

**A STUDY ON THE WORKING CAPITAL MANAGEMENT
OF THE SELECTED LARGE SCALE PUBLIC LIMITED
INDUSTRIAL COMPANIES OF JORDAN**

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(I) INTRODUCTION

Industrial development and economic development are the two closely tied-up indicators of the prosperity and growth of a country. In this modern dynamic world of globalization and competitiveness, industrial development has a significant effect on the overall development of a country, as it helps in realizing the rise in the social and economic standard of the country. In Jordan too, industrial development has contributed a lot in providing employment opportunities, export and import substitutions, boosting up the growth rate of the national output, raising the standard of living, improving health consciousness and raising the level of education. Jordan began to promote industrialization during 1950s and 1960s. The industrial sector in Jordan has always remained important for its potential in the past and its current role in the economy. Thus, the industry is regarded as the cornerstone for the development and enhancement of the Jordanian economy

In Jordan, industry has gone through several phases of transformation due to the political instability in the Middle East, underdevelopment of transport, and lack of infrastructural facilities. Industrial development of Jordan can be better achieved, if natural resources can be efficiently utilized and skilled personnel can be developed. Insufficient telecommunication, inflation, scarcity of water, scarcity of electricity, the devaluation of the Jordanian Dinar and the Middle East crisis have been some of the major hindrances in industrial development. In spite of all these inconveniences, Jordan's economic development over the past 50 years has been characterized by significant accomplishments at economic and social levels, even though it faced many ups and downs during its growth as a developing economy.

It is an accepted fact that the industrial prosperity and success are linked directly or indirectly with efficient management of working capital. But a developing industry generally faces the problem of either inefficient utilisation of resources which are available to them, or scarcity of adequate resources. Among all the resources, one of the scarcest productive resources is capital, and capital plays the most pivotal role in the overall corporate management of

an industry. Thus, management of working capital in a balanced and efficient manner can lead to the survival of the industry and it also further helps in maximizing the return on investment. But it has been found from many studies that maintaining an adequate amount of working capital is one of the basic problems of modern industrialization. Therefore, the major consideration in Jordan is to understand, evaluate and analyse management of working capital, so that appropriate changes can be made to make it more efficient and productive.

(II) RATIONALE OF THE STUDY

Industrial development plays a crucial role in the process of modernization and socio-economic development of a country. It also helps in understanding the framework as to how the national resources and factors of production are utilized and to know how they were acquired, how the technologies are transferred with the new skills developed. Industry also links together all the economic activities of the society and interacts with them in ways meaningful for the economic growth and enhancement of the national income. Thus, maintaining an industry in a proper and efficient way will enable it to cope up with the drastic changes and advancement of new technologies and scientific inventions. And in order to run full-fledged successful industrial companies, a proper and efficient management of working capital is an absolute must. Thus, working capital may be regarded as the life-blood of a business; its effective provision can do much to ensure the success of a business, while its inefficient management can lead not only to loss of profits but also to an ultimate downfall of the company. A deeper understanding of the importance of working capital management and its satisfactory provision can assist in materials saving and maximizing financial return on the minimum capital employed. The success or failure of the operation of a business depends on proper management of working capital. Surveys indicate that the largest portion of a financial manager's time is devoted to day-to-day internal operations of the company i.e. working capital management.

A reasonable rate of return on investment and a good reputation in the business world can be suggested as the two meaningful criteria for viewing the efficiency of a business enterprise. In earning a reasonable return, the working capital plays an important role. The liquidity and profitability positions of a business concern to a great extent depend on how far the working capital is efficiently managed. It is, therefore, important on the part of the management to pay adequate attention to the planning and control of the working capital.

Working capital management of a high caliber is essential for the survival of the industry. The postponement of the solution of working capital problems in the industrial company is the postponement of the industrial efficiency and improvement in productivity. The level of working capital and its problems may not be the same with all industrial companies. It is likely that all industrial companies may not show the same level of efficiency in the working capital. Some may show low efficiency, others may show moderate efficiency and some of the industrial companies may show a high level of efficiency in the utilisation of working capital.

From a general analysis, it was found that there is a dearth of studies in the area of working capital management,. This field has been totally neglected in the industrial companies as well as in the academic field in Jordan. This has been also revealed by most of the senior professors in reputed universities of Jordan. The investigator personally undertook informal discussions with the executive managers of all the selected industrial companies of Jordan to verify the fact. It was found that no systematic and comprehensive study in this field has been undertaken either in the form of project work or articles or research papers or as a doctoral study, though a number of small studies have been completed in the field of profitability analysis, industrial finance, marketing, historical development of the industrial companies of Jordan etc. Hence, an attempt is made here to systematically study and analyse working capital management. This study therefore, would be a step ahead in the direction of generating empirical evidence and it will serve as a guide for further research. Thus, this study is thought to be highly imperative.

Keeping in mind the above views, and based on the reviews of related literature and research, the present study has been attempted.

(III) STATEMENT OF THE PROBLEM

The title of the present study reads as follows:

“A Study on the Working Capital Management of the Selected Large Scale Public Limited Industrial Companies of Jordan”.

(IV) SPECIFICATION OF THE STUDY

The title of the present study reads as “A study on the working capital management of the selected large scale public limited industrial companies of Jordan”

In order to clarify the statement, it is necessary to define important terms used in the statement of the problem.

The phrase ‘Working Capital’ refers to the total current assets of the industrial companies during a particular period of time. Current assets are the assets which can be converted into cash within an accounting year. These are represented mainly by cash balances, accounts receivable, loans and advances and inventories which include raw materials, work-in-process, finished goods, stores and spare parts and miscellaneous goods in the industrial companies

The phrase ‘Working Capital Management’ denotes the determination of the requirements of working capital, financing the requirements, and efficient utilisation of working capital in the industrial companies. A study on the working capital management is mainly related to the adequacy of inventory, receivables, cash and bank balances, and working capital finance in the industrial companies during the period under study, i.e., from 1987 to 1996

The phrase ‘Large Scale Public Limited’ refers to those industrial companies that employ more than 19 employees according to the definition of Statistical Department of Jordan.

For the present study, the term ‘Industrial Companies of Jordan’ refers only to the manufacturing industrial companies of Jordan.

