The relationship between working capital efficiency and profitability

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Abstract. Working Capital Management has its effect on liquidity as well on profitability of the firm. In this paper a sample of the 16 Indian firms, listed on BSE including firms from different sectors of our economy for a period which extends to five years starting from 2006 to 2011 has been taken. An attempt has been made to examine the effect of different variables of working capital management including the Debt ratio, Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle and Current ratio on the Net operating profitability of sample firms. Descriptive and Regression are used for analysis. The results show that there is a strong negative relationship between variables of the working capital management and profitability of the firm except the sales (Size of the company). We also find 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 its profitability.

Key words: Earnings before Interest and Taxes, Cash conversion cycle, Net operating profitability & Regression analysis

1. Introduction

The term working capital management is one of the important topics of the corporate finance, which refers to the firm's investments in short-term assets-cash, marketable securities, Account receivables and inventories. Management of Working capital is important due to many reasons. Excessive levels of current assets can easily result in a firm's realizing a substandard return on investment. However firms with too few current assets may incur shortages and difficulties in maintaining smooth operations, as of which many firms try to achieve the optimal level of investment in each component of current assets and liabilities. Efficient working capital management involves planning and controlling current assets and current liabilities in a manner that eliminates the risk of inability to meet due short term obligations on the one hand and avoid excessive investment in these assets on the other hand.

The ultimate objective of any firm is to maximize the profit. But, preserving liquidity of the firm is an important objective too. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Therefore, there must be a trade off between these two objectives of the firms. One objective should not be at cost

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of the other because both have their importance. If managers do not care about profit, firms cannot survive for a longer period. On the other hand, if managers do not care about liquidity, firms may face the problem of insolvency or bankruptcy. For these reasons working capital management should be given proper consideration and will ultimately affect the profitability of the firm.

Firms may have an optimal level of working capital that maximizes their value. Large inventory and a generous trade credit policy may lead to high sales. Larger inventory reduces the risk of a stock-out. Trade credit may stimulate sales because it allows customers to assess product quality before paying. Another component of working capital is Accounts payable. Delaying payments to suppliers allows a firm to assess the quality of bought products, and can be an inexpensive and flexible source of financing for the firm. On the other hand, late payment of invoices can be very costly if the firm is offered a discount for early payment. A popular measure of Working Capital Management (WCM) is the Cash Conversion Cycle, i.e. the time lag between the expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer this time lag, the larger the investment in working capital1. A longer cash conversion cycle might increase profitability because it leads to higher sales. However, corporate profitability might also decrease with the cash conversion cycle, if the costs of higher investment in working capital rise faster than the benefits of holding more inventories and/or granting more trade credit to customers.

2. Literature review

Many researchers have studied working capital from different views and in different environments. The following ones proved to be very useful: 8, researched the relationship between working capital management and value creation for shareholders. The standard measure for working capital management is the cash conversion cycle (CCC). Cash conversion period reflects the time span between disbursement and collection of cash. It is measured by estimating the inventory conversion period and the receivable conversion period, less the payables conversion period. In their study, 8used net-trade cycle (NTC) as a measure of working capital management. NTC is basically equal to the cash conversion cycle (CCC) where all three components are expressed as a percentage of sales. NTC may be a proxy for additional working capital needs as a function of the projected sales growth. They examined this relationship by using correlation and regression analysis, by industry, and working capital intensity. Using a COMPUSTAT sample of 58,985 firm years covering the period 1975-1994, they found a strong negative relationship between the length of the firm's net-trade cycle and its profitability. Based on the findings, they suggest that one possible way to create shareholder value is to reduce firm’s NTC. 1discussed that most firms had a large amount of cash invested in working capital. It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of those firms. Using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days Accounts receivable, inventories and Accounts payable of Belgian firms. On basis of these results he suggested that managers could create value for their shareholders by

reducing the number of day's Accounts receivable and inventories to a reasonable minimum. The negative relationship between Accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.3 elucidated that efficient liquidity management involves planning and controlling current assets and current liabilities in such a manner that eliminates the risk of inability to meet due short-term obligations and avoids excessive investment in these assets. The relation between profitability and liquidity was examined, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia using correlation and regression analysis. 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 companies. First, it was clear that there was a 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.

6, studied the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability of Pakistani firms. They selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of six years from 1999 - 2004 and found a strong negative relationship between variables of working capital management and profitability of the firm. They found that as the cash conversion cycle increases, it leads 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.

5 examined the trend in working capital needs and profitability of firms to identify the causes for any significant differences between the industries. The dependent variable, return on total assets is used as a measure of profitability and the relation between working capital management and corporate profitability is investigated for a sample of 58 small manufacturing firms for the period 1998 – 2003. The regression results show that high investment in inventories and receivables is associated with lower profitability. The key variables used in the analysis are inventories days, accounts receivables days, accounts payable days and cash conversion cycle. An analysis of the liquidity, profitability and operational efficiency of the five industries shows significant changes and how best practices have contributed to performance.

4 investigated the relationship of corporate profitability and working capital management. The purpose of their paper is to establish a relationship that is statistically significant between profitability, the cash conversion cycle and its components for listed firms in the ASE. The results of their research showed that there is statistical significance between profitability, measured through gross operating profit, and the cash conversion cycle. Moreover managers can create profits for their firms by handling correctly the cash conversion cycle and keep each different component (Accounts receivables, Accounts payables, inventory) to an optimum.

6 analyzed the relationship between working capital management efficiency and earnings before interest and tax of the paper industry in India. The study revealed that cash conversion cycle and inventory days had negative correlation with earnings before interest and tax. While Accounts payable days and Accounts receivable days related positively with earnings before interest and tax.

9 The purpose of that research was to set industry benchmarks for cash conversion cycle (CCC) of merchandising and manufacturing companies, and to examine the relationship between the length of the CCC and the size of the firms, and the length of the CCC and profitability. The data were collected from the financial statements of the corporations listed on the Istanbul Stock Exchange (ISE) for the year 2007. ANOVA and Pearson correlation analyses are used for empirical investigation. The major findings of the study are as follows. The lowest mean value of the CCC is found in the retail/wholesale industry, with an average of 34.58 days, and the highest mean value is found in the textile industry, with an average of 164.89 days. There is a significant negative correlation between the CCC and the variables; the firm size and the profitability.

Wongthatsanekorn (2010) this objective of this research is to investigate the impact of Cash-to-Cash cycle time (C2C), inventory conversion period (INV), receivable conversion period (AR), and payable deferral period (AP) of listed private hospitals in the Stock Exchange of Thailand (SET). The data are obtained from the financial reports of the listed private hospitals in SET across 13 private hospital populations, from 2002 to 2008. The hypothesis testing is applied to determine the association between the dependent variable (asset turnover, AT) and independent variables (INV, AR, AP, and C2C). The control variables are company size, sales growth, financial debt level, and annual gross domestic product growth. The results from regular regression, unexpectedly show that only the independent variable AP is negatively related to AT under the control variables. The rest of the independent variables statically reveal no relationship with AT on significance level 0.10. The results from panel data regression show that both AR and AP are negatively related with AT on significance level 0.10. The results also suggest that the listed firms in SET can increase corporate profitability by decreasing AR and AP. 2 examined the relationship between profitability, the cash conversion cycle and its component for listed firms in Vietnam stock market for period (2006-2008).They resulted that there is strong negative relationship between cash conversion cycle and the profitability.

All previous studies had reached to the same results approximately, which had proved there is the negative relationship between the working capital, debt ratio, current ratio and profitability, and the positive relationship between size of the firm with profitability.

3. Methodolgy

Objective of the Study

The major objective of the paper is to determine the relationship between working capital efficiency and the profitability of the selected companies.

Descriptive Analysis

To understand and describe relevant aspects of phenomena of cash conversion cycle and provide detailed information about each relevant variable, Mean, Standard Deviation and F- Statistics has been calculated with help of SPSS.

