

Cash Management of the Selected Jordanian Large Scale Public Limited Industrial Companies

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ABSTRACT

This study examines the availability of cash and bank balances as per operational requirements and liquidity and solvency, to evaluate the adequacy of cash management, and to analyse the efficiency of cash management in the selected Jordanian Industrial Companies (JIC). For the purpose of an indepth analysis, sets of twelve manufacturing industrial companies have been selected following Judgement sampling, which have been divided further into four sectors. In order to maintain a homogeneous selection and for an accurate result, three major industrial companies have been selected under each sector according to the availability of data. The present study is confined to the period of 15 years i.e., from 1987 to 2001. Employing time series analysis and cross section analysis for the financial ratios considered, the study concludes that the JIC had a volatile financial ratio as to the standard financial ratio over the period under consideration. It is also found that some of the industrial companies had either more or less cash balances than the operational requirements. The percentage of cash to current assets is found 13.15 per cent for all the companies. The overall results, however, shows that the current ratios and the liquid ratios were 0.97:1 and 0.37:1, respectively which were well below the standard norm (i.e., current ratio 2:1 and liquid ratio 1:1). This result has a direct impact to both the liquidity and profitability position of the selected industrial companies.

Keywords: Cash Management, Liquidity, Solvency, Financial Ratios.

INTRODUCTION

Cash is the vital component of the working capital because it keeps a business running. It is the hub around all financial matters centre. Thus, management of cash is crucial for the success of an enterprise. The adequacy of cash and other current assets, together with their efficient handling, virtually determines the survival or extinction of a business concern. Cash is an important current asset for the operations of business. It is the basic input needed to keep the business running on a continuous basis. It is also the ultimate output realized by selling the goods or services. The aim of cash management is to maintain an equilibrium between liquidity and profitability of an undertaking so as to facilitate the realization of business objectives. Therefore, effective management of cash is the key determinant of efficient cash with a firm all the

time to meet the needs of the business. Both excess and inadequate cash situations are undesirable as they affect the profitability and liquidity. Insufficient supply of cash can lead the business to technical insolvency and even lead to its liquidation, which results in disturbing the manufacturing operation. At the same time, excessive supply of cash remains idle, without contributing anything towards the firm's profitability. Thus, management of proper cash is the key role for a business to success.

In order to have a better and clear view, the researcher felt to have a clear concept of the term cash. "The term cash includes coins, currency and cheques held by the company and balance in its bank accounts, in the form of demand deposit, call loans, time deposits, etc. (Pandey, 1997: 301). Cash is the most important current asset for the operations of the business and occupies an important place in the structure of running a business smoothly and reflects its liquidity position. It is properly put as a life-blood and nerve-centre of a business enterprise and its steady and healthy circulation throughout the entire

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business operation is the basis of business solvency.

Thus, in this context, a study that highlights the cash management of different companies, analysing inter-company with their relative sectors, and comparing sector-wise averages with overall industrial average seems to be very relevant as it would throw some light on the processes involved in the cash management.

Rationale of the Study

Cash management is an integral part of financial management as it represents one of the main parts of current assets. Being a matter of great importance for the survival and success of any industry, an efficient and effective management of cash should be maintained. Therefore, a study of cash management is of immense importance for internal and external analysis because it is closely linked with the current day-to-day operations of the business. The control and management of cash constitutes the major function of the finance department. Thus, there is never a moment in the day-to-day life of a business enterprise, where cash is not considered important. For a business enterprise to survive, a company has to swim into what may be termed as "Niagara of Cash". So, cash occupies an important place in the structure of working capital and in order to survive and run a company successfully.

From a general analysis, the researcher felt that there is dearth of studies in this area. This area was found totally neglected in the industrial companies as well as in the academic field in Jordan. It was found that no systematic and comprehensive study in this field has been undertaken either in the form of 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, the researcher felt an urgent need for research in this area. So, this paper is a decent attempt to study systematically and analyse facts concerning the cash 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. This might also give some incentive to the policy makers to look into the problem with a proper perspective. The researcher selected this vital area for the present study as it assumes great importance. Therefore, this study is thought to be highly imperative.

Statement of the Problem

Cash Management of the Selected Jordanian Large

Scale Public Limited Industrial Companies.

Objectives of the Study

The objectives of the study are as follows:

- To verify the availability of cash and bank balances as per operational requirements, and liquidity and solvency of the selected industrial companies.
- To evaluate the adequacy of cash management
- To analyse the efficiency of cash management in the selected industrial companies of Jordan from 1987 to 2001.

Delimitations of the Study

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

- The present research is delimited to the study of cash management of the selected large scale manufacturing public limited industrial companies of Jordan.
- The present study confines to the period of fifteen years i.e., from 1987 to 2001.
- 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 12 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.
- 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.

Review of the Related Literature

For a deeper insight and clear perspective of a research work, review of related literature and research is of great importance. In spite of such a great significance of cash management, it has not attracted much attention of researchers in Jordan. This researcher, unfortunately, has not come across any single indepth study in the form of doctoral thesis or published paper relating to cash management of the industrial sectors nor any study of academic importance undertaken in Jordan. A proper review of related literature helps, to a great extent, in identifying the problem, developing of a research design and determining the size and scope of the problem.

Considering the main purposes of the present study, an attempt is made to present the review of the related literature relating to cash management. A wide range of researches related to cash management is available, but summaries of some closely related studies are presented below.

Agrawal (1978: 21-27) made an important study on cash management in Indian industries, in which he evaluated the cash management performance in different industrial groups on the basis of the analysis of data for eight years from 1966-67 to 1973-74. The data was taken from the Stock Exchange Official Directory of Bombay. The major findings related to cash management in all industries are as follows:

- 1- The current and liquidity ratios of all industries were low during the entire period under study. The average current ratio was 1.23:2 and liquidity ratio was 0.54:1 during 1966-67 to 1973-74. The current ratio and liquidity ratio showed a slightly increasing trend during the period of study. The current ratio had increased from 1.16:2 in 1966-67 to 1.29:2 in 1973-74 whereas, the liquidity ratio had declined from 0.50:1 in 1966-67 to 53:1 in 1973-74.
- 2- The ratio of net cash flows to current liabilities was on an average 21.6 per cent during 1966-67 to 1973-74. It had increased from 18.1 per cent in 1966-67 to 22.4 per cent in 1973-74. The upward trend showed an improvement in actual liquidity position of the industry taken as a whole.
- 3- The ratio of cash to current assets was on an average 5 per cent during 1966-67 to 1973-74. It had showed a slight increase during the period under study. With regard to turnover of cash, a decreasing trend was observed, which fell from 52.3 times in 1966-67 to 38.2 times in 1973-74.

Agrawal (1987) concluded that on the basis of the

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

Foster and Ward (1997: 60) conducted a study entitled, "Using cash flow trends to identify risks of bankruptcy". This study focused and discussed how cash flow trends and interactions can help identify businesses that will become bankrupt. The sample included 82 bankrupt businesses and 264 non-bankrupt businesses. They found out from the study that: (i) trends in the cash flows reveal more important information than just a comparison of the average flows for the two groups. It concludes that healthy businesses successfully maintain cash flow equilibrium. Cash Flows From Financing (CFFF) become negative one year prior to bankruptcy; bankrupt businesses are generally found to be returning more funds to outside financing sources than they receive from such sources. Cash flows and trend in the flows continue to differ for businesses that regain cash equilibrium and businesses that fail to regain equilibrium and become bankrupt, and (ii) due to deteriorating cash flows, businesses often either violate loan covenant agreements or default on loans prior to bankruptcy.

"A Study of the ability of cash flow data in predicting financial distress for Taiwan's food processing industry" was a study conducted by Lin Hong-Chi, (1999: 3882A-3883A). He deals with the issue whether the cash flow problems really have the ability to predict failures of companies. In other words, can one foresee a company's financial distress by judging its cash flows. In this study, the author, hoping to examine the relationship between cash flows and corporate failures, conducted a statistical discriminate analysis of 47 food processors in Taiwan, 21 of which were already bankrupt.