(V) OBJECTIVES OF THE STUDY

The objectives of the present study are as follows:

- I To study the structure of the working capital and each of its components like inventory, receivables, cash and bank balances, and working capital finance.
- II To evaluate the composition of inventory and its adequacy in each of its components like raw materials, work-in-process, finished goods, spare parts and stores, and miscellaneous goods.
- III To determine the impact of receivables management and its adequacy in each of its components like accounts receivable, and loans and advances.
- IV. To verify the availability of cash and bank balances as per operational requirements, and liquidity and solvency of the selected industrial companies.
- V. To analyse the adequacy of working capital finance, its various sources and availability of bank credit.
- VI To analyse the efficiency of working capital management in the selected industrial companies of Jordan from 1987 to 1996.

(VI) DELIMITATION OF THE STUDY

The present study has been delimited with respect to the following points:

- i The present research is delimited to the study of working capital management relating to inventory, receivables, cash and bank balances and working capital finance of the selected large scale manufacturing public limited industrial companies of Jordan
- ii. The present study confines to the period of one decade i.e , from 1987 to 1996.
- iii Another delimitation is regarding the size of the sample. In the present study, out of 36 large scale manufacturing industrial companies listed in Amman Financial Market on or before 1987, only 21 industrial companies have been selected. Initially, it was planned to cover all the large scale

manufacturing industrial companies but the rest of the companies could not be included in the sample due to the lack of availability of appropriate data.

- iv The present study is mainly based on the annual audited balance sheets, profit and loss accounts, official records of the industrial companies, the audited annual reports of the industrial companies and other related data published by the industrial companies of Jordan. Cross verification has been made, where necessary, through reference to primary figures and personal discussions with the financial executives of the concerned companies. Data for the weekly or monthly variation in the inventory level, receivables, cash and working capital finance level would have been more appropriate and useful for the study, but in the absence of such data, this researcher has relied on the yearly basis data which are used to reveal the working capital requirements and its utilisation. The limitations of the financial statements for the purpose of such an analysis are well known. Despite its weaknesses, it continues to be the only major source of data for a micro-analysis of an industrial company's behavior.

(VII) SAMPLE OF THE STUDY

For the purpose of an indepth analysis of various aspects of the working capital management and their implication on managerial effectiveness, a set of twenty-one industrial companies have been selected following purposive sampling. Jordan's industrial companies are mainly composed of "manufacturing" and "mining and quarrying companies". In 1996, there were 87 manufacturing, and mining and quarrying industrial companies listed in Amman Financial Market.⁽¹⁾ But this investigator, for its feasibility, has selected only the manufacturing large scale industrial companies, which were 36 in number as shown in Table 3.1. The mining industrial companies were excluded from the present study as the Government of Jordan holds more than 51 per cent of their ownership ratio. For an accurate result of analysis as well as due to the unavailability of adequate and reliable information of data for some of the manufacturing industrial companies this investigator has narrowed down and

selected only 21 major large manufacturing industrial companies for the purpose of the present study. The selected industrial companies have been divided into seven sectors. In order to maintain a homogeneous selection and to maintain an accuracy with satisfactory result, this investigator has selected three major industrial companies under each sector according to the availability of data.

The given table 3.1 reveals the position of 36 manufacturing industrial companies and 21 selected industrial companies of Jordan during 1996 with regard to paid-up capital and number of workers.

TABLE 3.1
TABLE SHOWING PERCENTAGE OF SELECTED INDUSTRIAL COMPANIES
IN RELATION TO OVERALL INDUSTRIAL COMPANIES LISTED IN
AMMAN FINANCIAL MARKET OF JORDAN DURING 1996

Particular	Overall Industrial Companies	Selected Industrial Companies	Percentage of the Selected Industrial Companies to the Overall Industrial Companies
Number of company	36 *	21	58.33
Paid up capital (JD. in thousand)	333,287	168,612	50.60
Number of workers (thousand)	22,002	11,633	52.87

** This number indicates the overall industrial companies of Jordan which were chosen according to four conditions: first, the chosen number of overall industrial companies comprise only the manufacturing industrial companies; second, the company has to be listed in Amman Financial Market; third, the company has to be established in Jordan before 1987 and still existing and functioning up to the end of the period of study i.e. 1996; and fourth, the company had to have more than 19 employees according to the definition of Statistical Department of Jordan for the large scale company.⁽²⁾*

Table 3.1 reveals that the selected industrial companies cover 58.33 per cent of the overall industrial companies, 50.60 per cent of the paid up capital and 52.87 per cent of the workers of the selected industrial companies of Jordan during 1996.

The present study is confined to the period of one decade i.e., 1987 to 1996. The reason behind selecting this period is the availability of data, which

the investigator found most recent and appropriate for the study. Another important reason for selecting this time period is that, it is long enough to analyse the change in behavior and the efficiency of working capital, and to see how far it is maintained from different angles. Moreover, this time period has witnessed two economic crises: the devaluation of Jordanian Dinar in 1988 and the Gulf war in 1990-91.

The selected industrial companies for the purpose of the present study are as follows:

1) CHEMICAL AND PETROLEUM INDUSTRIAL SECTOR

- a) Jordan Petroleum Refinery Company Limited
- b) Intermediate Petrochemical Industrial Company Limited
- c) Jordan Sulpho-Chemicals Company Limited

2) CONSTRUCTION INDUSTRIAL SECTOR

- a) The Jordan Cement Factories Company Limited
- b) The Jordan Ceramic Industrial Company Limited
- c) Jordan Rockwool Industrial company Limited

3) CONSUMABLES AND FOOD INDUSTRIAL SECTOR

- a) The Industrial Commercial and Agricultural Company Limited
- b) Arab Investment and International Trade Company Limited
- c) The National Industrial Company Limited

4) PHARMACEUTICALS INDUSTRIAL SECTOR

- a) The Arab Pharmaceuticals Manufacturing Company Limited
- b) Dar AL-Dawa Development and Investment Company Limited
- c) The Arab Center for Pharmaceuticals and Chemicals Limited

5) ENGINEERING INDUSTRIAL SECTOR

- a) Arab Aluminum Industrial Company Limited
- b) National Cables and Wire Manufacturing Company Limited
- c) The Jordan Pipes Manufacturing Company Limited

6) TEXTILE INDUSTRIAL SECTOR

- a) The Jordan Worsted Mills Company Limited
- b) Jordan Tanning Company Limited
- c) The Woolen Industrial Company Limited

7) PAPER AND PACKING INDUSTRIAL SECTOR

- a) Jordan Paper and Cardboard Factories Company Limited
- b) The Arab Paper Converting and Trading Company Limited
- c) Jordan Printing and Packing Company Limited

(VIII) SOURCES OF DATA AND DATA COLLECTION

The study is primarily based on the analysis and interpretation of data contained in the annual balance sheets and profit and loss accounts of the industrial companies of Jordan. The data used in the present study are mainly of two types

- (1) Primary Data, and
- (2) Secondary Data.

