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EFFECT OF WORKING CAPITAL MANAGEMENT ON PROFITABILITY OF PHARMACEUTICALS FIRMS IN INDIA

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ABSTRACT

Working capital management is vital role in firm financial management decision. An optimal working capital management is expected to give positively to the creation of firm value. Working capital management has its effect on liquidity as well on profitability of the firm. The purpose of this study is to look into the relationship between working capital management and firm profitability. In this research, I have selected a sample of 31 pharmaceuticals Indian firms listed on national stock exchange for a period of 10 years from 2002-2011. I 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. I have also used control variable like debt ratio, size of the firm (measured in terms of natural logarithm of sales) and financial assets to total assets. I have considered Pearson's correlation coefficient and regression as a statistical tools. The coefficient results of regression analysis provide a strong negative significant relationship between cash conversion cycle and firm profitability. This reveals that reducing cash conversion period results to profitability increase.

KEYWORDS

Working Capital Management, Cash Conversion Cycle, Average Collection Period, Inventory Turnover in Days, Average Payment Period, Profitability and Liquidity.

1. INTRODUCTION

It is common, it is possible to discuss finance theory under three main threads as capital budgeting, capital structure and working capital management. The first two of them are mainly related with financing and managing long-term investment. However, financial decisions about working capital are mostly related with financing and managing short-term investment and undertake both current assets and current liabilities simultaneously. So, most of the time, it is reasonable to term short-term financial management as working capital management.

Working capital management is a very important component of corporate finance because it directly affects the liquidity and profitability of the company. It deals with current assets and current liabilities. Working capital management is important due to many reasons. For one thing, the current assets of a typical manufacturing firm accounts for over half of its total assets. For a distribution company, they account for even more. Excessive levels of current assets can easily result in a firm's realizing a substandard return on investment. 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 (Eljelly, 2004). With regard to current liabilities, the firm is responsible for paying these obligations on a timely basis. Liquidity for the on going firm is not reliant on the liquidation value of its assets, but rather on the operating cash flows generated by those assets (Soenen, 1993).

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 of the other because both have their importance. If we do not care about profit, we can not survive for a longer period. On the other hand, if we do not care about liquidity, we 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.

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 capital (Deloof 2003). 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. This discussion of the importance of working capital management, its different components and its effects on profitability leads us to the problem statement which I have analysed.

The problem statement to be analysed in this study is:

"Does Working Capital Management Affect Profitability of Indian pharmaceuticals Firms?"

To analyse this problem statement, I have developed objectives of my research, which will hopefully contribute towards a very important aspect of financial management known as working capital management.

This research is focusing on working capital management and its effects on profitability for a sample of Indian Pharmaceuticals firms. The main objectives are:

- To review a relationship between Working Capital Management and Profitability over a period of ten years for 31 Indian Pharmaceuticals companies listed on National Stock Exchange.
- To find out the effects of different components of working capital management on profitability
- To establish a relationship between the two objectives of liquidity and profitability of the Indian Pharmaceuticals firms.
- To find out the relationship between profitability and size of the Indian Pharmaceuticals firms.
- To find out the relationship between debt used by the Indian firm and its profitability.

2. LITERATURE REVIEW

Many researchers have studied working capital from different views and in different environments. The following ones were very interesting and useful for my research:

Garcia-Teruel and Martinez-Solano collected a panel of 8,872 small to medium-sized enterprises (SMEs) from Spain covering the period 1996 - 2002. They tested the effects of working capital management on SME profitability using the panel data methodology. The results, which are robust to the presence of

endogeneity, demonstrated that managers could create value by reducing their inventories and the number of days for which their accounts are outstanding. Moreover, shortening the cash conversion cycle also improves the firm's profitability.

Falope and Ajilore used a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They 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 fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working capital management between large and small firms.

Deloof (2003) discussed 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 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.

