL FUNDS UTILIZED</b>	<b>645</b>	<b>1,491</b>	<b>883</b>	<b>2,085</b>	<b>1,391</b>	<b>1,581</b>	<b>2,000</b>	<b>2,479</b>	<b>3,209</b>	<b>2,497</b>

Source: Annual Reports

In the case of company no. 5a, in the initial years, i.e., from 1987 to 1990, we can see there were regular and increasing funds from operations being generated. In 1987, the funds from operations were JD 645 thousand while in 1990, they were JD 2,047 thousand. The funds so generated were mostly applied in repaying the borrowings and making additions to fixed assets. In the year 1990, a major portion of funds amounting JD 1,978 thousand was also applied for increasing the working capital. In the year 1991 and 1992, as a result of the Gulf War, the funds from operations went down as compared to 1990. However, the funds generated were sufficient to increase the working capital by JD 1,139 thousand and JD 862 thousand respectively. Moreover, there was repayment of borrowings and routine addition to the fixed assets. In 1992, an amount of JD 450 thousand was also utilised for the purchase of investments. In the year 1993, there were operational losses of the tune of JD 610 thousand. But an addition in share capital to the tune of JD 2,000 thousand made it possible for the company to reinvest funds in the working

capital. In the last three years, there was generation of funds from operations. In 1995 and 1996, the company seems to have had a major expansion plan as there was an addition to the fixed assets amounting to JD 3,209 thousand and JD 2,497 thousand respectively. Due to heavy investment in fixed assets, the working capital maintained went down in those years.

**TABLE V.4.36**  
**FUND FLOW STATEMENT OF NATIONAL CABLES AND WIRE**  
**MANUFACTURING CO. LTD. DURING 1987 TO 1996. (Company no. 5b)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	191	589	---	---	---	---	---	---	934	---
2 Issue of Share Capital	---	1,000	---	---	---	---	1,500	---	---	---
3 Funds from Operation	295	481	2,110	2,883	1,076	---	---	592	1,238	830
4 Sale of Fixed Assets	---	---	---	---	---	---	---	---	---	---
5. Sale of Investment	---	---	---	---	---	---	---	---	---	---
6. Decrease in Net Working Capital	---	---	---	---	---	536	---	1,683	812	412
7 Share Premium	---	---	---	---	---	---	3,750	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>486</b>	<b>2,070</b>	<b>2,110</b>	<b>2,883</b>	<b>1,076</b>	<b>536</b>	<b>5,250</b>	<b>2,275</b>	<b>2,984</b>	<b>1,242</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	---	---	845	215	---	---	---	---	---	599
2 Cash Loss From Operation	---	---	---	---	---	---	845	---	---	---
3.Addition to Fixed Assets	147	323	169	605	506	411	1,854	1,475	2,784	643
4. Purchase of Investment	---	---	---	---	250	125	625	800	200	---
5 Increase in Net Working Capital	339	1,748	1,096	2,063	320	---	1,926	---	---	---
<b>TOTAL FUNDS UTILIZED</b>	<b>486</b>	<b>2,070</b>	<b>2,110</b>	<b>2,883</b>	<b>1,076</b>	<b>536</b>	<b>5,250</b>	<b>2,275</b>	<b>2,984</b>	<b>1,242</b>

Source: Annual Reports

Like company no. 5a, company no. 5b also had increasing funds from operations from mere JD 295 thousand in 1987 to as high as JD 2,883 thousand in 1990. Besides this, the company issued additional share capital of JD 1,000 thousand in 1988. The funds so accumulated were mostly applied towards increasing the working capital. Besides this, a part of the funds was applied towards repayment of the loan and routine additions to the fixed assets. In the next three years from 1991 to 1993, as a result of the Gulf War, the operations suffered and the funds from operations went down. In 1993, the operational cash loss was nearly JD 845 thousand. This prompted the company to issue additional share capital of JD 1,500 thousand with a premium of JD 3,750 thousand. These funds were utilised for acquiring fixed

assets worth JD 1,854 thousand and increasing the working capital by JD 1,926 thousand. Thus it indicated a restructuring plan for the company. As a result of this, in the last three years under study, the operations seem to have recovered. And thereby there were positive generation of funds from operations. But the heavy addition to the fixed assets continued. Therefore the working capital maintained depleted in the last three years

**TABLE V.4.37**  
**FUND FLOW STATEMENT OF JORDAN PIPES MANUFACTURING**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 5c)**

*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	---	---	---	---	---	---	---	---	---	---
2. Issue of Share Capital	---	---	---	---	---	---	---	750	---	---
3. Funds from Operation	147	436	558	318	153	145	33	39	192	25
4. Sale of Fixed Assets	---	---	---	---	---	---	---	---	---	---
5 Sale of Investment	---	---	---	---	---	---	---	---	---	---
6 Decrease in Net Working Capital	---	---	---	---	---	---	---	---	471	1,277
7 Share Premium	---	---	---	---	---	---	---	1,313	---	---
8 Loan Received	---	---	---	151	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>147</b>	<b>436</b>	<b>558</b>	<b>469</b>	<b>153</b>	<b>145</b>	<b>33</b>	<b>2,102</b>	<b>663</b>	<b>1,303</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	---	---	---	---	---	---	---	---	---	---
2 Cash Loss From Operation	---	---	---	---	---	---	---	---	---	---
3 Addition to Fixed Assets	10	28	113	24	91	96	10	45	663	1,303
4. Purchase of Investment	---	---	---	---	---	---	---	---	---	---
5 Increase in Net Working Capital	137	265	438	445	61	49	24	2,057	---	---
6. Loan in Advance Given	---	143	8	---	---	---	---	---	---	---
<b>TOTAL FUNDS UTILIZED</b>	<b>147</b>	<b>436</b>	<b>558</b>	<b>469</b>	<b>153</b>	<b>145</b>	<b>33</b>	<b>2,102</b>	<b>663</b>	<b>1,303</b>

Source: Annual Reports

In almost all the years under study, company no. 5c had funds from operations as a major source of financing. The utilization thereof also was quite normal. Thus we find that in the first three years from 1987 to 1989, the operational sources were the only source of finance which amount to JD 147 thousand, JD 436 thousand and JD 558 thousand respectively. And the funds generated were mostly applied towards increasing the working capital and partially for acquiring fixed assets. Four years from 1991 onwards, the funds from operations went down. In 1994, the company invited share capital to the extent of JD 750 thousand alongwith the share premium of JD 1,313 thousand.

This amount was almost fully applied to the working capital maintained. Thus, in this year, the addition to the working capital was JD 2,057 thousand. In the next two years, the company added heavily to its fixed assets. The addition in 1995 and 1996 was JD 663 thousand and JD 1,303 thousand respectively. As there were not sufficient funds from operations generation and no loans borrowed, the fixed assets were acquired by depleting the working capital. Thus the reduction in the working capital in these years was JD 471 thousand and JD 1,277 thousand respectively.

**TABLE V.4.38**  
**FUND FLOW STATEMENT OF THE JORDAN WORSTED**  
**MILLS CO. LTD. DURING 1987 TO 1996. (Company no. 6a)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	---	---	---	---	---	---	---	---	---	---
2. Issue of Share Capital	---	---	---	---	1,650	---	---	1,000	---	---
3. Funds from Operation	462	506	286	500	---	948	677	811	2,320	1,727
4. Sale of Fixed Assets	22	---	10	---	---	---	---	---	---	20
5. Sale of Investment	---	---	---	---	---	---	---	---	---	---
6. Decrease in Net Working Capital	---	---	---	---	---	123	955	---	1,903	---
7. Share Premium	---	---	---	---	2,550	---	---	6,000	---	---
<b>TOTAL FUND PROVIDED</b>	<b>484</b>	<b>506</b>	<b>296</b>	<b>500</b>	<b>4,200</b>	<b>1,072</b>	<b>1,632</b>	<b>7,811</b>	<b>4,223</b>	<b>1,747</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	---	---	---	---	---	---	---	---	---	---
2. Cash Loss From Operation	---	---	---	---	283	---	---	---	---	---
3. Addition to Fixed Assets	---	34	---	17	25	182	1,073	355	166	---
4. Purchase of Investment	143	183	24	43	1,354	889	559	1,536	4,057	1,060
5. Increase in Net Working Capital	340	289	272	440	2,538	---	---	5,919	---	687
<b>TOTAL FUNDS UTILIZED</b>	<b>484</b>	<b>506</b>	<b>296</b>	<b>500</b>	<b>4,200</b>	<b>1,072</b>	<b>1,632</b>	<b>7,811</b>	<b>4,223</b>	<b>1,747</b>

Source: Annual Reports

In the case of company no. 6a, there was regular generation of funds from operations between 1987 to 1990. In the year 1987 funds from operations were JD 462 thousand and in 1990 they were worth JD 500 thousand. The application of the funds was mostly towards the working capital. A part from this, there was a purchase of investment amounting to JD 143 thousand and JD 183 thousand respectively. In the years 1989 and 1990, the investment purchase reduced and the funds were mostly applied for increasing the working capital. In the year 1991, the company seems to have come under the

impact of the Gulf War and thereby it had cash operational losses. But this year, the company introduced a share capital of JD 1,650 thousand. This, alongwith the share premium was utilised heavily in the working capital and investment. The working capital thereby increased by JD 2,538 thousand and investment by JD 1,354 thousand. In the next two years (i.e., 1992 and 1993), there were funds from operations but the company invested heavily in investments and acquired fixed assets of more than JD 1,800 thousand. All this resulted in the depletion in the comparative working capital maintained. In the last three years also the addition to the investments continued with the help of the funds from operations and the added share capital in 1994. Besides this, most of the funds were also blocked in the working capital.