Model Specifications:

Here I am using the Regression data analysis. In order to identify the degree of correlation between the dependant and the independent variables the multiple regression is conducted. The general form of our model is:

$NOP = \alpha + \beta 1ITID + \beta 2ACP + \beta 3APP + \beta 4CCC + \beta 5CR + \beta 6DR + \square$

Where:

NOP = Net Operating Profit.
ITID= Inventory Turnover in Days.
ACP= Accounts Collection Period.
APP=Accounts Payable Period.
CCC= Cash Conversion Cycle.
CR= Current Ratio.
Dr= Debt Ratio.

Data Set & Sample

The data used in this paper was acquired from Bombay Stock Exchange (BSE), internet and web sites of different firms. Data of firms listed on the BSE for the most recent five years formed the basis of calculations. The period extends to five years starting from 2006 to 2011. The sample is based on financial statements of the 16 Indian firms, listed on BSE including firms from four sectors {Automobiles-Vehicles, Construction & Realty (Cement), Heath Care (Pharmaceuticals) & FMCG} of our economy. Because of the specific nature of their activities, firms in financial sector, banking and finance, insurance, leasing, business services, renting and other services are excluded from the sample. Finally, the firms with data of the number of day's Accounts receivable, number of days inventories, number of days Accounts payable and operating income are included in sample.

Variables

This paper undertakes the issue of identifying key variables that influence working capital management of firms. Choice of the variables is influenced by the previous studies on working capital management. All the variables stated below have been used to test the hypotheses. They include dependent, independent and some control variables:

Net Operating Profitability (NOP) which is a measure of Profitability of the firm is used as dependant variable. It is defined as Operating Income plus depreciation, and divided by total assets minus financial assets.

Inventory turnover in days (ITID) used as proxy for the Inventory Policy is also an independent variable. It is calculated by dividing inventory by cost of goods sold and multiplying with 365 days.

Average Collection Period (ACP) used as proxy for the Collection Policy is an independent variable. It is calculated by dividing Account receivable by sales and multiplying the result by 365 (number of days in a year).

Average Payment Period (APP) used as proxy for the Payment Policy is also an independent variable. It is calculated by dividing Accounts payable by purchases and multiplying the result by 365.

The Cash Conversion Cycle (CCC) used as a comprehensive measure of working capital management is another independent variable, and is measured by adding Average Collection Period with Inventory Turnover in Days and deducting Average Payment Period.

Current Ratio (CR) which is a traditional measure of liquidity is calculated by dividing current assets by current liabilities.

In addition Debt Ratio (DR) used as proxy for Leverage and is calculated by dividing Total Debt by Total Assets.

All the above variables have relationships that ultimately affect working capital management. It is expected that there is a negative relationship between Net operating profitability on the one hand and the measures of Working Capital Management (number of days' Accounts receivable, inventories and Accounts payable and cash conversion cycle) on the other hand. This is consistent with the view that the time lag between expenditure for the purchases of raw materials and the collection of sales of finished goods can be too long, and that decreasing this time lag increases profitability.

Hypotheses Testing

Keeping in view the objective of the project, to examine the relationship between profitability and working capital management, the testable hypothesis of the study is as:

H0: There is no relationship between efficient working capital management and profitability of selected firms.

H1: There is a possible positive relationship between efficient working capital management and profitability of selected firms. Firms more efficient in managing their working capital, are expected to pose high level of profitability and vice versa.

Limitation of the Study:

As proved by many researches, net operating profit and working capital are negatively correlated. In our study, we have confined our study to only 16 listed companies from four important industrial sector of India excluding companies from service sector like banks, insurance and leasing business.

Net operating profit being a dependent variable which is influenced by number of independent factor such as inventory turnover in days, accounts payable period , accounts receivable period, sales of the company, size of the company, taxation policies, debt structure, market factors, economic influence etc. Our study is restricted to only several of the factors such as inventory turnover in days; accounts payable period, accounts receivable period, debt structure, cash conversion period and current ratio.

Results and Discussion

To test the hypothesis three stage analysis is conducted, first the data is analysed using Financial analysis and graphical representation of the selected variables, secondly a descriptive analysis is conducted using mean standard deviation of the selected variables and lastly statistical analysis is carried out by using correlation and regression

techniques to determine the correlation and the degree of relation between the dependant variable (net operating profit) and various independent variables (Inventory turnover, Accounts receivables, Accounts payable, Cash Conversion Cycle etc).

4. Data and graphical analysis

The graph depicting the selected variables of Ashok Leyland for the past 5 years reveals that, the operating profit from the past 5 years is unvarying and in much consistent with cash conversion cycle as in year 2007-08 when cash conversion cycle is less only 10 days aprx. The operating profit also has shown an increase and the increase in operating profit in year 2010-11 can be attributed both to less cash conversion cycle and use of increased leverage by Ashok Leyland.

Analysing the graph of TATA MOTORS Ltd comprising certain key variables from the past 5 years illustrates that the operating profit of the concern shows less significant relation with the cash conversion cycle which may be attributed to the increasing level of debt in the Company, As in the year 2010-11 with the decrease in debt ratio and cash conversion cycle also being negative has lead to the decrease in the net operating profit from 11.4% to only 9.81%.

The Net Operating Profit of Escorts ltd., revealed is very much consistent with cash conversion cycle for the past 5 years except in the year 2009-10 when there is an increase in net operating profit, despite of negative cash conversion cycle and less debt ratio which may be attributed to the increase in sales of the concern, as also revealed by the other sample firms in the same industry.

The Inverse relationship between cash conversion cycle and net operating profit is clearly depicted in the chart above of BEML LTD for the past five years, that with the increasing level of cash conversion cycle, the net operating profit also goes on decreasing except with little variation in the year 2009-10 which may be because of increase in debt level and also delay in payment to their creditors.

Even though the decrease in the cash conversion cycle along with increase in the debt ratio can be attributed as the main reason for increasing net operating profit but in case of SHREE CEMENTS the statement hasn't proven true, as with the decrease in cash conversion cycle and less decrease in debt ratio the net operating profit for the past five years is still decreasing which may be because of longer time taken by the company in paying its creditors and thereby enjoying lesser benefits like discounts etc.

Analysing the above graph of AMBHUJA CEMENTS the Net Operating Profit Ratio of the Co. is considerably high when compared with other sample firms in the same industry. Observing the data on the graph there is a significant negative relationship between CCC and NOP with a minor slow down in profits in the year 2009-10 when the cash conversion had also been negative.

The graph containing certain variables of ACC cements ltd from the past five years depicts that there is an insignificant relationship between cash conversion cycle of ACC Ltd and their Net Operating Profit Ratio, both are moving independently with also not being much affected by its debt ratio.

The results illustrated in the above graph of ULTRA TECH cement likewise few other cement firms shows the negative Cash Conversion Cycle and a negligible relationship with net operating ratio of the concern.

The net operating profit ratio of Ranbaxy ltd is less significantly related to the cash conversion cycle except for the year 2010-11 when there is an considerable increase in the CCC from 124 days in 2009-10 to 226 days with alike effect on net operating profit from 13.62% to 22.35% which may be attributed to higher sales during that period.

The above graph pointing up certain variables of Dr Reddy for the past five years shows, the Net Operating Profit in relation to Cash Conversion Cycle is showing a varying affect with substantial current assets and considerable amount of debt used particularly in the last year 2010-11.

The negative relationship between Cash Conversion Cycle and Net Operating Profit Ratio is very well depicted in the above graph of CIPLA that with the increase or decrease in Cash Conversion Cycle there is an inverse effect on net operating profit ratio. Also the company has considerable amount blocked in current assets with less debt ratio.

Unlike the other companies in the industry the Sun Pharmacy has very high cash conversion cycle with varying net operating ratio. Also, the current ratio for the past five years is significantly high depicting larger amount of money is blocked in current assets where as the debt ratio has shown a tremendous decrease in the year 2007-08. The graph also reveals that nearly in all years the accounts payable period is negative, which may be proving very costlier to the concern.

FMCG SECTOR: As the name describes, the FMCG companies deal in goods that move quickly from producers to the consumers and such companies mostly deal in cash, leading to have less current ratio and use less or almost no debt in their operations. Such firms enjoy less inventory conversion period along with favourable accounts payable period without affecting their operating profit.

