CHAPTER - II

REVIEW OF
THE RELATED
LITERATURE

2.1 INTRODUCTION

Management of working capital is crucial for the success of an enterprise. The adequacy of cash and other current assets, together with their efficient handling, virtually determines the survival or extinction of a business concern. Working capital is said to be the life-blood and nerve-center of a unit. In spite of such a great significance of working capital management, it has not attracted much attention of researchers in Jordan. This researcher, unfortunately, has not come a cross a single indepth study in the form of doctoral thesis or published paper relating to working capital of the industrial sectors nor any study of academic importance undertaken in Jordan.

For a deeper insight and clear perspective of a research work, review of related literature and research is of great importance. A review has been undertaken in order to perceive the problem in its proper perspective. Such a review provides not only a sound rationale for the current study but also help in defining the frontiers of the field which help in producing a more definitive statement of the problem. It also helps in establishing the relationship between past research in the field and the specific topic under investigation. A proper review of related literature helps, to a great extent, in identifying the problem, developing of a research design and determining the size and scope of the problem. Therefore, an overview of the past studies is of great importance.

Keeping in mind, the above views, an attempt is made in this chapter to present the related research done in the area of the present study. Considering the main purposes of the present study, the review of the related literature is carried out under five heads, namely:

1) **Studies Related to the Efficiency of Working Capital Management.**
2) **Studies Related to Inventory Management.**
3) **Studies Related to Receivables Management.**
4) **Studies Related to Cash Management.**
5) **Studies Related to Working Capital Finance.**

2.2 STUDIES RELATED TO THE EFFICIENCY OF WORKING CAPITAL MANAGEMENT

Working capital is an integral part of overall financial management. As it is a matter of great importance for the survival and success of any industrial concern, many researchers have tried to explore the management and efficiency of working capital for various industrial firms. A number of studies in this respect have been carried out. Perhaps, a review of the studies might yield the necessary insight with respect to the present study. Hence, an attempt is made below to present, in brief, the main findings of some of the studies carried out in this area.

Reddy and Rao[1] (1996) attempted an important study, entitled "Working capital Management Practices in Public Enterprises". They selected Hindustan Cables Limited (HCL) for the purpose of their study. The main objective of the study was to analyse the overall working capital management in HCL and to measure the efficiency in the management of working capital The study was based on the data and information obtained from the annual report covering the period of 1989-90 to 1993-94. They observed from the study that the distribution of gross working capital among its components had remained in a specific order, i.e., the percentage of debtors to the total current assets, on an average, had always been the highest, i.e., 50.56 per cent followed by inventory, loans and advances, and cash and bank balance at 37 63, 10 70, and 1.11 per cent respectively with regard to the total current assets during the period of the study.

Reddy and Rao found that since 1991-92 the share of inventory in the total current assets had begun to decline and the inventory turnover ratio had started to rise. This clearly suggests that systematic control over inventory had been exercised. An analysis of investments of current assets in debtors indicated that the share of debtors in the total current assets had occupied the first place among the components of current assets. On an average, half of the current assets were made up of debtors. Loans and advances, and cash and bank accounted for more or less a constant proportion in current assets during

the period under study. Further, the study showed that there were changes in the amount of working capital of HCL from year to year due to the fact that the short term funds were used to finance fixed assets which resulted in decrease in working capital. They further observed that there were fluctuations in the working capital turnover ratio during the period under study These aspects indicate the inefficient management of current assets.

The study concludes that the liquidity position of HCL is satisfactory as its current ratio and quick ratio remained above the standard norms throughout the period under study. The turnover ratios reveal that the company's ability in managing the current assets for generation of sales has not been improved much during the period under study. One important observation from the study was that the proportion of debtors to current assets declined from 53.18 per cent to 41 79 per cent whereas the proportion of inventory to current assets increased from 37 12 per cent to 44.99 per cent from 1989-90 to 1991-92 and thereafter a reverse trend was observed. Thus, since 1991-92 a sign of improvement was noticed in respect of inventory management and control over debtors which indicates that the advantage occurring to working capital management from declining share of inventory has been off-set by the increasing share of debtors in the total current assets. Further, there are changes in the amount of working capital from year to year. The study concluded that the working capital management is not upto the expected level. It needs to be improved by effective utilisation and control of current assets.

Vijayakumar & Venkatachalam[2] (1996) made an indepth study entitled, "Responsiveness of Working Capital Management - A case study of Tamil Nadu Sugar Corporation" For the purpose of their study, they selected Tamil Nadu Sugar Corporation (TASCO) covering the period from 1985-86 to 1993-94. They analysed the working capital as follows. (a) component wise analysis, (b) financing of working capital, (c) trends of working capital, and (d) impact of working capital on profitability. The data for the study was collected from the annual reports. For the purpose of establishing definite relationships between working capital ratios and profitability ratio, they used correlation analysis

Further, in order to identify the influence of profitability, a linear multiple regression model was used. In the analysis, working capital ratios viz., current ratio, liquid ratio, working capital turnover ratio, inventory turnover ratio, receivables turnover ratio and working capital to total assets are taken as the independent variables and the ratio of profit before tax to total assets is used as a dependent variable

Important findings and results of this study were as follows, **(i)** The average percentage of current assets in the total assets is 47.79 per cent which indicates that the company has made investment in working capital following a moderate approach, **(ii)** Of the components of working capital, inventory (67 per cent) and loans and advances (15 per cent) are the dominant contributory causes for the galloping increase in working capital, **(iii)** The decreasing trend of long term funds used for financing the working capital shows that the TASCO has to utilize its long term funds more effectively by investing them in fixed assets, **(iv)** The company has experienced excess of working capital in all the years under study, **(v)** The liquidity position of TASCO was satisfactory during the period under study. The two liquidity ratios, current ratio and liquid ratio, remained equal or above the standard norms throughout the period under study, **(vi)** The impact of working capital ratios on profitability showed both negative and positive impacts, and **(vii)** With the help of a multiple regression model, it is inferred that due to excess of current assets, the profitability of TASCO is adversely affected.

