
**Relationship of working capital with liquidity, Profitability and solvency:
A case study of ACC limited**

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ABSTRACT

Experts say that the goal of working capital management should be to enable a firm to maximize profits of its operations while meeting both short term debt and upcoming operational expenses, i.e. to preserve liquidity. But increasing profitability would tend to reduce firms' liquidity and too much attention on liquidity would tend to affect the profitability. No doubt, every firm tries to maximize the profitability by preserving the liquidity. However, increasing profits at the cost of liquidity might cause serious trouble to the firm and this problem might lead to financial insolvency as well. Thus an effective WCM would be needed to strike a balance between the two core objectives of the firm. It is essential that the firm's liquidity should be properly balanced. Because, excessive liquidity on one hand indicates the accumulation of idle funds that don't fetch any profits for the firm and on the other hand, insufficient liquidity might damage the firm's goodwill, deteriorate firm's credit standings and that might lead to forced liquidation of firm's assets. Afterwards problems like bankruptcy and insolvency might happen. To sum up, a company unable to make profits might be termed as a sick company but, a company having no liquidity might cease to exist. But when a company like Wal-Mart, is able to generate profit and maximise shareholder's wealth with negative working capital, can we say that the company is in the verge of bankruptcy or is it a sign of managerial efficiency? Same is the case with ACC Limited, which is the company of our study. This paper attempts to study the association of working capital with liquidity, profitability and risk of bankruptcy of ACC Ltd. for the period 2000-01 to 2009-10. The study found that even with having negative working capital in most of the times, the company was able to earn a good rate of return because of its aggressive working capital policy but its solvency was ultimately at a stake.

Keywords: Liquidity, profitability, bankruptcy, working capital.

JEL Classification: G30, G32

1. Introduction

It is often observed that whenever the financial analysis of a company is done, more emphasis is given on the profitability of the business rather than on its liquidity. Of course, this is quite obvious, as the most important financial objective of any business is to earn profit. So, the managers lay more emphasis towards profitability. But another significant variable is liquidity which means the ability of a company to honour short term financial obligations. If the company which is not able to honour its short-term financial obligations, it moves a step

ahead towards its bankruptcy. Liquidity management, therefore, involves the amount of investments in liquid assets to meet the short-term maturing obligation of creditors and others.

The relationship between working capital and the profitability has been an interesting debate in financial management. Theoretically working capital decision affects both liquidity and profitability. Excess of Investment in working capital may result in low profitability and lower investment may result in poor liquidity. Management need to trade-off between liquidity and profitability to maximize shareholders wealth. Every organization whether, profit oriented or not, irrespective of size and nature of business, requires necessary amount of working capital. Working capital is the most crucial factor for maintaining liquidity, survival, solvency and profitability of business (Mukhopadhyay, 2004). Usually, it was observed that, if a firm wants to take a bigger risk for bumper profits and losses, it minimises the dimension of its working capital in relation to the revenues it generates. If it is willing to improve its liquidity, that in turn raises the level of its working capital. Nevertheless, this technique might tend to reduce the sales volume and consequently, it would affect the profitability. Thus, a company needs to have a striking balance between the liquidity and the profitability. In order to maintain high profitability levels companies might need to forfeit its solvency for maintaining relatively low levels of CA. As soon as the companies start doing so, its profitability would improve as less amount of money would be fastened up to the idle CA and their solvency would be in danger.

2. Goals of working capital management

2.1 Maintain Liquidity

Liquidity is an attribute that signifies the capacity to meet financial obligations as and when required. Liquidity management is a routine function of finance which deals with the effective management of the two components of working capital, viz. the current assets and the current liabilities. The current assets may be defined as the money and other assets that are readily convertible into cash. Cash itself is, by definition, the most liquid form of assets; other assets having varying degree of liquidity depending on the ease with which they can be converted into cash. The current liabilities include all types of liabilities which will mature for payment within a period of one year such as bank overdraft, trade creditors, bills payable, outstanding expenses, etc. The importance of liquidity to meet the current obligations as and when they become due for payment can hardly be over emphasized. In fact, liquidity is a prerequisite for the very survival of the firm. The suppliers and short-term creditors are interested of the short-term solvency of the firm. It is a constraint which must be satisfied both directly, in that firms must settle their debts, and indirectly, in that they must also report an ability to continue to do so. Liquidity has been taken as an important tool to analyze the sustainability and liquidity position of any enterprise that may also help to derive maximum profits at minimum cost. A company must maintain its ability to pay off its current obligations and have a sound base of working capital to stay for a long period in the competitive market.

