CHAPTER - 5

PROFITABILITY

AND

GROWTH

The traditional neoclassical theory regarding the relationship between profitability and growth assumes that once the firm reaches the equilibrium point under free competition market, it gets the maximum amount of profit at that point and it will not grow any more. They believe that the firm has incentive to grow only when there is a possibility to generate more profit, but since the maximum amount of profit obtained by the firm is at its optimum size in equilibrium, the firm will stop its growth at the equilibrium point. However, if the firm is not in equilibrium at that period of time, it is assumed that the firm will move till it reaches the equilibrium point. According to the traditional theory the relationship between profitability and growth exists only when the firm is not in the equilibrium point.

In a modern capitalist economy, the main objective of the firm is to maximise its sales and then profit. The sales can be increased as a result of expansion in the production capacity of the firm, the expansion in production capacity can be reached by investment in machineries, equipment and other fixed assets. The growth of the firm depends on two factors, viz., the ability of the firm to grow and its willingness to grow.

The ability of the firm to grow depends on the availability of finance. Finance can be acquired either from internal sources of finance which depends directly on the amount of retained profits, depreciation fund and expansion reserves. External sources of finance for expansion can be maintained by borrowing from banks or from financial institutions. The higher the rate of profitability of the firm, the more it would be in a position to

grow from retained profit and other reserves. The growth of the firm also depends on its willingness to grow. The second factor is not governed by the rate of profitability but by the willingness to grow influenced by other factors such as the nature of management, state of demand, technological opportunities, existence of competition and government policies.

Singh and Whittington mention that the factors affecting the willingness to grow are such that they are likely to vary between different industries. They are also likely to vary wtihin the same industry at different points in time, e.g. as the demand for the product of the industry changes. This means that the magnitude form of the positive association between profitability and growth will be different in different industries at a particular time and in the same industry at different times. Furthermore, the factors affecting the willingness to grow may be different for large firms as opposed to small firms in the same industry[1].

There are many indicators about the growth in the economy such as the rate of investment, capital accumulation and technological development. The rate of profit in the industry determines the rate of investment inside or outside the industry. However, the higher the profitability, the higher will be the capacity for investment. Profitability plays an important role in growth as the company will have more capacity to invest the retained profit in expansion programmes. The expected rate of profitability plays an important incentive for investment.

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1. Ibid., P.149

Therefore, profitability plays a dual role in investment, viz. as sourses for investment and as incentives for reinvestment. P.E. Hart mentiones This rate of return provides one source of further increase in capital stock and has some similariy with the harvest of corn in traditional capital theory which provides seed for next year's crop [2].

Concept of Growth

The measurement of growth in any industry can be done in terms of employment, sales, output and turnover of capital. For the purposes of analysing growth rate in the industrial companies in Jordan, the growth rate of physical assets is taken as a concept of growth. The production capacity of any industry is measured in the terms of physical assets which is used in this study.

As L.A. Rede comments "It is the physical assets which measure the productive capacity of the industry. It is the later concept, real growth of the industry, that is more important from the national point of view. This is so because, this concept enables the government authorities to trace and foster the growth of those industries which are important from national point of view, and to utilize the scarce resources more efficiently" [3].

The measurement of physical assets is to be used as an indicator for the growth rate over the period under taken in the

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2. Hard P.E., Studies in Profit, Business Saving and Investment in the United kingdom, 1920-62, Vols 1 - 11, George Allen and Unwin Ltd. London, 1965 and 1968, P.223

3. Rede L.A., Structure of Profit Rates in Indian Manufacturing Industries, Rachana Book Emporium, Baroda, 1984, P.132

study for the studied companies. Physical assets mean plants, machineries, lands, buildings, equipment etc. For the purposes of our study, current assets are not taken while computing growth but investments are considered as part of the physical assets.

The rate of growth of physical assets for the companies undertaken in this study from 1975 to 1985 are represented in table 4.2. The following formula has been considered while calculatiang the rate of growth of physical assets :

$$\text{Growth Rate} = \frac{\text{Current Year's Physical Assets}}{\text{Previous Year's Physical assets}} \times 100 - 100$$

The table 4 1 shows the amount of the physical assets of different companies studied from 1974 to 1975 in Jordan dinar while table 4.2 shows the percentage of growth rate of physical assets. Table 4.2 has been computed from table 4.1.

Analysing table 4.2 on the company-wise basis, we find that on an average the Arab Potash Company Limited generated the maximum growth rate at 194.16 per cent per annum followed by the Jordan Cement Factories Company Limited with 72.73 per cent per annum, Arab Pharmaceutical Manufacturing Company Limited with 54.87 per cent annum, Jordan Petroleum Refinery Company Limited with 33.27 per cent per annum Jordan Phosphate Mines Company Limited with 30.12 per cent per annum, Industril Commercial and Agricultural Company Limited with 19.82 per cent per annum, Jordan pipes Manufacturing Company Limited with 1.75 per cent per annum and Jordan Spinning and Weaving Company Limited with 1.54 per cent per annum.

Table : 5.1

Physical Assets of the Studied Companies from 1974 to 1985

(Amount in JDs)

Sr.No.	Name of the Company	Years											
		1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1.	Arab Pharmaceutical Manufacturing Co.Ltd.	370912	636784	1153313	1351021	1465009	1700185	1744759	2310440	2289427	2554115	11361176	11759764
2.	Jordan Petroleum Refinery Co.Ltd.	5763416	9165841	21197660	19743949	26843271	18450608	20012427	54775751	73054698	67480918	59933421	55036118
3.	Jordan Phosphate Mines Co.Ltd.	7521872	7497126	8928059	9820146	12905429	21785198	31122233	47705804	43709367	39249019	35141214	35536842
4.	Industrial Commercial and Agricultural Co.Ltd	872675	1017198	1096905	1293648	1310099	1532186	2026947	3893030	4908131	5307538	51676759	5234674
5.	Jordan Pipes Manufacturing Co.Ltd	-	1167379	1625418	2008378	1930101	1341021	1749929	1686602	1605832	1591795	1401169	1290539
6.	Arab Potas Co.Ltd.	153355	163703	218430	320488	3801229	3678027	9328938	12057593	13658102	11914446	11094249	13120579
7.	Jordan Spinning and Weaving CO.Ltd.	-	1607873	2102441	2198471	2109202	1982344	1950621	2195665	2011394	2003654	1912892	1770607
8.	Jordan Cement Factories Co.Ltd.	-	2524309	7382195	8696595	8174123	6499400	39193507	35834206	69404128	94675798	87555585	60063164

Sources : Collected from the Annual reports of the different companies studied

Table : 5.2
Annual Groth Rate of Fhysical Assest

(Amount in JDs)

Sr.No.	Name of the Company	Years										
		1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1.	Arab Pharmaceutical Manufacturing Co.Ltd.	7.68	81.11	17.14	8.44	16.05	2.62	32.42	-(0.91)	11.56	3o4.39	-(0.85)
2.	Jordan Petroleum Refinery Co.Ltd.	59.03	171.23	-(6.84)	5.56	-(11.48)	8.46	173.71	33.38	-(7.65)	-(11.18)	-(5.17)
3.	Jordan Phosphate Mines Co.Ltd.	112.87	19.09	9.99	31.42	68.81	42.86	53.29	-(8.38)	-(10.20)	10.47	1.12
4.	Industrial Commarcial and Agricultural Co.Ltd	15.97	8.26	17.92	1.27	16.95	32.29	92.06	26.67	8.12	-(2.63)	1.68
5.	Jordan Pipes Manufacturing Co.Ltd	-	36.89	23.57	-(3.90)	-(4.62)	-(4.95)	-(4.65)	-(3.79)	-(6.46)	-(6.70)	-(7.89)
6.	Arab Potas Co.Ltd.	6.75	94.52	0.64	1086.07	-(3.24)	126.45	44.77	13.27	772.32	-(8.16)	2.40
7.	Jordan Spinning and Weaving CO.Ltd.	-	30.75	4.56	-(4.06)	-(6.91)	-(1.60)	12.56	-(8.39)	-(0.38)	-(4.52)	-(7.47)
8.	Jordan Cement Factories Co.Ltd.	-	192.44	17.81	-(6.01)	-(20.48)	456.87	-(0.99)	93.68	22.00	3.40	-(31.39)

Source : Computed from Table 5.1

Analysing the growth rate of physical assets on a year-wise basis, on an average, the maximum rate of growth generated was 111.87 per cent in 1978 followed by 98.66 per cent in 1983, 66.30 per cent in 1980, 59.42 per cent in 1976, 53.26 per cent in 1975, 50.39 per cent in 1981, 43.13 per cent in 1984, 18.11 per cent in 1982, 8.48 per cent in 1977, 5.59 per cent in 1979 and - 6.31 per cent in 1985

Relationship Between Profitability and Growth

From the earlier discussion about the relationship between profitability and growth, we should expect a positive association between growth and profitability. Moreover, the nature of profitability-growth relationship varies from industry to industry and from time to time for the same industry. This section of the study explores the relationship between profitability and growth by means of regression analysis. The above hypothesis can be examined by applying the regression analysis to the studied companies from 1975 to 1985. The relations which has been considered can be classified as follows.

1. In a developing economy like Jordan, where the goverment encourages expansion of industries, profitability plays an important role in investment decision. The availability of finance determines the rate of investment in the economy. Finance in the economy is either external or internal finance; due to the difficulties involved in acquiring external finance such as high rate of interest, results in increase in the cost of capital. Hence, internal finances are cheaper and easier and the profitability of the company can be used as the best source of finance. Therefore, there

is a positive relationship between profitability and growth.

$$Gt = \quad + \beta Pt + e \qquad \ldots\ldots (1)$$

2. Past experiences and current information can be used as guide for future expectation. Experts may analyse the recent past relationship between growth and profitability and they can forecast the future profitability of the company as a result of increase in the rate of growth. Whether the increase in rate of growth will lead to increase in profitability of the company or not can be forcast depending on the past experiences. If the management of the company expects desirable percentage of profitability to be generated as a result of increase in growth; then the management may increase the investment in the opportunities availafble to the company. On the other hand, if the company is enjoying a very high rate of profit, but the expectation was not indicating a good result in the future, then the management may take a decision not to invest the retained profit. Thus, the expectation about the future profitability of the company can be used as a guide to decide the level of investment. The profits which are maintained in the previous year play a dual role in the investment process. On the one hand, it can be used as an indicator of future expectaion for investment and on the other hand, it can be used as internal sources of finance for investment retained earning of this year which can be used for investment in the next year rather than the present year i.e. profits in 1975 can be used as a guide in 1976. Considering this point,(one year

time lag) the following equation is given :

$$Gt = + BPt-1 + e \quad \ldots\ldots (2)$$

However, we should remember here that other factors which affect the growth rate are constant.

M E T H O D O L O G Y

The hypothesis of the relationship btween the profitability and growth is examined for each of the eight industrial companies studied from 1975 to 1985. The following two equations of regression analysis are applied to analyse the industraial companies which have been selected for the study from 1975 to 1985.

1. $Gt = x + BPt + et \quad \ldots.(1)$
2. $Gt = x + BPt-1 + et \quad \ldots.(2)$

Where G = Yearly Rate of Growth

P = Gross or Net Profit rates

t = Years

x or B are the parameters and

e = the error term

The first equation examines the hypothesis of the rate of growth as a function of current rate of profitability.