Vijayakumar & Venkatachalam suggest that an attempt should be made to use funds more effectively, by keeping an optimum level of working capital. Because, keeping more current assets causes a reduction in profitability Hence, efforts should be made to ensure a positive trend in the estimation and maintenance of the working capital.

Mohanchandralal[3] (1997) carried out an important and effective study on "Judgmental Approach - Management of Working Capital". The researcher selected the sample randomly from a list of manufacturing concerns located in Tamil Nadu. The samples include two each of sugar, paper, and cement

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factories, and four textile units out of which two are spinning mills and two are composite mills both working on cotton and blended varieties. Their financial statements for three years, viz.,, 1992-94 are subjected to the appraisal of working capital position by five financial analysts individually Two of them are academicians with a good exposure to the theory and practice of working capital management Two of them are bankers and the last one is an investor The academicians are very much concerned with the theoretical explanations to the management of working capital The bankers analyse the effectiveness of working capital management from the point of quick recovery of their dues. The investor is very much interested in the efficiency of working capital management from the long term point of view of returns on investment. Though the purpose and the degree of emphasis on the management of working capital differs, there was no divided opinion among them as to the fact that a sound working capital position was a sure way to the healthy growth and a prosperity of business enterprise. In the first stage, all the financial statements were given to the analysts without disclosing the identities of the sample units They arrived at their own rationale / conclusions in the form of either "EFFECTIVE" (1) or "INEFFECTIVE" (0) management of working capital, giving due weightage to various aspects of the financial administration of the units sampled. It is a well Known fact that a 'total' approach to overall financial administration is essential to capture a relatively dependable picture of the management of working capital. In the second stage, the same exercises were repeated without any alterations, but with the identities of these samples and their relevant extraneous information disclosed. The result of these experiments were then subjected to a sign test.

The study concluded that the classification of working capital management into "effective" and "ineffective" categories was dependent In other words, the classification was not based on a comprehensive principle. It was haphazard It has no locus standi. Had it not been so, the classification would not have been random and there would have been a consistent relationship between the two results. The significant differences in the perceptions of the analysis here were primarily due to the non disclosure in the

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beginning and then disclosure of identities with other vital details of the units sampled. Mohanchandralal further states that mere statistical analysis of the financial statements is not strong enough to make a realistic appraisal of the management of working capital Extraneous information both quantitative and qualitative in nature highlighting the historical performances of the business enterprises is also pertinent to make realistic inferences. Otherwise the judgment approach to problems such as the appraisal of the management of working capital will not be complete and rewarding.

Debasish Sur[4] (1997) carried out an important study on, "Working Capital Management in Colgate Palmolive (India) Ltd." The major objectives of the study were, (i) to assess the significance of the working capital by selecting a few important parameters such as working capital ratio, acid test ratio, current assets to total assets ratio, current assets to sales ratio, age of inventory, debtors to sales ratio and age of debtors, (ii) to make an item-wise analysis of the elements / components of working capital to identify the items responsible for changes in working capital, (iii) to study the liquidity position of the company by taking four measures at a time, namely inventory to current assets, debtors to current assets, cash and bank to current assets and other current assets including loans and advances to current assets, and (iv) to suggest ways to increase the efficiency of the working capital management.

For the purpose of the study, the data was collected from the published Annual Report of the company for the period of 1980 to 1991. The study concluded that, (a) from the viewpoint of the conventional standards of working capital ratio (2.1) and acid test ratio (1:1), short term liquidity is not at all satisfactory, as the average of working capital ratio was 164 69 per cent and acid test ratio was 62 34 per cent respectively. Liquid assets are insufficient to meet currently maturing obligations and a major part of short term funds is blocked up in inventories, (b) the mean percentage of current assets in the total assets which is 72.56 indicates that the company has made investment in working capital following the conservative approach It means that the company did not want to take the risk of maintaining a lower level of current

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assets. But during the period from 1980 to 1988, the share of current assets in total assets had decreased by 39.35 per cent. It signifies that the company wanted to change its approach regarding current assets investment by reducing investment in current assets, **(c)** The average current assets to sales ratio was 19 50 per cent This ratio had been fluctuating with an increase in the last three years of the period under study and a decline during the period 1980 to 1988. It indicates an efficient utilisation of funds, **(d)** an analysis of inventory to sales ratio or age of inventory revealed that the ratio increases and decreases in alternate years throughout the period of study with an average of 11.97 per cent (or 44 days). It does not indicate a healthy sign for the company and management should give adequate attention to manage its inventory effectively, **(e)** debtors to sales ratio or age of debtors of the company reflects that the credit and collection policies followed by the company have been encouraging with an average of 2.63 per cent (or 10 days), and **(f)** the elements of working capital inventories remained dominant contributory throughout the period under study.

Debasish Sur further suggested that the company should give special attention to the management of inventory as inventories constitute the most significant part of the working capital of the company. All the relevant techniques of inventory control should be employed to maintain an overall control over working capital.