2.2 Minimize risk

A firm should maintain adequate level of working capital to meet the current obligations and maintain business operations. It should ensure that it does not suffer from lack of liquidity. The failure of a firm to meet its obligations due to lack of sufficient liquidity is highly risky

as it will result in bad credit image, lose of creditors confidence high-cost emergency borrowing, unnecessary legal battles or even closure of the firm. At the same time if the level of working capital is more holding cost of current assets would be more, again would badly affect the profitability. In other words, the working capital should not be either too high or too low. A well-monitored minimum level of working capital at a calculated risk is always good for better profitability.

2.3 Maximize profitability

Profitability, in this reference may be the return earned on the total assets of the company. The success of the company usually depends on its returns earned, keeping the liquidity prospects in view. Usually, it is a difficult task to trade off between the liquidity and profitability, as the conservative policy of working capital may ensure sound liquidity but endangers the profitability. On the other hand, aggressive policy helps in making profits but the liquidity is not promised. Before deciding an appropriate level of working capital investment, a firm's management has to evaluate the tradeoff between expected profitability and the risk that it may be unable to meet its financial obligations. The investment of excess cash, minimization of inventories, speedy collection of receivables, and elimination of unnecessary and costly short-term financing all contribute to the maximization the profitability.

3. Literature survey

Working capital management is one of the most important areas while making the liquidity and profitability comparisons among firms (Eljelly, 2004), involving the decision of the amount and composition of current assets and the financing of these assets. The greater the relative proportion of liquid assets, the lesser the risk of running out of cash, all other things being equal. All individual components of working capital including cash, marketable securities, account receivables and inventory management play a vital role in the performance of any firm.

Shin and Soenen, (1998) argued that efficient working capital management is very important to create value for the shareholders while Smith et.al., (1997) emphasized that profitability and liquidity are the salient goals of working capital management. Therefore, many organizations that are profitable on which are forced to cease their operations due to an inability to meet their short- term debt obligations. In order to sustain the business, it is essential for any organization to successfully manage its working capital.

Eljelly (2004) identified the relation between profitability and liquidity who was examined, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock firms in Saudi Arabia. The study found that the cash conversion cycle was of more importance as a measure of liquidity than the current ratio that affects profitability. The size variable was found to have significant effect on profitability at the industry level. The results were stable and had important implications for liquidity management in various Saudi firms. First, it was clear that there was negative relationship between profitability and liquidity indicators such as current ratio and cash gap in the Saudi sample examined. Second, the study also revealed that there was great variation among industries with respect to the significant measure of liquidity.

Raheman and Nasr (2006) discussed working capital management and its effect on liquidity as well as on profitability of the firm. They have studied the effect of different variables of working capital management including the Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle and Current ratio on the net operating profitability of Pakistani firms. Debt ratio, size of the firm (measured in terms of natural logarithm of sales) and financial assets to total assets ratio have been used as control variables. The results found that there is a strong negative relationship between variables of the working capital management and profitability of the firm. It means that the cash conversion cycle increases it will lead to decreasing profitability of the firm, and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level. They found that there is a significant negative relationship between liquidity and profitability. They also found that there is a positive relationship between size of the firm and its profitability. There is also a significant negative relationship between debt used by the firm and profitability.

3.1 Objectives of the study

The major objectives of this study are specified as follows:

1. To measure and evaluate the liquidity and profitability position of ACC Limited.
2. To assess the correlation between liquidity and profitability
3. To assess the trade-off between profitability and risk and
4. To offer suggestions based on the above study.

3.2 Hypothesis of the study

The above stated objectives are to be achieved by testing the following hypothesis:

1. There is a positive association between liquidity and profitability.
2. There is a positive association between risk and profitability.