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

Cash flows and, particularly, current ratios are two good variables in predicting the Taiwan food processing

companies' financial future and the management in the industry should pay more attention to both variables. When the cash flow appears worsened or the current ratio begins to decline, it gives a warning signal to the management on the future of the company.

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

Supriyadi (1998: 799-A) conducted a study entitled "The association between accounting information and future cash flows: An Indonesian case study". The study evaluated the value-relevance of accounting information in Indonesia to predict a firm's future operating cash flows. The study evaluated five cash flow prediction models that employed various selected accounting variables extracted from Indonesian companies' financial statements. The data used in this study were semi-annual data for the 61 sample firms (manufacturing firms) listed in the Jakarta Stock Exchange (JSX) spanning the years 1990-1997.

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

Perry and Stadje (2000:25) conducted a study entitled, "Risk analysis for a stochastic cash management model with two types of customers". They study the cash flow which was modeled by the superposition of a Brownian motion with drift and a compound Poisson process with

positive and negative jumps for "big" deposits and withdrawals, respectively. They derive explicit formulas for the distributions of the bankruptcy time, the time until bankruptcy or the reaching of a prespecified level, the maximum cash amount in the system, and for the expected discounted revenue generated by the system.

Gary, Miller and Yoon (2002:395) had done an interesting study entitled, "Cash from operations and earning management in Korea" investigating the relationship between the operating performances of Korean Industrial Firms and the behavior of discretionary accruals during the period 1994-1997. They hypothesize that the degree of earnings management will depend on the firm operating performances. They construct 10 "Cash From Operations (CFO)" portfolios to test if there were systematic differences in discretionary accruals across portfolios. Four test methods (a mean accrual test, a correlation test, regression analysis, and a sign-change test) were used to investigate if operating performances affect discretionary accruals differently. They compare three accrual estimation approaches (two discretionary accruals and total accruals) in testing the earning management hypotheses. The results support the hypothesis that Korean industrial firms manage earnings. When operating performance is poor, the firms tend to choose income-increasing strategies. In addition, when operating performance is extremely poor, some firms tend to take a big bath, while some of the exceptionally well performing firms tend to select income-decreasing strategies.

Implications of the Review of Related Literature on The Present Study

The review of literature and research provides a good quantitative idea about the analysis of cash management in different industrial sectors. By and large, the studies reviewed are varied and differ in many ways from the present study, as they are concerned with some specific aims and deal with certain specific aspects. The practical delimitation of the studies in respect of time, content and the size of sample also necessitate further study in this particular area. Therefore, the researcher felt that an urgent study in this area is needed. Thus, this present study is a modest attempt to augment some of the shortcomings of the prior studies.

Methodology of the Study Sample of the Study

For the purpose of an indepth analysis of various aspects of the cash management and their implication on managerial effectiveness, a set of twelve major large

manufacturing companies has been selected following purposive sampling. The selected industrial companies have been divided into four 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 present study is confined to the period of fifteen years i.e., 1987 to 2001. 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.

Sources of Data Collection Instrument

The study is primarily based on the analysis and restructurisation of data contained in the annual balance sheets, profit and loss accounts and audit reports of the selected industrial companies of Jordan.

The data were collected from the industrial companies by visiting the companies personally. Other relevant 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, and annually published bulletins like Jordanian shareholding companies guide, the Ministry of Industry and Trade, Ministry of Planning, Department of Statistics, Amman Financial Market Guide, Governmental and Semi-Governmental Agencies, and

Central Bank of Jordan.

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

Methods of Analysis Used in the Present Study

The present study is an attempt to analyse cash management of the selected industrial companies of Jordan. 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 comparing the average of each company with their related sector's average and the sector-wise average with the overall industrial average during the period under study i.e., from 1987 to 2001.

Time Series Analysis

Time series analysis is concerned with the behavior of a given ratio over the period of study. It is a set of observations taken at specified times, usually at equal intervals. The analysis of the series is of great significance because of the fact that it helps to have a trend analysis which involves computing the ratios of a particular company for several years and comparing the ratios over time to see whether the company is improving or deteriorating (Choudhury, 1970: 65). Cross-section analysis involves comparison between the average of each sector and the overall industrial average, and also the average for each company under the respective sector with the sector's average.

Financial ratios are widely used at the international level under the auspices of the United Nations Organisation for the purpose of compiling and distributing information covering significant ratios within different industry sectors (Gole, 1996: 65).

A ratio is a simple expression of one figure in comparison with another figure. It is defined as the quotient of two mathematical expressions and as relationship between two or more things (Pandy, 1997: 425). Ratio analysis is a powerful tool of cash management analysis. In financial analysis, a ratio is used as an index or yardstick for evaluating the financial position and performance of a company (International Labour Office, Geneva, 1996: 152). It is calculated in three ways (Roa, 1976: 152).

- 1- By dividing one number by the other.
- 2- Showing one as percentage of the other.
- 3- Showing one in terms of the number of times a

particular item has turned over in relation to another.

Specific Ratios Used in the Analysis

Adequacy of Cash

The adequacy of cash has been measured through the following ratios (Agrawal, 1983: 21).

- (a) Cash in terms of operational requirements for cash.
- (b) Current ratio.
- (c) Liquid ratio.
- (d) Percentage of net cash flow to current liabilities.
- (e) Coverage of current liabilities.
- (f) Percentage of liquid funds to current liabilities.

Cash is a liquid asset, which is of great importance for the daily operations of business companies. The effective control of cash is one of the most important requirements of successful financial management. Cash is the life-blood of business enterprise, and its steady and healthy circulation throughout the entire business operation has been shown separately to be the basis of business solvency (Orgler, 1990: 2).

Cash in terms of number of days' operational requirements is an important measure to assess the sufficiency of cash. It is not practical to suggest any standard ratio to determine the adequacy of cash. It is influenced by the company's cash flow return, maturity schedule of its current obligations and its ability to procure extra funds in case of need. But financial analysts have concluded that a business enterprise should keep its cash and near-cash reserves equal to 30 days' normal expenditure. If cash and near-cash reserves were more than this limit, that would be excessive cash.

According to Brigham (1986: 188), adequacy of cash may be measured through current and liquid ratios. Traditionally 2:1 current ratio and 1:1 liquid ratio are taken as satisfactory standard for the purpose. The current ratio indicates the extent of the soundness of the current financial position of the company and degree of safety to creditors, while the latter ratio reveals the ability of a company to settle all of its current obligations in a specific period.

Walter (Agrawal, 1987: 22) suggests that for the purpose of judging the liquidity and solvency of the business, matching of the current obligations with net cash flow would be better than the use of current ratio and liquid ratio. Current liabilities indicate the outstanding obligations on a particular date, which are continuously being replaced.

The planning and control of cash in the industrial

companies has been judged through the following ratios:

- (a) Percentage of cash to current assets.
- (b) Turnover of cash.
- (c) Rate of growth in cash and sales.

Questions of the Study

This paper seeks to answer a range of questions relating to fulfill the aims of the study. The following questions have been framed keeping in mind the objectives of the study.

Q1: Do the selected Jordanian industrial companies keep the size of cash balances as per operational requirements?

Q2: Do the selected Jordanian industrial companies have adequacy of cash management?

Q2.A: Do the selected industrial companies had a current ratio equivalent with standard norm i.e., 2:1?

Q2.B: Do the industrial companies under study maintained the liquid ratio with the standard norm i.e., 1:1?

Q2.C: Do the industrial companies keep their cash flow in an overall industrial average way in regard to current liabilities?

Q2.D: Do the industrial companies able to generate cash out of their operation to meet the current liabilities?

Q3: What would be the consequence if the industrial companies do not have a proper planning and control in managing the cash?