The second equation examines the hypothesis of the rate of growth as a function of previous year profitability e.g. the rate of growth of Jordan Cement Factories Co. Ltd. for 1982 is function of profitability of the company for 1981.

Main Findings

The multiple regresion analysis has been used to analyse the equation (1) on the industry-wise basis from 1975 to 1985. The model is fitted to the time series analysis with interpretations of the rate of growth of physical assets and profitability. The results of equation (1) are summarised as follows :

1) Table 5.3(A) reveals that the results of regession analysis for the Arab Pharmaceutical Manufacturing Co. Ltd. for growth : Net profit relationship is neither according to apriory sign nor statistically significant. The growth : Net profit relationship is seen to be negative and the value of R^2 0.028 is considered to be very low from the statistical point of view.

   Table 5.3(b) shows the growth : gross profit regression results for the same company is according to apriory sign i.e. the growth : gross profit is positively related to each other as we have assumed that the T-statistics of B1 does not indicate any significant relationship and it is evident form table 5.3(a) and 5.3(b) that the equation (1) proves a 'poor ' fit for the Arab Pharmaceutical Manufacturing Co. Ltd.

2) Table 5.4(a) shows the growth · net profit regression analysis for the Jordan Petroleum Refinery Co. Ltd. as giving very good results. The analysis shows the growth is positively related to net profit and statistically very significant. The value of R^2 is 0.22 per cent in table 5.4(b) reveals that the growth gross profit regression

Table : 5.3(A)

Growth : Net Profit Regression for the Arab Pharmaceutical Manufacturing Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	Std.Error	T-Statistic
B0	124.672	179.05	0.894582
B1	5.57324	0.9116	-0.516995

Test Statistic

R Square = 0.780416D 01 R-Value = 0.16980

R Bar - Square = 0.790648D 01

F - Statistic with D.F. (1,9) = 0.267284

Durbin - Watson Statistic = 2.38473

Table : 5.3 (B)

Growth : Net Profit Regression for the Arab Pharmaceutical Manufacturing Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	10.9215	258.21	0.424900D-01
B1	1.00945	5.8858	0.171508

Sources : Tables 5.2, 5.4 and Table 5.17

Note : Test statistics is not calculated for growth : Gross profit regression result is very high due to the sum of Assumption of linearity is not valid.

Table : 5.4(A)

Growth : Net Profit Regression Results for the Jordan Petroleum Refinery Co.Ltd. : Time Series Analysis
(Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	-11.9821	33.276	-0.360065
B1	3.61879	2.2484	1.60946

Test Statistic

R Square = 0.223493 R Value = 0.472751

R Bar-Square = 0.137210

F - Statistic with D.F.(1,9) =2.59037

Durbin - Watson Statistic = 1.99278

Table : 5.4(B)

Growth : Net Profit Regression Results for the Jordan Petroleum Refinery Co.Ltd. : Time Series Analysis
(Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	14.5312	40.154	0.361889
B1	0.799236	1.4875	0.537308

Test Statistic

R-Square = 0.310708D-01 R-Value = 0.176297

R Bar-Square = -0.765767D-01

F - Statistic with D.F.(1,9) =0.288700

Durbin - Watson Statistic = 1.92008

Sources : Table 5.2, 5.4 and Table 2.17

results is according to apriory sign i.e. the rate of growth i positively related to gross profit but the result is not statistically significant. The value of R^2 is very low and given at 0.031 per cent.

The regression analysis shows that the growth : net profit relationship is more applicable to the model than the growth : gorss profit relationship.

3) The results of regression analysis for Jordan Phosphate Mines Co. Ltd. has represented in 5.5(a) and 5.5(b). The growth : net profit regression results shows that the model is neither fitted to be positively nor statistically significant. The T-statistics of B1 shows a negative relationship whereas it is supposed to be positive. The value of R^2 also is very low and is shown at 0.023 per cent.

Table 5.5(b) shows the growth : gross profit regression results which fits well to our model. It is according to apriory sign i.e. positively related to gross profit of the company and statistically very significant. The value of R^2 is good and is shown at 0.63 per cent.

From the table 5.5(a) and 5.5(b), we can conclude that the regression analysis model for growth : gross profit results is applicable to our hypotheses, while the growth : net profit regression results is not fitted to our model.

4) As far as table 5.6(a) is concerned, the growth: net profit regression results for the Industrial Commercial and

Table : 5.5(A)

Growth : Net Profit Regression Results for the Jordan Phosphate Mine Co.Limited : Time Series Analysis
(Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	68.9745	41.97	1.16561
B1	-1.07945	4.0092	0.466471

Test Statistic

R Square = 0.2366650-01 P Value = 0.153644

R Bar-Square = -0.8480170-01

F - Statistic with D.F.(1,9) 0.217595

Durbin - Watson Statistic = 1.1484.2

Table : 5.5(B)

Growth : Net Profit Regression Results for the Jordan Phosphate Mines Co.Limited : Time Series analysis
(Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	-37.6218	18.638	-2.01850
B1	3.17402	0.555195	3.97880

Test Statistic

R Square = 0.639365 R-Value = 0.799598

R Bar Square = 0.592072

F - Statistic with D.F.(1,9) =15.5141

Durbin - Watson Statistic = 1.41585

Sources : Tables 5.2, 5.4 and table 5.1/

Table : 5.6(A)

Growth : Net Profit Regression Results for the Industrial Commercial and Agricultural Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T Statistic
B0	8.59350	12.480	0.688601
B1	1.86752	1.620	1.15095

Test Statistic

R Square = 0.138300 R Value = 0.350189

R Bar-Square = 0.314441D-01

F - Statistic with D.F.(1,9) =1.32465

Durbin - Watson Statistic = 1.57864

Table : 5.6(B)

Growth : Gross Profit Regression Results for the Industrial Commercia and Agricultural Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T Statistic
B0	45.4847	36.461	1.21684
B1	4.79930	2.5429	1.82535

Test Statistic

R-Square = 0.270186 R Value = 0.519793

R Bar-Square = 0.189094

F - Statistic with D.F.(1,9) =3.33189

Durbin - Watson Statistic = 1.81866

Sources : Table 5.2, 5.4 and Table 5.1

Agricultural Co. Ltd. shows that the hypothesis is very good fitted to the company. It is statistically significant and according to apriory sign e.e. the growth : net profit is positively related to each other, an increase in the net profit of the company is associated with an increase in growth rate. The value of R^2 is very low and shown at 0.128 per cent.

Table 5.6(b) shows that the growth : gross profit regression results of the company also is very good related to each other. The results are statistically very significant and according to apriory sign. The value of R^2 is shown at 0.27 per cent.

The regression analysis for growth net profit and growth : gross profit of the company, the results shows that the growth : gross profit regression results i more fitted to our regression model than growth : net profit results.

5) Table 5.7(a) shows that the growth: net profit regression results for Jordan Pipes Manufacturing Co. Ltd. is statistically very significant but it is negatively related to growth rate whereas the relationship between growth and net profit supposed to be posititvely related to each other. The value of R^2 is shown at 0.29 per cent.

Table 5.7(b) shows that the growth : gross profit regression results for the company is statistically very significant but it is not according to apriory sign. The value of R^2 indicates at 0.65. It is clear from the table that there is an improvement in the value of R^2 in table

Table : 5.7(A)

Growth : Net Profit Regression Results for the Jordan Pipes Manufacturing Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T Statistic
B0	2.02817	5.4019	1.66575
B1	-1.92068	0.77709	1.95717

Test Statistic

R Square = 0.298048 R Value = 0.546395

R Bar-Square = 0.220609

F - Statistic with D.F.(1,9) =3.83053

Durbin - Watson Statistic = 1.84761

Table : 5.7(B)

Growth : Net Profit Regression Results for the Jordan Pipes Manufacturing Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T Statistic
B0	19.3607	5.1405	3.76796
B1	1.28607	0.31417	4.09081

Test Statistic

R Square = 0.650278 R Value = 0.806398

R Bar-Square = 0.611420

F - Statistic with D.F.(1,9) = 16.7347

Durbin - Watson Statistic = 2.18004

Source : Table 5.2, 5.4 and table 5.17

5.7(b) as compared to table 5.7(a) and it is also clear that both the results in table 5.10(a) and 5.10(b) are statistically very significant but they are not according to apriory sign. They are supposed to be positively related to each other but they are seen to be negatively related to each other.

6) If we examine the performance of table 5.8(a), it is clear that the growth : net profit regression results for the Arab Potash Co. Ltd. is statistically significant but it is not according to apriory sign. The value of R^2 is shown at 0.17 per cent which is considered to be low.

Table 5.8(b) shows the growth : gross profit regression results for the company to be statistically significant but the sign shows a negative relationship which is against to our hypothesis. The assumption in our hypothesis of a positive relationship between growth and net profit on the contrary shows the existence of a negative relationship. The value of R^2 is shown at 0.24 per cent.

Table 5.8(b) shows an improvement in the value of R^2 as compared to table 5.8(a). The value of T-statistics in table 5.8(b) is statistically more significant than the value of T-statistics in table 5.8(a) and it is clear that the growth: net profit and growth, gross profit is not according to apriory sign in both the tables.

7) Table 5.9(a) reveals that the growth : net profit regression results for the Jordan Spinning and Weaving Co. Ltd. is not statistically significant but it is according to apriory sign i.e. the growth rate of the company is

Table : 5.8(A)

Growth : Net Profit Regression Results for the Arab Potash Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	120.508	118.18	1.07115
B1	-2.06438	1.4246	-1.38120

Test Statistic

R Square = 0.174059 P Value = 0.418708

R Bar-Square = 0.832139E-01

F - Statistic with D.F.(1,9) =1.90772

Durbin - Watson Statistic = 2.37305

Table : 5.8(B)

Growth : Gross Profit Regression Results for the Arab Potash Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	154.507	105.77	1.458084
B1	-3.48234	5.0075	-1.60414

Test Statistic

R Square = 0.241791 P Value = 0.121705

R Bar-Square = 0.157049

F - Statistic with D.F.(1,9) 2.87012

Durbin - Watson Statistic = 2.55329

Sources : Table 5.2, 5.4 and table 5.17

Table : 5.9(f)

Growth : Net Profit Regression Results for the Jordan Spinning and Weaving Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T Statistic
B0	2.70478	4.1285	0.669470
B1	0.4095218D 01	0.7610220-01	0.542847

Test Statistic

R-Square = 0.4779011D 01 P Value = 0.209526

R Bar-Square = 0.6213320D 01

F - Statistic with D.F.(1,9) =0.4132550

Durbin - Watson Statistic = 1.82049

Table : 5.9(g)

Growth : Gross Profit Regression Results for the Jordan Spinning and Weaving Co.Ltd. : Time Series Analysis (Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	1.40126	3.62089	0.386140
B1	-0.1710220 01	0.24619	-0.6947180-01

Sources : Table 5.2, 5.4 and table 5.17

Note : Test Statistics for Growth : Gross profit of the Company, is not calculated because the sum of square is very high. Assumption of linearity is not valid.

affected postively with net profit. The value of R^2 is very low and is shown at 0.043 per cent. Table 5.9(b) shows the growth : gross profit regression results of the company which is neither statistically significant nor according to apriory sign.

It can be observed from table 5.9(a) that equation (1) proves a 'poor fit' and in table 5.9(b) is not fit at all.