Shin & Soenen[5] (1998) conducted a study on "Efficiency of Working Capital Management and Corporate Profitability". This study empirically investigated the relationship between the firm's efficiency of working capital management and its profitability using the Weighted Cash Conversion Cycle, Net Trade Cycle (NTC), and Descriptive Statistics. They also examined the relationship between the length of the NTC, corporate profitability, and risk adjusted stock returns. Further, correlation and regression analysis was also applied. Using a Compustat sample of 58,985 firms, covering the period 1975 to 1994, they found that in all cases, there is a strong negative relation between the length of the firm's NTC and its profitability. It was also found from

the study that NTC offers an easy and useful way to check the efficiency of working capital management. Individual firms' stock returns were also significantly negatively correlated with the length of the firm's net trade cycle. They concluded that considering the negative relationship between debt and market value, the true benefits from the NTC come from reduction in assets rather than by increase in payables. Reducing the firm's net trade cycle to a reasonable minimum is one way to create shareholder value and this should be a major concern for financial executives.

Maxwell; Gitman & Smith[6] (1998) conducted a study on "Working Capital Management and Financial Service Consumption Preferences of U.S. and Foreign Firms: A Comparison of 1979 and 1996 Preferences" The purpose of this study was two fold, **(i)** to determine whether significant changes have occurred in the short term financial management practices of major U.S firms, and **(ii)** to identify similarities and differences in these current practices between U S. and non-U S. firms. To accomplish these objectives, the researchers prepared a set of 25-question survey and mailed it to the chief financial officer (or equivalent) of a stratified sample of 2,075 firms in 16 nations of the European Union (EU), North American Free Trade Agreement (NAFTA) and the Pacific Rim. The firms included in the sample represent industrial service and financial service organizations. Their study revealed several notable changes generally as a result of changes in technology and the globalization of the market place.

Cash management policies in use have not changed materially although improved technology has caused firms to alter the methods used to collect their accounts receivable and to pay their accounts payable The use of float both in collections and disbursements now depend more on mail time than in the past

This study also suggested that significant differences exist in the techniques and mechanisms currently used by domestic and foreign firms These differences were most likely caused by differences in economic and technological expertise across competing countries. The identification of some of these differences both inter-temporally for U.S. firms and cross-sectionally

for the U.S. and non-U.S firms suggested the need for additional research into the current state of short term financial management.

Sivaram[7] (2000) conducted a study entitled "Working Capital Management in Paper Industry" For the purpose under study, he selected 21 paper mills The sample included 9 large, 5 medium and 7 small scale paper mills. The data on various aspects was collected from the Stock Exchange Directory, Kothari Industrial Directory, Economic Times, Capital Market, CMIE, and other journals. He also administered a questionnaire for first hand information. The study covered a period of ten years, i.e., 1983-84 to 1992-93. The Macro and Micro - Working Capital Analysis was used in his study.

In his study of Macro Analysis, the working capital formed 47.2 per cent of the total net assets during 1984-93. The analysis further revealed that the data on the adequacy of working capital showed a negative turn in the ten years of the period under study and not a single unit the working capital was adequate.

The efficiency of working capital revealed a sub-optimum utilization of working capital. The rate of return on current assets was negative in many years of the period under study and the firms' debt servicing capacity was not adequate to service their debts properly, resulting in cash shortage of working capital. From the results of correlation analysis he observed a close relationship between profitability and working efficiency emphasizing the need to exercise better control on working capital.

In his study of Micro analysis, the inventory contributed 46 per cent of total current assets, while some of the large, medium and small scale mills were found to have excess inventory with 64 per cent, 55 per cent, and 70 per cent respectively. The receivables accounted 34.2 per cent on the average. The analysis on the basis of annual growth rates, and ratio of receivables to sales revealed the tendency of the firms to adopt liberal and restrictive credit policy during the period under study The period extend from 14 days to 342 days. He found that none of the mills adopted the modern credit analysis techniques based on the scoring system. He further observed that all the mills

preferred centralised cash management system. The mills were found to be facing many unfavourable consequences resulting in inadequate working capital. Generally, financing of working capital is met from internal sources Thus, the study revealed a substantial fall in the contribution of reserves and surplus followed by the capitalisation of reserves and other provisions. The share of depreciation remained almost constant during the period under study. He also observed diversion of working funds for meeting long term requirement because of negative Net Working Capital. He suggests an urgent need to change the finance structure of the industry.

2.3 STUDIES RELATED TO INVENTORY MANAGEMENT

Inventory management is a vital segment of working capital. Good inventory management is good financial management as inventories occupy the most strategic position in maximisation of income. Since inventories constitute the largest component of working capital in most of the organisations, it needs the greatest amount of care and attention for a proper control. A large number of studies have been undertaken to study its importance. A considerable amount of work has been done in order to give some views about inventory management and its components. An attempt is made here to present reviews of research carried out relating to the present study.

Mehta[8] (1970) made an important study on the inventory accumulation in public sector undertakings in India during 1961-62 to 1968-69. The objectives under study were to analyse the level of inventories and changes in the public sector units in India for the eight years. The method of analysis was judging the trends in inventory, sales and capital employed through ratio analysis For this purpose, inventory turnover ratio and inventory in terms of months' value of production were calculated. The study revealed that there was a heavy inventory accumulation in the public sector compared with that of the private sector. A significant amount of saving in the inventory would result, if the inventory was maintained at the level of the inventory of the private sector He concluded that a proper inventory management in the public sector would

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not only improve the financial performance of the units but also reduce the pressure on bank credit by these units.