(1) Primary Data

The primary data is collected through questionnaire and personal interview. The questionnaire was framed keeping in mind the main objectives of the study and to initiate further details of the information lacking in the published documents. The questionnaire included both open ended and close ended items. Close ended items were of Yes / No type as well as multiple choice type. In case of open ended items, space was provided in the questionnaire for the respondents to provide relevant information.

The investigator prepared the questionnaire on the lines suggested by experts in research methodology. Their contents, validity and objectivity have been duly taken care of. The questionnaire focused on four areas

- (a) Inventory management,
- (b) Receivables management,
- (c) Cash management, and
- (d) Working capital finance management.

In order to cross-validate the information obtained through the questionnaire as well as to elicit an indepth information which the investigator felt was lacking in the questionnaire, the investigator conducted personal interviews with executives of the selected industrial companies.

(2) Secondary Data

The secondary data consisting of the annual balance sheets, profit and loss accounts and audit reports of the industrial companies were collected from the industrial companies by visiting the companies personally. Other relevant

secondary data which are not available in the annual balance sheets and profit and loss accounts, were taken from the various records of the industrial companies as well as from the various issues of Annual Reports and other monthly, quarterly, annually published bulletins like records from Jordanian shareholding companies guide, the Ministry of Industry and Trade, Ministry of Planning, Department of statistics, Amman Financial Market, Government and Semi-Government agencies, and Central Bank of Jordan, etc.

Apart from all these, the investigator referred various relevant materials available in the libraries in order to supplement the data further.

(IX) METHODS OF ANALYSIS USED IN THE PRESENT STUDY

The present study is an attempt to forecast the future scope of working capital management. The approach adopted is basically analytical and interpretative in nature. This study is mainly limited to the time series analysis and cross section analysis of the empirical data. Thus, the following analyses have been done:

- i. The ratio trend analysis of the relevant data on working capital has been made for the period under study.
- ii. The overall average of the total industrial companies under study has been analysed.
- iii. The average ratio of each sector with the overall industrial average has been studied separately.
- iv. The average for each company under the respective sector was calculated and compared with the sector's average by working out specific ratios on working capital.
- v. The sector-wise average of the inventory, receivables, cash and working capital finance have been calculated and compared with overall industrial average, and the average for each company for each sector has also been calculated

(X) SPECIFIC RATIOS USED IN THE STUDY

Adequacy of Inventory

Inventory as a percentage of the total capital employed, inventory in terms of months' cost of production, inventory turnover, the percentage of raw materials in the aggregate inventory, raw materials inventory in terms of months' value of raw materials consumption, turnover of raw materials, the percentage of work-in-process in the aggregate inventory, work-in-process in terms of months' cost of production, turnover of work-in-process, the percentage of finished goods inventory in the aggregate inventory, finished goods inventory in terms of months' cost of sales, turnover of finished goods inventory, the percentage of spare parts and stores in the aggregate inventory, stock of spare parts and stores in terms of months' value of spare parts and stores consumed, turnover of spare parts and stores, the percentage of miscellaneous goods in the aggregate inventory have been shown for judging the adequacy of inventory in each of its components.

Adequacy of Receivables

For judging the impact of receivables management, the trend percentage of growth receivables and net sales, accounts receivable as percentage of total receivables, loans and advances as percentage of total receivables, percentage of advances to total loans and advances, the percentage of deposits in total loans and advances, accounts receivable turnover, average collection period, the percentage of accounts receivable in sales, accounts receivable in terms of months' value of sales, and the percentage of bad and doubtful debts in gross accounts receivable and in sales have been shown separately

Adequacy of Cash

The adequacy of cash has been measured through the following ratios:

- a) Net cash in terms of days' operational requirements for cash
- b) Current ratio
- c) Liquid ratio

- d) Net cash flow to the current liabilities.
- e) Coverage of the current liabilities.
- f) Percentage of liquid funds in current liabilities.

Control of cash in the industrial companies has been analysed through the following ratios:

- a) Coverage of current liabilities,
- b) Percentage of cash in current assets.
- c) Turnover of cash.
- d) Growth rate in cash and sales.

Adequacy of Working Capital Finance

The adequacy of working capital finance has been judged through the following ratios:

- a) Working capital finance in terms of months' cost of production.
- b) Working capital finance in terms of months' value of sales.
- c) Comparative rate of growth of working capital finance, value of sales and value of production.

Sources of Working Capital Finance

For analysing the sources of working capital finance, percentage of long-term loan, funds from operations, and cash credit to working capital finance have been shown in the present study. The excess bank borrowings in the industrial companies have been found comparing the actual bank borrowings with the permissible bank borrowings as per the first method and the second method of financing of working capital of the Tandon Study Group. While analysing the adequacy of internal finance, the profitability of the industrial companies has been analysed through gross profit and loss on capital employed, net profit and loss on capital employed, gross margin, net margin, earning power and turnover of capital employed, turnover of fixed capital of the industrial companies during the period under study. Further the sources and application of funds for each company were analysed separately.

Efficiency of Working Capital Management

For judging the efficiency of working capital management, turnover of working capital and the percentage of net profit and loss in the working capital have been analysed.