3.3 Methodology of the study

In view of the above objectives, exploratory research design has been chosen. Exploratory research is one, which largely interprets the already available information, and it lays particular emphasis on analysis and interpretation of the existing and available information and it makes use of secondary data. For the purpose of this study a BSE Listed leading Indian Cement Company, ACC Ltd. is selected. The data for the study period 2000-2001 to 2009-10 have been collected from secondary sources i.e. Annual reports of the company as well as from the website moneycontrol.com. Financial ratios analysis, Spearman's Rank correlation, 't' test and Altman's 'Z' Score Test etc. are conducted to analyse the data.

3.4 About the company – ACC Limited

ACC Limited is India's foremost cement manufacturer with a countrywide network of factories and marketing offices. Established in 1936, ACC has been a pioneer and trend-setter in cement and concrete technology. Among the first companies in India to include commitment to environment protection as a corporate objective, ACC has won accolades for environment friendly measures taken at its plants and mines, and has also been

felicitated for its acts of good corporate citizenship. ACC is the most preferred cement brand name in India. ACC is now part of the worldwide Holcim Group.

ACC (ACC Limited) is India's largest manufacturer of cement and concrete. ACC's operations are spread throughout the country with 16 modern cement factories, more than 40 Ready mix concrete plants, 21 sales offices, and several zonal offices. It has a workforce of about 9,000 persons and a countrywide distribution network of over 9,000 dealers.

Since inception in 1936, the company has been a trendsetter and important benchmark for the cement industry in many areas of cement and concrete technology. ACC has a unique track record of innovative research, product development and specialized consultancy services. The company's various manufacturing units are backed by a central technology support services center - the only one of its kind in the Indian cement industry.

ACC has rich experience in mining, being the largest user of limestone. As the largest cement producer in India, it is one of the biggest customers of the domestic coal industry, of Indian Railways, and a considerable user of the country's road transport network services for inward and outward movement of materials and products.

Among the first companies in India to include commitment to environmental protection as one of its corporate objectives, the company installed sophisticated pollution control equipment as far back as 1966, long before pollution control laws came into existence. Today each of its cement plants has state-of-the art pollution control equipment and devices.

ACC plants, mines and townships visibly demonstrate successful endeavors in quarry rehabilitation, water management techniques and 'greening' activities. The company actively promotes the use of alternative fuels and raw materials and offers total solutions for waste management including testing, suggestions for reuse, recycling and co-processing.

ACC has taken purposeful steps in knowledge building. We run two institutes that offer professional technical courses for engineering graduates and diploma holders which are relevant to manufacturing sectors such as cement. The main beneficiaries are youth from remote and backward areas of the country.

ACC has made significant contributions to the nation building process by way of quality products, services and sharing expertise. Its commitment to sustainable development, its high ethical standards in business dealings and its on-going efforts in community welfare programs have won it acclaim as a responsible corporate citizen. ACC's brand name is synonymous with cement and enjoys a high level of equity in the Indian market. It is the only cement company that figures in the list of Consumer Super Brands of India.

4. Data analysis

4.1 Liquidity position of ACC Limited

The determinants of liquidity and risk measurement (current assets, current liabilities, working capital, quick assets, current ratio, and quick ratio etc.) are presented in the following table.

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Table 1: Liquidity position of ACC limited

Liquidity Position of ACC Ltd. (Rs. In Crores)									
Year	Current Assets	Current Liabilities	Working Capital (CA-CL)	Quick Assets (C.A. - Inv.)	Current Ratio	Quick Ratio	Working Capital to Current Assets (%)	Stock/Inventory to Current Assets (%)	Quick Assets to Current Assets (%)
2001	886.91	648.33	238.58	574.11	1.37	0.89	26.90	35.27	64.73
2002	916.07	978.53	-62.46	-247.63	0.94	-0.25	-6.82	32.76	-27.03
2003	934.91	1100.07	-165.16	538.82	0.85	0.49	-17.67	36.94	57.63
2004	1035.10	1256.50	-221.40	-503.58	0.82	-0.40	-21.39	36.52	-48.65
2005	1233.57	1472.97	-239.40	349.80	0.84	0.24	-19.41	43.97	28.36
2006	1436.45	1765.79	-329.34	236.96	0.81	0.13	-22.93	41.84	16.50
2007	2027.47	2138.33	-110.86	-816.86	0.95	-0.38	-5.47	30.78	-40.29
2008	2307.94	2657.54	-349.60	2808.91	0.87	1.06	-15.15	31.67	121.71
2009	2443.61	3650.61	-	1207.00	0.67	-0.15	-49.39	31.88	-23.13
2010	2925.70	4280.30	-	1354.60	0.68	0.07	-46.30	31.27	10.74
Mean	1614.77	1994.90	-380.12	268.97	0.88	0.17	-17.76	35.29	16.06
Growth	2038.79	3631.97	-	1593.18	-0.68	-0.81	-73.20	-3.99	-53.99
Growth Rate (%)	229.88	560.20	-667.78	-45.25	-50.03	-91.71	-272.12	-11.33	-83.40
S.D	749.05	1199.13	503.79	1020.09	0.19	0.51	21.42	4.59	53.95
C.V.(%)	46.39	60.11	-132.53	379.26	22.07	301.72	-120.61	13.02	335.98