Q3.A: Do the industrial companies under study keep the proportion of cash balance and cash turnover with their overall industrial average?

Q3.B: Is there any correlation between the growth rate of cash and sales of the industrial companies under study?

To answer these questions, I focuses on the analysis of fundamental objectives of cash management. The fundamental objectives of cash management are: to ensure sufficient cash to meet the currently maturing obligations in time, to control the cash flow, to maximise the availability of cash by accelerating cash inflows and containing cash outflows, and to put the surplus cash to productive efficiency (Bolton, 1996: 389). Therefore, the answers and discussions of each question has been clearly shown and analyse under the heading, "Analysis and Interpretation of the collected data", in accordance.

Analysis and Interpretation of the Collected Data

This part focuses on the analysis and interpretation of data related to the main objective to verify the availability

of cash and bank balances as per operational requirements and liquidity and solvency of the selected industrial companies. The purpose of this paper is to find out the efficiency with which the industrial companies managed their cash. The study of cash management should be studied from the following angles:

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

(I) Analysis of the Size of the Cash

Table (I) shows the size of the cash and the value of total sales in the industrial companies during the period under study, i.e., 1987 to 2001.

Looking at the overall industrial scenario, we can see that the size of cash has been varied from Jordanian Dinar (JD) 11,522 thousand to JD 57,689 thousand during the period under study which witnessed a lot of ups and downs. The trend indicates that the size of cash increased from JD 11,522 thousand in 1987 to JD 22,504 thousand in 1990. In the year 1991 it touched the highest level and it shot up to JD 57,689 thousand. After that, with slight variations, it gradually came down to JD 29,991 thousand in 2001. The year 1996 witnessed a sudden slump in the overall industrial cash size when it came down to JD 17,015 thousand.

The variation in the size of cash seems pretty consistent, although not in exact proportions, with a tendency towards an increase in the value of total sales over the whole period under study. Thus, we find that the value of total sales have gone regularly upwards from JD 328,676 thousand in 1987 to JD 823,162 thousand in 2001 i.e., more than double during the period under study.

In summing up, we may say that the size of cash during the period from 1987 to 1990 was low. The value of total sales also reflected the same trend. Except 1996, the size of cash from 1991 to 2001 was much higher than that during the first four years, i.e., 1987 to 1990. This can be considered as the peak period as the value of total sales was also well above that of the first four years. The year 1996 recorded a sharp decline in the size of cash while the value of total sales continued to rise till the last

year of the study.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector and the Pharmaceuticals Industrial Sector had the tendency to maintain the cash balance much higher than the other sectors throughout the period. In the case of company no. 1a we find that it maintained a very high level of cash as compared to company no. 1b and company no. 1c. This may be due to the differential magnitude of the companies' operations and the respective size. Company no. 1c, in particular, had a very small balance throughout the period with the total just up to JD 2,165 thousand out of its sector's total of JD 239,826 thousand. The Pharmaceuticals Industrial Sector showed a sudden rise in the cash size from the year 1990 onwards. From JD 1,669 thousand in 1989, the cash size suddenly shot up to JD 3,273 thousand in the year 1990. This trend continued with slight variations, till 1996 and again shot up to JD 17,050 in 1997. This increase continued till 2000 when cash size was at its peak, i.e., JD 24,115 thousand after which it came down to JD 22,719 thousand in 2001. A somewhat similar trend was observed in all the three companies under this sector.

The Construction Industrial Sector had a total cash size of JD 57,973 thousand out of the grand total of JD 472,473 thousand during the period under study. As compared to other sectors, this sector showed less fluctuation over the years and from year 1988 to 2001 the size of cash ranged between JD 2,155 thousand (minimum) to JD 6,342 thousand (maximum) with fewer deviations over the period as compared to other sectors.

The Consumables and Food Industrial Sector maintained the cash balance much below other sectors and had a total of JD 16,790 thousand for the period under study. A somewhat similar trend was observed in all the three companies under this sector.

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

(II) Adequacy of the Cash Maintained

The proportion of cash in current assets signifies the extent of absolute liquidity of the concern. Strictly speaking, cash and bank balances form the only liquid

part of the current assets available for utilisation at any point of time. Moreover, the higher the proportion of cash in the current assets, the higher is the liquidity of the company to pay. Cash in the current assets is the part, which is required in order to meet the day-to-day operational requirements of the enterprise.

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

Table (II) shows the cash in terms of days' operational requirements for cash in the industrial companies during the period of the study, i.e., 1987 to 2001. It reveals that the overall industrial average maintained cash equivalent to 47 days of its operational requirements. The year-wise analysis shows that from 1987 to 1990 the companies maintained a cash balance of about 17 days to 26 days of its operational requirements. In the year 1991, it recorded a sudden increase with the average of cash in terms of days' requirements being 63 days. It then gradually fell over the years and came down to just 21 days in 2001.

An indepth study of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector showed a steep downfall with frequent fluctuation in the size of cash maintained through the period under study which directly led to the reduction in cash maintained for daily operational requirement. As this sector maintained a very high cash size as compared to other sectors, its cash on an average was sufficient to meet operational requirements of 31 days. Company no. 1c, in particular, maintained cash on an average for about 19 days only. With regard to company no. 1a, which had a very high size of cash, we find that when looked from the angle of days' requirements, this was not sufficient to meet even 29 days of requirements on an average. On the other hand, company no. 1b, on an average, maintained cash equivalent to 153 days of its operational requirements. Except 1998 and 2001, the rest of the years under study were well above the sector's average. In

1987 it had cash sufficient for 95 days' operational requirement which shot up to 276 days and 272 days in the years 1989 and 1990, respectively. After that it came down gradually with slight deviations over this period to 27 in 2001. The main reason for this maintenance of cash requirement in company no. 1b can be found from its inventory position of the comparative years. The percentage of the inventories shows that the inventory in 1989 was just 90.10 per cent with regard to that in the base year 1987 and it was 120.78 per cent in the year 1990. Thereafter, it picked up and went up to about 281.81 per cent in 1993 and afterwards gradually it came down again to 150.85 per cent in 2001. This inventory trend seems to have had a direct effect on its cash position. As in 1989 the inventory level was on the lower side, the cash was maintained up to 276 days of its operational requirement. As the money locked up in inventory was comparatively lower, the liquidity seems to be higher. Similarly, as the investment in inventory rose, the cash maintained (in terms of operational requirement) went down. In 1995, again the amount of investment in inventory came down, which helped in improving the cash position. On the whole, we can say that in the Chemical and Petroleum Industrial Sector, the investment in inventory almost doubled which was higher as compared to its sales growth rate over the period of fifteen years under study and it directly led to a tightened cash position.

As far as the Construction Industrial Sector is concerned, we find that the sector improved its holding cash position in terms of daily operational requirement. The cash maintained which was sufficient to meet operational requirement of 10 days in 1987 went up to 39 days in 2001 with the sector average of 48 days during the fifteen years of the study. Company no. 2a, in particular, maintained cash of about 34 days of its operational requirements on an average for the period of fifteen years. For this company, the size of cash was just JD 144 thousand in 1987 and it went up to as high as JD 3,912 thousand in 1989 and fell to JD 426 thousand in 1997. Thereafter, it went up as high as JD 9,285 thousand in 2000 (Table I). Due to this factor, the cash maintained which was sufficient to meet operational requirement of 3 days in 1987 has went up to 77 days in 1989. As already explained, although it again came down to meet operational requirement of 3 days in 1997. The period after that witnessed an increase in the cash maintained thereby ensuring a better liquidity as compared to earlier

years. Therefore, the cash maintained in terms of days' operational requirement increased to 71 days in 2000. Company no. 2b and company no. 2c had an average of 160 days and 275 days, respectively which are well above their respective sector's average as well as the overall industrial average.