8) Table 5.10(a) indicates that the growth : net profit regression results for the Jordan Cement Factories Co. Ltd. is neither statistically significant nor according to apriory sign e.e. the results shows the existence of a negative relationship between growth and net profit whereas our hypothesis assumes the existence of positive relationship between net profit and growth. The value of R^2 is very low and shown at 0.017 per cent.

Table 5.10(b) reveals the growth : gross profit results for the same company as statistically significant but it is not according to apriory sign. The value of R^2 is 0.17 per cent.

The results of regression analysis for the Jordan Cement Factories Co. Ltd. shows an improvement in table 5.10(b) as compared to the results of table 5.10(a). The value of R2 as a result of growth : gross profit relationship shown at 0.17 per cent against 0.017 is a result of growth : net profit relationship.

Since the equation (1) i.e. simple linear model without time lag proved fit in some of the industrial companies in Jordan and

Table : 5.10(A)

Growth : Net Profit Regression Results for the Jordan Cement Factories Co.Ltd. : Time Series Analysis
(Relation 1)

Estimator	Estimate	STD.Error	T Statistic
B0	24.5390	87.007	1.12677
B1	-2.30267	5.8558	-0.393146

Test Statistic

R Square = 0.177368D-01 R Value = 0.133185

R Bar-Square = -0.914020D-01

F - Statistic with D.F.(1,9) =0.162507

Durbin - Watson Statistic = 2.50794

Table : 5.10(B)

Growth : Gross Profit Regression Results for the Jordan Cement factories Co.Ltd. : Time Series Analysis
(Relation 1)

Estimator	Estimate	STD.Error	T-Statistic
B0	218.414	119.86	1.83760
B1	-6.07350	4.4027	1.36861

Test Statistic

R Square = 0.172258 R-Value = 0.415052

R Bar Square = 0.802978D-01

F - Statistic with D.F.(1,9) =1.87309

Durbin - Watson Statistic = 2.60060

Sources : Table 5.2, 5.4 and Table 5.17

a poor fit in other companies. We attempted to explore the relationship by applying the equation (2) for each industrial company in Jordan from 1975 to 1985. The results of equation (2) i.e. linear equation with one year time lag in the profitability, are briefed in the following conclusions :

1) Table 5.11(a) shows that the growth : net profit regression results for the Arab Pharmaceutical Manufacturing Co. Ltd. is not fitted at all to our model. The results shows the existence of a negative relationship between net profit an gorwth i.e. the results are contrary to our hypothesis. The results also is not significant statistically. The value of R^2 is very low and does not have any significance.

Whereas table 5.11(b) shows an improvement in the results of regression analysis. The growth : gross profit regression results proves a good fit. The result is according to a priory sign i.e. the growth rate of the Arab Pharmaceutical Manufacturing Co. Ltd. is positively related with gross profit of the company. The results also is statistically significant but the value of R^2 is very low and shown at 0.117 per cent.

2) The growth : net profit regression results for the Jordan Petroleum Refinery Co. Ltd. is represented in table 5.12(a). The results shows that the value of T-statistic fits well to our model. It is statistically very significant and according to apriory sign i.e. the results reveal that the net profit and growth is positively related to each other as assumed in our model. The value of R^2 is shown at 0.285 per cent.

Table 5.12(b) indicates that the results of growth : gross

Table : 5.11(A)

Growth : Net Profit Regression Results for the Arab Pharmaceutical Manufacturing Co.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	97.0453	141.60	0.671217
B1	-2.37006	7.0360	-0.339563

Test Statistic

R-Square = 0.117509D-01 R Value = 0.112476

R Bar-Square = 0.9705469D-01

F - Statistic with D.F.(1,9) = 0.115317

Durbin Watson Statistic = 2.54354

Table : 5.11(B)

Growth : Gross Profit Regression Results for the Arab Pharmaceutical Manufacturing Co.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	210.054	246.32	-0.888676
B1	6.12554	2.5970	1.09517

Test Statistic

R Square = 0.117595 R Value = 0.342931

R Bar-Square = 0.1351970D-01

F - Statistic with D.F.(1,9) = 1.19940

Durbin Watson Statistic = 2.38057

Sources : Table 5.2, 5.4 and table 5.17

Table : 5.12(A)

Growth : Net Profit Regression Results for the Jordan Petroleum Refinery Co.Ltd. : Time Series Analysis
(Relation 2)

Estimator	Estimate	STD.Error	T-Statistic
B0	27.3597	31.901	0.770876
B1	4.09941	2.1596	1.89871

Test Statistic

R Square = 0.268825 R Value = 0.518692

R Bar-Square = 0.206550

F - Statistic with D.F.(1,9) = 3.60529

Durbin - Watson Statistic = 2.09295

Table : 5.12(B)

Growth : Gross Profit Regression Results for the Jordan Petroleum Refinery Co.Ltd. : Time Series Analysis
(Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	5.99997	38.803	-0.138889
B1	1.41972	1.4377	0.987507

Test Statistic

R Square = 0.977634D-01 R-Value = 0.312671

R Bar-Square = -0.248512D-02

F - Statistic with D.F.(1,9) =0.975210

Durbin - Watson Statistic = 1.96348

Source : tables 5.2, 5.4 and table 5.17

profit regression analysis is positively related to each other and statistically significant but the value of R^2 is not significant at all and does not have any important value.

The growth : net profit regression analysis results proved to be more fitted to our hypothesis than the growth : gross profit regression analysis. The value of R^2 decreased from 0.285 per cent in table 5.12(a) to 0.097 per cent in table 5.12(b). The value of T-statistic has also decreased from 1.89 per cent in table 5.12(a) to 0.98 per cent in table 5.12(b).

3) The growth : net profit regression results for the Jordan Phosphate Mines Co. Ltd. have been represented in table 5.13(a). The table reveals that the results are according to apriory sign i.e. growth and net profit is positively associated with each other. The results are also statistically significant. The value of R^2 is very low and shown at 0.178 per cent which is not significant statistically.

Table 5.13(b) shows the growth : gross profit regression results for the same company. The analysis reveals that the value of T-Statistic is accroding to apriory sign i.e. the growth rate of the Jordan Phosphate Mines Co. Ltd. is positively affected by the gross profit rate of the company and is statistically significant. The value of R^2 is very low and does not have any statistical importance.

The regression analysis results of the Jordan Phosphate Mines Co. Ltd. shows that the linear model is more fitted in case of growth : net profit relationship. The value of T-statistic declined in growth : gross profit relationship in table 5.13(b) to 0.929 per cent as against 1.398 per cent. In the growth : net

Table : 5.13(a)

Growth : Net Profit Regression Results for the Jordan Phosphate Mines Co.Ltd. : Time Series Analysis
(Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	-16.7106	26.940	0.605438
B1	2.61597	2.5861	1.29803

Test Statistic

R-Square 0.170460 R-Value = 0.412846

R Bar-Square = 0.8717800-01

F - Statistic with D.F.(1,9) =1.75504

Durbin - Watson Statistic = 0.957042

Table : 5.13(B)

Growth : Gross Profit Regression Results for the Jordan Phosphate Mine Co.Ltd. : Time Series Analysis
(Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	2.275307	20.559	0.108766
B1	0.5657443	0.60884	0.929576

Test Statistic

R Square = 0.8760160-01 R Value = 0.295576

R Bar-Square = 0.1377600-01

F - Statistic with D.F.(1,9) =0.864112

Durbin - Watson Statistic = 1.17512

Sources : Table 5.2, 5.4 and table 5.17

profit relationship the value of R^2 also decreased from 0.178 per cent in table 5.13(a) to 0.087 per cent in table 5.13(b).

4) Table 5.14(a) shows that the growth : net profit regression results for the Industrial Commercial and Agricultural Co. Ltd. is according to apriory sign i.e. the growth rate of the company is positively affected to the net profit of the company but the T-statistic of B1 is not statistically significant. The value of R^2 is very low and does not have any importance.

The growth : gross profit regression results for the Industrial Commercial and Agricultural Co. Ltd. as represented in table 5 14(b) is neither statistically significant nor according to apriory sign. The T-statistic of B1 indicates a negative sign which does not conform to our hypothesis. The value of R^2 is very low and does not have any signifience statistically.

The gorwth : net profit is seen to be more fitted to our linear model than the growth : gorss profit relationship. The value of R^2 in both the tables is very low and does not have any importance statistically. The linear mulitple regression is not fitted at all to growth : gross profit relationship for the Industrial Commercial and Agricultural Co. Ltd.

5) The results of growth : net profit regression analysis for the Jordan Pipes Manufacturing Co. Ltd. as represented in table 5.15(a) does not conform to our hypothesis i.e. the results show that the T-statistic is neither statistically significant nor accoridng to apriory sign. The hypothesis states the existence of a positive relationship between growth rate and the net profit of the company but the results of table 5.15(a) do not match our

Table : 5.11(A)

Growth : Net Profit Regression Results for the Industrial Commercial and Agricultural Co.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	10.5432	13.291	0.791017
B1	1.76651	1.420	0.760449

Test Statistics

R-Square = 0.5971910 01 P-Value = 0.244375

R Bar-Square = -0.4474630 01

F - Statistic with D.F.(1,2) = 0.571608

Durbin - Watson Statistic = 1.44972

Table : 5.11(B)

Growth : Gross Profit Regression Results for the Industrial Commercial and Agricultural Co.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	18.7448	47.765	0.4385D8
B1	0.2623960-01	2.8006	-0.9300292D 02

Source : table 5.2.3.4 and table 3.17

Note : test Statistics for growth : Gross profit of the company is not calculated due to sum of square is very high. Assumption of linearity is not valid.

Table : 5.15(A)

Growth : Net Profit Regression Results for the Jordan Pipes Manufacturing Co.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	Std.Error	T Statistic
B0	3.21063	1.5185	2.205835
B1	-0.120799	0.17546	-0.689987

Test Statistic

R-Square = 0.8024030 01 R Value 0.224144

R Bar Square = 0.5502885D 01

F - Statistic with D.F.(1,9) 0.476032

Durbin - Watson Statistic = 1.28682

Table : 5.15(B)

Growth : Gross Profit Regression Results for the Jordan Pipes Manufacturing Co.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T-Statistic
B0	-0.314756	1.2883	0.267597
B1	-0.771867	0.787888-01	-0.94297

Test Statistic

R-Square = 0.490596 R Value = 0.7003285

R Bar Square = 0.4537773

F - Statistic with D.F.(1,9) =0.66077

Durbin - Watson Statistic = 1.51548

Sources : Table 5.2, 5.4 and table 5.17

model. The value of R^2 is also not statistically significant and shown at the rate of 0.050 per cent.

Table 5.15(b) reveals that the growth : gross profit regression results for the Jordan Pipes Manufcturing Co. Ltd. is statistically very significant but does not seem to be according to apriory sign. The results show the existence of a negative relationship between growth and gross profit whereas the results move cotrary to the hypothesis. The value of R^2 is stastically good and given at 0.49 per cent.

The growth : gross profit regression results for the Jordan Pipes Manufacturing Co. Ltd. shws an improvement in the value of T-statistic and R^2 against the growth : net profit regression results. The value of R^2 increased from 0.050 per cent in table 5.15(a) to 0.490 per cent in table 5.15(b).