(XI) MAJOR FINDINGS

INVENTORY MANAGEMENT

1. Inventory formed the largest segment of the working capital. On an average, inventory was worked out to be 48.37 per cent of total working capital in the industrial companies during the period under study.
2. The composition of inventory consisted of raw materials, work in progress, spare parts and stores, finished goods, and miscellaneous goods. Out of these components, excess of accumulation was mainly of raw materials, and spare parts and stores during the period under study.
3. It was observed that the size of the inventory maintained in the industrial companies in Jordan went up in proportion higher than the production requirements. Thus we can find that the inventory in terms of months' cost of production went up from 3.90 months in 1987 to 4.79 months in 1996, with an overall industrial average of 4.57 months' cost of production. In the Textile Industrial Sector, the average inventory was the highest as compared to all other sectors and the inventories maintained were equivalent to 10.29 months' cost of production. On the other hand, the Chemical and Petroleum Industrial Sector had the lowest amount of inventory which was equal to 3.60 months' cost of production. The remaining sectors maintained average inventory which were more than the overall industrial average.
4. The percentage of the inventory with respect to the total capital employed also increased from 21.48 per cent in 1987 to 27.28 per cent in 1996 with the overall industrial average of 27.45 per cent. Out of the seven sectors, five sectors employed more capital than overall industrial average in

inventory. The Textile Industrial Sector recorded the highest percentage of capital employed towards inventories with the average percentage at 52.39 per cent. However, the Construction Industrial Sector had the lowest percentage of inventory in the total capital employed at 15.54 per cent.

5. The overall inventory turnover declined marginally from 3.75 times in 1987 to 3.49 times in 1996, with the overall industrial average of 3.44 times. The average inventory turnover for the Chemical and Petroleum Industrial Sector was 4.24 times which is the highest as compared to all other sectors as well as the overall industrial average, but this also marked a downward trend over the years. All other sectors had inventories turnover well below the overall industrial average. Amongst them, the Textile Industrial Sector had the lowest average inventory turnover of 1.59 times.
6. Over the years, the percentage of raw materials in the total inventory went up from 22.46 per cent in 1987 to 27.15 per cent in 1995 and then it declined to 23.93 per cent in 1996 with the overall industrial average of 26.95 per cent. Out of seven sectors, five sectors had very high percentage of raw materials in the total inventory. The Paper and Packing Industrial Sector and the Consumables and Food Industrial Sector had the highest percentage of raw materials with respect to the total inventories, i.e., about 65 per cent. On the other hand, the Construction Industrial Sector had the lowest percentage of raw materials of just 6.08 of the total inventory.
7. The average stock of raw materials in relation to the production requirements went up over the years. The raw materials in terms of months' consumption went up from 1.10 months in 1987 to 1.49 months in 1996, with the overall industrial average being 1.57 months. Except the Chemical and Petroleum Industrial Sector, which had the raw materials up to 0.76 month's consumption on an average, all other sectors had very high levels of raw materials inventory. In the Paper and Packing Industrial Sector, the raw materials in terms of months' consumption was the

highest up to 7.14 months whereas in the Pharmaceuticals Industrial Sector, it was as high as 6.76 months.

8. The proportion of work-in-process in the total inventory was on the lower side and over the years, it declined from 8.30 per cent in 1987 to 6.78 per cent in 1996. The overall industrial average of work-in-process in the total inventory was 6.74 per cent. The only sectors which maintained more than 10 per cent of inventory in the form of work-in-process were the Construction Industrial Sector, the Pharmaceutical Industrial Sector, and the Textile Industrial Sector. Other sectors, viz., Chemical and Petroleum Industrial Sector, Consumables and Food Industrial Sector, and the Paper and Packing Industrial Sector maintained the stock of work-in-process at about 3.39 per cent, 1.25 per cent, and 1.80 per cent respectively of the total inventory.
9. The overall average percentage of finished goods to the total inventories was 35.09 per cent, which was comparatively higher than all other components of inventory. There was a fall in the rate of conversion of raw materials into finished goods and thereby the percentage of finished goods to the total inventory declined over the years. The overall percentage of finished goods to inventories went down from 40.71 per cent in 1987 to 33.07 per cent in 1996. In the Chemical and Petroleum Industrial Sector, about half of the total inventory, i.e., 49.91 per cent consisted of finished goods. Whereas in all other sectors, it was lower than the overall industrial average. The Paper and Packing Industrial Sector maintained a very low level of finished goods and it had just 8.02 per cent of finished goods with regard to the total inventory.
10. All the industrial sectors maintained excess stock of spare parts and stores which was considerably higher than their requirements. On an average, the industrial companies maintained spare parts and stores equivalent to 58.07 months' consumption of their requirements. The accumulation of spare parts and stores went down from 73.20 months' consumption in 1987 to 56.05 months' consumption in 1996. Out of the

seven sectors, the Chemical and Petroleum Industrial Sector, and the Construction Industrial Sector had stock of spare parts and stores more than 5 years of requirements. On the other hand, the Consumables and Food Industrial Sector maintained the lowest stock of spare parts and stores, with the average equivalent to 24 months' requirements.

11. Miscellaneous goods, although did not form the major part in the total inventories, they increased over the period of ten years. The percentage of miscellaneous goods in the total inventory went up from 2 per cent in 1987 to 4.70 per cent in 1996, with the overall industrial average being 4.20 per cent. The Chemical and Petroleum Industrial Sector, and the Consumables and Food Industrial Sector, both had over 6 per cent of the inventory in the form of miscellaneous goods and showed an increasing trend over the years, the former being the highest at 6.41 per cent. In the Construction Industrial Sector, the percentage of miscellaneous goods had was just 0.06 per cent on an average which was the lowest amongst all sectors.

RECEIVABLES MANAGEMENT

1. Receivables which formed the second largest segment of the working capital was not managed satisfactory. Over the years, the receivables level went up in undesirable proportions. The overall percentage of accounts receivable with regard to the total sales went up from 16.06 per cent in 1987 to 35.13 per cent in 1996. In tune with the overall sectors, the Chemical and Petroleum Industrial Sector, the Consumables and Food Industrial Sector, the Engineering Industrial Sector, and the Textile Industrial Sector increased their trend percentage of receivables to the total sales over the years under study. The remaining sectors showed a decreasing trend of percentage of receivables in the total sales. In the case of the Pharmaceutical Industrial Sector, although the overall trend percentage of receivable to the total sales had reduced, the average percentage of receivables in the total sales was 67.31 per cent which was the highest among all the industrial sectors. On the other hand, the

Construction Industrial Sector had just 4.44 per cent of receivables in the total sales, which was the lowest amongst all.