Chadda[9] (1971), in his study of the importance of inventory management in India, concluded that inventory management has a significant influence on profitability. The Central Statistical Organisation has brought out a census of Indian manufacturers which shows that a little over 90 per cent of the working capital in 29 major industries in India is invested in different items of inventory like finished products, works-in-process, raw materials, spare parts and stores Inventory investment is most responsive to control. Studies made in India have revealed that scientific techniques of inventory management can reduce inventory investment considerably, sometimes by as much as 50 per cent or even more. In the matter of inventory management, the U.S.A. is perhaps the foremost country. Even in the U.S.A., it is found that adoption of one scientific inventory control technique namely `Economic Lot Size Purchase' has been responsible for reduction in the total inventory investment by 20 to 30 per cent without sacrificing customer service.

A study conducted by Loar[10] (1992) on "Patterns of Inventory Management and Policy - A Study of Four Industries", focused on inventory management. He made an attempt to obtain a clearer understanding of how four selected industries have responded to meet the challenges and opportunities in this area. Specifically, the results of the research show that definite trends can be identified in inventory levels between 1970 and 1987. He also found that the management has been able to reduce the levels of inventories held.

Sharma[11] (1999), in his research paper on "Inventory Control Techniques adopted by Wagon and Engineering Companies in India", made an attempt to assess the extent to which techniques have been followed in Wagon and Engineering Industry. This study was mainly based on a questionnaire.

From the study he found that (i) all the units used ABC (Always Better Control) analysis for selective control of inventory, (ii) besides selective control techniques, the units also used other inventory control techniques like the Low-

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point Technique, perpetual inventory system for perpetual inventory balances maintained on a continual basis, **(iii)** the various stock levels were laid down only for important items and these stock levels were revived as and when needed, **(iv)** most of the units adopted Economic Order Quantity (EOQ) of all important items of inventory. Other ordering systems, like periodic reordering system and single order system, etc., were also being followed for some of the inventory items for which they are better suited, **(v)** the main reason for over-stocking / under-stocking was the non-matching of procurement and consumption and the long lead period, duplication of orders owing to non-standardisation and inadequate control system, **(vi)** various techniques of inventory control were adopted like classification and codification, simplification and standardisation. The modern computerized method for perpetual inventory balances on a continual basis and linear programming type of model were followed. The problem of under-stocking for some of the stores items was tackled by ensuring their regular supply from reputed suppliers in India or by importing from other countries also, and **(vii)** almost all the units in the Wagon and Engineering Industry were using various inventory control techniques to improve their efficiency in inventory management.

The study also revealed that in Wagon and Engineering Industry, inventory constitutes the second most important component of working capital, and nearly all the units studied had the problem of over-stocking. The success achieved was far from satisfactory and the units in the public sector still had to do a lot for improvement in their inventory management.

Mousumi[12] (1999) conducted a study entitled, "Bad goods control in food processing units". The researcher stresses that control mechanisms have to be built at all points of the supply chain after a thorough study of the system.

The study concluded that the issue boils down to two operational philosophies. Firstly, stock rotation should be expedited. Prevention of aging of stock should be a part of the company work culture. Incentive schemes have to be critically examined and their impact on regular packs have to be estimated. Secondly, customer perception about aging of non-expired stocks should be

taken into account Successful blending of internal and external strategies can lead to reducing inventory related problems.

2.4   STUDIES RELATED TO RECEIVABLES MANAGEMENT

Accounts receivable constitute a substantial portion of the current assets of several firms. The basic goal is to maximise the value of the firm by achieving a trade off between liquidity and profitability. Concerning this matter, a number of studies have been made. The following are some of the studies related to the present study.

Caster & Sriram,[13] (1996), attempted an important study, entitled "An investigation of accounts receivable confirmation response timing". The study examined the timing of replies to accounts receivable confirmation requests The investigation was based on theory and findings in the mail survey literature, where response - timing biases have been detected and exploited to draw inferences about non-respondents. Data from a confirmation reliability study were re-examined, and as expected, the analysis found that transaction volume affected the time to respond. Variables that impact confirmation reliability - the presence of errors, error size and error direction - did not affect the time to respond to the confirmation request. Thus, there was no appoint difference in confirmation reliability between early responders and late responders.

Narsimhan[14] (1999), in the article "Towards Better Receivable" takes a detailed look at receivables management and suggests certain steps towards better receivables management system. The primary objective of the paper was to stress the need for a distinctive receivables management system, methodology of organising the system, strategic issues related to receivables management. He concluded that though a lot of discussion is going on in the Indian industry on how to cut down the investments in inventories through concepts such as Just-in-Time (JIT), MRP, etc., investments in receivables have gone up and firms are demanding more credit from banks and specialised institutions to deal with receivables. Since investment in receivables has a cost, managing receivables assumes importance. It demands a distinct receivables

management system. The system consists of developing suitable credit policy, credit evaluation models and credit monitoring. The use of credit policy and credit analysis was to help the operational managers in dealing with day-to-day activities of the firm. He further concluded that credit policy and analysis provide a lot of strategic inputs The credit policy of an organisation is to be in line with the desired strategy that the organisation wants to pursue to gain certain competitive advantages.

2.5 STUDIES RELATED TO CASH MANAGEMENT

Cash is an important current asset for the operations of business. It is the basic input needed to keep the business running on a continuous basis. A wide range of researches related to cash management is available, but summaries of some studies are presented below.