6) Table 5.16(a) shows that the growth : net profit regression results for the Arab Potash Co. Ltd. is according to apriory sign i.e. the growth rate of the company is affected positively by the net profit. The results are also not statistically significant. The value of R^2 is shown at 0.064 per cent which is not significant statistically at all.

The growth : gross profit regression analysis for the Arab Potash Co. Ltd. is represented in table 5.16(b). It reveals that the value of T-Statistic of B1 is not significant statistically but it is according to apriory sign i.e. the results of regression analysis prove the existence of a positive associattion between growth and gorss profit of the company. The value of R^2 is not significant at all.

Table : 5.16(A)

Growth : Net Profit Regression Results for The Arab Potash CO.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T-Statistic
B0	254.095	135.86	1.86244
B1	1.75784	1.7030	0.787117

Test Statistic

R Square = 0.6140509-01 R Value = 0.257782

R Bar-Square = -0.3934210-01

F - Statistic with D.F.(1,9) -0.619551

Durbin - Watson Statistic = 2.48904

Table : 5.16(B)

Growth : Gross Profit Regression Results for The Arab Potash CO.Ltd. : Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T-Statistic
B0	204.139	120.05	1.69330
B1	2.25130	5.7073	0.394460

Test Statistic

R-Square = 0.1609490-01 R Value = 0.120764

R Bar Square = -0.9220790-01

F - Statistic with D.F.(1,9) -0.155598

Durbin - Watson Statistic = 2.08391

Sources : Table 5.2.3.4 table 5.17

The results of growth : net profit and growth : gross profit regression analysis are shown in table 5.16(a) and 5.16(b). It reveals that the value of T-statistic of B1 is statistically not significant and according to apriory sign i.e. the results of regression analysis proves the existence of a positive association between growth and gorss profit of the company. The value of R^2 is not significant at all.

The results of growth : net profit and growth : gross profit regression analysis in table 5.16(a) and 5.16(b) proved to be according to apriory sign but both the results are not significant from the statistical point of view. The value of R^2 is also not statistically important in both the relationship.

7) If we examine the perforamance of table 5.17(a), it is clear that the growth; net profit regression results for the Jordan Spinning and Weaving Co. Ltd. is neither statistically significant nor according to apriory sign. The value of R^2 does not have any importance from the statistical point of view. The regression analysis proved to be not fitted to the company.

Table 5.17(b) shows the growth : gross profit regression results for the same company. It is also neither statistically significant nor according to apriory sign of the company. The value of R^2 is not important statistically.

The linear multiple regression analysis for growth : profitability (gross and net profit) for the Jordan Spinning and Weaving Co. Ltd. did not prove to be fit. The value of R^2 is not significant at all from the statistical point of view.

8) As far as the grwoth : net profit regression results for the

Table : 5.17(A)

Growth : Net Profit Regression Results for the Jordan Spinning and Weaving Co.Ltd.: Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T Statistic
B0	0.310361	4.1632	0.8363650-01
B1	0.7381090) 01	0.767810)-01	-0.492374

Test Statistic

R-Square = 0.3675130 01 R Value = 0.1635559

R Bar Square = -0.5139210-01

F - Statistic with D.F.(1,9) -0.247381

Durbin Watson Statistic = 1.02703

Table : 5.17(B)

Growth : Gross Profit Regression Results for the Jordan Spinning and Weaving Co.Ltd.: Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T-Statistic
B0	1.303385	3.5503	0.381115
B1	-0.1518103	0.24100	-0.630103

Test Statistic

R Square = 0.4225060b 01 R Value = 0.205550

R Bar-Square = -0.6416600-01

F - Statistic with D.F.(1,9) -0.32703

Durbin - Watson Statistic = 1.11944

Source: Table 5.2,3,4 and Table 5.17

Jordan Cement Factories Co. Ltd., it has have been represented in table 5.18(a). The table shows that the T-Statistic is according to apriory sign but statistically not significant. The value of R^2 is insignificant statistically and shown at 0.010 per cent.

Table 5.18(b) shows that the growth : gorss profit regression results for the company neither prove to have a positive relationship nor statistically significant. The results of regression model for growth : gross profit relatinoship does not fit at all to the Jordan Cement Factories Co. Ltd.

From the regression analysis results of the current rates of net profit and the current growth rate (relation 1), it can be observed that the Jordan Petroleum Refinery Co. Ltd. and Industrial Commercial and Agricultural Co. Ltd. are statistically significant and according to apriory sign. The value of B1 assume that the Jordan Petroleum Refinery Co. Ltd. It implies that a one percentage point increase in the net profit of the Jordan Petroleum Refinery Co. Ltd. led to an average 1.609 percentage point increase in its growth rate. In short, the current net profit of the Jordan Petroleum Refinery Co. Ltd. and the Industrial Commercial and Agricultural Co. Ltd. have been found to be positively associated with the current rate of growth of the two companies. The results reveal that the Arab Pharmaceutical Manufacturing Co. Ltd. and the Jordan Spinning and Weaving Co. Ltd. are found to be according to apriory sign. i.e. the net profit of these two companies are positively associated with their growth rate but are not found to be statistically significant. However, the remaining companies under study are neither found to be statisitcally significant nor according to

Table : 5.18(A)

Growth : Net Profit Regression Results for the Jordan Cement Factories Co.Ltd.: Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T-Statistic
B0	44.6371	84.297	0.529764
B1	1.77860	5.8587	0.303602

Test Statistic

R Square = 0.191378D-01 R Value = 0.100687

R Bar-Square = -0.930467D-01

F - Statistic with D.F.(1,7) =0.921744D-01

Durbin - Watson Statistic = 2.44908

Table : 5.18(B)

Growth : Gross Profit Regression Results for the Jordan Cement Factories Co.Ltd.: Time Series Analysis (Relation 2)

Estimator	Estimate	STD.Error	T-Statistic
B0	75.8306	130.21	0.735947
B1	-1.18073	4.8777	-0.243708

Sources : Table 5.2,3,4 and table 3.17

Note : Test Statistics for growth : Gross Profit of the Company is not calculated due to sum of square is very high. Assumption of linearity is not valid.

apriory sign.

On the other hand, when growth rate regressed on gross profit, we observe an improvement in the value of B1 for the Jordan Phosphate Mines Co. Ltd. and the Industrial Commercial and Agricultural Co. Ltd. The value of B1 relating to the growth rate to net profit in the regression analyis assumes the value worth 3.938 for the Jordan Phosphate Mines Co. Ltd. It means that a one percentage change in gross profit of the Jordan Phosphate Mines Co. Ltd. led to a 3.938 percentage change in its growth rate. The gross profit : growth rate regression result reveals that the Jordan Petroleum Refinery Co. Ltd. and the Industrial Commercial and Agricultural Co. Ltd. are according to apriory sign and are statistically significant. The results also show that the Arab Pharmaceutical Manufacturing Co. Ltd. and the Jordan Petroleum Refinery Co. Ltd. are according to apriory sign but statistically insignificant. The Jordan Pipes Manufacturing Co. Ltd., the Arab Potash Co. Ltd. and the Jordan Cement Factories Co. Ltd. are found to be statistically significant but they are not according to apriory sign. However, the Jordan Spinning and Weaving Co. Ltd is neither according to apriory sign nor statistically significant. Another important point to be noticed is that the R^2 shows an improvement in case of gross : growth relationship for the Jordan Phosphate Mines Co. Ltd., the Industrial Commercial and Agricultural Co. Ltd., the Jordan Pipes Manufacturing Co. Ltd. and the Arab Potash Co. Ltd. as compared to the value of R^2 of growth : net profit relationship.

The results of equation (2) i.e. linear equation with one

year time lag in net profit reveals that the Jordan Petroleum Refinery Co. Ltd. and the Jordan Phosphate Mines Co. Ltd. supports to our hypothesis i.e. they are according to apriory sign and are statistically significant. The Arab Pharmaceutical Manufacturing Co. Ltd., Industrial Commercial and Agricultural Co. Ltd., Arab Potash Co. Ltd. and the Jordan Cement Factories Co. Ltd. are according to apriory sign i.e. the previous year net profit of these companies are positively associated with the current year of growth rate and they are statistically significant. But the Jordan Pipes Manufacturiang Co. Ltd. and the Jordan Spinning and Weaving Co. Ltd. are neither according to apriory sign nor statistically significant.

The regression analysis results in relation(2) for growth gross profit relationship shows that the Arab Pharmaceutical Manufacturing Co. Ltd. is the only company which is according to apriory sign and statistically significant. The Jordan Petroleum Refinery Co. Ltd., Jordan Phosphate Mines Co. Ltd. and the Arab Potash Co. Ltd. are according to apriory ;sign but are statistically insignificant. However, the remaining four companies undertaken in the study are neither according to apriory sign nor statistically significant. The analysis of growth : gross profit regression shows that the Arab Pharmaceutical Manufacturing Co. Ltd. shows an improvement in the value of B1 as compared to the growth : net profit resultls. The results also shwo the weakness of the model in case of the Jordan Petroleum Refinery Co. Ltd., Jordan Phosphate Mines Co. Ltd., Industrial Commercial and Agricultural Co. Ltd., Jordan Pipes Manufacturing Co. Ltd. Arab Potash Co. Ltd. and Jordan Cement

Factories Co. Ltd. as compared to growth : net profit results of relation (2).

Estimated Growth Rate as a Function of Profitability

This section of the study attempt to establish the relationship between actual growth rate and the estimated growth rate as a function of net profit and gross profit of each company undertaken in the study from 1975 to 1985 with and without time lag.

Table 5.19 shows that the estimated growth rate (X1) for the Arab Pharmaceutical Manufacturing Co. Ltd. as a function of net profit are more than the actual growth rate in all the years study except 1975, 1976 and 1984. The estimated growth rate as a function of gross profit(X2) is less than the actual growth rate in 1975, 1976 and 1984, while the estimated growth rate is more than the actual growth rate in the remaining period with study. The table also shows that the estimated growth rate with one year lag(Y1) is less than the actual growth rate in 1976 and 1984 while the estimated growth rate is more than the actual growth rate in the remaining years. It is also clear from (Y2) that the actual growth rate for the company is more than the estimated growth rate only in 1984 but in the rest of the period undertaken for the study shows that the actual growth rate is less than the estimated growth rate.

The actual and estimated growth rate as a function of profitability for the Jordan Petroleum Refinery Co. Ltd. has been represented in table 5.20. The table shows that the estimated growth rate as a function of net profit of the company is more

Table : 5.19

Actual and Estimated Growth Rate as a Function of Profitability for The Arab Pharmaceuticals Manufacturing Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	29.54	54.73	71.68	19.11	66.21	-	-
1976	22.19	44.47	81.11	45.38	55.86	24.44	117.18
1977	21.03	38.97	17.14	49.52	50.31	52.01	54.33
1978	23.40	40.68	8.44	41.05	52.03	44.78	20.64
1979	25.38	50.13	16.05	33.98	61.57	39.11	31.12
1980	15.32	41.09	2.62	69.93	52.45	34.38	89.00
1981	15.96	42.43	32.42	67.64	53.80	58.43	33.63
1982	16.39	44.73	-0.91	66.10	56.12	50.90	41.84
1983	15.71	47.38	11.56	68.53	58.79	55.87	55.92
1984	14.50	42.02	364.39	72.86	53.38	57.49	72.16
1985	15.44	31.31	-0.85	69.50	43.82	60.38	39.32

Sources : Net Profit computed from table 3.2 and table 3.17, Gross Profit computed from table 3.2 and table 3.4 and Actual Growth Rate taken from Table 5.2.