Table -1 gives a detailed description of liquidity position of ACC Cements. It is evident from the table that in case of ACC Cements, the current assets has shown a growth rate of around 230 percent whereas the current liabilities are grown around 560 percent which is more than double of the growth rate of current assets in last 10 years. The standard deviation of the current assets was Rs.749.05 and the coefficient of variation was 46.39%, which shows a steady and fast growth of current assets during the period of study.

As evident from the table, the current liabilities, working capital and quick assets are also changed in the similar fashion as that of current assets. The growth rate of current liabilities was 556.20 percent with a standard deviation of Rs.1199.13 crores and a CV of 60.11 percent. The growth rate of working capital was negative to the extent of -667.78 percent with a SD of Rs.503.79 crores and a CV of -132.53 percent. A negative growth in working capital and a higher negative CV rate indicates a faster growth of current liabilities as compared to current assets with a greater variation during the period. The quick assets also have registered a negative growth rate of -45.25 percent with a SD of Rs. 1020.09 crores and a CV of 379.26 percent. All these indicates a very worse liquidity crunch in the company and the variability in working capital as well as quick assets are much more than the expected, which indicates a constant instability in the liquidity position in the company.

When the liquidity ratios of ACC Cements were analysed, we found that both current ratio and quick ratio have registered a negative growth i.e. -50.03 and -91.71 percent respectively. The negative growth in both the ratios indicates that the liquidity position of the company has been degraded over the years. The average current ratio of the company was 0.88 and average quick ratio was 0.17, which is far less than the ideal rule of thumb i.e. 2 and 1, indicates an unsatisfactory liquidity position of the company during the years of study. Moreover, a higher

CV percentage i.e. in case of current ratio 22.07 percent and in quick ratio 301.72 percent is also an indication of instability in the liquidity position of the company.

When we tried to find out the main reason for the decreasing liquidity position of the company, we found that working capital to current assets ratio has shown a negative growth of 73.20 percent. This indicates that the growth rate of current liabilities was more as compared to the growth rate of current assets and hence the working capital is decreasing slowly and slowly. This aggressive approach in the working capital might be the policy of the firm to enhance the profitability but no doubt it endangers the liquidity position of the company.

The negative growth in stock to current assets ratio can be treated as a positive action towards liquidity management assuming that the company was reducing its inventory level to the extent possible so as to free up the money tied up with the inventories.

The quick asset to current ratio has also registered a negative growth of 53.99 percent during the study period, which shows that company's liquid assets position has also deteriorated subsequently during the period of study. But the average inventory level is more than one third of the total current assets.

After analyzing all the aspects of liquidity, we can just say that the present liquidity position of the company is very much worse. Company should take serious steps to increase the level of working capital, to increase the current ratio and quick ratio. Current assets should be increased at a faster rate as compared to current liabilities. Company must ensure that it has enough liquid resources to meet the short term obligations as they fall due. Otherwise, any moment the present situation may create serious financial troubles for the company which may even lead the company towards bankruptcy.

4.2 Liquidity and profitability analysis of ACC Limited

Liquidity and profitability are two contradictory term, though one cannot be effective without other. But excess of one may slowdown the other. Management should maintain adequate liquidity and profitability. For the measurement of the liquidity and profitability position of ACC Ltd., we have used the different indicator shown in the following table. Current assets, total assets, and current assets to total assets ratio has been used for liquidity indicator, and return on capital employed has been used for measuring the profitability indicator.