2. The trend analysis also revealed that the overall growth in the receivables was much higher than the overall growth of sales. It was noticed that growth in receivables had been 236.34 per cent as against sales growth of 177.51 per cent. Out of the seven sectors, the Chemical and Petroleum Industrial Sector increased the level of receivables up to 5 times as against the sales growth of just about 2 times. Similarly, the Textile Industrial Sector increased the level of receivables about 4 times with the corresponding increase in sales of about 3 times in 1996 as compared to the base year of 1987. The Pharmaceuticals Industrial Sector reduced its comparative investment in receivables over the years, with the overall growth trend in receivables at 164.56 per cent as against the sales growth of 239.92 per cent.
3. The turnover of receivables declined considerably over the years under study. It declined from 6.23 times in 1987 to 2.85 times in 1996 with the overall industrial average at 4.55 times resulting in increasing the average collection period from 59 days in 1987 to 128 days in 1996. Out of the seven sectors, the Pharmaceuticals Industrial Sector reduced its average collection period over the years, but still its average collection period was the highest at 246 days. Similarly, the average collection period in the case of the Textile Industrial Sector was also as high as 125 days. The Construction Industrial Sector had an average collection period of just 16 days, which was the lowest amongst all.
4. A very high percentage of receivables remained invested in accounts receivable as compared to the amount invested in the loans and advances. It was on an average 93.07 per cent during the period under study. The percentage of accounts receivable with regard to the total receivables went up from 90.89 per cent in 1987 to 95.89 per cent in 1996. The Chemical and Petroleum Industrial Sector had the highest proportion of accounts receivable at 99.23 per cent, followed by the

Textile Industrial Sector, and the Pharmaceutical Industrial Sector which had a higher level of percentage of accounts receivable of more than 80 per cent of the total receivables. The Consumables and Food Industrial Sector had the lowest percentage of accounts receivable in the total receivables with an average of 61.24 per cent. In the remaining sectors, the percentage of accounts receivable was well above 65 per cent.

- 5 The overall percentage of loans and advances in the total receivables was just about 6.93 per cent, witnessing a reducing trend from 9.11 per cent in 1987 to 4.11 per cent in 1996. The Chemical and Petroleum Industrial Sector had the lowest percentage of loans and advances to total receivables at about 0.77 per cent. While in the case of the Construction Industrial Sector, the Consumables and Food Industrial Sector, the Engineering Industrial Sector, and the Paper and Packing Industrial Sector, although they reduced their comparative investment in loans and advances, their average percentage was more than 30 per cent.
- 6 The increase in the trend of accounts receivable indicated a liberal credit policy followed by the management and therefore there was a considerable increase in the percentage of bad and doubtful debts over the years. Although the percentage of bad and doubtful debts to gross accounts receivables went up from 1.68 per cent in 1987 to 3.05 per cent in 1996, the overall industrial average remained at 2.65 per cent. Similarly, the percentage of bad debts to the total sales in the industrial companies also went up considerably over the years from 0.27 per cent in 1987 to 1.11 per cent in 1996, with the overall industrial average at 0.65 per cent.

CASH MANAGEMENT

- 1 Cash occupied the third place in order of importance among the various components of working capital. On an average, cash worked out to be 11.22 per cent of the total working capital in the industrial companies during the period under study.

2. Over the years, it was observed that the cash balance in terms of days' operational requirements went up in the initial years from 21 days in 1987 to 63 days in 1991. Thereafter, it gradually declined to 33 days in 1995 and 20 days in 1996. The Engineering Industrial Sector kept its cash reservoirs at the highest level which was 122 days, while the Textile Industrial Sector had the lowest reservoir of cash in terms of days' operational requirements and its average was just 15 days.
3. The adequacy of cash in terms of liquidity and solvency position shows that the average liquidity position remained more or less the same whereas the solvency position slightly improved during the latter period under study. The overall current ratio was 1.27:1 in 1987 and remained at 1.25:1 in 1996 whereas the overall liquid ratio was just 0.57:1 in 1987 and increased marginally to 0.73 in 1996. Compared to the standard norm of current ratio 2:1, the Engineering Industrial Sector, and the Paper and Packing Industrial Sector had the current ratio above the standard norm while all other sectors had current ratio lower than the standard norm of 2:1. The liquidity position of the Construction Industrial Sector was the worst among all the sectors and the ratio of this sector was only 0.66:1. As compared to the standard norm of liquid ratio 1:1, the position of the Pharmaceuticals Industrial Sector, and the Paper and Packing Industrial Sector was above the standard norm while all other sectors had liquid ratio below the standard norm.
4. The percentage of net cash flow with regard to the current liabilities reveals that it went down over the years from 28.54 per cent in 1987 to 12.52 per cent in 1996 with an overall industrial average of 20.30 per cent. This resulted in low current ratio and liquid ratio. The Chemical and Petroleum Industrial Sector, had the lowest percentage of net cash flow to current liabilities, i.e., just 10.89 per cent, whereas the Paper and Packing Industrial Sector had the highest percentage of net cash flow with respect to the current liabilities, i.e., 64.50 per cent.

- 5 The coverage of current liabilities by operational profits went down from 11.55 per cent in 1987 to 6.91 per cent in 1996. Amongst the sectors, the Chemical and petroleum Industrial Sectors showed a declining trend of coverage of current liabilities by operational profit and it declined from 7.10 per cent in 1987 to just 1.76 per cent in 1996. Similarly the Consumables and Food Industrial Sectors had also a very low average of coverage of current liabilities of 5.10 per cent. In contrast to this, the Engineering Industrial Sector, and the Paper and Packing Industrial Sector, had the highest coverage of current liabilities with 48.09 per cent and 41.08 per cent respectively. On the other hand, the remaining industrial sectors had coverage of current liabilities higher than the overall industrial average, but still it is considered to be low.