Notes : 1. X1 = Estimated Growth Rate as a function of Net Profit Calculated as
$X1 = B0 + B1 (N.P.)$

X2 = Estimated Growth Rate as a function of Gross Profit Calculated as
$X2 = B0 + B1 (R.P.)$

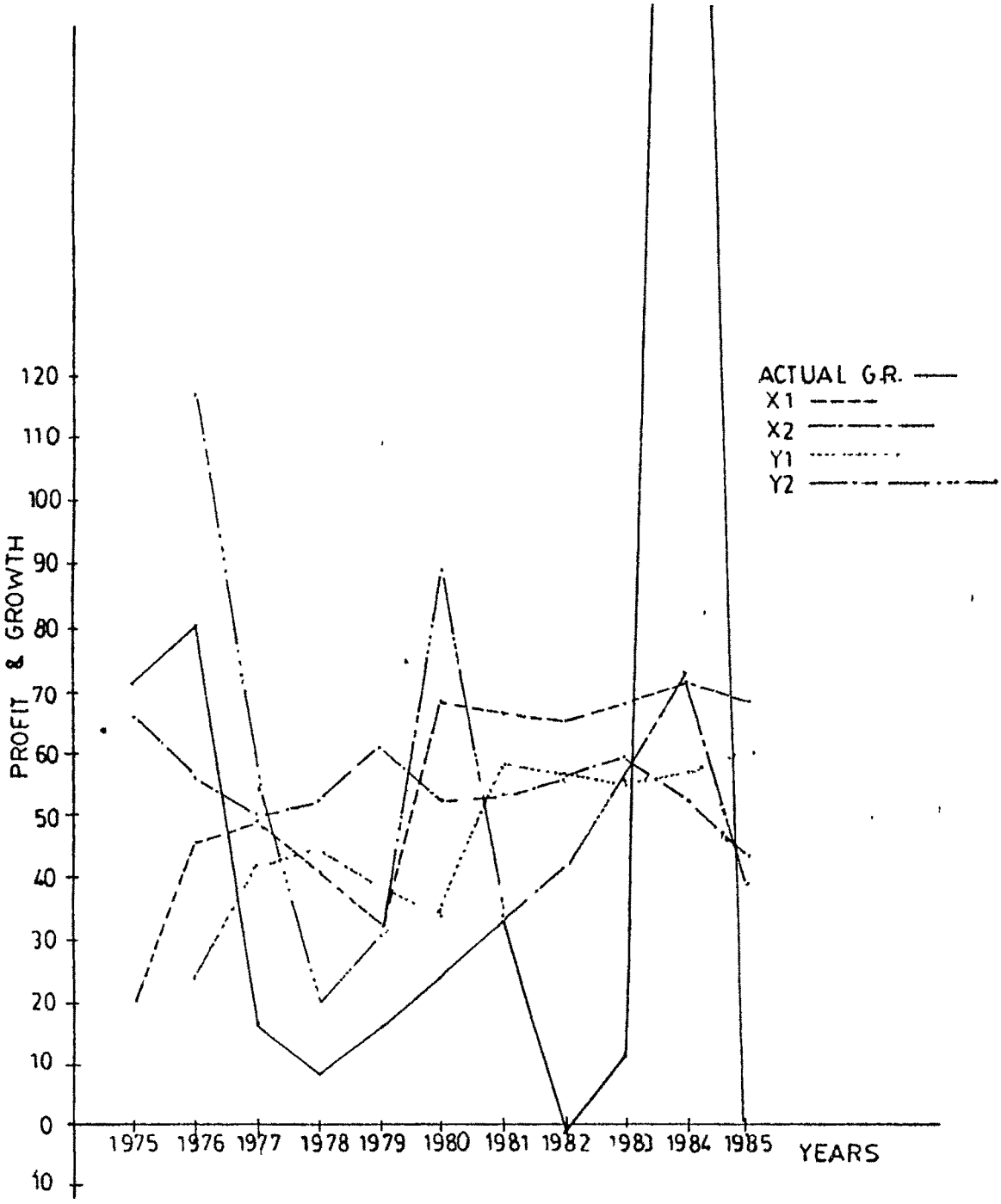
Y1 = Estimated Growth Rate as a function of Net Profit with one year lag in Net Profit calculated as $Y1 = B0 + B1 (N.P.)$

Y2 = Estimated Growth Rate as a function of Gross Profit with one year lag in Gross Profit calculated as $Y2 = B0 + B1 (G.P.)$

2. For detail refer to graph 5.1

GRAPH NO 5·1

ACTUAL & ESTIMATED G R AS A FUNCTION OF PROFITABILITY FOR ARAB PHARMACEUTICAL MANUFACTURING CO LTD.



SOURCES: DRAWN FROM TABLE 5.19

Table : 5.20 -

Actual and Estimated Growth Rate as a Function of Profitability for The Jordan Petroleum Refinery Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	17.04	31.74	59.03	49.68	39.89	-	-
1976	12.50	33.36	131.23	33.25	41.19	46.49	39.67
1977	10.95	31.39	-(6.84)	27.75	39.61	27.88	41.97
1978	14.35	34.39	5.56	39.94	42.00	21.65	39.17
1979	21.27	44.03	-(11.48)	64.99	49.72	30.46	43.42
1980	21.67	31.11	8.49	66.43	39.39	63.83	57.12
1981	21.31	23.63	173.71	73.53	31.55	65.47	38.77
1982	12.28	17.62	33.78	32.45	28.61	73.50	24.85
1983	1.20	4.06	-(7.63)	-(7.63)	17.77	26.98	19.62
1984	1.24	4.34	-(11.19)	-(7.49)	18.00	-(18.44)	0.37
1985	1.42	4.70	-(8.17)	-(6.84)	18.28	-(18.27)	0.77

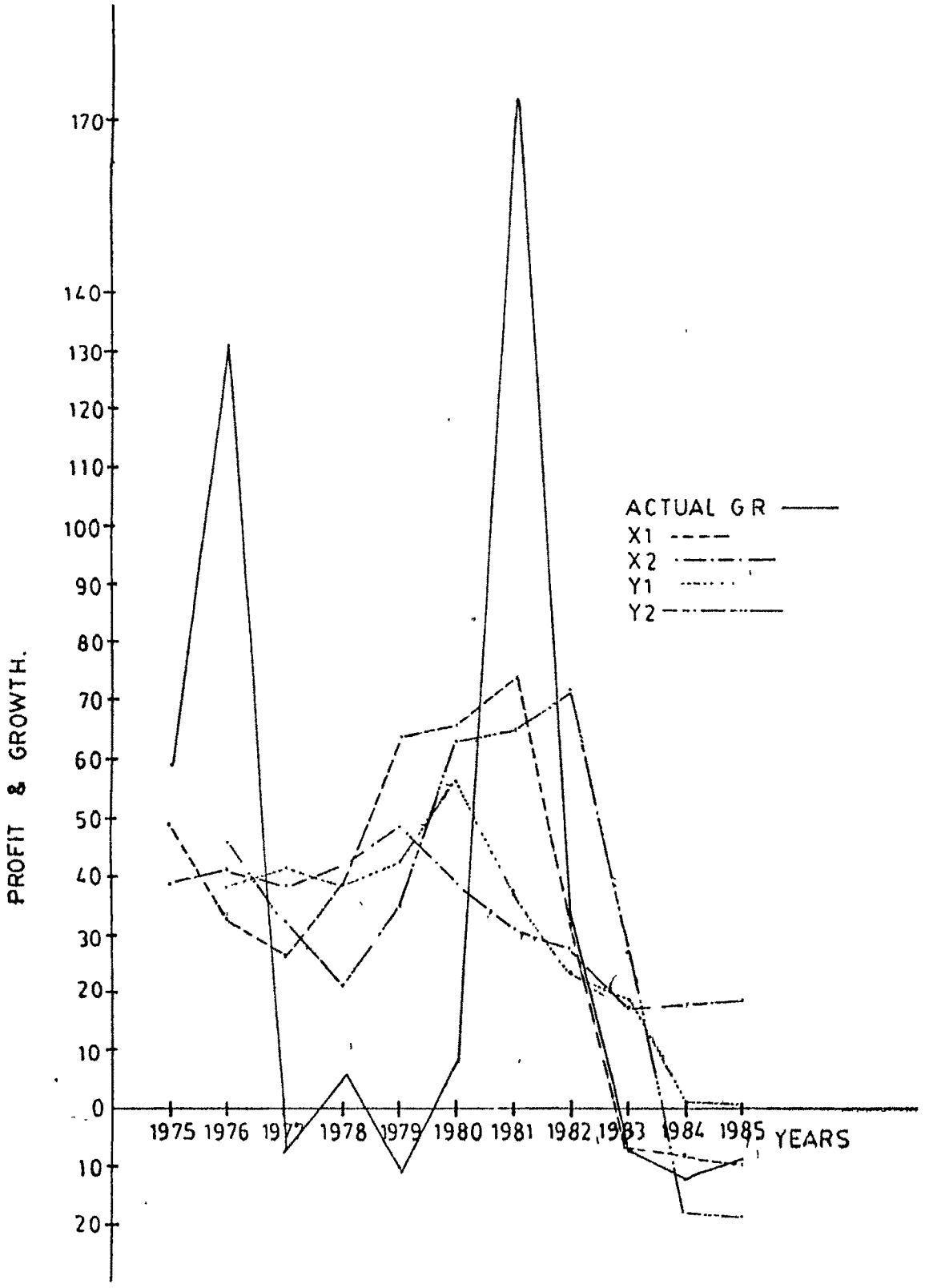
Sources : See the sources of table 5.19

Notes : 1. See the notes of the table 5.19

2. For detail refer to graph 5.1

GRAPH NO 5·2

ACTUAL & ESTIMATED G.R. AS A FUNCTION OF PROFITABILITY FOR JORDAN PETROLEUM REFINARY .CO.LTD.



'SOURCES: DRAWN FROM TABLE NO 5.2

than the actual growth rate in 1977, 1978, 1979, 1980 1984 and 1985 and athe actual growth rate is more than the estimated growth rate in the rest of the years. The actual growth rate of the company is more than the estimated growth rate as a function of gross Profit (X2) in 1975, 1976, 1981 and 1982 while the actual growth is less than (X2) in the remaining years in the study. The table shows that the ability of the company to cross the estimated growth rate as a function of net profit with one year lag(Y1) in 1976, 1981, 1984 and 1985 and the value of (Y1) is more than the actual growth rate in the remaining years taken for the study. The company fials to reach the estimated growth rate as a function of gross profit with one year lag (Y2) in 1977, 1978, 1979, 1980, 1983, 1984 and 1985 while the actual growth rate is more than the (Y2) in 1976, 1981 and 1982.

The Table 5.21 shows that the actual growth rate of the Jordanf Phosphate Mines Co. Ltd is more than the value of (X1) in 1975, 1978, 1979, 1980 and 1982 and the value of (X1) is more than the actual in 1976, 1977, 1983, 1984 and 1985. The table also reveals that the actual growth rate is more than the value of (X2) in 1975, 1979, 1980, 1981 and 1984 and in the rest of the years with study the value of (X2) is more than the actual growth rate. The actual growth rate of the company is more than the value of (Y1) in 1976, 1978, 1979, 1980 and 1981 while in the remaining years studied the actual growth rate is less than the (Y1). Lastely, the table indicates that the acatual growth rate is more than the value of (Y2) in all the years taken up for the study.