**TABLE V.4.39**  
**FUND FLOW STATEMENT OF JORDAN TANNING CO.**  
**LTD. DURING 1987 TO 1996. (Company no. 6b)**

*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	---	---	---	11	---	148	44	---	---	---
2. Issue of Share Capital	---	---	---	---	---	---	---	---	---	---
3. Funds from Operation	81	67	172	600	390	530	446	661	603	621
4. Sale of Fixed Assets	---	---	---	---	---	---	---	---	---	---
5. Sale of Investment	---	---	---	230	---	---	---	---	---	---
6 Decrease in Net Working Capital	93	---	---	---	---	---	---	---	---	---
7 Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>174</b>	<b>67</b>	<b>172</b>	<b>842</b>	<b>390</b>	<b>678</b>	<b>490</b>	<b>661</b>	<b>603</b>	<b>621</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	35	22	16	---	22	---	---	38	42	46
2 Cash Loss From Operation	---	---	---	---	---	---	---	---	---	---
3 Addition to Fixed Assets	9	28	1	610	5	234	193	108	329	122
4 Purchase of Investment	130	---	---	---	---	---	---	---	---	---
5. Increase in Net Working Capital	---	17	155	232	363	444	297	515	231	453
<b>TOTAL FUNDS UTILIZED</b>	<b>174</b>	<b>67</b>	<b>172</b>	<b>842</b>	<b>390</b>	<b>678</b>	<b>490</b>	<b>661</b>	<b>603</b>	<b>621</b>

Source: Annual Reports

The company no. 6b had a reasonably steady position of fund flow in the decade. The company earned regular funds from operations. Besides this, the funds from operations increased over the years. In 1987, the funds from operations were JD 81 thousand and in 1996 they were JD 621 thousand. Also there were occasional funds from borrowing especially in the post Gulf War

period. But the company generally relied on the funds from operations. The application of funds in the decade was also quite steady and similar. In the initial years, apart from routine addition of fixed assets, the funds were applied for the working capital and partially for repaying the loans already taken. In the period after 1990, there was regular heavy addition to the fixed assets and the corresponding working capital. In the terminal years, there was also repayment of the loan to some extent. The overall picture is one where the source of funds was mostly the operational profits and most of the funds were applied towards fixed assets and working capital.

**TABLE V.4.40**  
**FUND FLOW STATEMENT OF THE WOOLEN INDUSTRIES**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 6c)**

(Value in Thousand JD.)

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	---	---	---	---	---	---	378	---	---	---
2 Issue of Share Capital	---	---	---	19	---	250	---	250	---	---
3. Funds from Operation	16	43	122	80	98	39	11	81	93	29
4. Sale of Fixed Assets	---	---	---	---	---	---	---	---	---	29
5 Sale of Investment	---	---	---	---	---	---	---	---	---	---
6 Decrease in Net Working Capital	---	---	---	21	---	---	---	---	---	---
7 Share Premium	---	---	---	9	---	125	---	275	---	---
<b>TOTAL FUND PROVIDED</b>	<b>16</b>	<b>43</b>	<b>122</b>	<b>129</b>	<b>98</b>	<b>414</b>	<b>389</b>	<b>606</b>	<b>93</b>	<b>58</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	---	---	---	---	---	---	---	378	---	---
2 Cash Loss From Operation	---	---	---	---	---	---	---	---	---	---
3. Addition to Fixed Assets	5	29	12	129	4	132	123	88	32	---
4. Purchase of Investment	---	---	---	---	---	---	---	---	---	---
5 Increase in Net Working Capital	11	15	110	---	94	282	266	139	61	58
<b>TOTAL FUNDS UTILIZED</b>	<b>16</b>	<b>43</b>	<b>122</b>	<b>129</b>	<b>98</b>	<b>414</b>	<b>389</b>	<b>606</b>	<b>93</b>	<b>58</b>

Source: Annual Reports

Like company no. 6b, company no. 6c also had a somewhat similar pattern of application of funds and sources. Thus from 1987 to 1991, the source of funds was mostly the funds from operations. In the year 1990, there was issue of share capital of JD 19 thousand. The application of funds in the corresponding period was also quite similar. Thus the funds were applied towards the working capital and fixed assets. In the year 1989, the working capital went up by JD 110 thousand whereas in 1992, the addition to fixed

assets was JD 132 thousand. From 1992 to 1994, the funds from operations took a back seat as a result of the Gulf War. Thereby the company took the shelter of share capital and borrowed funds. Thus in 1992 and 1994, the share capital raised amounted to JD 250 thousand in each of the year at a premium. This enabled the company to repay the borrowings of 1993. Beside this, the company acquired a large amount of fixed assets. In the last two years, the picture was quite similar to that in the initial years. The company had funds from operations, which were applied mostly for addition to the working capital and to fixed assets.

**TABLE V.4.41**  
**FUND FLOW STATEMENT OF JORDAN PAPER AND CARDBOARD**  
**FACTORIES CO. LTD. DURING 1987 TO 1996. (Company no. 7a)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	---	552	338	390	355	---	---	---	290	---
2. Issue of Share Capital	---	---	---	1,500	---	---	---	---	---	---
3. Funds from Operation	366	247	1,595	---	1,129	1,036	687	349	90	981
4. Sale of Fixed Assets	214	---	---	---	---	---	---	---	795	---
5. Sale of Investment	---	---	---	---	---	---	---	---	---	---
6. Decrease in Net Working Capital	---	---	---	2,876	---	---	---	267	295	74
7. Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>580</b>	<b>799</b>	<b>1,933</b>	<b>4,766</b>	<b>1,484</b>	<b>1,036</b>	<b>687</b>	<b>616</b>	<b>1,470</b>	<b>1,054</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	---	---	---	---	---	383	115	285	---	292
2. Cash Loss From Operation	---	---	---	873	---	---	---	---	---	---
3. Addition to Fixed Assets	---	456	61	3,893	92	116	137	331	---	39
4. Purchase of Investment	---	---	---	---	---	---	---	---	1,470	723
5. Increase in Net Working Capital	580	343	1,872	---	1,392	537	435	---	---	---
<b>TOTAL FUNDS UTILIZED</b>	<b>580</b>	<b>799</b>	<b>1,933</b>	<b>4,766</b>	<b>1,484</b>	<b>1,036</b>	<b>687</b>	<b>616</b>	<b>1,470</b>	<b>1,054</b>

Source: Annual Reports

In the case of company no. 7a, in the initial years, the major source of finance was the funds from operations, in addition to borrowed funds. The funds so accumulated were mostly applied for the working capital. In 1989, the working capital increased by JD 1,872 thousand. A part of the funds was applied towards fixed assets. Thus we can see that in 1988 the addition to fixed assets was JD 456 thousand. In 1990 there were operational losses, in spite of this there was addition to the fixed assets of JD 3,893 thousand. This

was financed by the additional share capital of JD 1,500 thousand and the borrowed funds in 1991. Moreover a part of the funds was also arranged by depleting the working capital by JD 2,876 thousand. In the subsequent years, there was a regular generation of funds from operations. The funds were mostly applied for purchase of fixed assets and replenishing the working capital level. In the last three years from 1994 to 1996, the funds from operations slightly reduced. But the company purchased heavy investments. Thereby the working capital level over the years went down. Besides this, a part of the funds was also arranged in 1995 through borrowed funds and sale of fixed assets.

**TABLE V.4.42**  
**FUND FLOW STATEMENT OF ARAB PAPER CONVERTING AND**  
**TRADING CO. LTD. DURING 1987 TO 1996. (Company no. 7b)**  
*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1. Fund From Borrowing	--	--			206	--	--	--	--	--
2. Issue of Share Capital	--	--	--	--	100	--	--	1,234	783	383
3. Fund From Operation	--	--	250	204	570	79	83	119	151	241
4. Sale of Fixed Assets	--	--	--	53	--	--	--	--	--	--
5. Sale of Investment	--	--	--	--	--	--	--	--	--	--
6. Share Premium	--	--	--	--	--	--	174	443	392	192
7. Decrease in Net Working Capital	100	84	--	--	--	--	180	--	--	412
<b>TOTAL FUND PROVIDED</b>	<b>100</b>	<b>84</b>	<b>251</b>	<b>257</b>	<b>876</b>	<b>79</b>	<b>436</b>	<b>1,796</b>	<b>1,326</b>	<b>1,228</b>
<b>APPLICATION OF FUNDS</b>										
1. Decrease in Borrowing	33	10	--	--	--	4	354	--	--	--
2. Cash Loss From Operation	64	63	--	--	--	--	--	--	--	--
3. Addition to Fixed Assets	2	11	2	--	42	1	82	702	1,050	1,228
4. Purchase of Investment	--	--	--	--	--	--	--	--	--	--
5. Increase in Net working Capital	--	--	248	257	834	74	--	1,094	276	--
<b>TOTAL FUNDS UTILIZED</b>	<b>100</b>	<b>84</b>	<b>251</b>	<b>257</b>	<b>876</b>	<b>79</b>	<b>436</b>	<b>1,796</b>	<b>1,326</b>	<b>1,228</b>

Source: Annual Reports

In the initial years, company no. 7b suffered operational losses. There was also repayment of borrowed funds. Thereby the working capital went down by JD 100 thousand and JD 84 thousand in the year 1987 and 1989 respectively. In the next three years up to 1991, there were regular funds from operations and the profits were mostly applied towards replenishing the working capital. In the year 1991 the addition to the working capital was as

high as JD 834 thousand besides an addition to fixed capital of JD 42 thousand. This was meted out from the funds from operations<sup>1</sup> of JD 570 thousand and the borrowed funds of JD 206 thousand. Besides, there was also the introduction of share capital of JD 100 thousand. In the following years up to 1996, there were funds from operations but later the company issued additional share capital. Thus we can see that from 1994 to 1996 there was regular issue of share capital at a premium. The funds so generated were applied towards fixed assets and the working capital. The company thus seemed to have a major expansion plan. Thus in 1994 the working capital increased by JD 1,094 thousand. Besides this in 1995 and 1996, the addition to fixed capital was JD 1,050 thousand and JD 1,228 thousand respectively.