Descriptive Analysis:

Descriptive analysis shows the average, and standard deviation of the different variables of interest in the study. It also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable can achieve.

Table 1.13depicits the mean value of net operating profit for 16 firms is 19.74% and the highest mean for net operating profit for the last 5 years is of Shree Cements with a std deviation of 7.20% and the lowest mean 5.90 is of Sun Pharmacy, as in the year 2010-11 the company has undergone a loss of -3.3%. In the last five years the net operating profit ratio of the sample has gone maximum to 42.3% of Shree Cements and minimum to -3.3% that of Sun Pharmacy with overall sample std. dev of 10.31%. It means that value of the profitability can deviate from mean to both sides by 10.31%.

Table number 1.14 shoes the inventory turnover in days the mean value of the sample is 53 days aprx. With lowest mean value of 19 days for last 5 years being of Ultra tech with a std. Deviation of 7.5 days and the highest of BEML indicating the company takes more days than the sample average in converting its finished stocks into sales.

The minimum time period of 6 days taken to convert inventory into sales is that of Shree Cements in the year 2008-09 and the maximum time from the sample that the inventory has been converted into sales is that of BEML for 192 days with the overall sample deviation of 37.2.

Analysing table 1.15, Accounts Receivable being an important variable in determining the working capital level appears with a sample mean of 46 days along with a std. Deviation of 49.5%. The company with the lowest ARP/ACP mean is that of Nestle Ltd from an FMCG sector that mostly deals in cash transactions and the highest, 170 days is of BEML from Automobile sector usually involving higher blockage of funds. Examining the data of the past 5 years of sample industries the lowest ACP of 4 days is of Nestle and has constantly maintained the period, leading to a better impact on profitability.

Analysing table 1.16, the accounts Payable period for the sample comes up to 20 days with a high standard deviation of 74.03 days which may be for the reason that the APP of P&G is all negative. The Cipla Ltd. comes with a lowest mean of 3.3 days, which reveals that Cipla along with maintaining a good profitable range has also been able to pay off its creditors with a mean period of 3 days and with a std. deviation of 8.9 days.

The mean value with respect to cash conversion cycle for the whole sample is 78 days with Ambhuja Cements showing the efficiency having very less cash conversion cycle of only 7 days but with a std. deviation of 14 days and Nestle having the negative mean cash conversion cycle of -36 days as the expressed above, the company is paying off its creditors much faster than receiving its payments.

The current ratio revealing the liquidity position of the company, in the study is falling under the mean of 1.34% with P&G and Dr Reddy touching the standard of 2, and Sun Pharma opting a conservative approach with a mean ratio of 3.16 % and std. Deviation of 1.38% and Nestle and TATA Motors having a less current ratio when compared to their peers in the same Industry

Leverage acting as a double edged sword is always to be kept at an optimum level, the mean of debt ratio of the companies in the sample is only 3.59 times of their total assets with Shree Cements using the High debt of 52 times of their total assets and P&G using almost no debt at all.

As revealed by the above Tables there is a significant difference between companies on account of ratios like net operating profit ratio, cash conversion cycle and current ratio as $p < .05$. In case of inventory turnover in days, ACP, Debt and APP ratio particularly in case of Cement, Pharmaceuticals and Automobile sectors there was no significant difference as revealed by the F-test at 5percent significance level.

Pearson's Correlation Coefficient Analysis:

Pearson's Correlation analysis is used for data to see the relationship between variables as between working capital management and profitability. If efficient working capital management increases profitability, then there is a negative relationship between the measures of working capital management and profitability variable and vice versa.

Analysing the above table, Correlation results first between inventory turnover in days and the net operating Profitability which indicates a negative type of result. The correlation coefficient is – 0.284 and the *p* value is (0.014). This shows that the result

is highly significant ά. = 1%. It indicates that if the firm takes more time in selling inventory, it will adversely affect its profitability. Correlation results between the average collection period and net operating profitability analysis also shows a negative coefficient – 0.407, with *p*-value of (0.000). It indicates that the result is highly significant at ά. = 1%, and that if the average collection period increases it will have a negative impact on the profitability and it will decrease.

Correlation results among the payable turnover in days or average payment period also indicate the same trend. Here again, the coefficient is negative and highly significant. The coefficient is -0.19 and the *p* value is (0.870). It means that the less profitable firms wait longer to pay their bills. The cash conversion cycle which is a comprehensive measure of working capital management also has a negative coefficient –0.249 and the *p* value is (0.036). But it is significant at ά. = 5%. It means that if the firm is able to decrease this time period known as cash conversion cycle, it can increase its profitability.

By analyzing the results it can be concluded that if the firm is able to reduce these time periods, then the firm is efficient in managing working capital. This efficiency will lead to increasing its profitability.

Current ratio is a traditional measure of checking liquidity of the firm. In this analysis the current ratio has a significant negative relationship with profitability (measured by net operating profitability). The coefficient is – 0.124 and *p*-value of (.287). The result is significant at ά.=5%. It indicates that the two objectives of liquidity and profitability have inverse relationships. So, the firms need to maintain a balance or trade off between these two measures.

A negative relationship between number of days accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills. In that case, profitability affects the Account payables policy and vice versa. Speeding up payments to suppliers might increase profitability because firms often receive a substantial discount for prompt payment.

Pearson's correlation (figure 2) also displays a significant positive relationship between the average collection period and cash conversion cycle; the correlation coefficient is 0.836 and the *p*-value is (.000). That ratio is highly significant at ά. = 1% , which means that if a firm takes more time to collect cash against the credit sales it will increase its operating or cash conversion cycle. There is also a positive relationship between Inventory turnover in days and the cash conversion cycle which means that if the firm takes more time to sell inventory it will lead to increase in the cash conversion cycle as well. The correlation coefficient is positive and is 0.707, the *p*-value is again (.000) showing that it is highly significant at ά. = 1%. The average payment period and cash conversion cycle have a negative relationship. The coefficient is – 0.703, the *p*-value is (.000), highly significant at ά. = 1%. It means that if firms take more time to pay their purchases than the time for collection and selling inventory, the cash conversion cycle will be reduced.

The negative relationships between Cash conversion cycle, Average collection period, Average payment period and Inventory turnover in days with the profitability of

companies are consistent with the literature review and have significant effect on the profitability of company.
The results of correlation analysis indicate that as far as selected firms are concerned, the working capital management very significantly and strongly affects their profitability.

In the study regression was conducted using computer software known as Statistical Package for Social Sciences (SPSS). The results of regression equation indicate that the coefficient of Inventory turnover in days is negative: i.e. the increase or decrease in inventory turnover will significantly affect the profitability of the firm. Similarly for accounts receivable the result is negative; that is, the increase or decrease in average collection period will significantly affect the profitability of the firm. For accounts payable, regression equation shows a positive result indicating with low profitability the concern's ability to pay off its creditors also decreases. The equation result for Cash conversion cycle is negative signifying lesser the cycle, higher the profits. current ratio basically depicting the liquidity of the concern is always in contrary with profitability, lesser the ratio higher will be the profits but here due consideration is to be given to the standard for this ratio, in order to play safe. debt adding a leverage in earnings of the firm has a positive regression equation with net operating profitability of the concern.

5. Conclusions

Analysing the results derived above, It can therefore be expected that the way in which working capital is managed will have a significant impact on profitability of the firms. I had found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of firms. These results suggest that managers can create value for their shareholders by reducing the number of days, accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.
Regarding the hypotheses, it is concluded that the Alternate hypothesis (H1) that is: working capital management significantly affects profitability of the firms is the one to be accepted; and therefore rejecting the null hypothesis (Ho).
The conclusions are in confirmation with (Deloof 2003), (Eljelly 2004), (Shin and Soenan 1998) who found a strong negative relationship between the measures of working capital management including the average collection period, inventory turnover in days, average payment period and cash conversion cycle with corporate profitability.
If firms properly manage their cash, accounts receivables and inventories in a proper way, this will ultimately increase their profitability. Specialized persons in the fields of finance should be hired by the firms for expert advice for efficiently managing the working capital requirements and also meeting their objective of earning profits.