The Spearman's Rank correlation between current assets to total assets ratio (CTTR) and return on capital employed is displayed in the following table-2. Applying the following formula:

$$\text{Correlation Coefficient (r)} = 1 - \frac{6 \sum D^2}{n(n^2 - 1)}$$

$$\begin{aligned} \text{Correlation Coefficient (r)} &= 1 - \frac{6 \times 74}{10(10^2 - 1)} \\ &= 0.55 \end{aligned}$$

Rank correlation coefficient during the study period was 0.55, indicates a moderate degree of positive correlation between two variables, viz. liquidity and profitability.

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In order to test the hypothesis, it is necessary to know the sample coefficient of correlation. The appropriate test static to be used here is by applying the following formula:

$$t = \frac{r}{\sqrt{1-r^2}} \times \sqrt{n-2}$$

$$t = \frac{0.55}{\sqrt{1-0.55^2}} \times \sqrt{10-2}$$

$$= 1.87$$

Testing the significance of correlation coefficient,

H₀: there is statistical relationship between the two variables, viz. liquidity and profitability, and

H₁: Alternative hypothesis that there is no statistical relationship between the two variables.

Table 2: Rank correlation between CTTR and ROCE of ACC limited

Rank Correlation between CTTR and ROCE of ACC Ltd. (Rs. In Crores)										
Year	Current Assets (Rs)	Total Assets (Rs.)	Capital Employed (Rs.)	EBIT (Rs.)	CTTR	Rank	ROCE	Rank	D	D ²
					%	R1	(%)	R2		
2001	886.91	3457.24	2,808.91	277.92	25.65	9	9.89	10	-1	1
2002	916.07	3508.67	2,530.14	349.61	26.11	6	13.82	7	1	1
2003	934.91	3581.56	2,481.49	287.94	26.10	7	11.60	8	-1	1
2004	1,035.10	3937.47	2,680.97	272.67	26.29	5	10.17	9	-4	16
2005	1,233.57	4478.38	3,005.41	528.85	27.55	4	17.60	6	-2	4
2006	1,436.45	4973.96	3,208.17	1,683.36	28.88	3	52.47	1	2	4
2007	2,027.47	6052.41	3,914.08	2,005.72	33.50	1	51.24	2	-1	1
2008	2,307.94	7116.66	4,459.12	1,741.94	32.43	2	39.06	3	-1	1
2009	2,443.61	10233.75	6,583.14	2,361.66	23.88	10	35.87	4	6	36
2010	2,925.70	11273.61	6,993.31	1,454.32	25.95	8	20.80	5	3	9

$$\sum D^2 = 74$$

The table value of 't' at 5 percent level of significance for 9 = (n-1) degree of freedom is 2.262, whereas, the calculated value is 1.87. Since the computed value is less than the table value, the null hypothesis H₀ is accepted and concludes that there is a linear relationship between liquidity and profitability.

4.3 Risk versus profitability

In order to analyze the trade-off between risk and profitability, the risk analysis of working capital management has been done to assets the extent of current assets maintained by ACC Limited, adequate enough to meet the current obligations and also to support the given level of operation. Enterprises are said to follow and aggressive approach when the current assets are financed only by short-term sources and a conservative approach when current assets are financed by both short-term and long-term sources. The risk faced by a firm can be measure with the following formula:

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$$Rk = \frac{(Ej + Lj) - Aj}{Cj}$$

Where,

Rk= Risk factor

Ej= Equity + Retained earnings

Lj= Long-term loan

Aj= Fixed assets

Cj= Current assets

The above measure indicates the extent of current assets financed by long-term funds after fixed assets are financed in full. Based on the above formula, the following inferences can be drawn—

1. Value of Rk is zero or less would mean that the firm is following an aggressive policy and normally profitability would be high,
2. Value of Rk is 1 or close to 1 would mean that the firm is following a conservative approach and normally profitability would low.