Ali Uyar (2009) This study, which was conducted on listed companies in the Istanbul Stock Exchange, presents the mean values of cash conversion cycle for various industries comparatively. The paper showed that retail/wholesale industry has shorter CCC than manufacturing industries. The main reason for this is that retail/wholesale industry do not manufacture goods, rather it keeps ready-for-sale goods in its warehouse. Hence, it has shorter days in inventory. Secondly, the retail/wholesale industry makes cash sales or credit sales with short maturity. Moreover, the retail/wholesale industry is slower in paying its accounts payable to its suppliers. Another important finding of the study is that the textile industry has the longest CCC, therefore, the industry may have liquidity problems.

3. METHODOLOGY

The purpose of this research is to contribute towards a very important aspect of financial management known as working capital management with reference to Indian pharmaceuticals Firms. Here I have seen the relationship between working capital management practices and its affects on profitability of 31 Indian pharmaceuticals Firms listed on National stock Exchange for a period of ten years from 2002 – 2011.

3.1 DATA SET & SAMPLE

The study is based on secondary data. The data are collected mainly for the variables, viz, Net Operating Profitability (NOP), Average Collection Period (ACP), Inventory turnover in days (ITID), Average Payment Period (APP), Cash Conversion Cycle (CCC), Current Ratio (CR), Size (Natural logarithm of Sales (LOS)), Debt Ratio (DR), financial assets to total assets (FATA). The purpose of this research is to contribute towards a very important aspect of financial management known as working capital management with reference to Indian Pharmaceuticals firms. Here I have seen the relationship between working capital management practices and its affects on profitability of 31 Indian pharmaceuticals firms listed on National stock Exchange as per CNX 500 index for a period of ten years from 2002 – 2011.

3.2 VARIABLES

All the variables stated below have been used to test the hypotheses of my study. 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.

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).

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 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, Size (Natural logarithm of Sales (LOS)), Debt Ratio (DR) will be use as proxy for Leverage and is calculate by dividing Total Debt by Total Assets, and ratio of financial assets to total assets (FATA) are included as control variables. Fixed financial assets are the shares in other firms, intended to contribute to the activities of the firm holding them by establishing a lasting and specific relationship and loans that were granted for the same purpose. For some firms such assets are a significant part of their total assets.

3.3 HYPOTHESES TESTING

Since the objective of this study is to examine the relationship between profitability and working capital management, the study makes a set of testable hypothesis {the Null Hypotheses H0 versus the Alternative ones H1}.

HYPOTHESIS 1

H01: There is no relationship between efficient working capital management and profitability of Indian Pharmaceuticals firms.

H11: There is a possible positive relationship between efficient working capital management and profitability of Indian Pharmaceuticals firms. Firms more efficient in managing their working capital is expected to pose high level of profitability and vice versa.

HYPOTHESIS 2

H02: There is no relationship between liquidity and profitability of Indian Pharmaceuticals firms.

H12: There may exist a negative relationship between liquidity of Indian Pharmaceuticals firms and profitability. Firms with high level of liquidity are expected to post low level of profitability and vice versa.

HYPOTHESIS 3

H03: There is no relationship between size of Indian Pharmaceuticals firms and profitability.

H13: There may exist a positive relationship between the firm size and its profitability. This may be due to the ability of large firms to reduce liquidity levels and cash gaps.

HYPOTHESIS 4

H04: There is no relationship between debt used by Indian Pharmaceuticals firms and profitability

H14: There is a possible negative relationship between debt used by Indian Pharmaceuticals firms and profitability. Firms with high level of debt usage are expected to post low level of profitability and vice versa.

3.4 MODEL SPECIFICATIONS

The general form of model is:

$$NOP_{it} = \beta_0 + \sum_{i=1}^n \beta_i X_{it} + \varepsilon$$

NOP_{it} : Net operating profitability of firm I at time t; I = 1, 2,...31 firms.