WORKING CAPITAL FINANCE

- 1 There was a regular increase in the working capital finance in the industrial sectors in Jordan. It increased from 3.19 months in 1987 to 3.87 months in 1996. The overall average of working capital finance in terms of months' cost of production was 4.03 months. Out of the seven sectors, the Pharmaceuticals Industrial Sector, although reduced the proportion but the overall working capital finance was as high as 13.15 months' cost of production, which is the highest amongst all. Except the Chemical and Petroleum Industrial Sector which had the lowest working capital finance at 2.49 months, all the other remaining industrial sector had a higher working capital finance than the overall industrial average in terms of months' cost of production.
- 2 For financing the working capital requirements, the industrial companies heavily and increasingly relied on the long term loans. It witnessed an increasing trend from 46.82 per cent in 1987 to 54.42 per cent in 1996. The overall percentage of long term loans in the total working capital finance was 56.22 per cent. Out of the seven sectors, the Chemical and Petroleum Industrial Sector had the highest percentage, i.e., 78.18 per cent of the working capital finance out of long term loans, whereas the

Construction Industrial Sector had the lowest of 4.12 per cent of the working capital finance financed through long term loans during the period under study.

3. There was a decline in the funds from operations due to a fall in the profitability, and it declined from 33.55 per cent in 1987 to 17.71 per cent in 1996. The overall percentage of funds from operations in the total working finance was 21.19 per cent. Most of the industrial companies showed a similar trend of reduction of the funds from operations in the overall working capital finance. Except the Construction Industrial Sector, all the other sectors relied more on the outside funds rather than the internal source.
4. The application of cash credit for the financing of working capital went up over the years. The percentage of cash credit in the total working capital finance which was 20.42 per cent in 1987 increased to 27.87 per cent in 1996. Out of the seven sectors, four sectors used more than 30 per cent of cash credit while two sectors had less than 15 per cent of cash credit for financing the working capital. The Paper and Packing Industrial Sector had a cash credit more or less equal to overall industrial average of cash credit for financing the working capital.
5. There was an overall excess of bank borrowing by 16.10 per cent as compared to the Maximum Permissible Bank Finance (MPBF) limit as laid down by the second method of lending recommended by the Tandon Study Group. As compared to all the sectors, the Construction Industrial Sector relied heavily on banks and borrowed more than 70 per cent of its funds from banks for financing the working capital.
6. The earning power of the industrial companies declined considerably after 1990. The earning power which was 5.53 per cent in 1987 increased to 9.96 per cent in 1990 and thereafter declined to 5.13 per cent in 1996. This was mainly due to an increase in the operating cost and a decline in the profitability. There was the highest earning power of 16.37 per cent found in the case of the Engineering Industrial Sector and the lowest

earning power in the case of the Chemical and Petroleum Industrial Sector. In the case of Consumables and Food Industrial Sector a negative earning power was noticed during 1996.

- 7 There was a decline in the net operating margin from 6.86 per cent in 1987 to 5.39 per cent in 1996. This was mainly due to the increase in the percentage of cost of sales from 92.07 per cent in 1990 to 96.27 per cent in 1996 with the overall industrial average of 94.49 per cent. This indicates that the percentage of overheads cost was not under control. The Consumables and Food Industrial Sector for instance showed an increase in its overheads cost from 87.16 per cent in 1990 to a whopping 109.79 per cent in 1996, thereby going into losses. Similarly, the Chemical and Petroleum Industrial Sector increased the percentage of cost of sales over the years. In contrast to this, the Pharmaceuticals Industrial Sector reduced the percentage of cost of sales to the total sales from 92.16 per cent in 1987 to 85.51 per cent in 1996.

EFFICIENCY OF WORKING CAPITAL MANAGEMENT

- 1 The overall percentage of working capital with regard to the total capital employed went up from 39.15 per cent in 1987 to 65.61 per cent in 1996. This indicates that the proportion of investment in the current assets increased more than the fixed assets during the period under study. Out of the seven sectors, the Textile Industrial Sector had the highest (i.e., 87.80 per cent) of the capital employed in the working capital, whereas the Construction Industrial Sector had lowest at just 19.85 per cent of the capital employed in the working capital.
- 2 The efficiency with which the working capital was put to use went down over the years. The overall working capital turnover ratio went down from 1.90 times in 1987 to 1.31 times in 1996. The Pharmaceutical Industrial Sector had the lowest working capital turnover of 0.63 times. Similarly the Textile Industrial Sector and the Engineering Industrial Sector had also the working capital turnover ratio less than 1 time. On the other hand, the

working capital turnover ratio in case of the Chemical and Petroleum Industrial Sector was the highest at 1.78 times.

- 3 The percentage of profitability earned on the total working capital also was on the lower side and it went down over the years. The overall percentage of profit on the working capital was just about 8.40 per cent for the period under study and it declined from 9.12 per cent in 1987 to 5.54 per cent in 1996. The Chemical and Petroleum Industrial Sector had the lowest profitability of just 2.96 per cent on the working capital. As against this, the Engineering Industrial Sector had the highest profitability of 23.40 per cent on the working capital.

(XII) CONCLUSION

From the discussion and interpretation of the findings of the present study, the following conclusions are drawn:

INVENTORY MANAGEMENT

It can be inferred from the analysis that the industrial companies in Jordan kept excess inventories well above their requirements in anticipation of increased demand. Most of the companies planned higher levels of production, and therefore the inventory holding was much in excess of operational requirements and went up over the years. There was lack of co-ordination between the production department and the sales department. The worst performance on this count is presented by the Textile Industrial Sector where the inventory was as high as 10.29 months' cost of production. Apart from the Chemical and Petroleum Industrial Sector, all other sectors had the inventory well above 5 months' cost of production requirements. On account of high overstocking, the inventory turnover was very low and that too had started declining.

The composition of inventory reveals that there was overstocking of raw materials as well as spare parts and store over the years. The overstocking of raw materials was due to the fact that they are imported from the foreign market, and therefore the purchasing department followed a liberal policy to

purchase excess quantity of raw materials in order to meet the anticipated increased demand. There was also irregular supply of the raw materials. Except the Construction Industrial Sector, all the industrial sectors had a high percentage of raw materials in the total inventory.

There was overstocking of spare parts and stores and it was the highest compared to the other components. On an average, the industrial companies maintained spare parts and stores equivalent to 58.07 months' composition of their requirements. This was due to the fact that the supply of spare parts and stores was quite irregular, and most of the industrial companies imported their spare parts and stores from the foreign market. Thereby there was a tendency to keep high stocks of the spare parts and stores inventory. The Chemical and petroleum Industrial Sector for instance procured the spare parts and stores for more than 5 years of their requirements.