Agrawal[15] (1978) made an important study on cash management in Indian industries. The purpose under study was to evaluate the cash management performance in different industrial groups on the basis of the analysis of data for eight years from 1966-67 to 1973-74. The data was taken from the Stock Exchange Official Directory of Bombay. The major findings relating to cash management in all industries are as follows:

1 The current ratio and liquidity ratio of all industries were low during the entire period under study. The average current ratio was 1.23:2 and liquidity ratio was 0.54:1 during 1966-67 to 1973-74. The current ratio and liquidity ratio showed a slightly increasing trend during the period of study. The current ratio had increased from 1.16:2 in 1966-67 to 1.29:2 in 1973-74 whereas, the liquidity ratio had declined from 0.50·1 in 1966-67 to 53:1 in 1973-74.

2 The ratio of net cash flows to current liabilities was on an average 21.6 per cent during 1966-67 to 1973-74. It had increased from 18.1 per cent in 1966-67 to 22.4 per cent in 1973-74. The upward trend showed an improvement in actual liquidity position of the industry taken as a whole.

3. The ratio of cash to current assets was on an average 5 per cent during 1966-67 to 1973-74. It had showed a slight increase during the period under study. With regard to turnover of cash, a decreasing trend was observed, which fell from 52.3 times in 1966-67 to 38.2 times in 1973-74.

Agrawal concluded that on the basis of the traditional approach (current and quick ratios), no industry except chemical fertilizers can be taken as satisfactorily liquid and solvent. However, positive net cash flows, satisfactory turnover rate of current liabilities, and better profit margin enable the firms in many industries to carry on their activities smoothly. Thus, there is a great need for constant watch on cash flows to control them effectively and productive use of idle funds is necessary to increase profitability of a firm.

Gaharan's[16] (1988) study, "A comparison of the effectiveness of the operating funds flow measures of cash, net quick assets, and working capital in predicting future cash flow" can be divided into three parts. The first part empirically tested the assumption by comparing the abilities of three operating funds flow measures (working capital, net quick assets and cash) to predict future cash flows. The second part studied whether the reporting concept, best for predicting future cash flow is dependent upon industry classification, and the third part examined whether differences in the abilities of the three operating fund flow measures to predict future cash flow are affected by differences in the components of the current assets and current liabilities of a firm. For the purpose under study, the researcher obtained data for 454 firms from Compustat for a period of ten-years, i e., from 1976 to 1985.

Results of tests of the first part indicated that working capital from operations was the best predictor of future cash flow The second test indicated that the effectiveness with which each of the operating funds flow measures predicts future cash flow varies across industries, and the third part was inconclusive

Mattson & Hackbart[17] (1990) in their study, "State and Corporate Cash Management. A comparison", tried to compare and analyse the practices and procedures of state and private sector portfolio managers. The study indicated

that though they operate in different environments, similarities in assets held, investment criteria, and the denomination of investment assets can be found among other similarities. At the same time, some differences in actual assets held and in relative portfolio holdings were noted. These differences were particularly evident when the time period of investment was considered. Apparently, the more constrained environment of the public sector portfolio manager was in a sense, not unexpected. The public sector cash manager was charged with the responsibility of holding cash revenues in assets of varying liquidities to meet cash flow requirements while maximizing portfolio return. Such a charge was remarkably similar to that of the corporate short term portfolio manager The fact that public and private sector managers follow similar procedures and practices in that context was, therefore, probably to be expected.

· Foster & Ward[18] (1997) conducted a study entitled, "Using cash flow trends to identify risks of bankruptcy". This study focused and discussed how cash flow trends and interactions can help identify businesses that will become bankrupt. The sample included 82 bankrupt businesses and 264 non bankrupt businesses. They found out from the study that. (i) trends in the cash flows reveal more important information than just a comparison of the average flows for the two groups. It concludes that healthy businesses successfully maintain cash flow equilibrium. Cash flows from financing (CFFF) becomes negative one year prior to bankruptcy; bankrupt businesses are generally found to be returning more funds to outside financing sources than they receive from such sources Cash flows and trend in the flows continue to differ for businesses that regain cash equilibrium and businesses that fail to regain equilibrium and become bankrupt, and (ii) due to deteriorating cash flows, businesses often either violate loan covenant agreements or default on loans prior to bankruptcy.

"A Study of the ability of cash flow data in predicting financial distress for Taiwan's food processing industry" was a study conducted by Lin Hong-Chi,[19] (1998). He deals with the issue whether the cash flow problems really have the

ability to predict failures of companies. In other wards, can one foresee a company's financial distress by judging its cash flows. In this study, the author, hoping to examine the relationship between cash flows and corporate failures, conducted a statistical discriminant analysis of 47 food processors in Taiwan, 21 of which were already bankrupt

The discriminant analysis showed that cash flows and current ratios were highly related to corporate failures, while return on total assets and gross margin ratios are not good yard sticks to predict. The hit ratio of the function is 76.6 per cent, higher than the proportional chance criterion of 56 per cent.

Cash flows and, particularly, current ratios are two good variables in predicting the Taiwan food processing companies' financial future and the management in the industry should pay more attention to both variables. When the cash flow appears worsened or the current ratio begins to decline, it gives a warning signal to the management on the future of the company

In summary, Hong-Chi stated that poor cash flow indeed leads to financial distress eventually In his paper, the statistical models showed that poor cash flow and low current ratio were good indicators to predict corporate failures in two years in Taiwan's food processing industry This suggests that the government and the management should carefully watch the industry's cash flow position.