β_0 : The intercept of equation

β_i : Coefficients of X_{it} variables

X_{it} : The different independent variables for working capital management of firm i at time t

t : Time = 1,2,.....10 years.
 ε : The error term

Specifically, when i convert the above general least squares model into my specified variables it becomes:

$$NOP_{it} = \beta_0 + \beta_1(ACP_{it}) + \beta_2(ITID_{it}) + \beta_3(APP_{it}) + \beta_4(CCC_{it}) + \beta_5(CR_{it}) + \beta_6(DR_{it}) + \beta_7(LOS_{it}) + \beta_8(FATA_{it}) + \epsilon$$

Where:

NOP : Net Operating Profitability
 ACP : Average Collection Period
 ITID : Inventory Turnover in Days
 APP : Average Payment Period
 CCC : Cash Conversion Cycle
 CR : Current Ratio
 FATA: Financial Assets to Total Assets
 DR : Debt Ratio
 LOS : Natural logarithm of Sales
 ε : The error term.

3.5 ANALYSIS USED IN STUDY

In this research I have provided two types of data analysis; descriptive and quantitative.

3.6 DESCRIPTIVE ANALYSIS

Descriptive analysis is the first step in my analysis; it will help me to describe relevant aspects of phenomena of cash conversion cycle and provide detailed information about each relevant variable. Lot of raw information is already available, and I am going to used SPSS software for analysis of the different variables in this study.

3.7 QUANTITATIVE ANALYSIS

In quantitative analysis I am going to apply two methods: First: I used correlation models, specifically Pearson correlation to measure the degree of association between different variables under consideration. Second: I used multiple Regression analysis to estimate the causal relationships between profitability variable, liquidity and other chosen variables.

4. DATA ANALYSIS AND DISCUSSION

I have performed two types of analysis, descriptive and quantitative. The results of these two types of analysis are discussed in this section.

4.1 DESCRIPTIVE ANALYSIS

In the analysis I have consider ideal measurement of central tendency is mean (Average) as well as proven measurement of dispersion is standard deviation to find the how far this different values are spread from the average value. I have also consider the extreme value of data to understand the range of each value. Table 1 presents descriptive statistics for 31 Indian pharmaceuticals firms for a period of ten years from 2002 to 2011 and for a total 310 firms year observations. The mean value of net operating profitability is 29% of total assets, and standard deviation is 15%. It means that value of the profitability can deviate from mean to both sides by 15%. The maximum value for the net operating profitability is 81.30% for a company in a year while the minimum is -23%. The cash conversion cycle used as a proxy to check the efficiency in managing working capital is on average 86 days and standard deviation is 97 days. Firms receive payment against sales after an average of 83 days and standard deviation is 39 days. Minimum time taken by a company to collect cash from receivables is 8 day while the maximum time for this purpose is 206 days. It takes an average 114 days to sell inventory with standard deviation of 64 days. Here, maximum time taken by a company is 667 days, which is a very large time period to convert inventory into sales. Firms wait an average 111 days to pay their purchases with standard deviation of 53 days. Here, minimum time taken by a company is 5 days, and maximum time taken for this purpose is 319 days.

TABLE 1: DESCRIPTIVE STATISTICS

Descriptive Statistics					
31 Indian - Pharmaceuticals firms, 2002-2011, 310 firms – year					
	N	Minimum	Maximum	Mean	Std. Deviation
NOP	310	-0.230	0.813	0.290	0.150
ACP	310	8.007	206.302	83.009	39.378
IITD	310	34.608	666.939	114.174	69.355
APP	310	4.823	319.426	111.244	52.880
CCC	310	-138.331	589.599	85.919	96.800
CR	310	1.335	19.562	4.525	2.692
FATA	310	0.000	0.311	0.047	0.039
DR	310	0.000	0.813	0.308	0.238
LOS	310	20.393	24.848	22.732	0.896

To check the size of the firm and its relationship with profitability, natural logarithm of sales is used as a control variable. The mean value of log of sales is 22.73 while the standard deviation is 0.90. The maximum value of log of sales for a company in a year is 24.85 and the minimum is 20.39.