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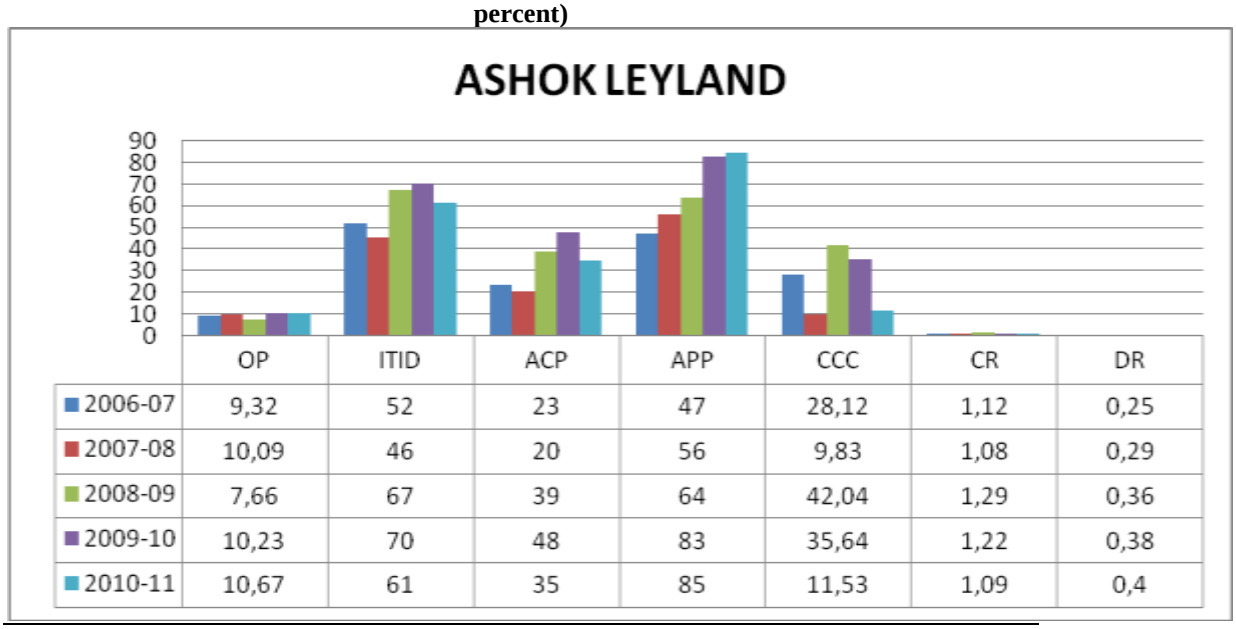
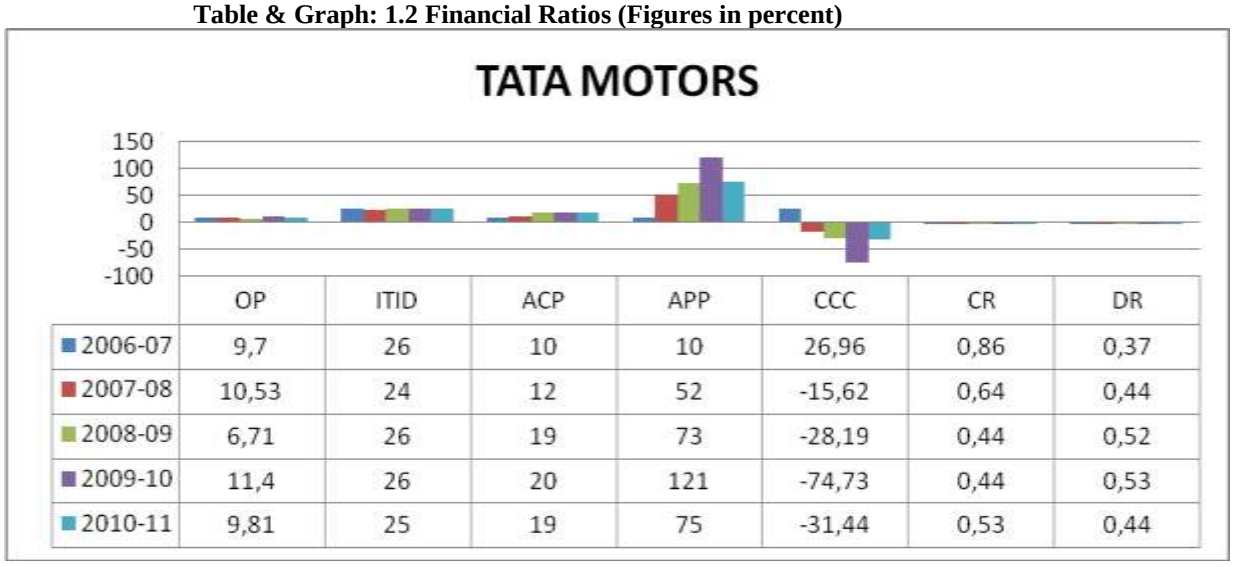
Table & Graph: 1.1 Financial Ratios (Figures in percent)



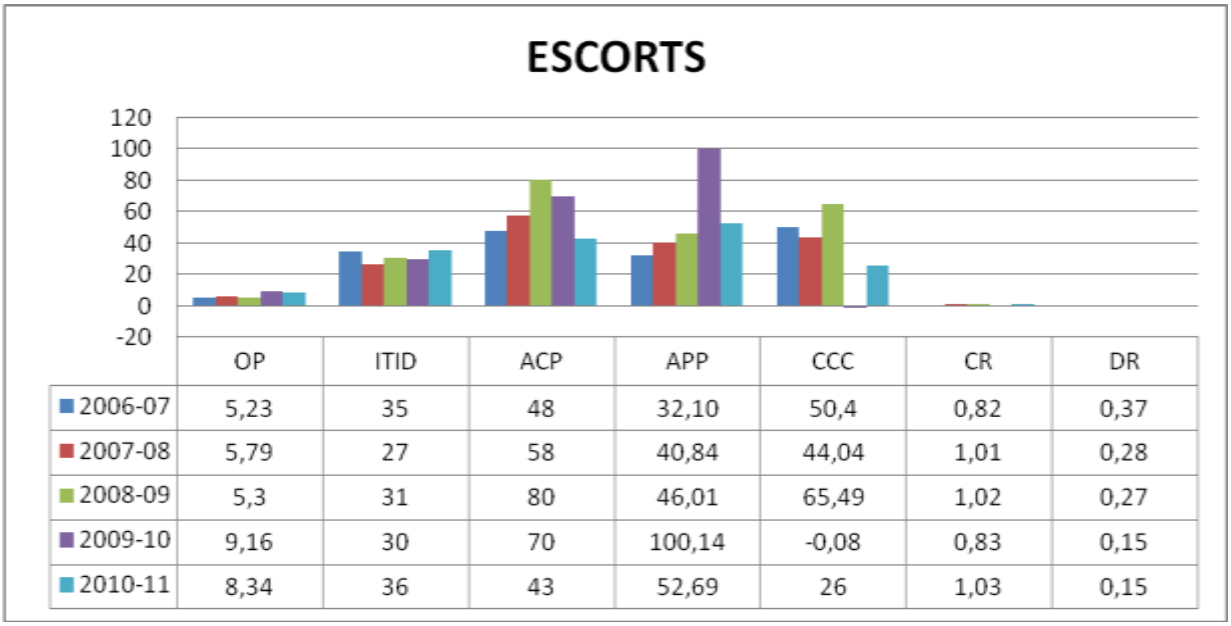
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	9,32	52	23	47	28,12	1,12	0,25
2007-08	10,09	46	20	56	9,83	1,08	0,29
2008-09	7,66	67	39	64	42,04	1,29	0,36
2009-10	10,23	70	48	83	35,64	1,22	0,38
2010-11	10,67	61	35	85	11,53	1,09	0,4