**TABLE V.4.43**  
**FUND FLOW STATEMENT OF JORDAN PRINTING AND PACKING**  
**CO. LTD. DURING 1987 TO 1996. (Company no. 7c)**

*(Value in Thousand JD.)*

PARTICULARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<b>SOURCE OF FUNDS</b>										
1 Fund From Borrowing	---	---	---	---	---	17	10	---	49	---
2 Issue of Share Capital	75	---	---	---	---	---	---	---	---	---
3 Funds from Operation	5	74	71	120	97	78	122	88	119	---
4 Sale of Fixed Assets	---	---	---	---	---	---	---	---	19	---
5 Sale of Investment	40	---	---	---	---	---	---	---	---	---
6 Decrease in Net Working Capital	---	8	18	---	---	---	---	---	---	61
7 Share Premium	---	---	---	---	---	---	---	---	---	---
<b>TOTAL FUND PROVIDED</b>	<b>120</b>	<b>82</b>	<b>89</b>	<b>120</b>	<b>97</b>	<b>94</b>	<b>132</b>	<b>88</b>	<b>186</b>	<b>61</b>
<b>APPLICATION OF FUNDS</b>										
1 Decrease in Borrowing	37	21	29	26	29	---	---	15	---	21
2 Cash Loss From Operation	---	---	---	---	---	---	---	---	---	34
3 Addition to Fixed Assets	26	61	59	10	63	77	85	37	---	7
4 Purchase of Investment	---	---	---	---	---	---	---	---	---	---
5 Increase in Net Working Capital	57	---	---	83	5	17	47	36	186	---
<b>TOTAL FUNDS UTILIZED</b>	<b>120</b>	<b>82</b>	<b>89</b>	<b>120</b>	<b>97</b>	<b>94</b>	<b>132</b>	<b>88</b>	<b>186</b>	<b>61</b>

Source: Annual Reports

In company no. 7c, the funds from operations were generated quite regularly. The generation over the years went up. Thus the funds from operations in 1987 was JD 5 thousand whereas in 1990 it touched JD 120 thousand. As far as application of funds is concerned, in the first five years, the

funds were mostly applied for acquiring fixed assets and repaying the borrowed funds of the earlier period. Besides this, there was occasional addition to the working capital. The picture was slightly different in the years from 1991 to 1996. In this period, the funds from operations witnessed upward and downward trend mainly due to the uncertainty in the market conditions as a result of the Gulf War. Thereby in these years, the company also resorted to borrowing of funds from outsiders. The funds so generated were applied for acquiring the fixed assets and mainly in increasing the working capital of the company. Thereby in 1995, the funds from operations were JD 119 thousand, and the borrowed funds were JD 49 thousand. This entire amount alongwith the sale proceeds of fixed assets was utilised for adding to the working capital by JD 186 thousand. In the year 1996, the company suffered cash losses of JD 34 thousand besides a repayment of the loan of JD 21 thousand. This resulted in the depletion of working capital by JD 61 thousand.

From the proceeding analysis we can conclude that the period of ten years was influenced by the Gulf War and the corresponding operational funds went down. But apart from this crisis, the fact cannot be denied that there was clearly an improper management of the sources on the part of the entire industrial sector. It is clearly observed that the industries in Jordan were guilty of amassing disproportionately high levels of inventories and maintaining high levels of receivables. This resulted in a situation where although the companies increased their profit levels and the position of current assets seems at a higher level, they were not able to improve their liquidity position and ultimately they found most of their funds locked in inventories and receivable.

As a result of the excessive application of funds towards the working capital, the cash position of the industrial companies were jeopardised. As such the money, which should have been circulated for the purpose of the operations was blocked. The companies somehow were able to pass on a part of the stress to the trade creditors, but in most of the cases, long term sources were brought into the picture to ease out the situation. Therefore the share of long term sources went up in the total working finance. In other words, the companies used long term sources as a substitute for short term financing

sources. Thereby instead of improving their own operational efficiency, the sector mostly depended upon external funds. This step unfortunately led them towards the debt trap.

Moreover, although the earning power and the turnover ratios like capital employed and fixed assets went up as compared to 1987, the trend in the last five years of the study was not encouraging. In many sectors, the trend in the last 4 or 5 years was on the negative side. In these years many sectors were not able to utilise their capital invested in the business efficiently and the capital employed in the business was also not utilised to the optimum level. Due to this, in many cases the capital employed turnover had a downward trend and so the corresponding earning power was also adversely affected.

SECTION - V

ANALYSIS AND  
INTERPRETATION  
OF DATA RELATED TO  
THE EFFICIENCY OF  
WORKING CAPITAL  
MANAGEMENT

### 5.5.1 INTRODUCTION

Inventory, receivables, and cash form the composition of the working capital which in turn forms part of the total capital employed. The proportion of working capital in total capital employed and the exact composition of the working capital itself varies from industry to industry. To put it in a crude language, "The fixed capital is for generating the income while the working capital is for maintaining it". Thereby the composition of the capital employed also has to be professionally managed. It goes further and says "Income may be easy to generate but it is very difficult to maintain". This section presents an introduction about efficiency of working capital management. It also focuses on the analysis and interpretation of data related to the objective to analyse the efficiency of working capital management in the selected industrial companies of Jordan from 1987 to 1996.

One of the main objectives of the working capital management is to maximise shareholders' wealth. As stated above, the major elements of the working capital are the inventory, receivables and the cash. Maintenance of the operating cycle forms the core of the working capital management. The operating cycle can be said to be at the heart of the need for working capital. In simple words, the operating cycle is the continuing flow from cash to inventory, to accounts receivables and back to cash. Thus the crux of the working capital management lies in maintaining the following cycle of events.

- Conversion of cash into inventory.
- Conversion of inventory into receivables.
- Conversion of receivables into cash.

These are the three wheels on which the complete operating cycle and the whole exercise of working capital management depends. It follows that there must be proper balancing of all the three parts. Any imbalance in one of them creates ripples in the other two. Thus the efficiency of working capital management lies in maintaining a smooth flow of funds through all the corridors of the working capital and in generating profits through this motion. The criteria for measuring efficient utilisation of the working capital are, turnover of the working capital and the percentage of the net profit and loss on the working capital.<sup>(69)</sup> The analysis of the working capital management will be facilitated by showing the percentage of working capital with regard to the total capital employed in the different industrial companies during the period under study, i.e., from 1987 to 1996.

The study of efficiency of working capital management should be directed from the following angles:

- ⇒ **Proportion of Working Capital in the Total Capital Employed.**
- ⇒ **Measuring the Efficiency of the Working Capital.**
- ⇒ **Composition of the Working Capital.**

### **5.5.2 PROPORTION OF WORKING CAPITAL IN THE TOTAL CAPITAL EMPLOYED**

Table V.5.1 shows the percentage of working capital with regard to total capital employed in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V.5.1  
Percentage of Working Capital to Total Capital Employed in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	1987	1988	1989	1990	1991	1992	1993	1994	1995	(In Percentage)	
										1996	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	70.36	74.98	77.79	86.41	89.18	89.33	89.13	88.92	90.00	84.99	84.11
b) Intermediate Petrochemical Industries Co. Ltd	41.27	51.14	64.30	67.35	56.02	62.25	61.56	55.40	54.32	50.61	56.42
c) Jordan Sulphate Chemicals Co. Ltd	34.04	49.84	41.82	53.35	50.94	54.15	57.08	47.10	46.71	47.83	48.29
<b>Sector-wise Ratio</b>	67.54	72.53	75.41	84.16	86.71	87.27	87.57	86.65	88.01	83.52	81.94
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	9.99	11.76	13.84	14.71	19.45	18.50	21.39	21.38	25.41	26.52	18.29
b) The Jordan Ceramic Industries Co. Ltd	36.12	26.04	41.21	45.95	42.73	41.06	40.39	45.05	48.55	50.67	41.78
c) Jordan Rockwool Industries Co. Ltd	23.33	31.43	58.62	48.96	47.07	47.79	49.36	62.44	63.72	63.51	49.62
<b>Sector-wise Ratio</b>	10.58	12.37	15.61	16.47	20.79	19.91	23.02	23.60	27.52	28.66	19.85
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri. Co. Ltd	50.02	52.59	53.27	68.68	74.72	71.19	73.13	66.19	61.10	62.09	63.30
b) Arab Investment and Int. Trade Co. Ltd	28.45	29.85	27.38	30.79	50.76	59.05	40.11	52.93	51.10	53.65	42.41
c) The National Industries Co. Ltd	39.49	36.14	37.41	38.41	42.86	37.39	43.78	51.08	68.02	43.63	43.82
<b>Sector-wise Ratio</b>	42.83	43.58	44.27	56.09	65.13	63.75	63.96	61.68	61.18	56.10	55.86
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	58.98	61.21	68.63	68.02	68.36	71.56	71.63	72.22	69.24	71.50	68.14
b) Dar Al-Dawa Development & Inv't Co. Ltd	72.88	78.32	81.45	79.92	61.80	62.14	72.31	71.00	73.32	73.54	72.67
c) The Arab Center for Pharm. & Chemicals Co. Ltd	22.09	29.42	55.20	61.51	76.67	68.50	73.72	77.93	54.51	70.45	59.00
<b>Sector-wise Ratio</b>	57.59	60.96	69.49	69.75	68.22	68.89	72.06	72.57	69.60	72.05	68.12
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co. Ltd	46.83	42.03	49.57	62.99	74.01	79.29	85.03	83.92	57.10	46.87	62.77
b) National Cables & Wire Manuf. Co. Ltd	47.81	57.32	77.29	76.58	72.33	75.50	75.56	71.81	62.52	60.57	67.73
c) The Jordan Pipes Manufacturing Co. Ltd	69.13	82.06	84.92	84.14	81.60	82.32	85.50	86.25	83.47	75.63	81.50
<b>Sector-wise Ratio</b>	52.18	58.50	70.98	73.83	74.89	78.40	80.81	79.08	64.57	57.83	69.11
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	86.14	91.69	95.33	96.58	97.30	96.94	90.05	90.32	93.21	93.86	93.14
b) Jordan Tanning Co. Ltd	62.75	61.59	66.20	74.78	82.62	82.81	81.64	83.37	84.88	81.65	76.23
c) The Woollen Industries Co. Ltd	45.22	48.75	61.66	60.50	67.48	68.91	69.39	68.76	71.71	75.47	63.78
<b>Sector-wise Ratio</b>	78.01	84.02	89.42	89.38	91.33	91.59	86.56	87.29	90.11	90.29	87.80
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	73.19	79.04	79.05	67.99	47.79	47.34	52.90	51.88	57.98	61.35	61.85
b) The Arab Paper Converting & Trading Co. Ltd	46.26	55.21	62.42	64.29	70.03	75.27	77.15	68.92	71.93	55.44	64.69
c) Jordan Printing and Packing Co. Ltd	41.63	45.72	44.01	51.12	55.91	57.10	50.64	52.71	61.70	38.95	49.95
<b>Sector-wise Ratio</b>	65.29	70.64	73.31	65.44	51.24	52.33	56.44	56.03	63.15	57.91	61.18
<b>Overall Industrial Ratio</b>	39.15	44.00	49.32	56.62	59.99	62.84	65.81	65.16	66.88	65.61	57.54