From the study of the inventory management it emerges that the basic functions of the inventory management such as planning and programming of materials purchasing, and storage were not taken care of. The purchase department contributed to the overstocking.

The modern methods of inventory control such as preparation of vocabulary list, classification, codification, standardisation and variety reduction of inventory were not fully implemented. Although the ABC method of classification was adopted by some of the selected industrial companies, maximum and minimum levels, re-order points, the codification of inventory, and standard order quantity were not yet determined.

RECEIVABLES MANAGEMENT

The industrial companies in Jordan did not efficiently manage the receivables. Increase in the percentage of receivables was higher than that of the sales. This shows that most of the industrial companies employed credit extension as means to boost sales. As is seen in the Chemical and Petroleum Industrial Sector, the increase in receivables was about 5 times as compared to the increase in the sales of just 2 times, similarly the Textile Industrial Sector

also ended up, increasing the receivables level at a much higher level than the sales.

The declining trend of turnover of receivables indicates a liberal collection policy was followed by the management. The average collection period of outstanding amount was very high ranging from 59 days to 125 days. The Textile Industrial Sector had a higher average collection period of about more than 4 months. Similarly the Pharmaceutical Industrial Sector, although reduced the corresponding investment over the years, the average collection period was more than 8 months. This shows that the industrial companies under different sectors neither tried to expedite the collection of outstanding receivables nor offered any incentive to quicken the collection, due to a liberal credit policy followed by the management of the different industrial companies.

Apart from the credit policies, the collection policy adopted by the industrial companies was also not sound and efficient. This fact, coupled with the increase in bad debts. Resulted in a rise in the percentage of bad debts over the years. The Consumables and Food Industrial Sector had the worst records on this count as its percentage of bad debts to receivables was as high as 16.13 per cent.

CASH MANAGEMENT

Cash management is also at the center of the overall working capital management apart from the inventory and receivables management. It is said that the cash maintained should be sufficient to cover one month's operational requirements. But in the overall analysis, it is found that the industrial companies had either higher cash balance or lower cash balance than the operational requirements. Out of all the sectors, the Pharmaceuticals Industrial Sector and the Engineering Industrial Sector and the Paper and Packing Industrial Sector had a cash balance much higher than operational requirements thus showing idle funds. The idle cash is unproductive in nature and therefore keeping high cash balance reduces the profitability of the concern. In contrast to this, the Textile Industrial Sector, on an average maintained cash balance of 15 days' for operational requirements, which is

quite insufficient. This reveals that there was no proper planning of cash in the industrial companies of Jordan.

The adequacy of cash in terms of the liquidity and solvency position shows that the liquidity position remained more or less the same whereas the solvency position slightly improved during the latter period under study. Both the liquidity position and solvency position were well below the standard norm of current ratio 2:1 and liquid ratio 1:1.

Due to inefficient operational performance, the overhead costs increased at an exorbitant rate and reached to 94.49 per cent. Due to operating cost the funds from operations were not enough to pay the current liabilities. Therefore the coverage of current liabilities in most of the companies went down. The Chemical and Petroleum Industrial Sector showed the worst results with the coverage of current liabilities of just about 4.40 per cent.

WORKING CAPITAL FINANCE

The industrial companies in Jordan were not able to assess the requirements of the working capital properly. Thereby the working capital finance levels went up disproportionate to the production levels achieved. This indicates excessive accumulation of working capital.

There was inefficient control on the overhead cost over the period of ten years. Thereby the corresponding cost of the sales also went up. The overall percentage of total cost of sales in the total sales was around 95 per cent.

As a result of reduction in the gross margin and a comparative increase in the cost of sales, the net profitability of the companies suffered heavily and over the years, it went down. The industrial companies could not control the overhead cost on the production front and the administrative front. Thereby the net operating margin was reducing. Similarly the earning power also went down over the years.

Due to a fall in net operating profits, the industrial companies could not plough back enough funds for financing the increased working capital requirements. Thereby the industry had to depend upon external borrowings,

both on short term loan and on long term loan. Thereby the percentage of bank finances in the form of cash credit and long term loan went up over the years.

EFFICIENCY OF WORKING CAPITAL MANAGEMENT

The overall industrial companies exercised a poor control over the receivables. The average collection period went up over the years. This increased the percentage of receivables in the total working capital over the years.

Further the inventories also were much higher than the production requirements. The industrial companies procured raw materials irrespective to their production requirements. Therefore the percentage of inventories to the total working capital was also higher and it was 48.37 per cent. The Construction Industrial Sector had most of the working capital locked up in inventories where the percentage in the total working capital was as high as 78.30 per cent. Most of the sectors and its related companies had more than 50 per cent of their working capital in form of inventories.

As the corresponding percentage of inventories and receivables was disproportionately higher, the corresponding percentage of cash in total working capital went down over the year. The overall cash percentage in the total working capital was just about 11.22 per cent.

The level of the receivables and inventories was much higher than the corresponding production levels and sales figures achieved. Therefore the operational performance was on the lower side in comparison to the size of the working capital. And so the turnover of working capital went down over the years. The turnover for the industries was just 1.49 times over the years. The industrial companies were not able to utilise their working capital in an efficient manner.

There was more scope for better planning and control of working capital in most of the industrial sectors. Planning and control of working capital are warranted in all industrial sectors under study, the Chemical and Petroleum Industrial Sector must address itself to this task rather immediately.

Of the seven industrial sectors, the Pharmaceuticals Industrial Sector was the best one, as this sector had improved the efficiency on all the elements of working capital during the period under study.

(XIII) POLICY IMPLICATIONS

As it has been stressed in the study, the working capital should be maintained with a view to smoothening the overall operations of the organization, and as such, it is very important from the profitability point of view. Therefore the assessment and review of the working capital should occupy an important position for the management. Further just sighting the major findings and comments thereupon will not serve the purpose. The study therefore will not be complete unless it has in itself some suggestions and policy implications which can help the management in improving the overall working capital efficiency. This in turn is the core of the overall profitability for the companies.