The position of the Consumables and Food Industrial Sector is concerned, as we have discussed in the preceding paragraph, the sector seemed to have a much lower cash balance than the other individual industrial sectors. But Table (II) shows that this balance was sufficient to meet the operational requirement of cash of about 35 days, which is less than the overall industrial average. This may be due to the peculiarity of the type of industry and the pattern of the requirement of the cash in the operations. Looking at the entire period of fifteen years, one can see a trend of fluctuation in the days' operational requirement for the cash maintained. Its cash, which was sufficient to meet 21 days' operational requirement in 1987, strengthened and was sufficient to cover 33 days' operational requirement in 1996. In the last five years under study, the cash maintained was on a gradual decrease when it went down to 8 days' operational requirement in 2001. Company no. 3b, in particular, has fared appreciably well, as its cash maintained was equivalent to 21 days of operational requirement in 1987 which improved substantially with lots of ups and downs and was equivalent to 111 days of operational requirement in 1999. In the last two years under study, again the cash maintained in terms of days requirement went down to 31 days and 39 days respectively. Despite all this, the sector on the whole maintained more cash balance in terms of daily operational requirement, and the reason for this lies in the pattern of the receivables maintained in the sector. In this sector, one finds that the average increase in inventories and receivables was lower than that of total sales. The sector thereby has been able to avoid excessive blocking and ensure more mobility of the funds. Thus, the cash position seems to have improved.

The Pharmaceutical Industrial Sector showed an increasing tendency to maintain a healthy balance of cash. The cash balance which was sufficient to meet 12 days of operational requirement in 1987 went up to 343 days of operational requirement in 2001. Nearly, all the companies of this sector under study excelled in sufficiency to meet the days' operational requirement. The main reason for this factor seems to be the strict

control exercised by the sector over the growth of receivables and the inventory. The overall percentage of increase in receivables was lower than that of sales. The sector therefore was able to realise cash and avoid blocking of funds in receivables. This has also been corroborated by the fact that the percentage of cash with regard to current assets was as high as 23.33 per cent. Throughout the period with a few exceptions, the extent of cash maintained was very high, i.e., above 25 per cent on an average (Table VIII).

Financial analysts are of the view that a business enterprise should keep its cash and near cash reserves below the requirements of one month's normal expenditure. If cash and near cash reserves happen to be more than this limit, it may be considered that excessive cash is being carried by the company (Guthman and Dougall, 1996: 395). In view of this, we find that almost all the industrial companies kept cash either below or much above one-month's normal operational requirements. So, as per operational requirements for cash, the size of the cash maintained in most of the industrial companies was excessive, whereas in other industrial companies there was shortage of cash during the period under study.

(III) Adequacy of Cash in Terms of Liquidity and Solvency

According to Professor Walter (Mishra, 2000: 78), the liquidity and solvency may be judged in two ways: (a) Actual liquidity and solvency (b) Technical liquidity and solvency. The actual liquidity and solvency of the industrial companies is mainly based on the percentage of the net cash flow with regard to current liabilities and coverage of current liabilities. While the technical liquidity and solvency position of the industrial companies is shown through current and liquid ratios (Agrawal, 1987: 23).

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

moving portion of the current assets and thereby the inventories are excluded. Ideally if the ratio is 1:1, it is considered satisfactory.

Tables (III and IV) show the current ratio and the liquid ratio in the industrial companies during the period of the study i.e., 1987 to 2001.

For the fifteen years under study, these industrial companies had an overall average current ratio and liquid ratio of 0.97:1 and 0.37:1, respectively. Throughout the period under study, the current ratio was higher than the overall average and it was quite constant with only marginal variations. While the liquid ratio increased from 0.55:1 in 1987 to 0.64:1 in 2001. A sector-wise analysis reflects a lot of variations in each sector. The Construction Industrial Sector had the lowest average current ratio and liquid ratio of just 0.82:1 and 0.13:1, respectively. The Chemical and Petroleum Industrial Sector had an average current ratio and liquid ratio of 0.85:1 and 0.29:1, respectively which is below the overall industrial average. The Pharmaceuticals Industrial Sector with a current ratio of 2.33:1 and 1.62:1 fared quite well comparing with other sectors under study. The Consumables and Food Industrial Sector had an average current ratio and liquid ratio of 106:1 and 0.40:1, respectively which is also higher than the overall industrial average but below than standard ratios.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had an average current ratio of 0.85:1. This ratio was 1.52:1 in 1987 and went up to 1.76:1 in 1989 and thereafter it registered a constant decrease and came down to a mere 1.28:1 in 2001. Interestingly, the liquid ratio of the sector was more or less constant over the period and on an average it was 0.29:1. In the case of company no. 1c, in particular, we find a dismal performance both in current ratio as well as liquid ratio. From 2.35:1 in 1987 the current ratio was constantly on the decline (with an exception in 1991) and it went down to 1.17:1 in 2001. Similarly, the liquid ratio went down to 0.20:1 in 2001 from 0.99:1 in 1987. The main reason for the poor liquidity management was the large size of inventories. This directly put a stress on the liquidity of the company and thereby the liquidity deteriorated over the years.

The Construction Industrial Sector fared very poorly both the current ratio and the liquid ratio tests. The current ratio over the years on an average was just 0.82:1 and the liquid ratio was 0.13:1. Thus, a bulk of the

current assets probably consisted of inventories and other non-moving items which blocked up the flow of funds.

The Consumables and Food Industrial Sector have improved its position in both current ratio and liquid ratio. From 1987 to 1991, the current ratio increased from 0.81:1 to 1.25:1. Thereafter, a gradual decline in the current ratio and with certain variations, it came down to 0.83:1 in 2001. The liquid ratio on the other hand went upwards and it was 0.56:1 in 1996 as against 0.34:1 in 1987. Thereafter, a gradual decline and it was as low as 0.31:1 in 2001.

This improvement for the first ten years under the study was mainly possible due to the proper control exercised by the sector over the size of inventories. Thus, the increase in the investment in inventories over the years was lower than increase in sales. The average increase in sales over the years was 238.60 per cent whereas the corresponding increase in inventory was just about 200 per cent. Moreover, the composition of current assets seems to have improved. That is why in the later period of the study, although there has been a decline in the current ratio, the liquid ratio does not seem to have been affected much. In the case of company no. 3b and company no. 3c we find that they improved their liquidity position over the years. Thus, company no. 3b, had a current ratio of 1.49:1 in 1987, but it increased to 3.04:1 in 1995 and further went down to 1.84:1 in 2001. The liquid ratio over the period also went up from 0.53:1 in 1987 to 1.83:1 in 1994. But thereafter there was a slump throughout the rest of the period under study. Although the growth of receivables was lower than the growth of the sales, this factor was not sufficient to counter the blockage of funds caused by disproportionate growth in inventories. Thus, although the figures at the end of fifteen years do not reflect a deteriorated condition, it is certain that they indicate a deteriorating trend. Similarly, in the case of company no. 3c, the current ratio went up from 0.41:1 in 1987 to 3.41:1 in 1995 and came down to 0.98:1 in 2001. The liquid ratio also improved for the same period under study.

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

which was 1.34:1 in 1987, went up to 8.10:1 in 2001. Similarly, the liquid ratio which was 0.97:1 in 1987 went up to 6.48:1 in the year 2001. The growth in both ratios was constant and gradual throughout the period of fifteen years. The sector seems to have molded these ratios into this type of a situation. Thus, this sector seems to have adopted a proper policy of working capital management and thereby the liquidity position improved constantly. All the companies under study in this sector fared well. Company no. 4c, in particular, staged a remarkable recovery in the current ratio and the liquidity. The current ratio, which was just 0.62:1 in 1987 steadily, rose up to 2.55:1 in 1995 and thereafter it shot up to 8.82:1 in 2001. Similarly, the liquid ratio which was just 0.26:1 in 1987 went up to 6.04:1 in the year 2001.