Source: Appendix IV

As depicted in Table V.5.1, the companies in Jordan seem to have increased their respective share of working capital in the total capital employed. The percentage of working capital gradually went up over the period of ten years up to 66.88 per cent in 1995 as compared to 39.15 in 1987, and thereafter in the year 1996, it marginally came down to 65.61 per cent. The main reason for this overall trend appears to be the disproportionate growth of the inventories and receivables in most of the companies as compared to the operational increase. This led to a heavy built up of current assets as compared to the fixed ones and hence one can infer that the application of the capital was more towards maintaining rather than generating. Without being able to increase the operations up to the expectations, the companies seemed to have anticipated the increase in operations and in the process ended up locking huge amount of funds in current assets. However, there was a rise in the level of activity (which is not surprising considering the period of ten years) and with this the working capital maintained also increased. But the increase should be in tune with the activity levels and it should be equally reflected in the form of an increase in the fixed capital. The amount of fixed capital should run parallel to the amount of working capital. However, one can clearly see heavy distortion in the proportion of figures for the period 1987 and 1996. The sector-wise analysis also reveals a similar same story although the magnitude is different.

An indepth analysis of each sector and its related companies reveals that in the case of the Chemical and Petroleum Industrial Sector as a whole, just in line with the overall trend, its proportion of working capital in the total capital employed increased. The share of working capital in the total capital employed increased from 67.54 per cent in 1987 to 83.52 per cent in 1996 and its average was 81.94 per cent. All the companies in this sector showed an increasing tendency to maintain higher working capital. The main reason for this trend is the increased level of receivables maintained as compared to the

respective sales. The sales growth during the period from 1987 to 1996 was nearly 96.52 per cent where as during the same period, the receivables went up to 577.30 per cent. This huge proportion resulted in a heavy building up of current assets as a whole.

As far as the Construction Industrial Sector is concerned, the sales in 1996 were 241.16 per cent of the sales in 1987. But the corresponding increase in inventory as well as the receivables is higher than that of sales. The increase in inventory was 252.81 per cent and increase in the receivables was 314.84 per cent which caused a heavy locking up of funds and so the sector ended up maintaining a higher level of working capital as compared to that in 1987. The percentage of working capital in total capital employed, which was 10.58 in 1987, went up to 28.66 in 1996 with an average of 19.85 per cent. Company no 2c especially recorded a huge upward as far as the balancing of capital employed is concerned. From 23.33 per cent in 1987, the share of working capital touched as high as 63.51 per cent in 1996 which itself is much higher than the sector's average. All the companies in this sector seemed to have followed the increasing pattern.

In the case of the Consumables and Food Industrial Sector, the share of working capital in capital employed did increase, but in some ways this sector performed quite differently. The proportionate increase in both inventory and receivables was lower than that of the sales. But over the years, we find that the proportion of inventories and receivables in the total working capital went down and the corresponding percentage of cash in working capital went up (although it is below 10 per cent ). This coupled with the fact that the fixed assets turnover which had increased in the initial years went down in last four years under study, had an impact on the proportion of working capital in the total capital employed. The working capital which was 42.83 per cent in 1987 increased over the years and although in the last four years it shows decreasing trend, percentage of the working capital in capital employed on

overall basis was 55.86 per cent. Thus, this sector had a mixed effect of change in the composition of the working capital due to inefficient management of fixed asset.

As we have seen earlier, the Pharmaceutical Industrial Sector is one of the few sectors which has been able to check the growth of receivables and inventories. The increase in inventories was similar to the of increase in sales but there was reduction in the level of receivables. The increase in receivables was below that of sales. The sector as a whole substantially reduced its average collection period, which enabled it to reduce the proportion of receivables. But this had little impact on the proportion of the working capital in the total capital employed. The share of inventories and receivables was overcompensated by the increased share of cash in the total working capital which went up by about 14 times, i.e., about 1400 per cent. Thereby, despite keeping inventories and receivables in check, the sector was not able to control in the share of the working capital the total capital employed. The share went up to 72.05 per cent in 1996 as compared to 57.59 in 1987. But the form of the working capital as compared to other sectors was different. In most of the sectors we find a lot of amount locked up in inventories or in receivables, the Pharmaceutical Industrial Sector seems to have had increased its reserve of cash. All the companies under this sector increased their proportion of working capital but in the case of company no. 4c the impact is substantial. The percentage rose from 22.09 in 1987 to 70.45 in 1996. On the other hand, the impact in the case of company no. 4b is marginal.

The Engineering Industrial Sector registered an increase in sales up to 252.36 per cent in 1996 as compared to 1987. The corresponding increase in receivables was up to 232.20 per cent which is lower than sales But inventories in the same period went up to 318.16 per cent. The increase in inventories seems to have superseded and thereby the total proportion of the working capital in the total capital employed rose on an average up to 69.11

per cent from 52.18 per cent in 1987. But the overall increase had a mixed trend. Thus beginning from 52.18 per cent in 1987 the percentage gradually rose up to 80.81 per cent in 1993. But the last years were marked by a reduction in the inventory levels maintained. Thereby the proportion of the working capital in the total capital employed went down gradually to 57.83 per cent in 1996. Such a fluctuation is very much evident in the case of company no. 5a where the percentage rose to 85.03 in 1993 from 46.83 in 1987. Thereafter there was a sudden slump in the percentage in the last three years when it sharply came down to 46.87 per cent in 1996.

The Textile Industrial Sector amassed inventories and was quite liberal as far as receivables is concerned. Therefore the figure of receivables also was much higher than the corresponding increase in sales. On an average, the overall sales was 215.99 per cent of the sales in 1987 and the corresponding receivables was at 258.89 per cent as compared to 1987. Moreover, the inventories too were at 232.77 per cent. The impact of all these factors was that 90.29 per cent of the total capital was applied towards the working capital in 1996 as compared to 78.01 per cent in 1987. Although this itself is very high, it continued to increase over the years. Company no. 6b in particular, on the other hand, achieved a remarkable growth in sales but at the same time it succeeded in maintaining lower levels of growth in receivables and inventories.

The only sector which was somehow able to keep the share of working capital in the total capital under check is the Paper and Packing Industrial Sector. The sector was able to keep the growth of receivables below that of sales. Although the increase in inventories was greater than sales, the overall impact was that on an average 61.18 per cent of the capital was applied towards working capital as compared to 65.29 per cent in 1987. The percentage was even lower, i.e., 57.91 per cent in 1996. In the case of company no. 7b and company no. 7c we find that they increased their utilisation, while company no. 7a shows a different picture. In the case of

company no. 7a, the application towards the working capital was 61.85 per cent as compared to 73.19 per cent in 1987 although the last 3 or 4 years under study do reflect an increasing trend. For a better understanding of the situation, the turnover of working capital and the impact on overall profitability are shown in Tables V.5.2 and V.5.3.

### **5.5.3 MEASURING THE EFFICIENCY OF THE WORKING CAPITAL**

We have so far discussed some general aspects of efficiency of working capital and the quantum of the working capital in the total capital employed. For assessing the efficiency of the application of funds towards working capital, it is imperative to study the turnover of the working capital maintained (Table V.5.2) and its impact on overall profitability (Table V.5.3). The working capital turnover indicates how efficiently the resources (i.e., Working Capital) are applied in the business. The higher the turnover of working capital, the higher would be its profitability, indicating better efficiency in the use of the working capital while a lower turnover indicates inefficient use of the working capital. Even if the turnover increases, if the rate of return per turnover decreases, the rate of return on the total assets may be small. An increase in turnover of working capital results in a better rate of return on the working capital, if profit per turnover can be maintained.<sup>(70)</sup> This also requires the analysis of the percentage of net profit and loss on working capital at the same time.

Tables V.5.2 and V.5.3 show the turnover of the working capital and the percentage of the net profit and loss on the working capital in the industrial companies during the period under study, i.e., 1987 to 1996.