Table : 5.21

Actual and Estimated Growth Rate as a Function of Profitability for The Jordan Phosphate Mines Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	5.45	65.44	112.87	38.68	104.65	-	-
1976	8.01	39.47	19.09	33.87	48.18	3.39	15.69
1977	10.92	36.96	9.99	28.40	42.73	12.65	-(2.66)
1978	10.43	32.50	31.42	29.32	33.03	23.17	8.24
1979	11.92	31.85	68.81	26.52	31.62	21.40	47.40
1980	15.04	30.26	42.86	20.65	28.16	26.79	16.06
1981	9.29	27.78	53.29	31.46	22.77	38.07	15.21
1982	6.03	15.74	-(8.38)	37.59	-(3.40)	17.28	-(25.66)
1983	8.88	20.63	-(10.20)	39.23	7.22	5.49	-(15.69)
1984	9.55	18.11	10.47	30.97	1.74	15.79	-(5.32)
1985	14.52	24.03	1.13	21.63	14.62	18.22	-(17.09)

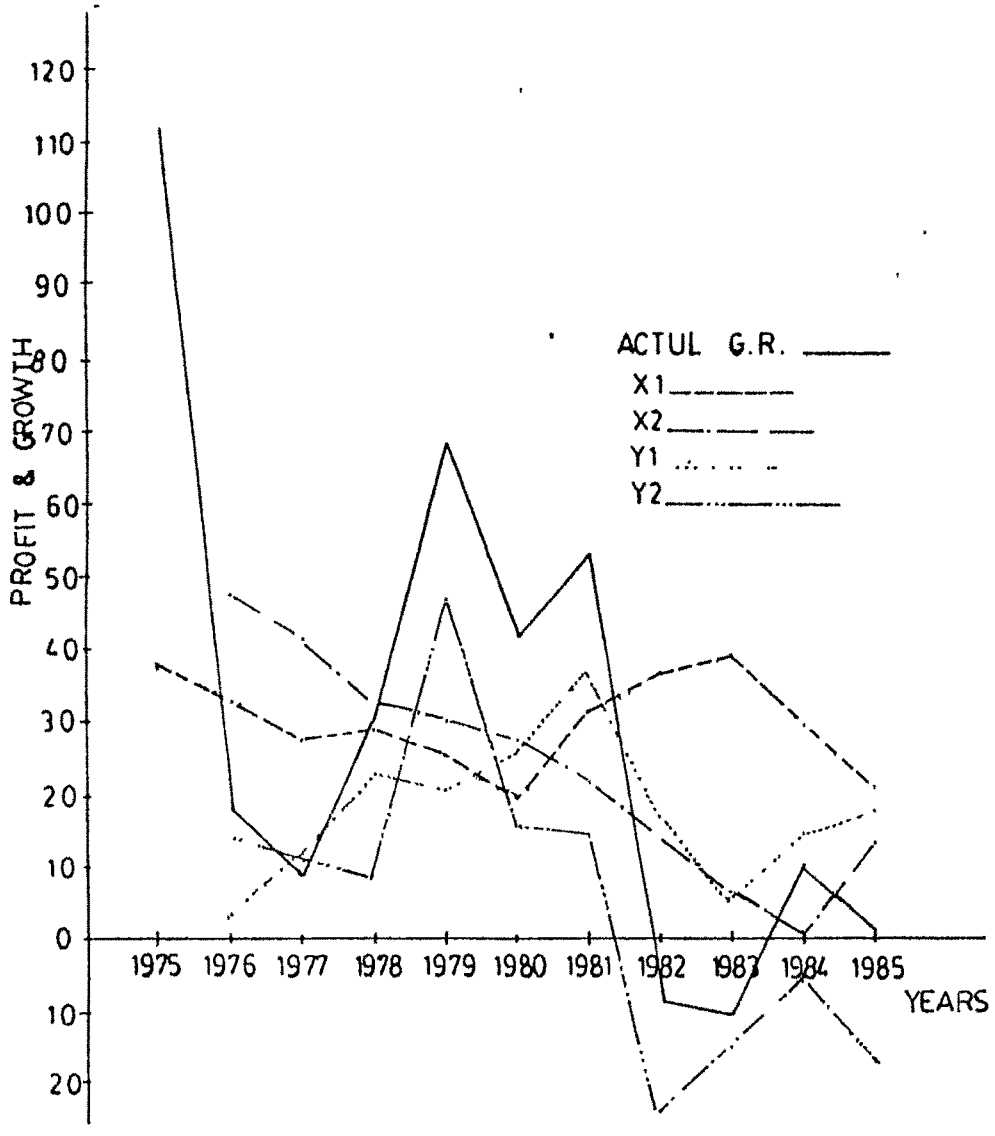
Sources : See the sources of table 5.19

Notes : 1. See the notes of the table 5.19

2. For detail refer to graph 5.3

GRAPH NO. 5.3

ACTUAL & ESTIMATED G.R. AS A FUNCTION OF PROFITABILITY FOR JORDAN PHOSPHATE MINES CO-LTD.



SOURCES: DRAWN FROM TABLE 5.2

Table 5 22 shows the actual and estimated growth rate as a function of profitability for the Industrial Commercial and Agricultural Co. Ltd. The table shows that the actual growth rate is more than the value of (X1) in 1980, 1981 and 1985 but the actual growth rate could not reach the value of (X1) in the rest of the years undertaken in the study. The actual growth rate for the company is more than the value of (X2) in 1975, 1977, 1979, 1980 and 1981 whereas in the rest of the years the actual growth rate is less than the value of (X2). The actual growth rate is more than the value of (y1) in 1980, 1981 and 1982 but the value of (Y1) is more than the actual growth rate in 1976, 1977, 1978, 1979, 1983, 1984 and 1985. It is also obvious from the table that the actual growth rate is more than the value of (Y2) in 1980, 1981 and 1982 while in the remaining years studied the value of (Y2) is more than the actual growth rate.

Table 5.23 shows the actual and estimated growth rate as a function of profitability for Jordan Pipes Manufacturiang Co. Ltd. The actual growth rate is more than the (X1) in 1976, 1977 and 1985 while the value of (X1) is more than the actual growth rate in 1978, 1979, 1980, 1981, 1982, 1983 and 1984. The table also shows that the actual growth rate is more than the value of (X2) in 1976, 1977, 1979, 1980, 1984 and 1985 but the actual growth rate is less than the value of (X2) in the rest of the years with study. It is clear that the actual growth rate is more than (Y1) in 1976 and 1977 while the value of (Y1) is more than the actual growth rate in the rest of the year under study. The table also reveals that the actual growth rate is more than the value of (Y2) for the company in 1976, 1977, 1978, 1980, 1981 and

Table : 5.22

Actual and Estimated Growth Rate as a Function of Profitability for
The Industrial Commercial and Agricultural Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	7.19	13.89	15.97	22.02	14.12	-	-
1976	6.11	15.81	8.26	20.00	22.36	19.90	18.40
1977	7.96	14.28	17.94	23.45	15.79	18.49	18.35
1978	6.83	13.44	1.27	21.34	12.19	20.91	18.39
1979	7.62	13.68	16.95	22.82	13.22	19.43	18.41
1980	7.84	14.78	32.29	23.23	18.94	20.46	18.40
1981	8.94	18.78	92.06	25.28	25.09	20.75	18.37
1982	8.13	20.66	26.07	23.77	43.16	22.19	18.27
1983	9.39	19.55	8.13	26.12	38.40	21.13	18.22
1984	4.77	11.14	-(2.63)	17.50	2.32	22.78	18.25
1985	-(8.67)	11.38	1.68	-(7.59)	3.35	16.74	18.47

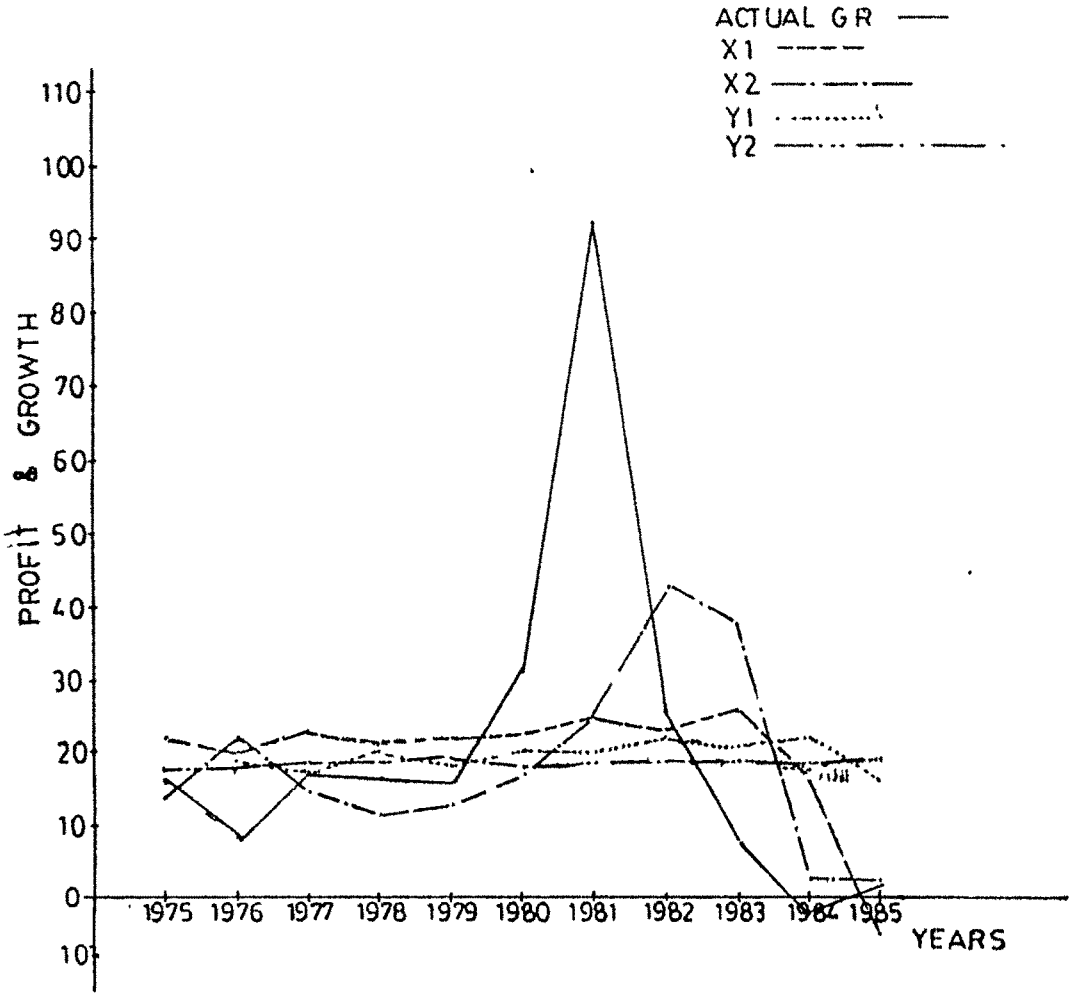
Sources : See the sources of table 5.19

Notes : 1. See the notes of the table 5.19

2. For detail refer to graph 5.4

GRAPH NO. 5·4

ACTUAL & ESTIMATED G.R. AS A FUNCTION OF PROFITABILITY FOR INDUSTRIAL COMMERCIAL & AGRICULTURAL CO. LTD.