In the same way to check the liquidity of the companies, a traditional measure of liquidity (current ratio) is used. The average current ratio for Indian pharmaceuticals firms are 4.53 with a standard deviation of 2.69. The highest current ratio for a company in a particular year is 19.56 times and in the same way the minimum ratio for a company in a year is 1.34.

To check the debt financing and its relationship with the profitability the debt ratio (obtained by dividing the total debt of the company by the total assets) is used as a control variable. The results of descriptive statistics show that the average debt ratios for Indian pharmaceuticals are 31% with a standard deviation of 24%. The maximum debt financing used by a company is 81% which is unusual but may be possible if the equity of the company is very less. The minimum level of the debt ratio is 0.00% it means company prefer 100 equity in there capital structure.

To check the ratio of fixed financial assets to the total assets of Indian pharmaceuticals firms, the financial assets to total assets ratio is used as a control variable. The mean value for this ratio is 4.7% with a standard deviation of 3.9. The maximum portion of assets in the form of financial assets for a particular company is 31% and the minimum is 0.00.

4.2 PEARSON'S CORRELATION COEFFICIENT ANALYSIS

Pearson's Correlation analysis is used for data to see the relationship between variables such as those between working capital management and profitability. If efficient working capital management increases profitability, one should expect a negative relationship between the measures of working capital management and profitability variable. There is a negative relationship between gross profitability on the one hand and the measures of working capital management on the other hand. This is consistent with the view that the time lag between expenditure for purchases of raw material and the collection of sales of finished goods can be too long, and that decreasing this time lag increases profitability.

Appendix 1 Presents Pearson correlation coefficients for all variables considered.

Appendix 1 shows correlation analysis between the average collection period and net operating profitability. The correlation coefficient indicates negative (-0.518) relationship between two variables, with p-value of 0.000. It indicates that the result is highly statistically significant α. = 1 % level of significance. It means if the average collection period increases it will have a negative impact on the profitability. Correlation results between inventory turnover in days and the net operating Profitability also indicate the same type of result. The correlation coefficient is -0.174 and the p value is (0.002). This again shows that the result is highly significant α. = 1%. It also indicates that if the firm takes more time in selling inventory, it will adversely affect its profitability. 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 - 0.141 and the p value is (0.013). But it is significant at $\alpha = 5\%$. 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 - 0.259 and the p value is (0.000). It means that if the firm is able to decrease this time period known as cash conversion cycle, it can increase its profitability.

By analysing the results I conclude 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 negative relationship with profitability (measured by net operating profitability). The coefficient is - 0.104 and p-value of (0.067). The result is not significant statistically. It indicates that the two objectives of liquidity and profitability have inverse relationships. So, the Indian Pharmaceuticals firms need to maintain a balance or trade-off between these two measures.

In case of financial assets to total assets ratio, it has a significant positive relation with profitability. The coefficient is 0.171 with significant at $\alpha = 1\%$ and p-value is (0.003). It reflects that is this ratio increase then the profitability will be increase. So firms need to increase the proportion of financial assets in the total assets but it should be maintain trade off between these two.

I used the debt ratio as proxy for leverage; it shows a significant negative relationship with net operating profitability. The coefficient is -0.622 and p-value is (0.000). The result is significant at $\alpha = 1\%$. It indicates that, when leverage of the firm increases it means the proportion of debt increase in the capital structure of the firm, it will adversely affect its profitability. So the Indian pharmaceutical firm need to maintain a balance between equity & debt.

One should not overlook the positive association that exists between NOP and LOS (the measures of size). This in turn indicates a positive relationship between size and profitability. The coefficient is positive 0.072; with p-value of (0.206). The result is not significant statistically. It shows that as size of the firm increases, it will increase its profitability.

A negative relationship between number of day's 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. An alternative explanation for a negative relationship between the number of days accounts payable and profitability could be that Indian pharmaceuticals firms wait too long to pay their accounts payable. Speeding up payments to suppliers might increase profitability because firms often receive a substantial discount for prompt payment.