Table V.5.2  
Turnover of Working Capital in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	(In Times)									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996 Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>										
a) Jordan Petroleum Refinery Co Ltd	2.37	2.11	2.36	1.79	1.71	1.68	1.57	1.60	1.46	1.45
b) Intermediate Petrochemical Industries Co Ltd	1.37	0.93	1.13	0.98	1.02	0.69	0.77	1.23	0.74	1.06
c) Jordan Sulpho- Chemicals Co Ltd	1.82	1.21	2.19	1.75	2.05	1.07	1.54	1.08	1.73	1.21
<b>Sector-wise Ratio</b>	2.33	2.04	2.27	1.75	1.69	1.64	1.55	1.58	1.46	1.44
<b>2) Construction Industrial Sector</b>										
a) The Jordan Cement Factories Co Ltd	2.06	1.59	1.54	1.81	1.52	2.05	2.03	1.89	1.60	1.66
b) The Jordan Ceramic Industries Co Ltd	1.28	1.21	1.07	1.06	1.23	1.38	1.01	1.15	1.21	1.12
c) Jordan Rockwood Industries Co Ltd	1.16	0.98	0.82	1.07	0.69	0.83	0.98	0.45	0.46	0.49
<b>Sector-wise Ratio</b>	1.99	1.55	1.45	1.69	1.47	1.95	1.88	1.73	1.51	1.56
<b>3) Consumables &amp; Food Industrial Sector</b>										
a) The Industrial Commercial & Agn Co Ltd	1.41	1.50	1.66	1.41	1.61	1.68	1.69	1.15	1.39	1.25
b) Arab Investment and Int Trade Co Ltd	1.33	2.06	1.51	0.82	0.85	1.76	1.97	1.13	1.31	1.25
c) The National Industries Co Ltd	1.37	1.15	1.04	1.94	1.48	1.95	1.64	1.64	0.97	1.39
<b>Sector-wise Ratio</b>	1.39	1.50	1.50	1.44	1.50	1.72	1.71	1.21	1.28	1.28
<b>4) Pharmaceuticals Industrial Sector</b>										
a) The Arab Pharmaceuticals Manuf Co Ltd	0.59	0.50	0.51	0.59	0.60	0.54	0.50	0.40	0.63	0.59
b) Dar Al-Dawa Development & Invst Co Ltd	0.71	0.75	0.77	0.81	0.99	0.93	0.79	0.96	0.91	0.86
c) The Arab Center for Pharm & Chemicals Co Ltd	0.71	0.72	0.65	0.49	0.28	0.73	1.15	0.69	1.04	0.49
<b>Sector-wise Ratio</b>	0.61	0.57	0.58	0.64	0.62	0.65	0.66	0.60	0.76	0.67
<b>5) Engineering Industrial Sector</b>										
a) Arab Aluminium Industry Co Ltd	1.32	1.98	2.10	1.34	0.96	0.95	0.85	0.67	1.11	1.17
b) National Cables & Wire Manuf Co Ltd	0.84	0.73	0.87	1.00	0.91	0.73	0.67	0.79	1.04	0.91
c) The Jordan Pipes Manufacturing Co Ltd	1.45	0.70	0.99	0.76	0.99	1.30	0.93	0.84	0.57	0.93
<b>Sector-wise Ratio</b>	1.23	1.08	1.18	1.03	0.95	0.94	0.79	0.75	0.95	1.00
<b>6) Textile Industrial Sector</b>										
a) The Jordan Worsted Mills Co Ltd	0.91	0.59	0.46	0.51	0.54	0.45	0.50	0.41	0.40	0.37
b) Jordan Tanning Co Ltd	0.66	0.92	0.91	1.33	1.85	2.14	1.92	2.14	2.48	2.52
c) The Woolen Industries Co Ltd	1.46	1.44	1.09	1.10	0.88	0.92	0.70	0.55	0.51	0.72
<b>Sector-wise Ratio</b>	0.88	0.66	0.53	0.69	0.89	0.85	0.81	0.76	0.85	0.77
<b>7) Paper &amp; Packing Industrial Sector</b>										
a) Jordan Paper and Cardboard Factories Co Ltd	0.87	0.81	0.87	1.47	1.28	1.11	0.86	0.88	1.07	0.96
b) The Arab Paper Converting & Trading Co Ltd	1.07	0.83	1.00	1.28	0.80	0.84	1.03	0.98	0.47	1.32
c) Jordan Printing and Packing Co Ltd	2.03	1.84	1.89	2.05	1.71	1.65	1.83	1.57	0.85	2.26
<b>Sector-wise Ratio</b>	0.98	0.89	0.94	1.49	1.24	1.12	0.97	0.96	0.81	1.14
<b>Overall Industrial Ratio</b>	1.90	1.64	1.66	1.48	1.43	1.46	1.38	1.34	1.31	1.31

Source Appendices III & IV

Table V.5.3  
Percentage of Net Profit and Loss on Working Capital in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)									
	1987	1988	1989	1990	1991	1992	1993	1994	1995	Average of Ten Years
<b>1) Chemical &amp; Petroleum Industrial Sector</b>										
a) Jordan Petroleum Refinery Co Ltd	3.65	3.23	3.84	4.02	1.16	1.04	1.66	1.93	2.22	2.11
b) Intermediate Petrochemical Industries Co Ltd	15.62	14.25	17.51	22.57	14.60	12.77	0.52	-3.53	-5.75	-19.54
c) Jordan Sulpho- Chemicals Co Ltd	38.61	-5.94	42.62	32.07	21.89	23.63	3.33	-6.85	-8.99	-23.04
<b>Sector-wise Ratio</b>	4.67	3.38	5.55	5.52	1.86	1.76	1.65	1.68	1.94	1.54
<b>2) Construction Industrial Sector</b>										
a) The Jordan Cement Factories Co Ltd	39.65	17.85	9.02	15.35	12.89	32.31	30.04	30.29	22.40	18.97
b) The Jordan Ceramic Industries Co Ltd	17.93	37.48	40.39	31.79	54.35	62.42	53.44	51.63	38.49	41.03
c) Jordan Rockwool Industries Co Ltd	-13.55	6.00	31.35	9.85	-19.39	0.21	8.34	-3.33	0.69	-5.83
<b>Sector-wise Ratio</b>	37.04	18.50	13.32	16.77	15.03	33.73	31.88	30.92	23.10	20.42
<b>3) Consumables &amp; Food Industrial Sector</b>										
a) The Industrial Commercial & Agri Co Ltd	3.17	6.73	11.18	23.17	12.55	11.62	10.99	0.61	2.21	-2.74
b) Arab Investment and Int. Trade Co Ltd	-33.73	-16.88	-19.58	-13.67	1.52	16.28	-3.24	-6.15	-1.05	1.49
c) The National Industries Co Ltd	-55.90	-46.23	48.90	2.77	-1.08	15.79	6.57	8.70	8.49	-30.73
<b>Sector-wise Ratio</b>	-15.42	-8.42	16.17	16.93	9.55	12.76	9.30	0.78	3.40	-7.64
<b>4) Pharmaceuticals Industrial Sector</b>										
a) The Arab Pharmaceuticals Manuf Co Ltd	3.85	4.17	12.85	14.18	7.17	7.16	9.48	0.09	5.88	11.17
b) Dar Al-Dawa Development & Int. Co Ltd	7.19	15.18	21.59	26.46	19.56	23.91	16.60	18.89	12.58	14.68
c) The Arab Center for Pharm. & Chemicals Co Ltd	-9.52	3.87	14.81	2.95	6.73	21.15	16.53	11.71	9.29	7.30
<b>Sector-wise Ratio</b>	3.98	6.47	14.82	15.98	9.48	12.37	12.45	6.99	8.49	11.96
<b>5) Engineering Industrial Sector</b>										
a) Arab Aluminum Industry Co Ltd	21.13	27.38	33.35	47.02	39.38	37.70	46.09	38.67	24.73	30.41
b) National Cables & Wire Manuf Co Ltd	5.53	6.68	49.65	53.20	34.53	18.84	12.84	12.52	6.45	2.61
c) The Jordan Pipes Manufacturing Co Ltd	10.28	15.92	19.76	9.77	7.25	10.48	13.21	8.39	8.15	4.56
<b>Sector-wise Ratio</b>	13.80	16.52	35.78	39.62	30.54	24.77	25.76	22.78	12.70	11.78
<b>6) Textile Industrial Sector</b>										
a) The Jordan Woisted Mills Co Ltd	19.12	12.94	2.39	5.98	14.29	12.43	11.41	10.26	14.69	11.81
b) Jordan Tanning Co Ltd	11.88	11.74	21.67	22.46	18.65	20.09	22.10	22.21	14.29	16.07
c) The Woolen Industries Co Ltd	-2.94	3.10	20.10	8.27	14.44	5.96	3.37	7.76	1.79	8.18
<b>Sector-wise Ratio</b>	16.94	12.49	5.07	9.26	15.40	13.82	13.09	12.50	14.02	12.37
<b>7) Paper &amp; Packing Industrial Sector</b>										
a) Jordan Paper and Cardboard Factories Co Ltd	21.08	18.94	35.10	25.93	63.63	7.41	13.25	11.60	9.67	8.98
b) The Arab Paper Converting & Trading Co Ltd	-23.75	-12.89	21.19	22.89	3.70	2.23	1.85	11.61	6.89	3.70
c) Jordan Printing and Packing Co Ltd	32.46	14.37	14.87	20.85	22.16	5.08	18.30	12.91	20.10	-18.61
<b>Sector-wise Ratio</b>	16.92	14.16	32.23	24.98	49.58	6.08	11.25	11.70	9.48	6.07
<b>Overall Industrial Ratio</b>	9.12	6.64	11.55	11.39	8.19	8.70	8.75	7.60	6.52	5.54
										8.40

Source . Appendices III & IV

On the whole, in the Industrial Sector of Jordan, the working capital turnover has gone down over the years. Thus from 1.90 times in 1987, there was a downward trend and in 1996, it was at an all time lowest of 1.31 times. This indicates a very low efficiency of the working capital applied in the business. The percentage of profit on the working capital also went down in the corresponding period from 9.12 per cent to 5.54 per cent, indicating a negative impact on the profitability. The main reason for this appears to be the excess of the working capital maintained as against the actual requirement. The companies seemed to have paid the price for this additional and idle working capital maintained. In other words, the industries were not able to generate profits enough to maintain a huge amount of working capital. The<sup>th</sup> sector-wise analysis presents somewhat similar picture in most of the sectors and the companies therein.

An indepth analysis of each sector and its related companies reveals that in the case of the Chemical and Petroleum Industrial Sector, the working capital turnover lowered from 2.33 times in 1987 to 1.44 times in 1996 with an average at 1.78 times. This adversely affected the profitability percentage of the sector. The corresponding percentage of profitability of the working capital went down from 4.67 per cent in 1987 to 1.54 per cent in 1996. All the companies in this sector had the same trend, and all of them registered reduced figures of the working capital turnover. The impact on profitability was very much felt in company no. 1b and company no. 1c. In the case of company no. 1c especially, the percentage of profit on the working capital which was as high as 38.61 per cent in 1987 continued to drop over the decade and in the last three years, increasing losses were recorded. Similarly in company no. 1b, figures of the last three years present a gloomy picture of losses.