SOURCES : DRAWN FROM TABLE NO. 5.22

Table : 5.23

Actual and Estimated Growth Rate as a Function of Profitability for The Jordan Pipes Manufacturing Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	-	-	-	-	-	-	-
1976	-	-	36.89	9.09	19.36	-(2.91)	-(0.34)
1977	-	-	23.57	9.09	19.36	-(2.91)	-(0.34)
1978	-(2.75)	17.67	-(3.90)	13.00	-(3.35)	-(2.57)	-(0.34)
1979	6.49	20.04	-(4.62)	-(0.12)	-(6.40)	-(3.69)	-(4.44)
1980	7.93	20.53	-(4.95)	-(2.16)	-(7.03)	-(3.87)	-(4.99)
1981	6.20	15.20	-(4.65)	0.28	-(0.17)	-(3.66)	-(5.10)
1982	6.64	15.47	-(3.78)	-(0.33)	-(0.52)	-(3.71)	-(3.86)
1983	7.69	19.01	-(6.46)	-(1.82)	-(5.07)	-(3.84)	-(3.93)
1984	8.92	21.97	-(6.70)	-(3.57)	-(8.88)	-(4.99)	-(4.75)
1985	17.00	22.17	-(7.89)	-(15.05)	-(9.14)	4.96	-(5.43)

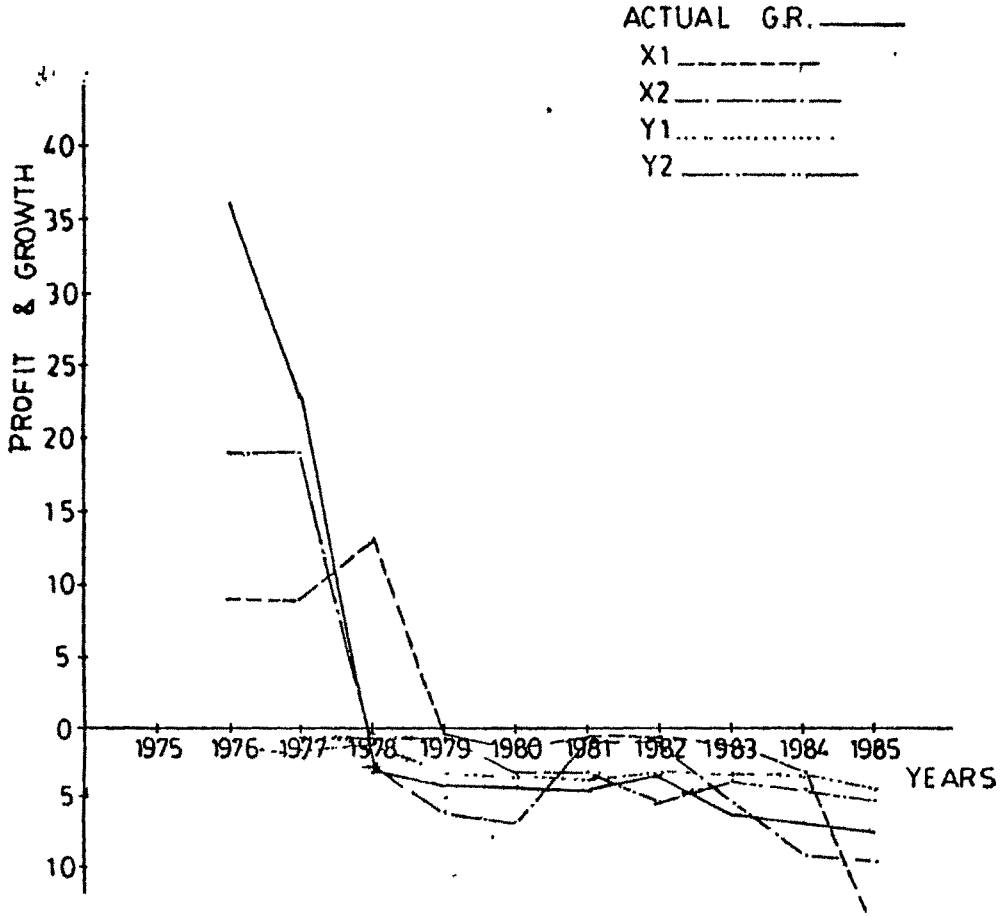
Sources : See the sources of table 5.19

Notes : 1. See the notes of the table 5.19

2. For detail refer to graph 5.5

GRAPH NO. 5.5

ACTUAL & ESTIMATED G.R. AS A FUNCTION OF PROFITABILITY FOR JORDAN PIPES MANUFACTURING CO-LTD.



SOURCES: DRAWN FROM TABLE NO. 5.2

1982 while the value of (Y2) is more than the actual growth rate in 1979, 1983, 1984 and 1985.

Table 5.24 reveals the actual and estimated growth rate as a function of profitability for the Arab Potash Co. Ltd. The table shows that the actual growth rate is more than the value of (X1) in 1978 and 1983 while the actual growth rate is less than the value of (X1) in the rest of the years under study.The actual growth rate is more than the value of (X2) in 1978, 1983 and 1985 but in the remaining years studied the actual growth rate is less than the value of (X2). It is also evident that the actual growth rate is more than the (Y1) in 1978, 1983 and 1984 whereas the value of (Y1) is more than the actual growth rate in the rest of the years. The actual grwoth rate of the company is more than the value of (Y2) in 1978 and 1983 only.

Table 5.25 shows the actual and the estimated growth rate as a function of profitability of Jordan Spinning and Weaving Co. Ltd. The table reveals that the actual growth rate is more than the value of (X1) in 1976, 1977, 1980 and 1981. The actual growth rate is more than the value of (X2) in 1976, 1977 and 1981 while in the remaining years studied, the (X2) is more than the actual rate. The table also shows that the actual growth rate is mroe than the value of (Y1)in 1976, 1977 and 1981. The actual growth rate of the company is more than the value of (Y2) in 1976, 1977 and 1981 while in the other years undertaken in the study it shows that the value of (Y2) is more than the actual growth rate.

The actual and estimated growth rate as a function of profitability for the Jordan Cement Factories is represented in

Table : 5.24

Actual and Estimated Growth Rate as a Function of Profitability for The Arab Potash Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	-	-	675	126.59	154.31	-	-
1976	-	-	94.52	126.59	154.31	234.60	204.13
1977	-	-	0.64	126.59	154.31	234.60	204.13
1978	-	-	1086.07	126.59	154.31	234.60	204.13
1979	-	-	126.45	126.59	154.31	234.60	204.13
1980	-	-	126.45	126.59	154.31	234.60	204.13
1981	-	-	44.77	126.59	154.31	234.60	204.13
1982	-	-	13.27	126.59	154.31	234.60	204.13
1983	-(243.78)	-(64.44)	772.33	629.82	700.98	234.60	204.13
1984	-(94.12)	-(11.98)	-(8.16)	320.88	255.94	-(71.06)	59.05
1985	-(22.19)	24.73	2.40	172.39	-(55.57)	116.58	177.16

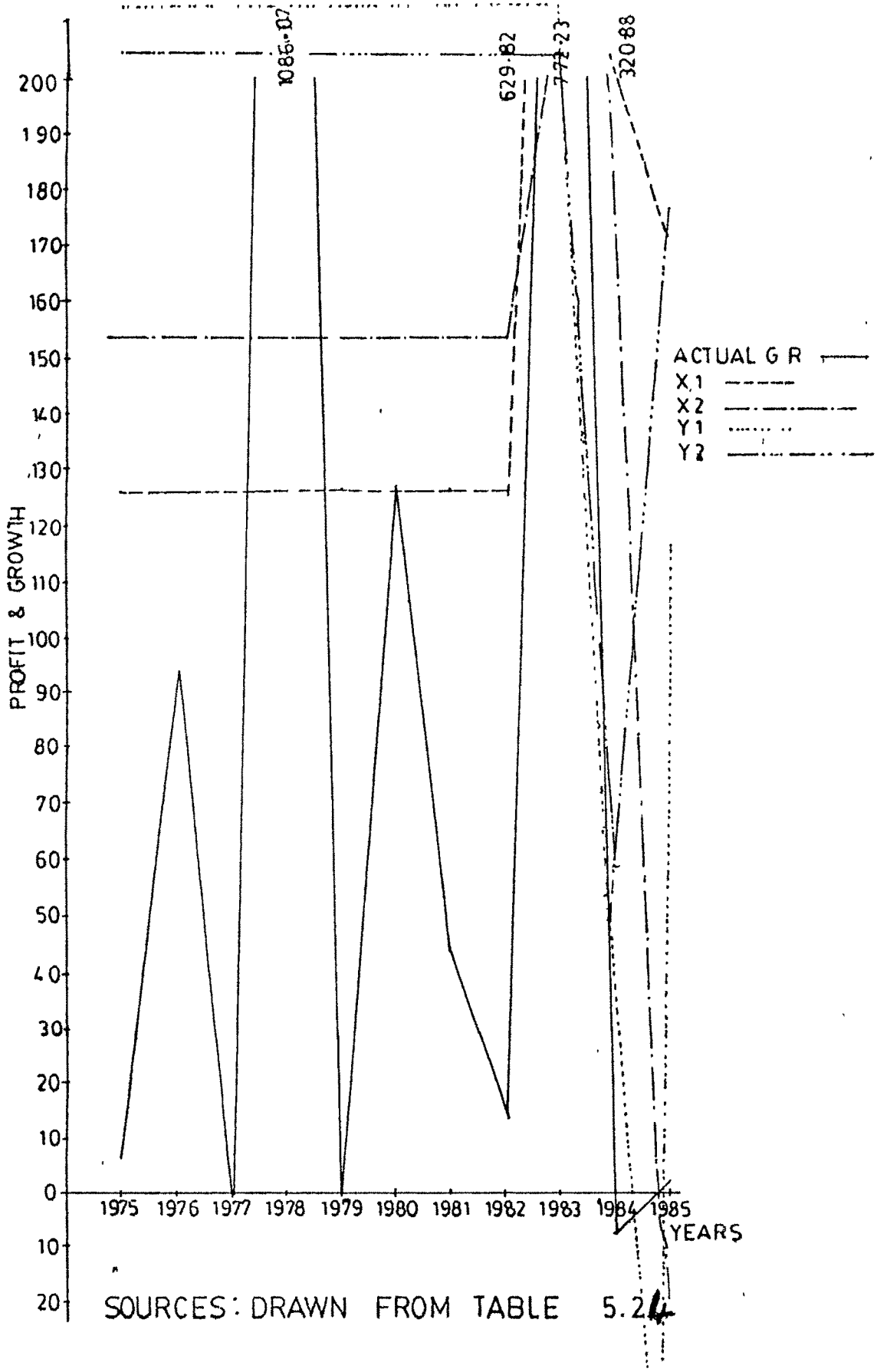
Sources : See the sources of table 5.19

Notes : 1. See the notes of the table 5.19

2. For detail refer to graph 5.6

GRAPH NO 5.6

ACTUAL & ESTIMATED G.R. AS A FUNCTION OF PROFITABILITY FOR ARAB POTASH CO. LTD.