Table & Graph: 1.2 Financial Ratios (Figures in percent)



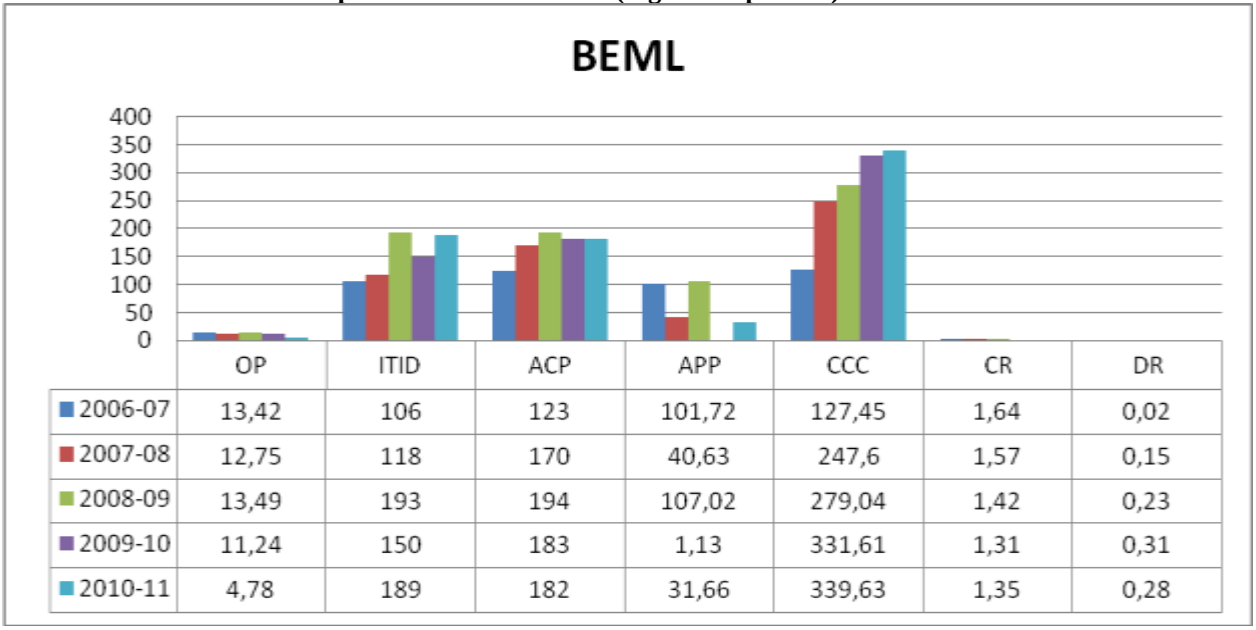
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	9,7	26	10	10	26,96	0,86	0,37
2007-08	10,53	24	12	52	-15,62	0,64	0,44
2008-09	6,71	26	19	73	-28,19	0,44	0,52
2009-10	11,4	26	20	121	-74,73	0,44	0,53
2010-11	9,81	25	19	75	-31,44	0,53	0,44

Table & Graph: 1.3 Financial Ratios (Figures in percent)



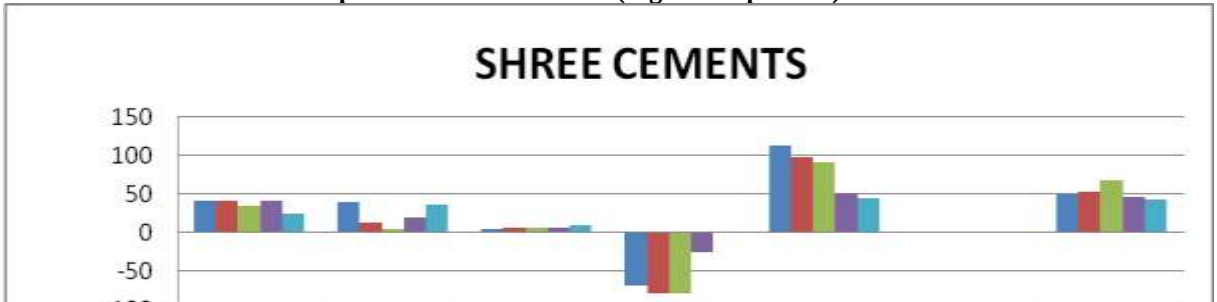
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	5,23	35	48	32,10	50,4	0,82	0,37
2007-08	5,79	27	58	40,84	44,04	1,01	0,28
2008-09	5,3	31	80	46,01	65,49	1,02	0,27
2009-10	9,16	30	70	100,14	-0,08	0,83	0,15
2010-11	8,34	36	43	52,69	26	1,03	0,15

Table & Graph: 1.4 Financial Ratios (Figures in percent)



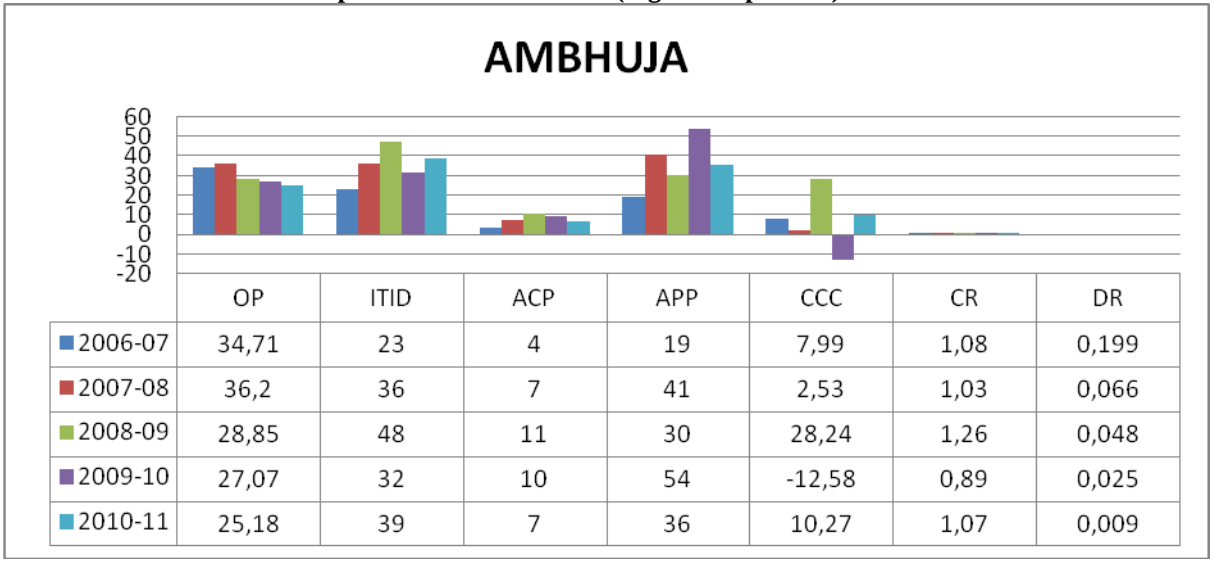
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	13,42	106	123	101,72	127,45	1,64	0,02
2007-08	12,75	118	170	40,63	247,6	1,57	0,15
2008-09	13,49	193	194	107,02	279,04	1,42	0,23
2009-10	11,24	150	183	1,13	331,61	1,31	0,31
2010-11	4,78	189	182	31,66	339,63	1,35	0,28

Table & Graph: 1.5 Financial Ratios (Figures in percent)