The Construction Industrial Sector too did not lag behind in this downfall although the magnitude of impact was slightly different. The working capital turnover in this sector registered a steady decline over the years. The turnover,

which was 1.99 times in 1987, was on a regular downward track and although in 1992 it showed an improvement, the effect turned out to be temporary as the period after 1992 continued the same declining trend. And in 1996, the turnover went down to 1.56 times. Similar trends were observed in the overall percentage of profitability with regard to the total working capital. The profit which was about 37.04 per cent of the working capital in 1987 went down to 20.42 per cent in 1996 although in 1992 there was a temporary upswing. The company-wise analysis presents a similar picture in most of the companies. In the case of company no. 2a, the turnover went down from 2.06 times in 1987 to 1.66 times in 1996. Although the reduction does not look substantial, the impact on the overall profitability is quite substantial. The percentage of profit on the total working capital went down to below 50 per cent of that in 1987. The said percentage, which was 39.65 per cent in 1987, went down to 18.97 per cent in 1996. In the case of company no. 2c, the trend was fluctuating, i.e., in the initial years although the working capital turnover dropped, the profitability of the company rose up indicating a reduction in the selling and distribution cost. The period thereafter was also marked by ups and downs in turnover as well as the percentage of profit on the working capital, with losses recorded again in 1994 and 1996.

The Consumable and Food Industrial Sector, in the initial years of the decade, seemed to have improved its utilisation of the working capital and thereby the working capital turnover in the initial years has shown continuous improvement. But after that there was a slump in the working capital turnover. Thus the turnover from 1.39 times in 1987 went up to 1.72 times in 1992. But after that there was a decline and the turnover suddenly came down to 1.21 times in 1992 after which it improved slightly. The percentage of profit on the working capital had somewhat similar impact. Initially there were losses, which were converted into profits due to an increase in working capital turnover. During the period after 1992, with reduction in the working capital turnover, the percentage of profit levels zoomed down and in fact in the last year under

study, there were losses. The company-wise analysis reveals that all the companies improved their working capital turnover by the year 1992 and in the case of company no. 3b and company no. 3c the improvement was remarkable up to 1993. This enabled the companies to improve their respective profitability positions. In fact company no. 3b and company no. 3c had losses in the initial years which were converted into profits. In the case of company no. 3b, the percentage of loss was up to 33.73 per cent of the working capital whereas in company no. 3c, it was even higher, i.e., up to 55.90 per cent in 1987. But with the improvement in the efficiency of the working capital employed, the position of profitability improved and in 1992, all the companies had higher profits as compared to 1987. But with a fall in the working capital turnover in the years after that, the overall percentage of profitability with regard to working capital again declined. And in fact, company no. 3a and company no. 3c recorded losses in the year 1996.

As observed in the overall analysis, the Pharmaceutical Industrial Sector was unusual in the fact that it was able to release more and more funds through the operations by reducing the levels of inventories maintained and also the receivables level. This is the only sector which was able to manage increasing flow of liquid cash into the operations and the sustained efforts fielded fruitful results in the field of the working capital turnover and the profitability. The sector as a whole did not have a smooth journey of working capital turnover but the working capital turnover did rise over the years. From 0.61 times in 1987, the working capital turnover went up to 0.67 times in 1996. Although the increase appears to be marginal, the impact on the overall percentage of profitability was quite substantial due to the higher volume of the working capital. The profit, which was just 3.98 per cent of the total working capital registered an improvement over the years and in the year 1996, it was 11.96 per cent of the total working capital maintained. All the companies under this sector improved their profitability over the years. In the case of company no. 4a, although there was a rough period in the working capital turnover, the

overall turnover was affected only negligibly. But the overall percentage of profit on the working capital went up from 3.85 per cent in 1987 to 11.17 per cent in 1996. Similarly company no. 4b more than doubled its percentage of profit on the working capital during the period. In the case of company no. 4c, initially there were low profits (in fact in 1987, there was a loss) but the overall position improved and average percentage of profit on the working capital reached 10.80 per cent during the period of ten years under study.

The overall trend in the Engineering Industrial Sector on this count was quite disturbing. Although the overall profit position vis-à-vis working capital seems to have improved (23.40 per cent as compared to 13.80 per cent in 1987) as the actual trend of it is not at all satisfactory. Initially the percentage increased from 13.80 per cent in 1987 to 39.62 per cent in 1990. But the period after that recorded a continuous decrease in the working capital turnover. Thereby the percentage of profit on the working capital gradually came down to an all time low in 1996 at 11.78 per cent. Thus after the initial flourish, the sector was not able to maintain the trend and the efficiency with which the current assets applied deteriorated in the later years. This overall trend was the direct result of the movement of the working capital turnover in the corresponding period. The working capital turnover in the initial years was on the higher side but in and after 1990, the turnover began to show a reverse trend. Thus the working capital was not applied properly or one can say that the operations were not in consonance with the level of the working capital maintained. Although in the last two years, the turnover of working capital showed some signs of improvement but it was not sufficient to cover up the already deteriorating profit conditions, and so the percentage of profit on working capital maintained went down despite the corresponding increase in the working capital turnover. All the companies somehow followed a similar trend of declining percentage of profit with regard to the working capital.

The Textile Industrial Sector recorded a fluctuating trend of the working capital turnover and overall percentage of profitability with regard to the working capital. The decade under study was marked by constant ups and downs. During the ten years, as a whole, the working capital turnover came down as compared to that in 1987. Starting from 0.88 times in the year 1987, the working capital turnover crept down in the initial 2 or 3 years till it touched 0.53 times in 1989. During this period, the percentage of profit on the working capital also fell from 16.94 per cent to 5.07 per cent. But the sector seems to have recovered a little as both the working capital turnover and the profitability percentage improved. However, this trend proved to be temporary as the period after 1991 again experienced reduction in the working capital turnover and the percentage of profit on the working capital. Company no. 6a seems to have had a poor performance as its percentage of profit on working capital fell from 19.12 per cent in 1987 to 11.81 per cent in 1996 with the corresponding reduction in the working capital turnover from 0.91 times in 1987 to 0.37 times in 1996. On the other hand, company no. 6b recorded an increase in the working capital turnover in the same period from 0.66 times to a whopping 2.52 times. Thereby the percentage of profit on the working capital also improved over the years from 11.88 per cent in 1987 to 16.07 per cent in 1996. Thus the company-wise analysis shows a somewhat positive picture but the overall trend of the sector concerned is certainly disturbing.

As stated earlier, the Paper and Packing Industrial Sector is the only sector, which was able to reduce its proportion of the working capital in the total application of funds. It seems that this enabled the sector to increase its effective utilisation of the working capital maintained. This is reflected by the increase in the working capital turnover over the years. Although the turnover was fluctuating, the end result was that it went up over the years. But here too the trend has been disturbing in and after 1991. Initially, from 1987 to 1990, the turnover went up from 0.98 times to 1.49 times. The effect of this increase was felt till next year, i.e., 1991 when its percentage of profit with respect to the

working capital reached 49.58 per cent as against 16.92 per cent in 1987. But the period after this did not register satisfactory performance and the turnover started tumbling down till 1995. It reached an all time low at 0.81 times in 1995. This has damaged its percentage of profit severely and thereby from 1992 onwards the percentage of profit on the working capital continuously went down and it touched a point as low as 6.07 per cent in 1996. However, in the last year, there were signs of recovery and thereby the working capital turnover went up to 1.14 times. If it is a revival of fortune, well one can safely presume that the sector will bounce back in its performance over the next years.

All the companies under study performed somewhat similar to that of the sector. The progressive trend recorded initially could not be maintained over the years. Thereby, in all the companies, the percentage of profit on the working capital maintained went down. Especially in the case of company no. 7c, the company seems to have incurred heavy losses in the year 1996. It had to pay a heavy price for not managing the current resources properly. The profit, which was as high as 32.46 per cent of the working capital in 1987, declined considerably in 1996.

#### **5.5.4 COMPOSITION OF THE WORKING CAPITAL**

As seen earlier, the overall working capital level in the industrial companies in Jordan rose over the years. The composition of working capital consisted mainly of inventory, receivables and cash. Now let us analyse what portion of the working capital consisted of inventories (Table V.5.4), what was the portion of receivables (Table V.5.5) and what was the percentage of cash (Table V.5.6).

Tables V.5.4, V.5.5 and V.5.6 show the percentage of inventory, receivables and cash with regard to the working capital respectively in the industrial companies during the period of the study, i.e., 1987 to 1996.

Table V.5.4  
Percentage of Inventory to Working Capital in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co. Ltd	54.62	47.28	59.61	48.73	38.87	43.97	41.42	39.80	31.36	34.30	44.00
b) Intermediate Petrochemical Industries Co. Ltd	56.35	77.20	20.34	25.07	55.03	74.31	79.76	65.90	66.31	70.34	59.06
c) Jordan Sulpho- Chemicals Co. Ltd	57.94	67.64	71.64	71.75	85.88	75.22	81.89	82.81	59.49	69.38	72.37
Sector-wise Ratio	54.73	49.09	57.22	48.00	40.05	45.37	42.86	41.01	32.27	35.16	44.58
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co. Ltd	87.77	83.51	73.81	82.28	76.56	77.79	80.52	86.37	85.85	83.73	81.82
b) The Jordan Ceramic Industries Co. Ltd	54.38	51.30	74.69	82.77	64.59	77.74	73.37	72.18	56.71	52.17	65.99
c) Jordan Rockwool Industries Co. Ltd	22.99	30.48	21.16	32.07	36.35	30.94	34.62	30.50	34.89	38.59	31.26
Sector-wise Ratio	84.18	80.07	69.84	79.72	74.16	76.04	78.19	81.80	80.51	78.53	78.30
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agn. Co. Ltd	61.30	52.51	67.10	65.34	68.90	64.44	54.09	64.14	61.06	55.05	61.39
b) Arab Investment and Int. Trade Co. Ltd	64.21	55.10	55.43	62.68	50.65	45.84	61.20	38.92	59.07	52.13	54.52
c) The National Industries Co. Ltd	46.71	23.07	26.99	48.17	35.86	37.28	49.35	42.59	55.14	40.65	40.58
Sector-wise Ratio	58.41	46.24	56.74	62.52	62.70	58.91	54.17	57.86	59.31	51.77	56.87
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf. Co. Ltd	26.76	24.32	29.56	35.35	35.67	33.71	35.53	42.41	30.07	24.95	31.84
b) Dar Al-Dawa Development & Invst. Co. Ltd	26.75	25.13	24.87	26.59	32.64	37.29	24.91	24.94	25.09	24.62	27.28
c) The Arab Center for Pharm. & Chemicals Co. Ltd	58.03	54.72	39.31	43.41	23.69	34.84	28.64	26.37	85.14	44.55	43.87
Sector-wise Ratio	27.87	25.91	29.40	34.07	33.05	34.64	31.49	35.30	31.32	26.70	30.98
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co. Ltd	22.92	34.11	49.61	32.08	45.27	18.79	22.96	44.24	43.89	25.53	33.94
b) National Cables & Wire Manuf. Co. Ltd	68.29	62.16	43.62	44.19	50.28	50.41	42.20	51.90	53.92	51.27	51.82
c) The Jordan Pipes Manufacturing Co. Ltd	58.28	87.23	78.59	82.52	85.61	81.27	81.25	57.26	69.54	61.28	74.28
Sector-wise Ratio	45.39	64.48	57.04	51.15	55.97	44.03	42.11	49.67	54.58	45.42	50.98
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co. Ltd	59.14	70.14	82.38	71.64	63.96	61.61	55.64	56.52	50.29	57.03	63.83
b) Jordan Tanning Co. Ltd	58.18	56.89	39.69	39.21	38.23	31.21	32.05	32.62	25.08	41.77	39.49
c) The Woolen Industries Co. Ltd	82.03	89.97	91.25	64.79	72.63	69.62	70.38	74.10	73.62	62.56	75.10
Sector-wise Ratio	59.76	68.95	78.08	65.09	62.07	55.23	54.65	52.76	45.99	54.62	59.72
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co. Ltd	35.37	47.99	35.11	55.66	38.44	53.22	48.67	54.69	44.02	40.17	45.33
b) The Arab Paper Converting & Trading Co. Ltd	53.97	66.80	47.94	63.50	46.21	70.74	66.21	56.07	73.68	68.22	61.34
c) Jordan Printing and Packing Co. Ltd	77.74	66.61	79.58	73.79	73.76	76.25	72.84	72.94	52.57	105.27	75.13
Sector-wise Ratio	40.57	52.10	39.23	58.57	43.15	59.37	54.30	56.45	56.47	52.57	51.28
<b>Overall Industrial Ratio</b>	54.87	52.09	55.22	51.31	46.42	48.34	46.02	46.63	41.25	41.58	48.37