SOURCES: DRAWN FROM TABLE 5.24

Table : 5.25

Actual and Estimated Growth Rate as a Function of Profitability for The Jordan Spinning and Weaving Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	-	-	-	-	-	-	-
1976	-	-	30.75	2.76	1.40	0.34	1.35
1977	-	-	4.56	2.76	1.40	0.34	1.35
1978	-(42.59)	-(20.22)	-(4.06)	0.68	1.74	0.34	1.35
1979	-(71.73)	-(7.78)	-(6.01)	-(0.74)	1.53	1.97	4.42
1980	-(149.95)	-(23.20)	-(1.60)	-(4.57)	1.79	3.08	2.53
1981	-(26.06)	-(3.47)	12.56	1.48	1.46	6.07	4.87
1982	-(43.41)	-(10.60)	-(8.39)	0.64	1.58	1.34	1.88
1983	9.06	19.52	-(0.38)	3.20	1.06	2.00	2.96
1984	3.23	20.95	-(4.52)	2.92	1.02	0.23	-(1.61)
1985	16.44	20.93	-(7.43)	3.56	1.04	0.22	-(1.82)

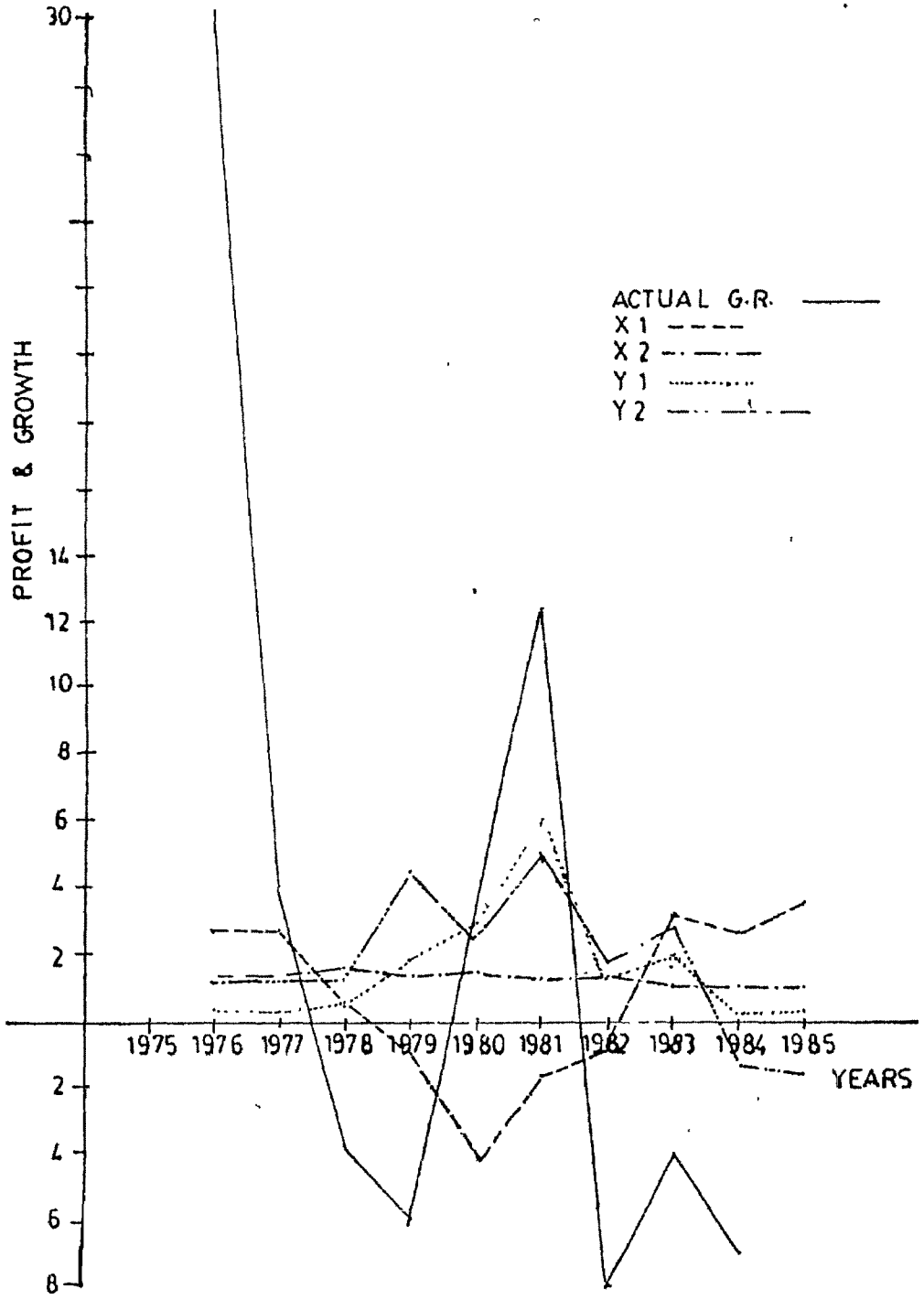
Sources : See the sources of table 5.19

Notes : 1. See the notes of the table 5.19

2. For detail refer to graph 5.7

GRAPH NO 5.7

ACTUAL & ESTIMATED G.R. AS A FUNCTION OF PROFITABILITY FOR JORDAN SPINNING & WEAVING CO. LTD.



SOURCES: DRAWN FROM TABLE 5.25

Table : 5.26

Actual and Estimated Growth Rate as a Function of Profitability for The Jordan Cement Factories Co.Ltd.

(Percentage)

Years	Net Profit	Gross Profit	Actual Growth Rate	X1	X2	Y1	Y2
1975	26.84	45.22	-	-	-	-	-
1976	11.96	22.90	192.44	66.40	78.67	92.37	42.00
1977	11.92	26.52	17.81	66.49	56.81	65.90	68.60
1978	25.55	30.54	-(6.01)	34.42	32.31	65.83	64.30
1979	10.58	17.11	-(20.48)	69.64	114.15	99.08	59.52
1980	9.27	14.80	456.87	72.73	128.23	63.45	75.49
1981	7.10	17.81	-(0.99)	77.83	109.89	61.12	78.23
1982	5.30	12.58	93.68	82.07	141.76	57.26	74.65
1983	11.31	27.66	22.00	67.83	49.86	54.06	80.87
1984	14.43	36.68	3.40	60.59	-(5.09)	64.82	62.95
1985	-(1.43)	23.04	-(31.39)	97.90	78.02	70.30	52.22

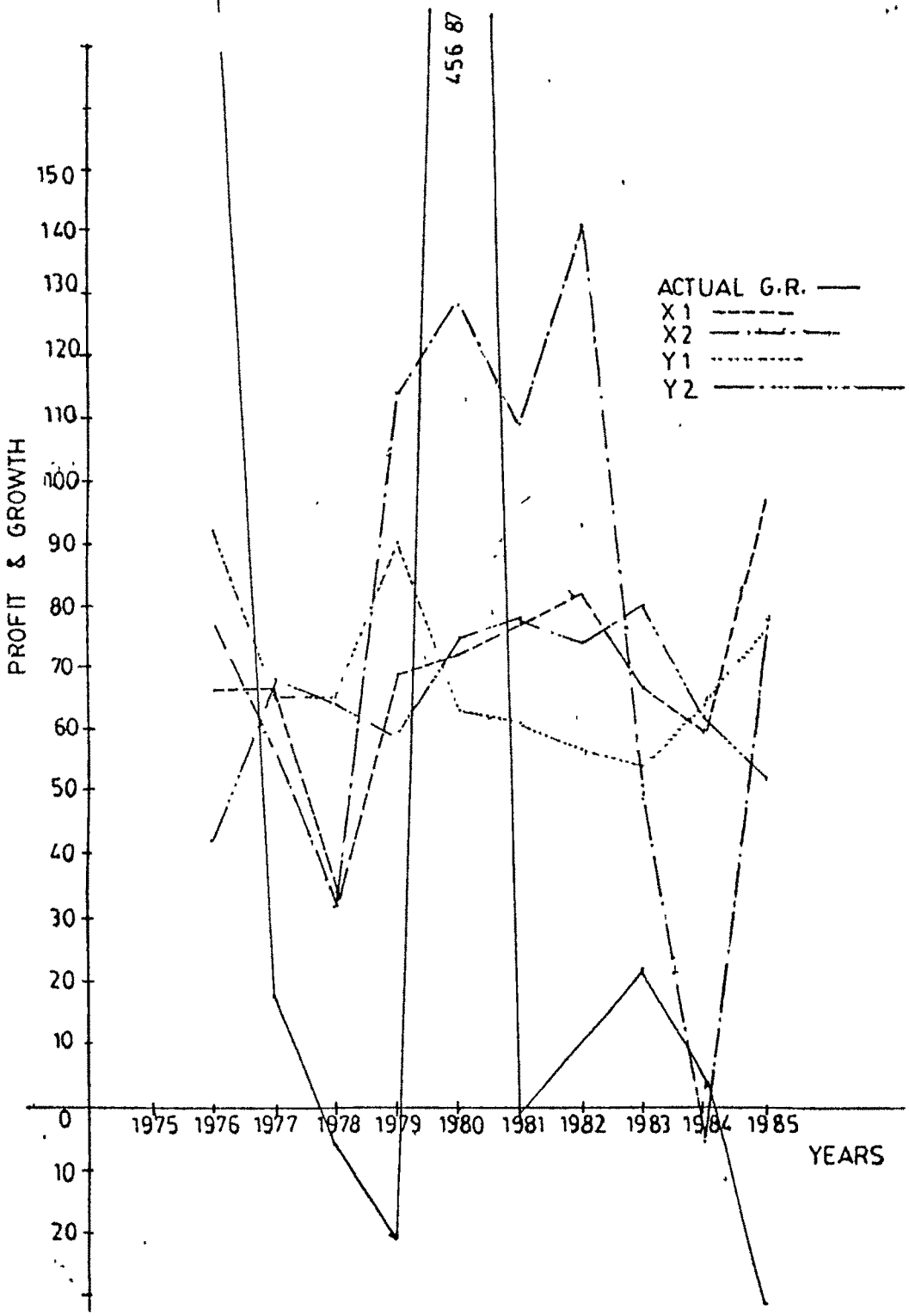
Sources : See the sources of table 5.19

Notes : 1. See the notes of the table 5.19

2. For detail refer to graph 5.8

GRAPH NO 5.8

ACTUAL & ESTIMATED G.R. AS A FUNCTION OF PROFITABILITY FOR JORDAN CEMENT FACTORIES LTD.



SOURCES: DRAWN FROM TABLE 5.26

table 5.26. The table shows that the actual growth rate of the company is more than the value of (X1) in 1976, 1980 and 1982 whereas the (X1) is more than the actual grwoth rate in 1977, 1978, 1979, 1981, 1983, 1984 and 1985. The actual growth rate is more than the value of (X2) in 1976, 1980 and 1984 while the value of (X2) is more than the actual in 1977, 1978, 1979, 1981, 1982, 1983 and 1985. The table also reveals that the actual growth rate is more than the value of (Y1) in 1976, 1980 and 1983 but the actual growth rate is less than the (Y2) in the remaining period under study. Lastly, the table indicates that the actual growth rate is more than the (Y2) in 1976, 1980 and 1982 while the value of (Y2) is more than the actual growth rate in the rest of the years under study.