While making suggestions, one should take into account the past happenings, the current activities and the future operational conditions and the planning aspect. In the companies in Jordan, we have noticed that the companies on the whole fared poorly in managing their working capital. Working capital is like a machine where even if one of the components gets out of order, it makes a cascading impact on the other components, which makes the entire machine inefficient. Similarly, for proper working capital management, all the components thereof, viz., inventory, receivables and cash have to be effectively managed and the balancing of each of the components also needs to be maintained professionally. This, ultimately can improve the overall efficiency of the working capital management. Keeping in view all this, the following suggestions can help the management in the long run to improve the overall working capital management and in turn increase their respective profitability.

1. To prevent excessive accumulation of the inventories, inventory management techniques like ABC analysis, Economic Order Quantity, perpetual inventory system, maximum and minimum levels of inventory,

reorder level, safety lead, etc., can be followed. There is also a need to fix the norms of raw materials to avoid excessive accumulation.

- 2 Proper transport facilities must be developed for the supply of raw materials in time
- 3 Indigenous sources of raw materials and spare parts and stores must be developed to reduce dependency on foreign sources to reduce the over stocking of raw materials, and spare parts and stores.
- 4 Immediate steps should be taken to smoothen the import procedure to facilitate companies which depend on the imported raw material. The excessive control of bureaucracy needs to be curtailed.
5. It has been noticed that there has been excessive stocking of spare parts and stores in most of the industrial companies. In order to prevent excessive stocking, spare parts and stores should be controlled by classifying them into Vital, Essential, and Desirable (VED) items. Further it would be worthwhile to have an in-house repairs department.
- 6 Effort must be made to increase the indigenous manufacture of spare parts and stores, to minimise the dependence on the imported spare parts and stores and facilitate the proper maintenance of the machinery.
7. Spare parts and stores inventory can be reduced if the programme for import substitution is given due encouragement and ancillaries are developed around the manufacturing units to cater to their needs.
8. For an effective control over accounts receivable, a specific credit and collection policy must be followed by different industrial companies to reduce the average collection period. The collection department must check thoroughly the credit worthiness and the paying capacity of the prospective customers.
9. Ageing of the receivables must be made at the end of each year for controlling the volume of accounts receivable.
- 10 For improving liquidity and solvency, there should be reduction in the investment in raw materials, stores and spare parts, effective timing and scheduling debts, increase in net cash flows through better receivables and cash management.

11. Volume of cash maintained in different industrial companies should be based on their operational requirements. Any excess cash should be deposited in short term investment.
12. Frequent analysis of current ratio and liquid ratio should be made to control the liquidity and volume of cash. Efforts must be made to avoid idle cash by proper planning and control.
13. To control inflow and outflow of cash, various techniques like, cash forecast, cash budget, concentration banking, lock-box system, electronic funds transfer services (E.F.T.S.), should be followed properly. Internal control of cash should also be strengthened.
14. Percentage of net cash flow with regard to the current liabilities and coverage of current liabilities should be calculated from time to time to have a better control of cash.
15. A suitable cash discount policy should be designed and implemented to encourage the speed of debtors and to minimize the percentage of bad and doubtful debts.
16. For better understanding of the deployment of resources, the companies will do well to make frequent use of funds flow statements and cash flow statements.
17. Financing of working capital should be based on specific research based norms. The recommendation of the Tandon Study Group may act as an important guideline or a separate set of norms may be evolved for different industrial companies of Jordan by experts.
18. There is an urgent need to design and develop a specific information system for a better planning and control of working capital.
19. Sincere efforts are required to speed up the pace of transmutation of working finance and to bring the debtors-creditors ratio to the undertakings' advantage.
20. There should be proper balancing amongst the various sources of finance for the working capital. Short term funds should be used for financing the temporary working capital and long term funds should be used for financing the permanent working capital and fixed assets. Use of long term

funds for financing temporary working capital would be very costly and it would reduce the profitability of the company.

21. Efforts must be made to improve the overall production efficiency by increasing the turnover of fixed assets and current assets and by improving the overall margin in investment.
22. For increasing the overall margin, efforts should also be made to control the overheads through proper costing techniques like standard costing and budgetary control system. Modern techniques like responsibility accounting may also be used to control the cost and increase the overall profitability.
23. For effective management of the working capital all relevant information relating to it must be made easily available to the management. For this purpose effective management information system should be developed.
24. Attempt must be made to increase the sales by exporting the goods to the foreign market. Government must provide facilities and incentives to the companies for exporting goods to the foreign countries and earning foreign exchange for the country.

To conclude, it can be said that the adoption of the above suggestions will help the management of the industrial companies to improve their overall performances in the management of working capital. A lot of funds now invested in inventory and receivables can this be released for alternative uses. Ultimately, liquidity and profitability of the concerns will be promoted, dependence on external sources to meet finance requirements will be minimised and the industry will be able to generate funds increasingly from internal sources, thus breaking the vicious circle of financial stringencies. Beside the above, the problem of working capital management needs be considered in the broader context of overall efficiency and profitability of the undertakings, and not in isolation.

(XIV) SUGGESTIONS FOR FURTHER RESEARCH

Any research is conducted with a view to tackling a specific problem. But many times it is observed that at the end of the research, the specific

problem is solved, but certain new trends are observed which necessitate further study. While studying the working capital management in the industrial companies of Jordan, it is felt that there are certain areas, which are needed to be studied separately and exhaustively. Such areas, which are observed, are listed as follows

1. A separate study may be undertaken on the medium and small industrial companies in Jordan to have a better idea about the difference in the problems of the working capital management.
2. A specific indepth study should be made for each of the components of working capital separately i e., inventory, receivables and cash.
3. Separate studies need to be under taken on the structure of inventory, accumulation of raw materials, its causes and remedies, accumulation of spare parts and store, inventory carrying cost, ordering cost and their impact in the profitability of the industrial companies.
4. A specific study should be made of receivables related to export sales, its collection, carrying costs, problems of financing and its impact on the profitability of the industrial companies
5. A detailed study on the causes of rise in overhead costs must be made to find out the factors responsible for low gross margin and reduction in the earning power of the industrial companies.
6. Another study needs to be taken for the fixation of working capital norms for stocking of raw materials, finished goods, and stores and spare parts.
7. A specific study needs to be carried out to fix up a specific industry average for the different elements of working capital.