$$\text{Correlation Coefficient (r)} = 1 - \frac{6 \sum 118}{10(10^2 - 1)}$$

$$\text{Coefficient Correlation (r)} = 0.29$$

Value of t:

$$t = \frac{r}{\sqrt{1 - r^2}} \times \sqrt{n - 2}$$

$$t = \frac{0.29}{\sqrt{1 - 0.29^2}} \times \sqrt{10 - 2}$$

$$= 0.83$$

Table 3: Rank correlation between risk and ROCE of ACC limited

Rank Correlation between Risk and ROCE of ACC Ltd. (Rs. In Crores)										
Year	Equity and RE (Rs.)	Long-term Loan (Rs.)	Fixed Assets (Rs.)	Current Assets (Rs.)	Rk	Rank	ROCE	Rank	D1	D1 ²
						R3	(%)	R2		
2001	1,151.74	1,657.17	2,570.33	886.91	0.27	10	9.89	10	0	0
2002	1,019.87	1,510.27	2,592.60	916.07	-0.07	8	13.82	7	1	1
2003	1,076.74	1,404.75	2,646.65	934.91	-0.18	6	11.60	8	-2	4
2004	1,353.73	1,327.24	2,902.37	1,035.10	-0.21	4	10.17	9	-5	25
2005	1,597.68	1,407.73	3,244.81	1,233.57	-0.19	5	17.60	6	-1	1
2006	2,136.75	1,071.42	3,537.51	1,436.45	-0.23	3	52.47	1	2	4
2007	3,142.92	771.16	4,024.94	2,027.47	-0.05	9	51.24	2	7	49
2008	4,152.71	306.41	4,808.72	2,307.94	-0.15	7	39.06	3	4	16
2009	6,016.22	566.92	7,790.14	2,443.61	-0.49	1	35.87	4	-3	9
2010	6,469.49	523.82	8,347.91	2,925.70	-0.46	2	20.80	5	-3	9

$$\sum D1^2 = 118$$

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Table-3 reveals that ACC Limited has followed an aggressive approach during the study period. The risk factors of ACC Limited are negative in all years in the study period. The correlation coefficient (r) for ranked data of risk and profitability is worked out as 0.29 indicates that there is a low positive association between two variables, viz. risk and profitability. The table value of 't' at 5 percent level of significance for 9 degrees of freedom is 2.262 where as the calculated value of 't' is 0.83.

The test statistic is –

H₀: there is a positive association between risk and profitability, and

H₁: there is no positive association between two variables.

Since the calculated value of t is less than the tabulated value, null hypothesis is accepted and concludes that there is a positive relationship between two variables indicating that when risk increased then profitability of the company also increased.

4.3.1 ALTMAN'S 'Z' score test for solvency analysis

The output of "Z" score test is of a credit-strength test that gauges a publicly traded manufacturing company's likelihood of bankruptcy. The Altman Z-score is based on five financial ratios that can be calculated from data found on a company's annual report. The Altman Z-score is calculated as follows:

$$Z\text{-Score} = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$$

Where:

A = Working Capital/Total Assets

B = Retained Earnings/Total Assets

C = Earnings before Interest & Tax/Total Assets

D = Market Value of Equity/Total Liabilities

E = Sales/Total Assets

A score below 1.8 means the company is probably headed for bankruptcy, while companies with scores above 3.0 are not likely to go bankrupt. The lower/higher the score, the lower/higher the likelihood of bankruptcy.

Table 4: ALTMAN'S Z score test for solvency analysis

ALTMAN'S Z SCORE TEST FOR SOLVENCY ANALYSIS - Variables (Rs. In Crores)						
Year	Working Capital (WC)	Retained Earnings (RE)	EBIT	Equity	Sales	Total Assets (TA)
2001	238.58	980.86	277.92	170.88	2,576.37	3457.24
2002	-62.46	848.82	349.61	171.05	2,810.63	3508.67
2003	-165.16	905.6	287.94	171.14	2,894.41	3581.56
2004	-221.40	1,175.79	272.67	177.94	3,283.98	3937.47

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2005	-239.40	1,418.45	528.85	179.23	3,897.85	4478.38
2006	-329.34	1,951.21	1683.36	185.54	5,731.75	4973.96
2007	-110.86	2,955.16	2005.72	187.76	6,894.79	6052.41
2008	-349.60	3,964.78	1741.94	187.93	7,229.97	7116.66
2009	-1,207.00	5,828.20	2361.66	188.02	8,021.59	10233.8
2010	-1,354.60	6,281.54	1454.32	187.95	7,647.77	11273.6