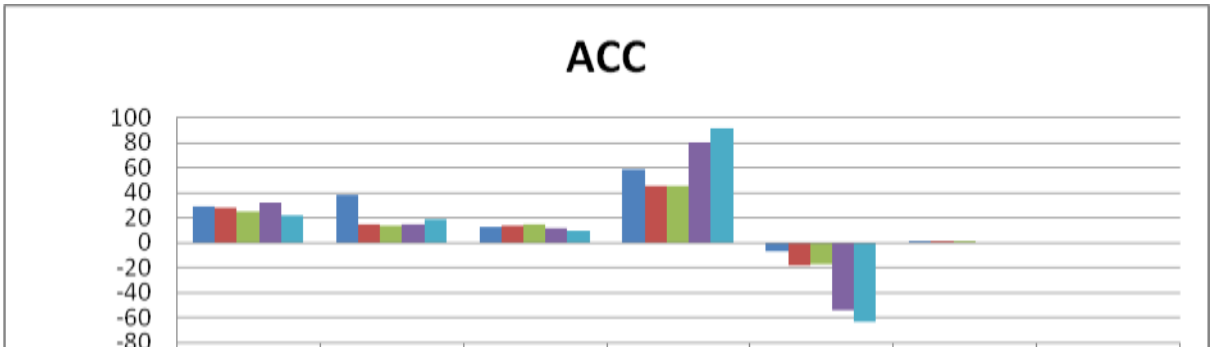
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	42,33	39,47	5,71	-68,08	113,27	2,3	49,25
2007-08	41,04	12,70	6,46	-78,86	98,02	1,84	53,27
2008-09	35,1	5,65	7,14	-79,15	91,94	1,34	68,61
2009-10	41,45	20,57	6,98	-24,93	52,48	1,13	46,44
2010-11	25,2	36,96	9,77	1,55	45,18	1,06	42,62

Table & Graph: 1.6 Financial Ratios (Figures in percent)



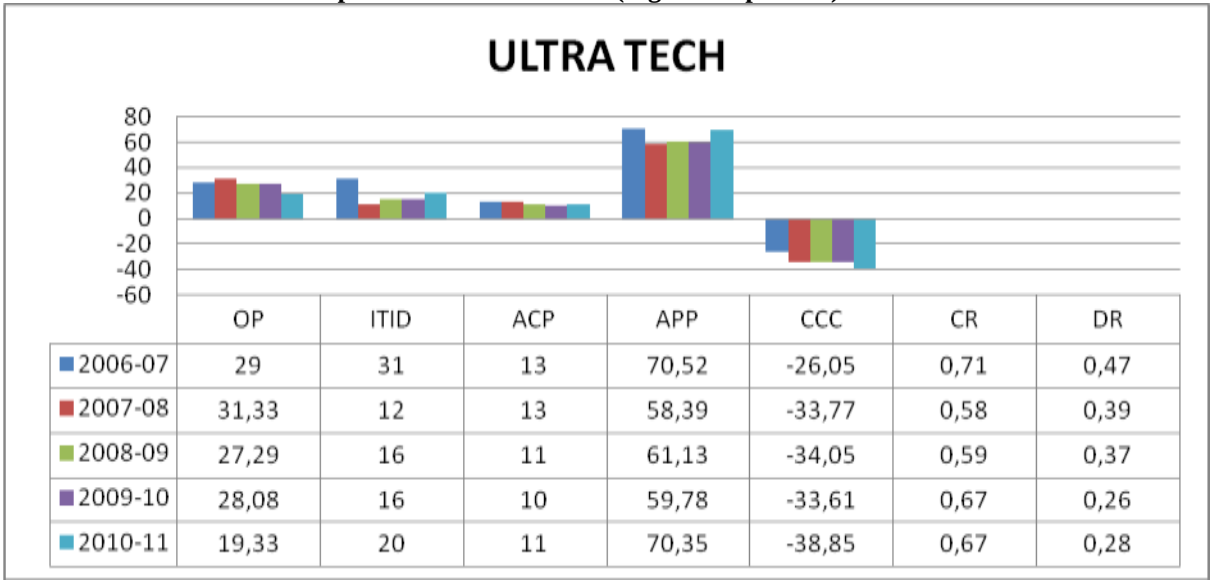
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	34,71	23	4	19	7,99	1,08	0,199
2007-08	36,2	36	7	41	2,53	1,03	0,066
2008-09	28,85	48	11	30	28,24	1,26	0,048
2009-10	27,07	32	10	54	-12,58	0,89	0,025
2010-11	25,18	39	7	36	10,27	1,07	0,009

Table & Graph: 1.7 Financial Ratios (Figures in percent)



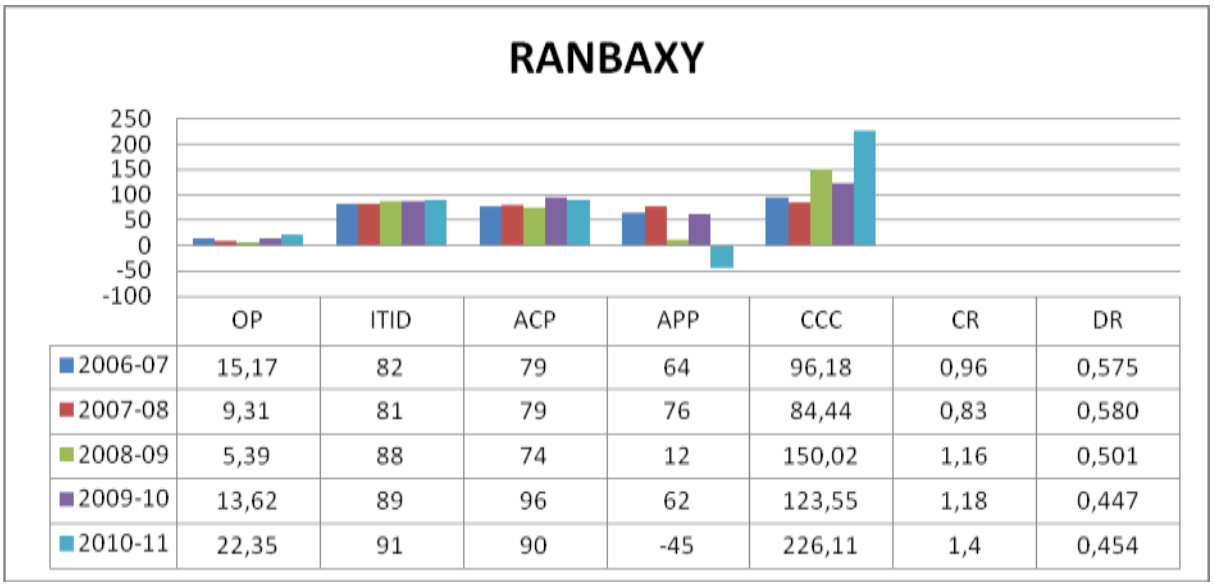
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	29,17	39	13	59	-6,96	0,77	0,000
2007-08	28,15	14	13	46	-18,25	0,86	0,069
2008-09	24,66	13	15	45	-17,02	0,89	0,089
2009-10	31,95	14	12	80	-54,17	0,67	0,086
2010-11	21,42	19	9	92	-63,76	0,68	0,075

Table & Graph: 1.8 Financial Ratios (Figures in percent)