Pearson's correlation also displays a significant positive relationship between the average collection period and cash conversion cycle; the correlation coefficient is 0.469 and the p-value is (.000). That ratio is highly significant at $\alpha = 1\%$, 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 0.807, the p-value is again (.000) showing that it is highly significant at $\alpha = 1\%$.

The average payment period and cash conversion cycle have a negative relationship. The coefficient is - 0.423, the p-value is (.000), highly significant at $\alpha = 1\%$. 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.

Now, these 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 Indian pharmaceuticals firms are concerned, the working capital management very significantly and strongly affects their profitability.

4.3 REGRESSION ANALYSIS

The determinants of net operating profitability are investigated for all 310 firm-year observations. A number of different regression coefficients are estimated for selected independent variables.

Appendix 2 Presents Regression for all variables considered.

This regression is estimated using the pooled least squares method. The model that I have applied is as follows:

$$NOP_{it} = \beta_0 + \beta_1(ACP_{it}) + \beta_2(LOS_{it}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(FATA_{it}) + \epsilon$$

The results of this regression indicate that the coefficient of accounts receivable is negative (-0.002) and is highly significant at $\alpha = 1\%$. It implies that the increase or decrease in accounts receivable will significantly affect profitability of the firm. The current ratio which is a traditional measure of liquidity has also a negative (-0.003) relationship with profitability but the result is not significant statistically which confirms my hypotheses that liquidity and profitability has inverse relationship.

I used the Debt ratio as a substitute for leverage; it shows a significant negative (-0.305) relationship with the dependent variable, which means that, when leverage of the firm increases, it will adversely affect its profitability. Log of sales used as proxy for size of a company shows a positive (0.013) relationship with profitability which means that bigger size firms have more profitability compared to firms of smaller size. In case of financial assets to total assets ratio, it also has a positive relation with profitability. It reflects that if this ratio increases the operating profitability will increase.

The result shows that adjusted R^2 , also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables and is weighted is (43.7%) which shows that there is 43.7% variation in the dependent variable attributable to the independent variables. The C is the constant, where the regression line intercepts the y axis, representing the amount the dependent y will be when all the independent variables are 0. Here C is 0.763; the probability of the coefficient is significant. The F statistic is used to test the significance of R. Overall; the model is significant as F-statistics is 47.257.

The second regression is run using the inventory turnover in days as an independent variable as a replacement for average collection period. The other variables are the same as they have been in the first regression. The model we have used is shown below:

$$NOP_{it} = \beta_0 + \beta_1(ITID_{it}) + \beta_2(LOS_{it}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(FATA_{it}) + \epsilon$$

The coefficient of intercept C is significant and equals 0.746. The coefficient of inventory turnover in days (a proxy for inventory policy) is negative (-0.0002) but not significant, and implies that the increase or decrease in the inventory turnover in days, significantly affects profitability of the firm. It can be interpreted that if the inventory takes more time to sell, it will adversely affect profitability. All the other variables are also affecting profitability as in case of our first regression. Increase in sales has a positive (0.015) impact on profitability which means size of the firms increase; it will increase its profitability. While all other control variables like current ratio, debt ratio, have a significant negative affect on profitability of the firm. The coefficient of current ratio -0.002 showing that, when the liquidity position is better this has a negative affect on profitability of a firm. The variable has a not significant statistically. The debt ratio shows a negative relationship with coefficient -0.385, which means that, when the leverage of the firm's increases, profitability of the firm decreases. The variable has a p-value of 0.000 which is highly significant at $\alpha = 1\%$. In case of financial assets to total assets ratio, it also has a positive (0.226) relation with profitability. It reflects that if this ratio increases the operating profitability will increase. The adjusted R^2 is 40.3, and it shows the variation in the dependant variable's explained by the independent variables. The F-statistic has a value equal to (40.98) that reflects the highly significance of the model or significance of R-square.