Table 5: ALTMAN'S Z score test for solvency analysis - 'Z' Score

ALTMAN'S Z SCORE TEST FOR SOLVENCY ANALYSIS - 'Z' Score (Rs. In Crores)						
Year	WC÷TA (A)	RE÷TA (B)	EBIT÷TA (C)	Equity ÷ TA (D)	Sales÷TA (E)	Z Score
2001	0.07	0.28	0.08	0.05	0.75	1.52
2002	-0.02	0.24	0.10	0.05	0.80	1.48
2003	-0.05	0.25	0.08	0.05	0.81	1.40
2004	-0.06	0.30	0.07	0.05	0.83	1.44
2005	-0.05	0.32	0.12	0.04	0.87	1.66
2006	-0.07	0.39	0.34	0.04	1.15	2.76
2007	-0.02	0.49	0.33	0.03	1.14	2.91
2008	-0.05	0.56	0.24	0.03	1.02	2.56
2009	-0.12	0.57	0.23	0.02	0.78	2.21
2010	-0.12	0.56	0.13	0.02	0.68	1.75
Value of Z = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E						

Category Z-score value Inference/Implications

1. $Z < 1.8$ indicates bad performance and is considered to be in bankruptcy zone.
2. $Z > 1.8$ and $Z < 3$ indicates gray area, uncertain to predict (Healthy performance).
3. $Z > 3$ indicates very good/healthy financial performance.

As per the results of above test, company was in a bankruptcy zone during the period 2001 to 2005 as well as in 2010, as the 'Z' values are less than 1.8. For the rest of the period, i.e. from 2006 to 2009 company's financial position was in gray area, where it is difficult to predict healthy performance. But, not even in a single year the 'Z' score was more than 3. Thus, it concludes that the financial position of the company during the period of the study was not at all good.

5. Conclusion

Liquidity is an attribute that signifies the capacity to meet financial obligations as and when required. The importance of liquidity to meet the current obligations as and when they become due for payment can hardly be over emphasized. A firm should maintain adequate level of working capital to meet the current obligations and maintain business operations. The effective management of working capital requires both medium-term planning and immediate reactions to the fast changes taking in the present business environment. Working capital management is the functional area of finance that covers all the current accounts of the firm. It is concerned with the adequacy of current assets as well the level of risk posed by current liabilities. Efficient handling of company liquidity provides goodwill about the company as well as success of the company.

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ACC Ltd. being an established company from past few decades is satisfactorily giving out profits. But the liquidity position of the company was very poor which is not acceptable. The company was following an aggressive working capital policy to increase profitability. But a negative working capital all the years with a continuous increase in current liabilities certainly increases the risk of bankruptcy. No doubt a company with a negative working capital is a sign of managerial efficiency in a business that has developed highly favorable accounts payable arrangements for itself, and also low inventory, and low accounts receivable (operating on an almost strictly cash basis). Clearly this is workable for a firm with the reputation and market clout comparable to Wal-Mart's. In our case also, probably ACC Limited is also going on the same path. In any other situation, large payables are a sign that the firm may be in serious financial trouble. Still, be that as it may, it raises an intrigue—how does negative working capital impact a company's bottom line? If this effect can be proven to be advantageous, it would impel any firm's policy makers to create conditions so one may indeed strive to sustain negative working capital. Furthermore, a negative non-cash working capital is often viewed by rating agencies as a source of default risk, which may lead to the firm's incurring higher interest rates on loans that it takes.

Still, negative net working capital can sometimes be good for a firm. Since current liabilities are money owed but not paid, the firm here is effectively using other people's money to finance its day to day operations. Gone are the days when negative working capital used to be considered as a risk of insolvency of the organizations, but at present negative working capital is a sign of managerial efficiency in a business. It seems that the age old finance mantra that, "every-company-needs working-capital" is gradually losing its relevance. Many of the past reasons for funding working capital are no longer valid and improvements can now be put in place that allow these funds to be dedicated to more productive purposes.

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