Supriyadi[20] (1998) conducted a study entitled "The association between accounting information and future cash flows. An Indonesian case study". The study evaluated the value - relevance of accounting information in Indonesia to predict a firm's future operating cash flows. The study evaluated five cash flow prediction models that employed various selected accounting variables extracted from Indonesian companies' financial statements. The data used in this study were semi-annual data for the 61 sample firms (manufacturing firms) listed in the Jakarta Stock Exchange (JSX) spanning the years 1990-1997

The results of his study supported the proposed hypothesis that cash flow data provided better information to assess future cash flows than earnings

data. Adding some explanatory variables of current accruals and revenues into the models did not significantly change the domination of cash flow over earnings variables. The result was inconsistent with the Indonesian Accounting Standards Committee's assertion that a set of accounting information would provide the best information to assess a firm's future cash flows. However, the Indonesian Accounting Standards Committee's assertion was evaluated using some specific model and therefore limited to pooled cross sectional data, the results may not be generalizable. The study also suggested another possible explanation that there might be other information extracted from the financial statements that could not be captured by current accrual and / or revenue variables

Sathyamoorthi[21] (1999) conducted a study entitled, "Cash flow of selected medium scale enterprises in Botswana, an empirical study" He conducted an empirical study on the pattern of cash flows of selected medium business enterprises in Bolswana for the period 1994 to 1996 The main objectives of the study were, **(1)** to differentiate between profit from trading operations and the operating cash flow, **(2)** to examine the pattern of cash inflow from various activities and to identify the areas where such funds were utilized, **(3)** to measure the dependence on external borrowing for financing business activities, and **(4)** to explain the reasons for the favourable and unfavourable cash balances at the end of the accounting period.

For the purpose of the study, only enterprises which had investments in fixed assets between p7,500 and p2,000,000 were considered as medium business enterprises A medium business enterprise includes manufacturing, construction and commercial undertakings. The study was conducted in the context of the growing importance of medium scale enterprises in Botswana and to look into the cash management of these enterprises by analysing their cash flows

He concludes that there was a growing tendency of operating cash flow to fall from year to year. The operating cash flow of the selected medium scale

companies fell by 21 per cent in 1995 as compared to 1994 and by another 10 per cent in 1996 as compared to 1995.

The sources of cash ratio showed that operating cash flow constitutes the major source of cash inflow for these enterprises. The percentage decreased from 79 per cent in 1995 to 76 per cent in 1996. Long term borrowings on the other hand, stood at 10 per cent in 1994 but increased to 20 per cent in 1995 and 22 per cent in 1996

The medium scale enterprises spent invariably the same amount on investing activities in all the three years. The percentage stood at 69 per cent in 1994, 72 per cent in 1995 and 69 per cent in 1996. The dividend percentage showed a decrease from 20 per cent in 1994 to 15 per cent in 1995 and to 14 per cent in 1996 On the other hand, tax commitments increased from 11 per cent in 1994 to 17 per cent in 1996. The results of his study also showed that the selected medium scale enterprises are in the process of expansion.

Rajeswari[22] (2000) conducted a study entitled, "Liquidity Management of Tamil Nadu Cement Corporation Limited - A case study". The study was an attempt to evaluate the efficiency of liquidity management in Tamil Nadu Cement Corporation. For the purpose of the study, he selected the Tamil Nadu Cement Corporation Limited (TANCEM) and analysed its liquidity position for a period of five years starting from 1993-94 to 1997-98. The data was collected from the Annual Reports of TANCEM. The analysis had been done in two ways: (i) Analysing liquidity position, and (ii) Analysing liquidity ratios.

From his analysis of the liquidity position, it was observed that the total current assets increased from Rs. 50.87 crore in 1993-94 to Rs. 54.29 crore in 1997-98. The total amount of current liabilities increased from Rs. 3.72 crore in 1993-94 to Rs. 70.63 crore in 1996-97 and came down sharply to Rs. 14.19 crore in 1997-98. The averages of current assets and current liabilities were Rs. 62.68 crore and 30.66 crore respectively. He also observed that the total of ' quick assets increased from Rs. 23 98 crore in 1993-94 to Rs. 39.99 crore in 1997-98. The net working capital of Rs. 47.15 crore in 1993-94 had been reduced to Rs 40 10 crore in 1997-98. The average amount of quick assets

and net working capital are Rs. 33.36 crore and Rs. 32.01 crore respectively. The analysis showed that variability in quick assets was greater than current assets and less than current liabilities Hence, the liquidity position was poor.

His analysis on liquidity ratios, i.e., current ratio, quick ratio, and absolute liquid ratio, revealed that the current ratio ranged between 13.66 and 3.82 during 1993-94 to 1997-98. It was evident that for every rupee of current liabilities, the company had been maintaining on an average Rs. 6.3 worth of current assets as a cushion to meet current obligations. The current ratio was too high for the first two years of period under study (13.6 and 11.64) and in the remaining three years, it was almost equal to standard norm (2:1).

The quick ratio moved between 6.44 and 2.82 during the period under study. It shows that the company had been maintaining Rs. 3.18 worth of quick assets for every one rupee of current liabilities. The quick ratio for the years 1993-94 and 1994-95, 1997-98 was too high and in the years 1995-96 and 1996-97, it was much lower than the standard norm (1:1).

The average absolute liquid ratio during the period under study was Rs. 0.35 and it was below the standard norm (0.50:1). The absolute liquid ratio was equal to the standard norm (0.50:1) during the first two years of period under study and in the next three years, it was far below the standard norm, i.e., (0.07, 0.15, 0.31).

Thus, Rajeswari concluded that the liquidity position of TANCEM was not stable as there was too much liquidity in the first two years of the period under study which earned nothing and affected the profitability During the year 1995-96 and 1996-97, liquidity ratio were below the standard ratio and the firm suffered from lack of liquidity In the year 1997-98, liquidity ratio was just above the standard norm, hence, he further concluded that the liquidity management of TANCEM was poor and was not satisfactory.