Traditionally, a current ratio and a liquid ratio of 2:1 and 1:1, respectively are taken as a satisfactory standard for the liquidity and solvency of a firm. It indicates the soundness of the current financial position of the company and a satisfactory degree of safety provided to creditors. Bankers in Jordan and abroad as a convention use a minimum current ratio of 2:1 and liquid ratio 1:1 as a standard. This is endorsed by Myer, Pandey, Kuchhal, Ramamoorthy, Mishra, Nigam, Bolton, Howard, and Agarwal. The overall industrial average of the current ratio and the liquid ratio of Jordan for all the industrial companies taken together were much less than 2:1 and 1:1, respectively for the period from 1987 to 2001.

(IV) Analysis of Current Liabilities Position Vis-A-Vis Liquid Funds

Professor Walter (Agarwal, 1987: 22), has suggested that instead of matching current assets with current liabilities or quick assets with current liabilities, better results can be obtained by matching current obligations with net cash flow. In the long run, net cash flow is more important since they are flows whereas current liabilities only indicate the outstanding obligations on a particular date which are continuously being replaced.

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

Tables (V and VI) show the percentage of net cash flow with regard to current liabilities and the percentage of liquid funds in relation to current liabilities, respectively in the industrial companies during the period of the study, i.e., 1987 to 2001.

On an average, the percentage of net cash flow with regard to the current liabilities of the overall industrial companies in Jordan went down with some variations from 28.10 per cent in 1987 to just 12.26 per cent in 2001. It shows the utilisation of fund towards current liabilities was on the decline. With this, the liquid funds of the industries as a whole, which were 9.45 per cent of its current liabilities, went down to a mere 4.43 per cent in 1996. From 1997 to 2001 the percentage increased from 7.61 per cent to 15.07 per cent. Although in the initial years up to 1991 the percentage of liquid funds with regard to current liabilities increased and went up to 24.39 per cent. Thereafter, it recorded a constant decrease up to the end of the period.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector showed a reduction in the percentage of net cash flow with regard to current liabilities over the period of fifteen years under study. The percentage which was 21.28 per cent in 1987 rose to 24.17 per cent in 1989 and thereafter there was a gradual decrease in the percentage and it was just 3.56 per cent in 2001 (with an exception in 1997). The percentage of liquid funds with regard to current liabilities also went down from 14.97 per cent in 1987 to a mere 0.42 per cent in 2001. Particularly after 1993 this percentage went down sharply. Which itself speaks of inadequate maintenance of cash to meet the current liabilities. The main reason for this appears to be excessive increase in receivables and inventories. Thus, cash generation through operation was poor and it affected the current liability position. Such a decreasing trend seems to be the direct impact of the increase in inventories as compared to the level of sales. So, the sector increased its inventory level almost by 100 per cent and the increase in gross receivables went up to 5.77 times over the period under study against the corresponding increase in sales of about 2 times. This blocking up of funds had a direct impact on the percentage of net cash flow in respect of current liabilities. In the case of company no. 1c, in particular, we find a sharp decline in the percentage from 123.34 per cent in 1987 to 16.83 per cent in 1993 and after that the percentage was negative up to the end of the period.

Company no. 1b also seemed to have followed a similar trend, which showed a decline in the percentage from 31.06 per cent in 1990 to 4.07 per cent in 1994 and in the rest of the period under study it went on negative side.

The Construction Industrial Sector also had a declining trend in the percentage of net cash flow with regard to current liabilities in the first five years under study. Thus, from 60.12 per cent in 1987 the percentage fell to 21.94 per cent in 1991. Thereafter, the sector applied more and more funds to current liabilities and the percentage of net cash flow with regard to current liabilities was on the upswing and it was up to 177.87 per cent in 1997. Thereafter, the percentage gradually went down to just 28.59 per cent in 2001. However, the percentage of liquid funds maintained to current liabilities from 1987 to 1997 was on the lower side. This percentage was appreciably higher in the remaining period under study. All the companies under this sector followed an almost similar pattern but company no. 2b showed the tendency toward an increase in the percentage of net cash flow with regard to current liabilities right from the beginning. Thus, from 70.45 per cent in 1988 the percentage went up to 159.12 per cent in 1997. Thereafter, this percentage declined in the terminal period under study.

The Consumable and Food Industrial Sector witnessed ups and downs in the percentage of net cash flow with regard to current liabilities over the period of fifteen years under study. But on the whole, the sector seemed to have a dismal improved its position in the middle of the years under study. In most of the years under study, the percentage was negative, as most of the companies seemed not to have applied much funds towards current liabilities. Thereafter, in some years, the sector seemed to have applied more and more funds towards current liabilities and with certain variations, on an average, the sector maintained the percentage of 8.68 per cent. The percentage of liquid funds with regard to current liabilities also increased in the middle of the period under study. In the terminal years, it had gradual decline with slight variations and it was as low as 1.87 in 2001. Company no. 3b, in particular, recorded a remarkable upswing after 1990. Till 1990, the percentage of net cash flow with regard to current liabilities was negative and after that with ups and downs there was an increasing trend of applying funds towards current liabilities. In the year 1997, the company applied about 65.88 per cent of net cash flow to current liabilities. But

thereafter there was a negative throughout the rest of the period under study. Thus, although these figures at the end of the period do not reflect a deteriorated condition, it is certain that they indicate a deteriorating trend.

The Pharmaceutical Industrial Sector is one of the few sectors that was able to exercise a strict control on the size of inventories and receivables. Thereby the position of current liabilities improved a lot over the period of fifteen years. In the sector, the overall increase in the size of inventories and the size of receivables was lower than the increase in the sales. Therefore, the sector seemed to have enjoyed more and more liquidity over the period and the percentage of net cash flow with regard to current liabilities increased from a mere 11.33 per cent in 1987 to as high as 133.60 per cent in 2001. The corresponding percentage of liquid funds maintained with regard to current liabilities also moved upwards from a mere 2.01 per cent in 1987 to as high as 242.55 per cent in 2001. In the case of company no. 4c, in particular, we find an appreciable increase in the percentage of net cash flow with regard to current liabilities, and the percentage which was just 7.55 per cent in 1987 went up to 101.92 per cent in 2001. Company no. 4b and company no. 4a also reflected a somewhat similar trend. We find a similar trend in the percentage of liquid funds maintained to total current liabilities for the same sector.

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

Thus, from the preceding analysis, it is indicated that the industrial companies in general were not able to generate cash out of their operations to meet the current liabilities. A firm, to be actually liquid and solvent should have 100 per cent or more net cash flow with regard to current liabilities ratio (Agarwal, 1987: 21). A firm having the percentage of net cash with regard to current liabilities lower than 100 per cent may also be liquid and solvent because a positive ratio of net cash flow to current liabilities always provide additional safety to current creditors. Every firm maintaining a positive ratio of net cash flow to current liability can be considered liquid and solvent (Agarwal, 1987: 21). However, the higher the ratio, the greater is the degree of liquidity and solvency of the firm. But the overall industrial average of the industrial companies under study revealed a low percentage of net cash flow with regard to current

liabilities, i.e., 19.75 per cent during the period 1987 to 2001.

(V) Coverage of Current Liabilities

The coverage of current liabilities is based on two aspects: (i) Turnover of current liabilities which means the number of times the cost of goods sold in turn in relation with the current liabilities, and (ii) Profit margin which measures the relationship of profit and sales. The coverage of current liabilities measures the relationship of fund generating capacity of the units and the amount of current liabilities. The higher the coverage, the greater is the safety to the units in paying the debts and this provides strength to them (Khandelwal, 1985: 77).

Table (VII) shows the coverage of current liabilities in the industrial companies during the period of the study, i.e., 1987 to 2001.