Source - Appendices I & IV

Table V.5.5  
Percentage of Receivables to Working Capital in the Industrial Companies During 1987 to 1996.

INDUSTRIAL COMPANIES / YEARS											(In Percentage)				Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996					
1) Chemical & Petroleum Industrial Sector															
a) Jordan Petroleum Refinery Co. Ltd	36.10	39.04	38.77	45.08	37.27	40.00	46.39	54.86	61.81	65.10				46.44	
b) Intermediate Petrochemical Industries Co. Ltd	10.93	6.53	7.05	7.88	12.48	14.99	7.74	17.17	14.31	22.00				12.11	
c) Jordan Sulpho- Chemicals Co. Ltd	41.56	31.18	19.34	24.08	7.73	8.28	17.03	14.34	38.67	28.99				23.12	
Sector-wise Ratio	35.42	37.52	36.25	42.78	36.11	38.74	45.07	53.48	60.79	64.15				45.03	
2) Construction Industrial Sector															
a) The Jordan Cement Factories Co. Ltd	11.50	8.91	10.75	9.24	13.83	12.69	14.50	12.48	12.68	14.77				12.13	
b) The Jordan Ceramic Industries Co. Ltd	9.93	13.94	18.20	13.81	15.85	13.84	9.40	10.10	10.32	11.75				12.71	
c) Jordan Rockwool Industries Co. Ltd	70.03	67.21	66.21	54.77	54.45	58.49	59.73	36.01	32.52	29.25				52.87	
Sector-wise Ratio	12.91	11.09	15.62	12.09	15.45	14.50	15.46	13.46	13.33	15.00				13.89	
3) Consumables & Food Industrial Sector															
a) The Industrial Commercial & Agri. Co. Ltd	37.67	48.57	29.00	30.73	26.36	32.35	42.50	15.72	34.19	41.93				33.90	
b) Arab Investment and Int. Trade Co. Ltd	30.84	39.75	20.40	24.47	36.98	44.75	20.35	15.23	21.47	25.93				28.02	
c) The National Industries Co. Ltd	40.83	57.99	60.61	42.34	43.89	53.40	20.98	45.09	36.87	39.87				44.19	
Sector-wise Ratio	37.42	49.48	35.14	31.94	29.77	36.31	38.25	19.56	33.27	39.15				35.03	
4) Pharmaceuticals Industrial Sector															
a) The Arab Pharmaceuticals Manuf. Co. Ltd	72.13	71.18	67.79	59.03	59.92	49.72	54.32	49.26	57.55	65.39				60.63	
b) Dar Al-Dawa Development & Invnt. Co. Ltd	69.83	68.94	69.53	60.00	49.96	50.09	32.61	45.29	45.68	47.67				53.96	
c) The Arab Center for Pharm. & Chemicals Co. Ltd	40.96	37.25	43.85	38.13	25.73	42.79	57.91	61.17	49.35	27.95				42.51	
Sector-wise Ratio	70.63	69.14	66.16	57.25	52.20	49.10	47.98	49.71	52.80	56.02				57.10	
5) Engineering Industrial Sector															
a) Arab Aluminium Industry Co. Ltd	33.37	14.97	40.77	28.16	22.75	19.36	13.73	5.18	9.45	9.34				19.71	
b) National Cables & Wire Manuf. Co. Ltd	25.79	18.53	31.40	30.48	24.36	25.07	26.10	27.07	24.30	30.22				26.33	
c) The Jordan Pipes Manufacturing Co. Ltd	13.20	11.20	20.56	11.59	5.07	8.34	6.78	9.66	7.00	7.03				10.04	
Sector-wise Ratio	25.32	14.45	29.65	24.68	19.48	19.20	17.69	14.61	15.30	18.49				19.89	
6) Textile Industrial Sector															
a) The Jordan Worsted Mills Co. Ltd	37.39	29.15	17.32	28.19	29.68	38.18	40.03	41.53	49.65	42.94				35.40	
b) Jordan Tanning Co. Ltd	38.54	41.32	58.03	58.86	60.39	68.39	60.59	23.89	51.76	29.55				49.13	
c) The Woolen Industries Co. Ltd	14.76	9.53	8.09	34.91	26.99	26.94	24.10	24.86	23.08	35.25				22.85	
Sector-wise Ratio	36.82	30.20	21.39	34.39	37.31	44.35	43.24	37.05	48.90	40.15				37.38	
7) Paper & Packing Industrial Sector															
a) Jordan Paper and Cardboard Factories Co. Ltd	40.39	41.21	43.56	37.77	27.73	21.08	27.04	25.19	48.64	56.30				36.89	
b) The Arab Paper Converting & Trading Co. Ltd	44.89	23.83	46.05	29.37	29.63	20.81	19.47	15.03	21.30	30.10				28.05	
c) Jordan Printing and Packing Co. Ltd	21.63	16.39	19.48	25.20	22.82	22.62	27.15	26.66	45.22	47.79				27.50	
Sector-wise Ratio	39.50	36.79	42.50	35.28	27.57	21.19	25.45	22.30	37.55	46.66				33.48	
Overall Industrial Ratio	36.37	36.59	36.89	38.02	34.17	36.27	39.78	43.18	49.72	53.12				40.41	

Source: Appendices II & IV

Table V 5 6  
Percentage of Cash to Working Capital in the Industrial Companies During 1987 to 1996

INDUSTRIAL COMPANIES / YEARS	(In Percentage)										Average of Ten Years
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	
<b>1) Chemical &amp; Petroleum Industrial Sector</b>											
a) Jordan Petroleum Refinery Co Ltd	9 28	13 68	1 62	6 19	24 47	16 03	12 28	5 41	6 99	0 73	9 67
b) Intermediate Petrochemical Industries Co Ltd	32 72	16 27	72 61	67 05	32 49	10 70	12 50	16 93	19 38	7 66	28 83
c) Jordan Sulpho- Chemicals Co Ltd	0 50	1 17	9 01	4 17	6 39	16 50	1 08	2 85	1 84	1 63	4 51
Sector-wise Ratio	9 85	13 40	6 53	9 22	24 42	15 88	12 16	5 57	7 10	0 82	10 49
<b>2) Construction Industrial Sector</b>											
a) The Jordan Cement Factories Co Ltd	0 73	7 59	15 44	8 47	9 62	9 52	4 98	1 15	1 47	1 51	6 05
b) The Jordan Ceramic Industries Co Ltd	35 69	34 76	7 11	3 42	19 56	8 41	17 23	17 71	32 98	36 08	21 30
c) Jordan Rockwool Industries Co Ltd	6 98	2 31	12 63	13 16	9 19	10 57	5 64	33 49	32 59	32 16	15 87
Sector-wise Ratio	2 91	8 84	14 54	8 19	10 39	9 46	6 35	4 74	6 16	6 47	7 81
<b>3) Consumables &amp; Food Industrial Sector</b>											
a) The Industrial Commercial & Agri Co Ltd	3 74	2 05	3 91	3 93	4 74	3 21	3 41	20 15	4 75	3 03	5 29
b) Arab Investment and Int. Trade Co Ltd	4 95	5 15	24 18	12 85	12 37	9 41	19 02	45 86	19 46	21 93	17 52
c) The National Industries Co Ltd	12 46	18 94	12 40	9 49	20 25	9 31	29 67	12 32	7 99	19 48	15 23
Sector-wise Ratio	5 88	6 27	8 13	5 53	7 53	4 79	7 63	22 56	7 42	9 08	8 48
<b>4) Pharmaceuticals Industrial Sector</b>											
a) The Arab Pharmaceuticals Manuf Co Ltd	1 08	4 49	3 10	5 63	4 41	16 57	10 15	8 33	12 37	9 66	7 58
b) Dar Al-Dawa Development & Int. Co Ltd	3 42	5 92	5 59	13 42	17 40	12 62	42 47	29 76	29 23	27 70	18 75
c) The Arab Center for Pharm. & Chemicals Co Ltd	1 01	8 03	16 84	18 46	50 56	22 37	13 45	12 47	40 16	27 50	21 08
Sector-wise Ratio	1 50	4 96	4 76	8 69	14 74	16 27	20 53	14 99	20 01	17 28	12 37
<b>5) Engineering Industrial Sector</b>											
a) Arab Aluminum Industry Co Ltd	43 72	50 91	9 62	38 23	31 98	61 85	63 31	50 58	46 65	65 13	46 20
b) National Cables & Wire Manuf Co Ltd	5 92	19 32	24 98	25 33	25 36	24 53	31 70	21 03	21 78	18 51	21 84
c) The Jordan Pipes Manufacturing Co Ltd	28 52	1 57	0 85	5 89	9 32	10 39	11 97	33 08	23 46	31 69	15 68
Sector-wise Ratio	29 29	21 07	13 31	23 73	24 55	36 77	40 20	35 72	30 12	36 09	29 09
<b>6) Textile Industrial Sector</b>											
a) The Jordan Worsted Mills Co Ltd	3 48	0 71	0 30	0 17	0 36	0 21	0 34	1 95	0 06	0 03	0 76
b) Jordan Tanning Co Ltd	3 28	1 79	2 28	1 93	1 38	0 40	7 36	43 49	23 16	28 69	11 38
c) The Woolen Industries Co Ltd	3 21	0 49	0 66	0 30	0 38	3 45	5 54	1 04	3 30	2 19	2 06
Sector-wise Ratio	3 43	0 85	0 53	0 52	0 62	0 41	2 12	10 19	5 11	5 23	2 90
<b>7) Paper &amp; Packing Industrial Sector</b>											
a) Jordan Paper and Cardboard Factories Co Ltd	24 25	10 80	21 33	6 57	33 84	25 70	24 29	20 13	7 34	3 52	17 78
b) The Arab Paper Converting & Trading Co Ltd	1 14	9 37	6 01	7 13	24 16	8 45	14 31	28 90	5 02	1 68	10 62
c) Jordan Printing and Packing Co Ltd	0 63	17 00	0 94	1 01	3 42	1 13	0 01	0 39	2 21	1 96	2 87
Sector-wise Ratio	19 92	11 10	18 28	6 16	29 28	19 43	20 25	21 25	5 98	2 81	15 45
<b>Overall Industrial Ratio</b>	8 83	11 39	7 94	9 44	19 74	15 39	14 25	10 22	9 54	5 42	11 22