Third regression is run using the average payment period as an independent variable as a substitute of inventory turnover in days. The other variables are same as they have been in first and second regression.

$$NOP_{it} = \beta_0 + \beta_1(APP_{it}) + \beta_2(LOS_{it}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(FATA_{it}) + \epsilon$$

Here, the coefficient of C is 0.694 and it has a p-value of 0.000 which is highly significant at $\alpha = 1\%$. The result indicates that the coefficient of average payment period is negative (-0.003) and it is highly significant at $\alpha = 1\%$, and implies that the increase or decrease in the average payment period, significantly affects profitability of the firm. The negative relationship between the average payment period and profitability indicates that the less profitable firms wait longer to pay their bills. All the other variables are also affecting the profitability. The size of the firm has a positive (0.01) impact on profitability, which means size of the firms increase; it will increase its profitability and the current ratio has a negative (-0.005) impact on profitability, showing that, when the liquidity position is better this has a negative affect on profitability of a firm.; while other control variables like debt ratio shows a negative relationship with coefficient -0.384 ,

which means that, when the leverage of the firm's increases, profitability of the firm decreases. The variable has a p-value of 0.000 which is highly significant at $\alpha = 1\%$. The financial assets to total assets have positive affect on profitability of the firm. The adjusted R^2 weighted is (42.6%) which shows that there is 42.6% variation in the dependent variable attributable to the independent variables. The F-statistic has a value of 45.069. It also reflects the high significance of the model.

In fourth regression, cash conversion cycle is used as an independent variable instead of average collection period, inventory turnover in days and average payment period. It is the comprehensive measure of checking efficiency of working capital management. The other variables are kept the same as they were in the first three regressions. The model I have used is shown herewith:

$$NOP_{it} = \beta_0 + \beta_1(CCC_{it}) + \beta_2(LOS_{it}) + \beta_3(CR_{it}) + \beta_4(DR_{it}) + \beta_5(FATA_{it}) + \varepsilon$$

Taking the cash conversion cycle as an independent variable, the result indicates that the coefficient of cash conversion cycle is negative (-0.0002) and is not significant statistically. It means that if the firm is able to decrease this time period known as cash conversion cycle, it can increase its profitability and implies that the increase or decrease, in the cash conversion period, affects profitability of the firm. All the other variables are also affecting profitability. The increase in sales has a positive (0.014) impact on profitability; current ratio has a negative (-0.003) impact on profitability while other control variables like debt ratio have a significant negative -0.39 affect on profitability of the firm. The variable has a p-value of 0.000 which is highly significant at $\alpha = 1\%$. Financial to total assets have a significant positive affect on profitability of the firm. The adjusted R^2 is 40.3%. The value of F-statistic is 40.97, and it also reflects the high significance of the model.

Under the pooled least squares method, I have seen the independent variables in the individual regression. The individual regression for each variable showed the significant effect on profitability. In general, the results of pooled least squares are indicating the same interpretation that working capital management affects profitability of the firm. If a firm can effectively manage its working capital, it can lead to increase in profitability. It can also be interpreted that the liquidity and profitability moves in opposite direction. And, there is a need to maintain a trade-off between these two objectives of the firm. It is further interpreted that if the firm increases its debt financing, it will lead to decreasing profitability of the firm in terms of financial cost. The size of the firm has a direct positive relationship with profitability of the firm. If the size (measured in terms of log of sales) increases, it will lead to increasing profitability of the firm.

5. CONCLUSION

In financial management, it is possible to mention that studies regarding working capital management are not as popular as the ones related with capital budgeting and capital structure. Working capital management is important part in firm financial management decision. The ability of the firm to continuously operate in longer period is depends on how they deal with investment in working capital management. The optimal of working capital management is could be achieve by firm that manage the trade off between profitability and liquidity. The purpose of this study is to investigate the relationship between working capital management and firm profitability.