In conclusion, it was observed that the current liability payment was delayed as a result of which the levels of liabilities had increased. Further, there was not enough generation of net profits as compared to the current liabilities. The overall effect of this was that the industries in Jordan ended up in reducing the coverage of current liabilities. The overall industrial companies, the coverage of current liabilities went down from 10.24 per cent in 1987 to 6.70 per cent in 1998, thereby reducing the ability to repay the current obligations. After which gradually it went up to 12.35 per cent in 2001.

An indepth analysis of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had performed quite poorly. Thereby, the overall sector had reduced funds generation for the repayment and it was noticed that the coverage of current liabilities was badly reduced to 3.56 per cent in 2001 as compared to 7.10 per cent in 1987. All the companies fared badly. And especially company no. 1b and company no. 1c had net losses from 1994 onward indicating their inability to pay any of the current liabilities.

The Construction Industrial Sector overall had a higher coverage of current liabilities as compared to the overall industrial average. The coverage of current liabilities was well above 15 per cent on an average. So the sector had enough funds generation to repay the current liabilities although the capacity had reduced over the years in a sense that the coverage of current liabilities reduced from 25.92 per cent in 1987 to 16.15 per cent in 1997. Thereafter, in the terminal years, we find that there

were lots of fluctuations in the operational levels thereby the profitability and funds generation from business both had upwards and downwards trend. As a result of which, the creditors and other liabilities' payment also were not up to the mark. Therefore, we find that there were lots of variations in the coverage of current liabilities over the years. But overall the picture states that the coverage of current liabilities for the sector over the years went down. In tune with the sector, company no. 2a had reduced its ability to generate sufficient funds, thereby reduced the coverage of current liabilities in the initial years, after which it went up in the second half. An overall picture is that the coverage of current liabilities reduced from 26.53 per cent in 1987 to 6.41 per cent in 1991. After this year, keeping the current liabilities under control, the coverage of current liabilities increased substantially and it reached up to 27.88 per cent 2001. On the other hand, company no. 2b, as a result of keeping the current liabilities under check, and generating sufficient funds over the years, had increased the coverage of current liabilities substantially. As was noticed, the coverage of current liabilities in this case went up from 38.48 per cent in 1987 to 102.48 per cent in 1996 with the average coverage being 58.14 per cent. In the similar fashion, company no. 2c, had converted the negative coverage in 1987 into positive in the initial years. But thereafter as the operations were badly affected, the ability to generate funds dried up indicating that there were net losses.

The Consumables and Food Industrial Sector by and large had lower capacity to generate funds to repay the current liabilities as compared to the overall industrial average. The coverage of current liabilities was on negative side indicating that there were net losses. The coverage of current liabilities although improved a little, but the overall coverage of current liabilities was always on the lower side. For the sector the coverage of current liabilities of just about 1.67 per cent. Company no. 3b and company no. 3c performed very badly as on average the companies suffered heavy losses indicating operational cash losses. Thereby, the coverage of current liabilities was also on the negative side. On the other hand, in the case of company no. 3a, the overall for the period of fifteen years, the coverage went up to 6.46 per cent as against in the base year 3.43 per cent. But it showed the trend to increase profitability till 1990. To a large, the company was successful in doing that. Thereby as we can see, it had generated enough profits to enable them to repay the current liabilities. Therefore, it was

found that the coverage of current liabilities from 3.43 per cent in 1987 went up as high as 36.41 per cent in 1990. But thereafter as the operations were badly affected, the ability to generate funds up to the mark was reduced. Thereby, the payment of current liabilities also was delayed. As a result of all this, the coverage of current liabilities went down from the year 1990 onwards, the coverage of current liabilities started declining. Thereby, we can see the reduced coverage of current liabilities on the negative side in 2001.

The Pharmaceutical Industrial Sector, the overall was able to reduce the investment of funds in working capital and also the payment towards the current liabilities increased. Further, the net profitability of the sector improved. Thereby, the funds generated are sufficient to pay more and more liabilities. Thereby, it was noticed that the coverage of current liabilities improved over the years. For the period of fifteen years under study, the sector improved the coverage of current liabilities from a meager 5.35 per cent in 1987 to as high as 133.60 per cent in 2001. All the companies under this sector followed the sector's patterns with the company no. 4c converting initial losses into profits, thereby increasing the coverage of current liabilities from the negative coverage in 1987 into positive and provided a cover of 101.92 per cent in 2001 in the current liabilities. Similarly, company no. 4a and company no. 4b had increased their coverage with the respective coverage of current liabilities from 5.35 per cent and 10.45 per cent in 1987 to as high as 222.13 per cent and 90.57 per cent in 2001, respectively.

(VI) Control of Cash in the Industrial Companies

One of the major objectives of cash management from the standpoint of increasing return on investment is to economise on the cash holdings without impairing the overall liquidity requirements of the firm. This can be done by affecting tighter control over cash flows. The following ratios indicate the achievement of the industrial companies in this regard (Agarwal, 1987: 38).

1. Ratio of Cash to Current Assets;
2. Ratio of Cash Turnover; and
3. Rate of Growth in Cash and Sales.

1. Ratio of Cash to Current Assets

Table (VIII) shows the ratio of cash to current assets in the industrial companies during the period of the study, i.e., 1987 to 2001.

It can be seen from the table that on the whole, the industrial companies in Jordan seem to have lower tendency to keep the current assets in cash form over the period of fifteen years. The overall industrial average shows that only 13.15 per cent of the current assets were in cash form. Except 1991 and 1992, throughout the period under study, was lower than the overall industrial average. The sector-wise analysis shows that the average percentage of cash with regard to current assets from 1987 to 2001 was the highest at 23.33 per cent in the Pharmaceutical Industrial Sector and the lowest at 7.86 per cent in the Consumables and Food Industrial Sector as against the overall industrial average of 13.15 per cent for the fifteen years of the study. The Construction Industrial Sector showed an average lower than the overall industrial average while the Chemical and Petroleum Industrial Sector was close to the overall industrial average during the period.

An in-depth study of each sector and its group of companies reveals that the Chemical and Petroleum Industrial Sector recorded a steep downfall in the proportion of cash maintained. Although in the initial years under study, the percentage of cash with regard to total current assets had been fluctuating till 1991, but after 1991 there was fall in the cash maintained from 24.42 per cent in 1991 to as low as 0.33 per cent in 2001. Company no. 1a maintained the same trend with its sector. Company no. 1b maintained about 34.85 per cent of its percentage of cash with regard to current assets on an average for the period of fifteen years. In the first five years it had a very high percentage as compared to the later period. The main reason for such maintenance of cash requirement in company no. 1b can be analysed from its inventory position of the corresponding years. The percentage trend of the inventories shows that the inventory in 1989 was just 90.10 per cent as compared to that in the base year 1987 and it was 120.78 per cent in the year 1990. Thereafter, it picked up and went up to about 281.81 per cent in 1993 from where it came down again to 150.88 per cent in 2001. This inventory trend seems to have had an effect on its cash position. In 1989, the inventory level was on the lower side, as the money locked up in inventory was comparatively lower, the liquidity was higher. In 1994 and 1995 again the amount of investment in inventory came down, the cash position was healthier. Company no. 1c, in particular, maintained about 6.32 per cent of cash with regard to current asset on an average for the period of fifteen years. Although from

1989 to 1992 it was above the average of 6.32 per cent with an exception of 1990. In the rest of the years it was very low. In the Chemical and Petroleum Industrial Sector, the investment in inventory almost doubled which was higher as compared to its sales growth rate over the period of fifteen years under study and it led to a tightened cash position of this sector.