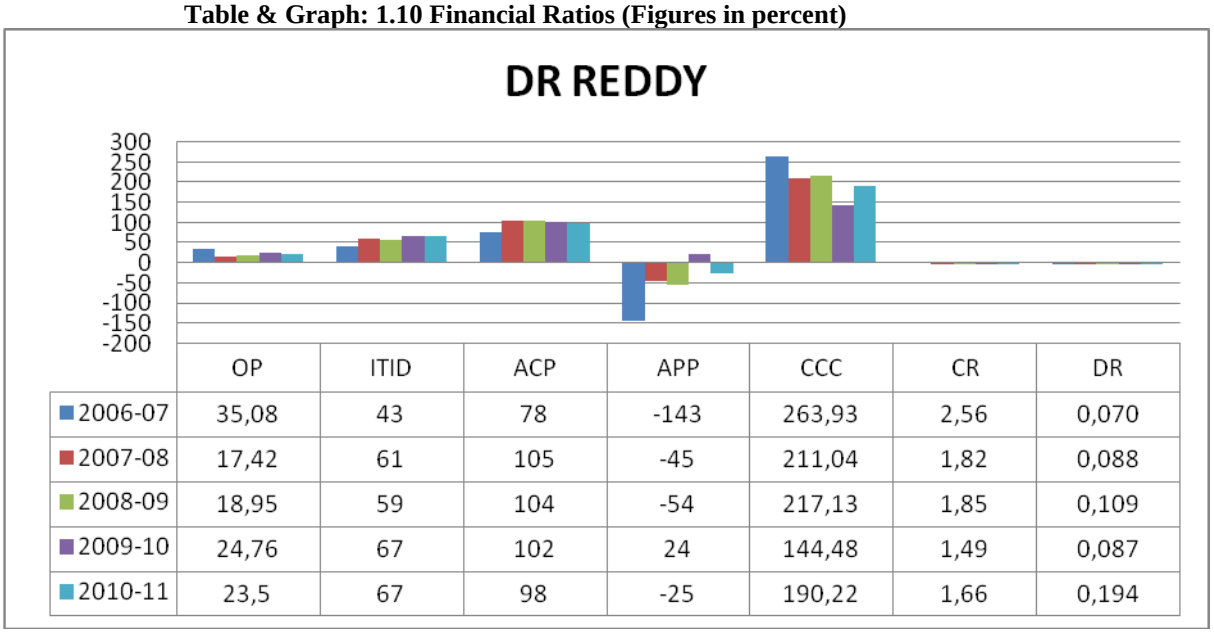
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	29	31	13	70,52	-26,05	0,71	0,47
2007-08	31,33	12	13	58,39	-33,77	0,58	0,39
2008-09	27,29	16	11	61,13	-34,05	0,59	0,37
2009-10	28,08	16	10	59,78	-33,61	0,67	0,26
2010-11	19,33	20	11	70,35	-38,85	0,67	0,28

Table & Graph: 1.9 Financial Ratios (Figures in percent)



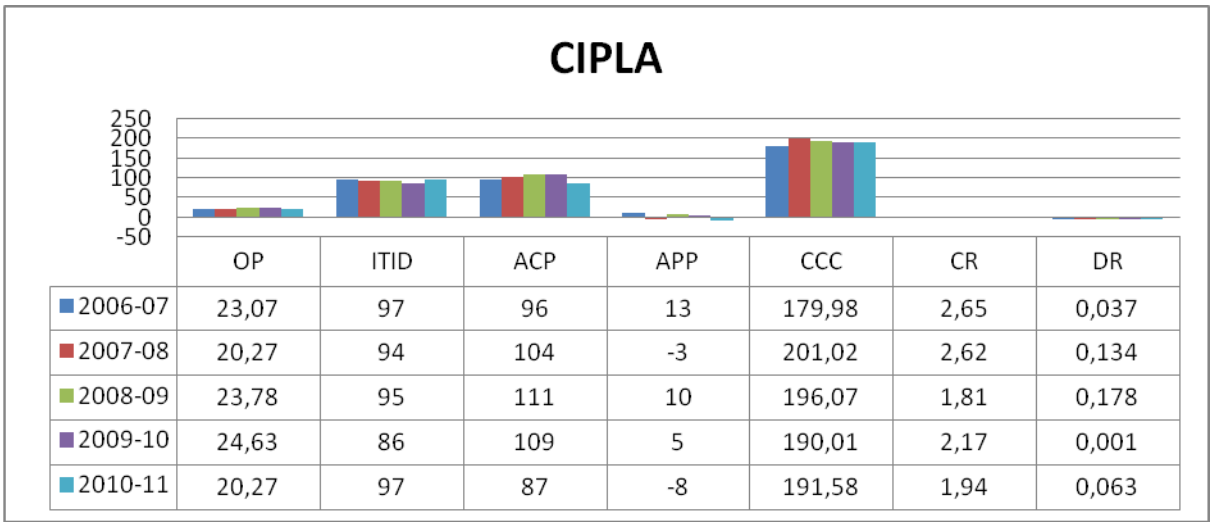
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	15,17	82	79	64	96,18	0,96	0,575
2007-08	9,31	81	79	76	84,44	0,83	0,580
2008-09	5,39	88	74	12	150,02	1,16	0,501
2009-10	13,62	89	96	62	123,55	1,18	0,447
2010-11	22,35	91	90	-45	226,11	1,4	0,454

Table & Graph: 1.10 Financial Ratios (Figures in percent)



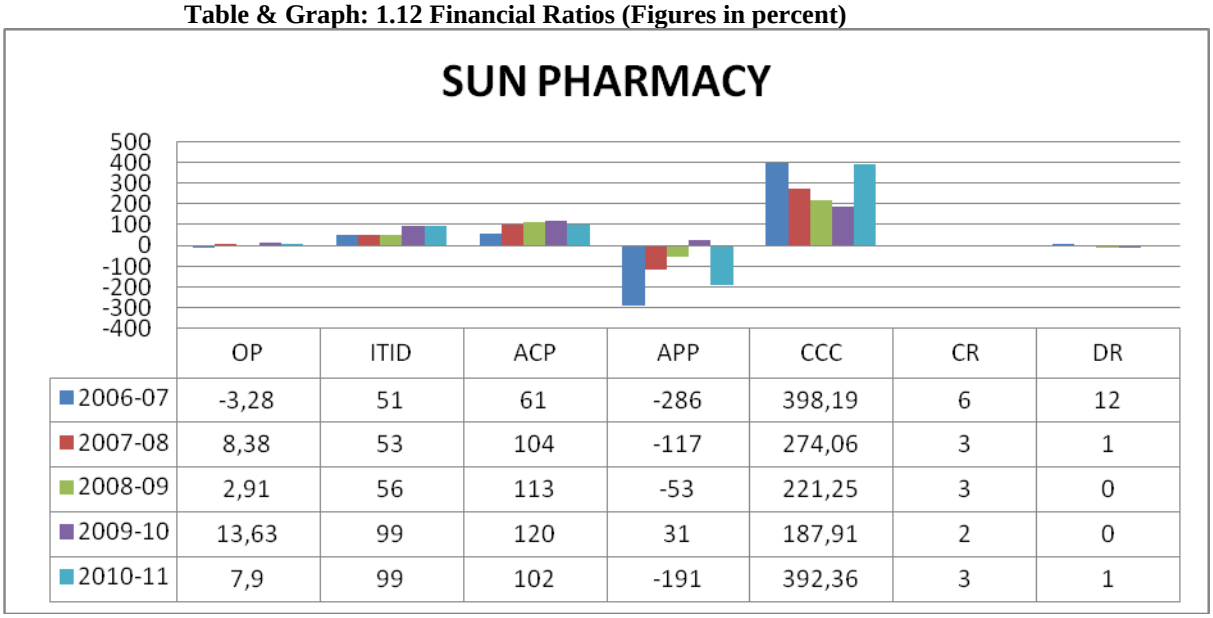
	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	35,08	43	78	-143	263,93	2,56	0,070
2007-08	17,42	61	105	-45	211,04	1,82	0,088
2008-09	18,95	59	104	-54	217,13	1,85	0,109
2009-10	24,76	67	102	24	144,48	1,49	0,087
2010-11	23,5	67	98	-25	190,22	1,66	0,194

Table & Graph: 1.11 Financial Ratios (Figures in percent)



	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	23,07	97	96	13	179,98	2,65	0,037
2007-08	20,27	94	104	-3	201,02	2,62	0,134
2008-09	23,78	95	111	10	196,07	1,81	0,178
2009-10	24,63	86	109	5	190,01	2,17	0,001
2010-11	20,27	97	87	-8	191,58	1,94	0,063

Table & Graph: 1.12 Financial Ratios (Figures in percent)



	OP	ITID	ACP	APP	CCC	CR	DR
2006-07	-3,28	51	61	-286	398,19	6	12
2007-08	8,38	53	104	-117	274,06	3	1
2008-09	2,91	56	113	-53	221,25	3	0
2009-10	13,63	99	120	31	187,91	2	0
2010-11	7,9	99	102	-191	392,36	3	1

Table: 1.13 DESCRIPTIVE ANALYSES

Ratios	Companies	Mean Ratio	Std. Dev	F-Value	Significance	S. Mean	S. Std. Deviation
Operating Profit Ratio	Ashok Leyland	9.594	1.18572				
	Tata Motors	9.63	1.76823			19.74	10.31
	Escorts	6.764	1.84863	5.1	0.025		
	Beml	11.136	3.66649				