Source Appendices III & IV

If we take an overall view of the industrial sectors for the ten years of study, we find that the share of inventories in the working capital went down from 54.87 per cent in 1987 to 41.58 per cent in 1996 and its overall average was 48.37 per cent. Whereas, the share of receivables in the working capital went up by about 50 per cent. The share of receivables which was about 36.37 per cent in 1987, rose to 53.12 in 1996 and its overall average was 40.41 per cent during the period under study. The overall average of cash in the working capital was 11.22 per cent as against 8.83 per cent in 1987.

An indepth analysis of each sector and its related companies reveals that in the case of the Chemical and Petroleum Industrial Sector, the overall percentage of inventory with respect to the total working capital fell from 54.73 per cent in 1987 to 35.16 per cent in 1996 while individual companies had different trend records. Company no. 1b and company no. 1c increased the percentage of inventory in the total working capital whereas company no. 1a reduced the share of inventory. On the other hand, the receivables for the sector as a percentage with regard to the total working capital went up from 35.42 per cent in 1987 to 64.15 per cent in 1996. Company no. 1a and company no. 1b increased the proportion of receivables in 1996 as compared to 1987, whereas the percentage in the case of company 1c went down from 41.56 per cent in 1987 to 28.99 per cent in 1996. The increase in the receivables had its effect on the cash maintained. The cash, which was 9.85 per cent of the working capital in 1987, came down drastically to 0.82 per cent in 1996. Although this reduced figure seems to be exceptional in 1996, the overall average also went down a little. In the case of company no. 1c, which was able to reduce the percentage of receivables in the working capital was thereby able to increase its percentage of cash in the total working capital. The average percentage of cash in the working capital has been 4.51 per cent as compared to just 0.50 per cent in 1987.

The Construction Industrial Sector reduced the level of inventory in the total working capital over the years. With this, the level of receivables and cash in the total working capital also went up. The percentage of inventories in the working capital which was 84.18 per cent in 1987 came down to 78.53 per cent

in 1996. The receivables too rose from 12.91 per cent in 1987 to 15 per cent in 1996. Similarly, cash picked up from 2.91 per cent in 1987 to 6.47 per cent in 1996. These figures apply to the sector as whole. Individual companies in the sector performed in mixed ways. Company no. 2a reduced the proportion of the percentage of inventory and thereby increased the proportion of the percentage of receivables. While company no. 2b increased its share of inventory and receivables which had a negative impact on the proportion of the percentage of cash, thus straining its liquidity. On the other hand, in company no. 2c, the percentage of inventory went up while the percentage of receivables came down. The net impact of this is that the percentage of cash over the years rose to some extent.

The Consumables and Food Industrial Sector marginally reduced the portion of inventory in the total working capital maintained. The overall share of receivables also seems to have reduced although in the last three years under study, the corresponding percentage went up. The net effect of these reductions is that the liquid funds in the working capital were released. The share of cash in the total working capital went up over the years. But in last the three years, the increased proportion of receivables seemed to have resulted in soaring the proportion of cash.

The industrial sectors as a whole witnessed some ups and downs in the portion of inventory in the working capital. Thus, in the initial years, the percentage picked up from 58.41 per cent in 1987 to 62.70 per cent in 1991. But after that it witnessed a downfall and in the year 1996 the percentage was 51.77 per cent with the decade average of 56.87 per cent. Similar trend were observed in the share of receivables in the total working capital. From 37.42 per cent in 1987 the swinging curve went as low as 19.56 per cent in 1994 (which is somewhat exceptional) but in the last two years the portion of receivables again went up and reached 39.15 per cent in 1996 although the decade average fell to 35.03 per cent over the ten years. Thus uneven trend had a similar impact on the cash positions and as the portion of inventories and receivables went down, naturally the percentage of cash went up. In the year 1994 when the receivables were at the lowest, the cash was highest at 22.56

per cent and thereafter with an increase in the portion of receivables the share of cash came down to 9.08 per cent in 1996 with the average for ten years at 8.48 per cent.

The Pharmaceutical Industrial Sector as a whole increased its application of funds towards inventory over the years (in the last year, the corresponding percentage has reduced). The overall percentage of inventories was 27.87 per cent in 1987 as compared to 26.70 per cent in 1996. Company no. 4a also increased the share of inventory over the years whereas in complete contrast to this, company no. 4c reduced its investment in inventories as compared to other current assets. The percentage of inventories went down from 58.03 in 1987 to 44.55 per cent in 1996 with the overall average of 43.87 per cent. We find a similar reduction in the position of receivables. The receivables, which formed 70.63 per cent of the total working capital in 1987, were about 56.02 per cent of the total working capital in 1996. This overall reduced share of receivables seems to have made a positive impact on the liquid funds of the sector and the money, which had been locked up in receivables, seems to have been released. The percentage of cash in the total working capital improved remarkably over the years. It multiplied itself by about 14 times and cash, which was just 1.50 per cent of the total working capital in 1987 was as high as 17.28 per cent in 1996. The sector in the initial years, due to unnecessary blocking of funds had a negative working capital but afterwards as the cash started pouring in, the position seems to have improved.

With variations on both the sides, the Engineering Industrial Sector registered an overall increase in the percentage of inventory in the total working capital. The percentage, which was 45.39 per cent in 1987, was up to 50.98 per cent for the decade. On the other hand, the portion of receivables went down from 25.32 per cent in 1987 to the overall average of 19.89 per cent. The reduction in percentage of receivables led to an improvement in the position of cash over the years and thereby the percentage of cash maintained in the total working capital went up from 29.29 per cent in 1987 to 36.09 per cent in 1996.

The Textile Industrial Sector showed a reduction in its percentage of inventory in the total working capital from 59.76 per cent in 1987 to 54.62 in 1996. The corresponding percentage of receivables went down from 36.82 per cent in 1987 to 40.15 per cent in 1996. The reduced level of receivables seemed to have led to increase investment in inventory and thereby the position of cash improved over the years. The cash, which was 3.43 per cent of the working capital in 1987, reached up to 5.23 per cent in 1996.

With minor variations and occasional fluctuations over the decade, the Paper and Packing Industrial Sector as a whole was able to increase its percentage of inventory and reduce the component of receivables in the total working capital over the years. The overall impact of this on the position of cash was that the increased level of inventory strained the position of cash. In this sector the overall percentage of inventories in the total working capital which was 40.57 per cent in 1987 with some ups and downs gradually was 52.57 per cent in 1996 and the average for the ten years was 51.28 per cent. In the case of company no. 7a and company no. 7b, we find that the respective percentage of inventories over the years increased as compared to that in 1987. But company no. 7c reduced its overall percentage of inventories in the total working capital. In the sector as a whole, the percentage of receivables in the working capital went down in all the companies over the years. The percentage, which was 39.50 per cent in 1987, went down to average of 33.48 per cent. But the reduction in the percentage of receivables was not able to offset the increased level of inventory and thereby the position of cash in the total working capital dipped down from 19.92 per cent in 1987 to as low as 2.81 per cent in 1996 and the average percentage of cash in these ten years was 15.45 per cent.

In general, overall the working capital management in the companies in Jordan was quite poor in the period of study. There was excess accumulation of working capital. As it was seen in the overall analysis, the inventories and the receivables levels went up in disproportion. Thereby the percentage of working capital to the total capital went up over the years.

As stated above, the operating cycle should be carefully maintained for the effective running of the affairs of the company. There should be regular conversion of inventories into receivables and receivables should regularly be converted into cash, which ultimately is important for the overall operations. But as against this we can observe the increasing trend of converting the receivables into sticky advance. Similarly the inventory accumulation had put strains on the cash position of the sectors. Overall thereby we can see that the percentage of cash to the total working capital went down. This had left the companies to depend upon the external sources like the cash credits and other long term finances. At the end of the day, one can see the depletion of the owner's funds and the debt trap around the necks of the companies. Due to improper utilisation of inventories and other current assets, the working capital turnover over the years went down. Thereby the profitability had also affected as the percentage of profit on working capital went down over the years.

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