As far as the Construction Industrial Sector is concerned, we find that it improved its cash position in terms of percentage to current assets with slight variations throughout the period under study. A year-wise study reveals that the percentage of cash with regard to total current assets which was just 2.91 in 1987 went up to 11.65 in the year 2001. Although the period witnessed many ups and downs in the percentage, the average percentage was 9.54 per cent for the period of fifteen years. Thus, the period witnessed lots of ups and downs in cash maintained, but the overall position seems to have improved. Company-wise analysis reveals that, company no. 2b in particular maintained a very high percentage of cash with regard to current assets throughout the period of fifteen years (with an exception in year 1990) and the average percentage maintained in the study period was around 23.75 per cent. On the other hand, company no. 2c also gradually increased its percentage of cash with regard to current assets from 6.98 per cent in 1987 to 41.39 per cent in 2001.

The Consumables and Food Industrial Sector experienced unfavourable condition throughout the period under study as far as cash maintained and liquidity are concerned. The percentage of cash maintained to current assets, which was 5.88 per cent in 1987 dramatically came down to 2.25 per cent in 2001 thereby marking heavy buildup in inventories and receivables besides other current assets. In the case of company no. 3a, however, we find that the deteriorating trend continued throughout the period with the exceptions of 1994. Thus, the percentage of cash with regard to total current assets continued to fall throughout the period. From 3.74 per cent in 1987, the percentage went as low as 1.66 per cent in the year 2001. In case of company no. 3b and company no. 3c, one can see a lot of ups and downs in the percentage of cash with regard to current assets during the period under the study. But company no. 3b in particular, fared appreciably well when its percentage rose from 4.95 per cent in 1987 to 23.86 per cent in 1999. In this company one finds that the average trend increase in inventories and receivables was lower

than that of total sales. The company thereby was able to avoid excessive blocking and ensure more mobility of the funds. Thereby, the cash position seems to have improved.

The Pharmaceutical Industrial Sector was able to maintain a healthy cash balance in terms of percentage of cash with regard to current assets. This has been corroborated by the fact that the percentage of cash with regard to current assets was as high as 23.33 per cent on an average. Throughout the period, it showed an increasing tendency with slight variations to maintain adequate liquidity and to maintain current assets in cash form. The percentage of cash with regard to current assets which was just 1.50 per cent in 1987 went up to 29.93 per cent in 2001. Nearly, all the companies of this sector under study excelled in maintaining an increased proportion of cash to current assets. The main reason for this factor seems to be the strict control exercised by the sector over the growth of receivables and inventory. The overall trend percentage of increase in receivables was lower than that of sales. The sector thereby was able to realise cash and avoid blocking of funds in receivables.

Thus, the industrial companies as a whole had a fluctuating trend in the percentage of cash to current assets during the period under study. In the initial period, i.e., from 1987 to 1991, the percentage of cash with regard to current assets increased from 7.61 per cent to 20.16 per cent. Thereafter, it declined to 9.39 per cent in 2001. But compared to the cash position in 1987, the percentage of cash with regard to current assets in all the years was higher except in 1996 and 1997 when it declined a little. It is well known that the proportion of cash to total current assets directly affects the profitability of a company. The lower the proportion, the greater is the profitability of the company. A downward trend in this ratio over a period indicates tighter control whereas an upward trend reveals a slack control over such resources (Agarwal, 1987: 23). For example, during the last twenty years, U.S.A. has witnessed an ever-increasing sophistication in cash management and the trend has been to reduce cash balances to the minimum possible level thus lowering the cost of holding (Agarwal, 1987: 23). This trend is due to the increasing cost of borrowings, higher return on marketable securities and the ever increasing requirements for working capital, due to the rapid expansion of business activities (Agarwal, 1987: 23).

In this light, we may conclude that there was scope

for most of the industrial companies to reduce the share of cash in the total current assets, especially in the case of company no., 1b, 2b, 2c, 3b, 4a, 4b, and 4c. In these companies, the average percentage of cash with regard to current assets was between 16.20 per cent and 35.59 per cent. Although in 1989, the percentage was 72.61 in the case of company no. 1b but it was reduced to 4.85 per cent.

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

2. Ratio of Cash Turnover

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

Table (IX) shows the turnover of cash in the industrial companies during the period of the study, i.e., 1987 to 2001.

The general trends in Jordan's industry in respect of cash turnover present a mixed picture. The overall industrial figures show that the average cash turnover for the period under study was 7.78 times as against 21.65 times in 1987. But the yearly movements show somewhat different trends in the two halves. Thus from 1987 to 1991, the turnover gradually came down from 21.65 times to 5.82 times. In the corresponding period we can see similar reduction in receivables turnover and inventory turnover. The main reason for this is that the level of operations did not increase in tune with the corresponding increase in cash maintained. In other words, one can say that the cash maintained was at a

higher level as compared to the operational. This has been again corroborated by the fact that the cash maintained in terms of days operational requirements went up from 17 days to 63 days in the initial period (Table II). The period after 1991 shows a completely different picture when the cash turnover increased from 5.82 times in 1991 to 17.36 times in 2001. The corresponding period was also marked by the fact that the increase in net sales was higher than the increase in total cash maintained. Cash maintained in terms of days operational requirement also came down from 63 days to 21 days. A sector-wise study reveals different results and their magnitude in various sectors.

An indepth study of each sector and its related companies reveals that the Chemical and Petroleum Industrial Sector had an average cash turnover of 11.86 times for the fifteen years under study. The trend of cash turnover was quite similar to the overall industrial trend. The turnover reduced from 20.71 times in 1987 to 5.43 times in 1991. Thereafter, it witnessed the reverse trend and the turnover gradually moved upwards and in the year 2000 and 2001, it was exceptionally high, i.e., 384.27 times and 734.92 times, respectively which is exceptionally high due to remarkable accumulation of funds from operations in 2000 and 2001. This period is marked by a sudden and disproportionate increase in receivables and the inventory levels as compared to the percentage of sales growth. This put a stress on the cash position and thereby the cash turnover also went up. This indicates that the total operational requirement of cash was much higher than the size of the cash or the liquid funds maintained. Cash maintained in terms of days' operational requirement went down and in 2001, the maintained cash was just sufficient to meet the operational requirement of 1 day as against 67 days in 1991. If we study the company-wise position, we find that as against the sector's average, company no. 1a increased its cash turnover over the period under study and especially in the last two years under study when it was 489.34 times and 965.68 times as compared to 22.35 times in 1987 (which is exceptionally high due to the cash maintained in terms of operational requirements came down in the last two years and the cash maintained was just sufficient to meet the operational requirement of 1 day only). Such a deviation in the cash position is simulated due to the disproportionate level of the receivables maintained inconsistent with that of the sales. On the other hand, the performance of company no. 1c,

the frequency of variations was quite high. Although the deviation levels were quite high in the company. The cash turnover, which was 327.78 times in 1987, suddenly came down to 19.21 times in 1989. Thereafter, there were constant ups and downs in the turnover. In 1992, it was 6.45 times and suddenly in 1993 it was 102.96 times. But the period after that again recorded decrease trend in the cash turnover and it went down to 34.64 times in 2000. The year 2001 recorded an exceptionally improved performance on the cash turnover front when its turnover zoomed to all time high of 196.54 times. This company also remarkably increased its cash turnover in the terminal years under study. But a closer analysis reveals that it is not due to improvement in the operations of the company. It is the worsening cash position of the company (working capital depleted sharply in those years) that made the corresponding cash turnover increase. This has also been corroborated by the fact that, these variations indicate somewhat inconsistent cash management policies adopted by the company.