2.6 STUDIES RELATED TO WORKING CAPITAL FINANCE

There have been a few studies related to working capital finance An attempt is made here to summarize the related studies of working capital finance

Pathania[23] (1999) conducted an important study on "Management of working capital - A study of the Himachal Pradesh (H P) State Cooperative Agricultural and Rural Development Bank". The main objectives of his study were, **(i)** to observe the trends of working capital in H P. State Cooperative Agriculture and Rural Development Bank, **(ii)** to analyse the components of working capital, **(iii)** to examine the trend of advances and their relationship with working capital, and **(iv)** to study the relationship between credit and deposits, and borrowings and advances

The methodology applied for the study was as follows **(a)** the information was collected from the annual reports and final accounts for a period of five years, commencing from 1990-91 and ending by 1994-95, **(b)** personal discussions were held with the bank authorities and management committee members, and **(c)** ratio analysis method was used to simplify or reduce the data under review to more understandable terms

The researcher concluded that the share capital recorded no change during the period under study. Deposits increased by 35.11 per cent and borrowings increased by 46.45 per cent, thus showing an increasing dependence on borrowings. He further suggested that the bank should make efforts to increase the share capital so that cumulative losses resulting on account of increasing interest can be avoided A bank must concentrate on efforts to maximize profitability and it should employ the cash resources as fully as possible. On the other hand, it should economize cash holdings without impairing the overall liquidity requirements of the bank This can be achieved by imposing tighter control over cash flows. Various ratios may help the management in this regard. Pathania suggested that for strengthening the financial base of the bank, permanent working capital should be financed by equity capital or other long term sources, whereas temporary working capital

should be financed by short term sources. He further suggested that although the management of working capital in the H.P. State Cooperative Agriculture and Rural Development Bank had shown some signs of improvement yet there was scope for further improvement in it

Bansal[24] (1999) conducted a study entitled, "working capital management of profit-making undertakings (A case study of Himachal Pradesh Agro-Industries Corporation Limited)" The study covered a period of ten years, from 1985-86 to 994-95. The methodology used was techniques of financial analysis, such as ratio analysis which deal with every aspect of working capital, computation of ratios and their comparison with the fixed standards He concluded that the corporation had adopted a conservative policy of financing The short term creditor position regarding their claim was threatened due to lack of funds in the form of current assets to meet their claim A wide fluctuation in the average collection period revealed that the corporation was not following a uniform policy regarding the collection of debtors It was also found to be an inefficiency on the part of management which caused over-investment in inventories, dull business, poor quality of products, stock accumulation, accumulation of absolute and slow moving goods and low profits as compared to total investments. The corporation failed to utilize its full production capacity for want of sufficient working capital. Thus, shortage of working capital particularly due to insufficient cash presented a very serious situation. He further suggested that the corporation should, therefore, plan its cash needs properly and try to maintain the necessary balance in the cash account Failure to do so, leads to bankruptcy and early liquidation of the firm.

2.7 IMPLICATIONS OF THE REVIEW OF RELATED LITERATURE ON THE PRESENT STUDY

The review of literature and research provides a good quantitative idea about the analysis of working capital and its components in different industrial sectors By and large, the studies reviewed are varied and differ in many ways from the present study, as they are concerned with some specific aims and deal with certain specific aspects. The practical delimitation of the studies in

respect of time, content and the size of sample also necessitates further study in this particular area Thus, this present study is a modest attempt to augment some of the shortcomings of the prior studies.

The study conducted by Vijayakumar & Venkatachalam[25] is based on the responsiveness of working capital management The study covers only one major public sector, i.e., sugar industry. The size of the sample was too small to bring about a comprehensive result. Generalisation of the results will be severely restricted unless a representative sample is taken.

Sivaram's [26] study on Working Capital Management in Paper Industry selected 21 industries which cover only about 6 per cent out of the 340 exciting paper industries in India. The size of the sample was quite small and therefore the result derived from the study can not be applied to the entire paper industry in general. Another limitation of the study is that the sample units are not homogenous His samples consisted of large, medium and small scale units. The structure of current assets and requirements of working capital would be different in units of different size. So, unless the study attempts an indepth analysis of working capital for each size of the selected units separately, it will not be possible to know exactly the problems of working capital of different units

Sharma's[27] study focused mainly on inventory control techniques followed in Wagon and Engineering companies in India. This study covers the inventory management in general but indepth analysis of each component of inventory is not done. Therefore, his study does not throw light on the real problems of inventory management in Wagon and Engineering Companies in India.

Sathyamoorthi's[28] study on cash flow of selected medium scale enterprises in Bolswana, is an attempt to look into the cash management of these enterprise by analysing their cash flows for the period of 1994 to 1996. The major deficiency in this study is the time period. The period of three years is not adequate to bring a comprehensive result for an empirical study. For a better and accurate result, the study should cover a longer period.

Apart from the above studies described in detail, no comprehensive study has been conducted in the area of working capital management of different industrial companies comparing them with their relative sector and analysing them sector-wise with overall industrial average This researcher was surprised to find no systematic study conducted related to working capital management and its components in Jordan. Therefore, this researcher felt that there was an urgent need for research in this area. In this context, a study that highlights the working capital management of different companies, analysing inter-company with their relative sectors, and comparing sector-wise averages with overall industrial average seems to be very relevant as it would throw some light on the processes involved in the working capital management. Moreover, this might also give some incentive to the policy makers to look into the problem with a proper perspective Hence, the researcher selected this vital area for the present study as it assumes great importance

The present investigation is a modest attempt in this direction A detailed account of the research problem, its objectives, the procedure adopted by the present study, the methods of analysis in the present study and specific ratios followed in the study are presented in the following chapter

REFERENCES

1) Reddy, P.I & Roa, K.S, Working Capital Management in Public Undertaking, *The Management Accountant,* Vol 31, No 9 September 1996, pp. 643 - 645.