	Ultra Tech	27.006	4.5505				
	Shree Cements	37.024	7.20035				
	Ambuja	30.402	4.82068	4.06	0.045		
	Acc	27.07	4.09638				
	Ranbaxy	13.168	6.40123				
	Dr Reddy's	23.942	6.93499				
	Cipla	22.404	2.02484	5.47	0.021		
	Sun Pharma	5.908	6.38583				
	Hul	14.684	0.8017				
	Itc	32.804	0.90627				
	Nestle	19.544	0.52691	51.29	0		
	P&G	24.822	4.66095				

Table: 1.14 DESCRIPTIVE ANALYSES

Ratios	Companies	Mean Ratio	Std. Dev	F-Value	Significance	S. Mean	S. Std. Deviation
Inventory Turnover In Days	Ashok Leyland	59.2763	10.11521				
	Tata Motors	25.5739	0.85312				
	Escorts	31.7126	3.5304	39.76	0		
	Beml	151.26	39.69018				
	Ultra Tech	18.9394	7.5866				
	Shree Cements	23.0713	14.82562				
	Ambuja	35.6232	9.02402	2.5	0.097		
	Acc	19.8684	10.69447				
	Ranbaxy	86.3865	4.37927			52.78	37.23
	Dr Reddy's	59.4692	9.71733				
	Cipla	93.7312	4.42077	6.11	0.006		
	Sun Pharma	71.5315	25.16794				
	Hul	43.8642	4.49651				
	Itc	69.7257	15.04049				
	Nestle	35.0127	4.03407	33.46	0		
	P&G	19.2864	1.92215				

Table: 1.15 DESCRIPTIVE ANALYSES

Ratios	Companies	Mean Ratio	Std. Dev	F-Value	Significance	S. Mean	S. Std. Deviation
A/C's receivable in days	Ashok Leyland	33.0261	11.39723				
	Tata Motors	15.9516	4.56206				
	Escorts	59.814	15.46285	83.76	0		
	Beml	170.24	27.56047				
	Ultra Tech	11.694	1.34181				
	Shree Cements	7.2126	1.53413				
	Ambuja	7.7208	2.64561	8.97	0.001		
	Acc	12.3123	2.2148				
	Ranbaxy	83.6666	9.25835			46.42	49.50
	Dr Reddy's	97.4641	11.27382				
	Cipla	101.37	9.86233	1.59	0.231		
	Sun Pharma	99.9919	22.8358				
	Hul	12.2737	2.45952				
	Itc	16.3376	1.31185				
	Nestle	4.6424	0.84889	47.27	0		
	P&G	8.9935	1.38434				

Table: 1.16 DESCRIPTIVE ANALYSES

Ratios	Companies	Mean Ratio	Std. Dev	F-Value	Significance	S. Mean	S. Std. Deviation
A/P payable in days	Ashok Leyland	66.9428	16.58469				
	Tata Motors	66.1295	40.40784				
	Escorts	54.3566	26.67843	0.18	0.91		
	Beml	56.4334	46.18361			19.88	74.03
	Ultra Tech	64.0074	5.79158				
	Shree Cements	49.8941	36.38446				
	Ambuja	36.054	12.80463	9.77	0		

	Acc	64.2128	20.84835				
	Ranbaxy	33.9917	50.4174				
	Dr Reddy's	48.4251	60.68897				
	Cipla	3.3656	8.96383	4.45	0.019		
	Sun Pharma		122.30595				
	Hul	65.0387	42.52667				
	Itc	53.1792	26.43337				
	Nestle	75.4491	4.44603	49.9	0		
	P&G	99.5281	14.28611				

Table: 1.17 DESCRIPTIVE ANALYSES

Ratios	Companies	Mean Ratio	Std. Dev	F-Value	Significance	S. Mean	S. Std. Deviation
Cash Conversion Ratio	Ashok Leyland	25.53	14.35941				
	Tata Motors	-24.604	36.44093				
	Escorts	37.17	25.18225	34.95	0		
	Beml	265.07	85.77061				
	Ultra Tech	-33.374	4.64485				
	Shree Cements	80.178	29.76492				
	Ambuja	7.29	14.71179	32.19	0	78.38	114.91
	Acc	-32.032	25.20251				
	Ranbaxy	136.06	56.38134				
	Dr Reddy's	205.36	43.40747				
	Cipla	191.73	7.84511	5.97	0.006		
	Sun Pharma	294.75	96.78928				
	Hul	-23.896	16.96206				
	Itc	32.884	31.79737				

	Nestle	-35.794	3.65839				
	P&G	127.81	14.02385				

Table: 1.18 DESCRIPTIVE ANALYSES

Ratios	Companies	Mean Ratio	Std. Dev	F-Value	Significance	S. Mean	S. Std. Deviation
Current ratio	Ashok Leyland	1.16	0.09138				
	Tata Motors	0.582	0.17584				
	Escorts	0.942	0.1071	38.4	0		
	Beml	1.458	0.14202				
	Ultra Tech	0.776	0.21078				
	Shree Cements	1.534	0.52581				
	Ambuja	1.066	0.1324	10.14	0.001		
	Acc	0.774	0.10065			1.34	0.79
	Ranbaxy	1.106	0.21927				
	Dr Reddy's	1.876	0.40845				
	Cipla	2.238	0.3848	6.38	0.005		
	Sun Pharma	3.16	1.38468				
	Hul	0.806	0.09839				
	Itc	1.222	0.21288				
	Nestle	0.65	0.02828	90.72	0		
	P&G	2.146	0.20888				

Table: 1.19 DESCRIPTIVE ANALYSIS

Ratios	Companies	Mean Ratio	Std. Dev	F-Value	Significance	S. Mean	S. Std. Deviation
Debt Ratio	Ashok Leyland	0.336	0.06348				
	Tata Motors	0.46	0.0646				
	Escorts	0.2439	0.09319	8.98	0.001		
	Beml	0.1977	0.11369				
	Ultra Tech	0.3551	0.08729				
	Shree Cements	52.0393	10.0494				
	Ambuja	0.0694	0.07549	133.22	0		
	Acc	0.0638	0.03659			3.59	12.86
	Ranbaxy	0.5113	0.06377				
	Dr Reddy's	0.1094	0.04899				
	Cipla	0.0824	0.07221	1.35	0.293		
	Sun Pharma	2.9294	5.238				
	Hul	0.0508	0.07074				

	Itc	0.0126	0.00569				
	Nestle	0.0097	0.01723	1.87	0.176		
	P&G	0	0				

Table: 1.20 Pearson Table for the variable correlations

		NOP	ITID	ACP	APP	CCC	CR	DR
NOP	Pearson Correlation	1	-.284*	-.407**	-.019	-.249*	-.124	.414**
	Sig. (2-tailed)		.014	.000	.870	.031	.287	.000
ITID	Pearson Correlation		1	.835**	-.053	.707**	.347**	-.239*
	Sig. (2-tailed)			.000	.650	.000	.002	.039
ACP	Pearson Correlation			1	-.237*	.836**	.464**	-.214
	Sig. (2-tailed)				.040	.000	.000	.066
APP	Pearson Correlation				1	-.703**	-.831**	-.371**
	Sig. (2-tailed)					.000	.000	.001
CCC	Pearson Correlation					1	.801**	.054
	Sig. (2-tailed)						.000	.645
CR	Pearson Correlation						1	.156

	Sig. (2-tailed)						.181

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table: 1.21 Regression estimates

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
NOP	22.203	4.438		5.003	.000
ITID	-.010	.133	-.034	-.072	.942
ACP	-.211	.139	-1.004	-1.517	.134
APP	.076	.124	.499	.612	.543
CCC	-.093	.127	-1.045	-.732	.466
CR	-1.641	3.035	-.122	-.541	.590
DR	.269	.094	.339	2.866	.006

a. Dependent Variable: NOP, R^2= 0.304.