The Construction Industrial Sector faced many ups and downs over the years in respect of the industrial cash turnover ratio. In the initial years from 1987 to 1989, the turnover came down from 35.52 times to 5.06 times. In the year 1991, the turnover was 10.39 times which gradually went up to 28.41 times in 1994, after which it again rolled down to 9.36 times in 2001. This uneven trend is also observed in the trend percentage of the inventories and the receivables as compared to the growth of sales. Thus, the operations were not at all consistent with the level of the working capital maintained. In other words, the sector was not able to apply its working capital in an optimum manner, which resulted in reduction of the cash turnover ratio. For example, the cash maintained in 1987 was equivalent to 10 days of operational requirements and in 1989, with reduction in cash turnover, the cash maintained was about 72 days of operational requirements. This indicates excessive idle cash or inefficient utilization. Such a deviation in the cash position is simulated due to the disproportionate level of the receivables maintained inconsistent with that of the sales. The individual figures of the companies are very different from each other. This may be due to the difference in the magnitude of the operations of each of the companies concerned. Company no. 2a, throughout maintained lower cash in terms of the operational requirements. Thereby, the turnover throughout was on the higher side as compared to the sector's average. The

cash turnover which was as high as 144.61 times in 1987 suddenly slumped down to 4.76 in 1989. The period after 1991 to 1994 again had a rising turnover and it rose to 141.02 times in 1997. Thereafter came down to 17.34 times in 2001. To a large, in the middle of the period under study, the turnover seems to have improved from 1992 to 1997. The period from 1998 to 2001 registered a regular downward movement in cash turnover. Such a performance was due to the cash levels maintained by the company as a whole. On the other hand, company no. 2b seems to have maintained a very high level of cash and so the average turnover was on the lower side, i.e., of 2.29 times. In the case of company no. 2c, there were odd downward movements. Cash turnover for the company in 1987 was 10.19 times, which improved in the next year to 35.20 times. Thereafter, it gradually and sharply came down to as low as 1.10 times in 2001. The main reason is that, the cash maintained was more than 300 days of operations, whereas it was less than 75 days in the initial years.

As in the case of the Construction Industrial Sector, the Consumables and Food Industrial Sector also witnessed ups and downs in the cash maintained and thereby also in the cash turnover. The overall turnover for the period under the study was 10.45 times. In the year 1987, the turnover was 17.49 times and with ups and downs over the years it went up to 32.66 times in 1992. The next two years witnessed a sudden downfall and the cash turnover was at its lowest at 4.61 times in 1994 after which it again recovered and in the year 2001 it was 44.48 times. This again can be explained from the levels of operations and corresponding inventories and receivables trend. The operations were not in tandem with those of the inventory and the receivables and vice versa. All the companies somehow behaved in tune with the behavior of the sector as a whole.

In the Pharmaceuticals Industrial Sector, the cash turnover went down over the years. However, this was not due to inefficient application of the liquid funds. The study indicates that this is the only sector, which was able to keep the growth of inventory and receivables under control. The sector has substantially reduced its receivables level over the years and thereby the sector seemed to have enjoyed more and more liquidity. This excess inflow of cash seems to have made an impact on the cash turnover. The operations did not go up at the same pace at which cash reserves went up, thereby the cash turnover went down over the years. The cash

turnover in the year 1987 was 30.72 times, which came down to 10.15 times in 1989. After that there was a sharp reduction in 1990 when the turnover was 5.98 times. The period after 1990 also witnessed a reduction in cash turnover although the reduction was as sharp as 1.06 times in 2001. All the companies substantially reduced their respective cash turnovers over the years. In the case of company no. 4a, the turnover was as high as 40.61 times in 1987 and it was as low as 1.26 times in 2001. Whereas in the case of company no. 4c, the turnover, which was 30.45 times in 1987, came down to as low as 1.21 times in 2001. The main reason of this was due to imbalance maintenance of cash in hand with the level of operations. This has been corroborated by the fact that the cash maintained in terms of days operational requirements went up from 12 days to 343 days. This was exceptionally high. Another reason was due to the strict control exercised by the sector over the growth receivables and the inventories.

3. Rate of Growth in Cash and Sales

Table (X) shows the growth rate in cash and sales in the industrial companies during the period of the study i.e., 1987 to 2001. It shows that there was a positive correlation between the growth rate in total cash and total sales in the industrial companies during the period 1987 to 2001. The average percentage of growth in cash was 285.76 per cent and the average percentage of growth in sales was 185.97 per cent during the period under study. This indicates that the average growth rate in cash was more than that in sales.

Growth in sales is generally accompanied by larger cash and bank balances (Sagan, 1995: 124). There exists a positive correlation between sales and cash holdings. However, sound cash management should ensure that the rate of growth in cash holding is lower than that of sales. Sprankle suggests that actual cash holdings should increase by more than the square root of sales. The rule is that as sales increase, cash also increases but at a lower rate. A downward trend in cash with regard to sales over the years indicates an effective control over cash flows (Sprankle, 2001: 843). But on the contrary, the cash holding in the industrial companies increased at a more rapid rate than the rate of increase in sales. This indicates a loose control over the cash in the industrial companies during the period under study.

In short, we can conclude from the above discussion that on the whole the liquidity position and the current

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

Results and Findings

1. Cash occupied a very important place among the various components of working capital. On an average, cash worked out to be 13.15 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 17 days in 1987 to 63 days in 1991. Thereafter, it gradually declined to 21 days in 2001. The Pharmaceuticals Industrial Sector kept its cash reservoirs at the highest level, which was 262 days, while the Chemical and Petroleum Industrial Sector had the lowest reservoir of cash in terms of days' operational requirements and its average was 31 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 period under study. The overall current ratio was 1.24:1 in 1987 and with marginal variations came down to 1.14:1 in 1997. Thereafter, with dismal performance rose up to 1.60:1 in 2001. Whereas the overall liquid ratio was just 0.55:1 in 1987 and increased to 0.85:1 in 1998 and marginally came down to 0.64 in 2001. Compared to the standard norm of current ratio 2:1, the Pharmaceuticals 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 as low as 0.13:1. As compared to the standard norm of liquid ratio 1:1, the position of the Pharmaceuticals 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 28.10 per cent in 1987 to 12.62 per cent in 2001 with an overall industrial average of 19.75 per cent. This resulted in low current ratio and liquid ratio. The Chemical and Petroleum Industrial Sector followed by the Consumables and Food Industrial Sector, had the lowest percentage of net cash flow to current liabilities, i.e., just 8.81 per cent and 8.68 per cent, respectively, whereas the Construction Industrial Sector and the Pharmaceuticals Industrial Sector had the highest percentage of net cash flow with respect to the current liabilities, i.e., 49.02 per cent and 44.49 per cent, respectively.

5. The coverage of current liabilities by operational profits went down from 10.24 per cent in 1987 to 6.70 in 1998 with dismal performance in the last three years under study and it was 12.35 per cent. 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 3.56 per cent in 2001. Similarly, the Consumables and Food Industrial Sectors had also a very low average of coverage of current liabilities of just 1.67 per cent with negative sign during the initial and terminal years under study. In contrast to this, the Pharmaceuticals Industrial Sector had the highest coverage of current liabilities with 31.07 per cent. 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.

Conclusion and Discussion

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

Cash management is 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 Industrial companies, most of them 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, some of the industrial companies, on an average maintained cash balance below than one month's 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 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 and the Consumables and Food Industrial Sector showed the worst results with the coverage of current liabilities of just about 3.11 per cent and 1.67 per cent, respectively.

Recommendations

As it has been stressed in the study, the cash and bank balances 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 cash 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 cash 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 industrial companies on the whole fared poorly in managing their cash. For proper cash management, to be effectively managed and the balancing of cash also needs to be maintained professionally. This ultimately can improve the overall efficiency of the cash management. Keeping in view all this, the following suggestions can help the management in the long run to improve the

overall cash management and in turn increase their respective profitability.

- 1- 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.
- 2- 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.
- 3- 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.
- 4- 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.
- 5- 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.

- 6- 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.
- 7- 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.

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 cash. A lot of funds now invested in inventory and receivables can thus be released for alternative uses. Ultimately, liquidity and profitability of the concerns will be promoted, dependent on external sources to meet finance requirements and will be minimised and the industry will be able to generate funds increasingly from internal sources, thus breaking the vicious circle of financial stringencies. Moreover, the problem of cash management needs to be considered in the broader context of overall efficiency and profitability of the undertakings, and not in isolation.

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