2) Vijayakumar, A. & Venkatachalam, A., Responsiveness of Working Capital Management-A case study of Tamil Nadu Sugar Corporation, *Finance India,* Vol. X, No. 3, September 1996, pp. 647 - 655.

3) Mahanchandralal, T.S., Judgment Approach-Management of Working Capital-Pricking the Bubbles-A case study, *Journal of Accounting and Finance,* Vol. XI, No 1, Spring 1997, pp. 17-27.

4) Debasish Sur, Working Capital Management in Colgate Palmolive (India) Ltd.-A case study, *The Management Accountant,* Vol 32, No. 11 November 1997, pp. 828 - 833

5) Shin, Hyun-Han & Soenen, Luc, Efficiency of Working Capital Management and Corporate Profitability, *Financial Practice & Education,* Fall / Winter 1998, Vol 8 Issue 2, United State, p. 37.

6) Maxwell, C E., Gitman, L.J. & Smith, S A.M., Working Capital Management and Financial - Service Consumption Preferences of US and Foreign Firms A Comparison of 1979 and 1996 Preferences, *Financial Practice & Education,* Fall / Winter 1998, Vol 8 Issue 2, United States, p 46

7) Sivaram, R P, Working Capital Management in Paper Industry, *Finance India,* Vol XIV, No 2, June 2000, pp. 577-580.

8) Mehta, Inventory accumulation in public sector undertakings of India, in H K Paraj (ed.), *Performance of Public Enterprises,* Bombay: Popular Prakashan, 1970, p 37

9) Chadda, P S, **Inventory Management in India,** Bombay· Allied Publishers, 1971, p. 12.

10) Loar, T, Patterns of Inventory Management and Policy· A Study of Four industries, *Journal of Business Logistics,* Vol. 13 Issue 2, United State, 1992, p. 69

11) Sharma, M R, Inventory control techniques adopted by Wagon and Engineering companies in India, in **Working Capital Management,** edited by Roa, P M, and Pramanik, A.K., Deep & Deep Publication Pvt Ltd, New Delhi- India, 1999, pp 43 - 50.

12) Mousumi, G, Bad Goods Control in Food Processing Units, Indian Institute of Management-Calcutta, Alipore, Calcutta, *The Management Accountant,* February 1999, Vol. 34, No. 2, pp. 125-131.

13) Caster, P & Sriram, R.A., An Investigation of Accounts Receivable Confirmation Response Timing, *Auditing-American Accounting Association,* Spring 1996, Vol 18 Issue 1, p. 135

.

14) Narsimhan, M.S., Towards Better Receivables, *The Chartered Accountant*, Journal of the Institute of Chartered Accountants of India, December 1999, pp. 26-30.

15) Agrawal, N.K., Cash management in Indian Industries, *The Charted Accountant*, July 1978, pp. 21-27.

16) Gaharan, C I , A Comparison of the Effectiveness of the Operating Funds Flow Measures of Cash, Net Quick Assets, and Working Capital in Predicting Future Cash Flow, (The Lousisiana State University and Agricultural and Mechanical Col.), AAC 8819939 ProQuest - *Dissertation Abstracts International*, DAL-A 49/08, February 1989, p. 2292.

17) Mattson, K. & Hackbart, M., State and Corporate Cash Management: A Comparison, *Public Budgeting & Finance*, United States, Winter 1990, Vol. 10, Issue 4, p. 18.

18) Foster, B.P. & Ward, T.J., Using Cash flow Trends to identify risks of Bankruptcy, *CPA Journal - New York State Society*, New York, September 1997, Vol. 67, Issue 9, p. 60.

19) Lin, Hong-Chi, A Study of the ability of cash flow data in predicting financial distress for Taiwan's food processing industry, (Nova Southeastern University), Order number DA 9909245, *Dissertation Abstracts International*, vol. 59 no. 10, April, 1999, pp. 3882A-3883A

20) Supriyadi, The association between accounting information and future cash flows: An Indonesian case study, (University of Kentucky), Order Number DA 9922640, *Dissertation Abstracts International*, vol. 60, No. 3, September 1999, p. 799-A.

21) Sathyamoorthi, C.R., Cash flow of selected medium scale enterprises in Botswana, an empirical study, *Finance India*, Vol. XIII, No. 3, September 1999, pp. 873-886.

22) Rajeswari, N., Liquidity Management of Tamil Nadu Cement Corporation Limited - A case study, *The Management Accountant*, Vol. 35, No. 5, May 2000, pp.377-378.

23) Pathania, K.S., Management of working capital (A study of the Himachal Pradesh State Cooperative Agricultural and Rural Development Bank), in **Working Capital Management**, edited by Roa, P.M., and Pramanik, A.K., Deep & Deep Publication Pvt. Ltd., New Delhi-India, 1999, pp. 99-106.

24) Bansal, S.P., Working capital management of profit-making undertakings (A case study of Himachal Pradesh Agro-Industries Corporation Limited)", in **Working Capital Management**, edited by Roa, P.M., and Pramanik, A K , Deep & Deep Publication Pvt. Ltd., New Delhi-India, 1999, pp. 76-84.

25) Vijayakumar and Venkatachalam, loc.cit.

26) Sivaram, loc.cit

27) Sharma, loc.cit.

28) Sathyamoorthi, loc.cit.