Most of the Indian pharmaceutical firms have large amounts 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. I have 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 31 Indian pharmaceutical firms listed on National Stock Exchange. 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 my hypotheses, I conclude that my Alternate hypothesis (H11) that working capital management significantly affects profitability of Pakistani firms is the one to be accepted; and therefore I reject null hypothesis (Ho1). In the same way I accept my research hypotheses (H12) that there is a negative relationship between liquidity and profitability of the firm; therefore I reject null hypotheses (H02). It is found that in Indian Pharmaceutical firms current ratio is the most important liquidity measure that affects profitability. The Indian Pharmaceutical firms must set a trade-off between these two objectives so that neither the liquidity nor profitability suffers. I also accept my research hypotheses (H13) regarding the size and profitability. As the size (measured in terms of natural logarithm of sales) increases, it will lead to an increase in profitability of the firm; therefore I reject null hypotheses (H03). I do accept my research hypotheses (H14) concerning the debt financing that when the debt financing increases, profitability goes down; therefore I reject null hypotheses (H04) here also. This is interpreted that debt financing will affect the financial cost which will lead to decreasing profitability.

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.

On basis of the above analysis I may further conclude that these results can be further strengthened if the firms manage their working capital in more efficient ways. Management of working capital means "management of current assets and current liabilities, and financing these current assets". If these firms properly manage their cash, accounts receivables and inventories in a proper way, this will ultimately increase profitability of these companies.

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APPENDIX

APPENDIX 1: PEARSON'S CORRELATION COEFFICIENT

		NOP	ACP	IITD	APP	CCC	CR	FATA	DR	LOS
NOP	Pearson Correlation	1	-.518**	-.174**	-.141*	-.259**	-.104	.171**	-.622**	.072
	Sig. (2-tailed)		.000	.002	.013	.000	.067	.003	.000	.206
	N	310	310	310	310	310	310	310	310	310
ACP	Pearson Correlation	-.518**	1	.270**	.241**	.469**	-.010	-.253**	.572**	.041
	Sig. (2-tailed)	.000		.000	.000	.000	.861	.000	.000	.472
	N	310	310	310	310	310	310	310	310	310
IITD	Pearson Correlation	-.174**	.270**	1	.035	.807**	.169**	-.151**	.260**	-.143*
	Sig. (2-tailed)	.002	.000		.536	.000	.003	.008	.000	.011
	N	310	310	310	310	310	310	310	310	310
APP	Pearson Correlation	-.141*	.241**	.035	1	-.423**	-.316**	-.021	-.004	.150**
	Sig. (2-tailed)	.013	.000	.536		.000	.000	.711	.945	.008
	N	310	310	310	310	310	310	310	310	310
CCC	Pearson Correlation	-.259**	.469**	.807**	-.423**	1	.290**	-.200**	.421**	-.168**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000	.000	.003
	N	310	310	310	310	310	310	310	310	310
CR	Pearson Correlation	-.104	-.010	.169**	-.316**	.290**	1	-.116*	.081	.070
	Sig. (2-tailed)	.067	.861	.003	.000	.000		.041	.154	.218
	N	310	310	310	310	310	310	310	310	310
FATA	Pearson Correlation	.171**	-.253**	-.151**	-.021	-.200**	-.116*	1	-.143*	-.206**
	Sig. (2-tailed)	.003	.000	.008	.711	.000	.041		.012	.000
	N	310	310	310	310	310	310	310	310	310
DR	Pearson Correlation	-.622**	.572**	.260**	-.004	.421**	.081	-.143*	1	-.048
	Sig. (2-tailed)	.000	.000	.000	.945	.000	.154	.012		.400
	N	310	310	310	310	310	310	310	310	310
LOS	Pearson Correlation	.072	.041	-.143*	.150**	-.168**	.070	-.206**	-.048	1
	Sig. (2-tailed)	.206	.472	.011	.008	.003	.218	.000	.400	
	N	310	310	310	310	310	310	310	310	310

Notes: * Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Notes: 1- Net Operating Profitability = (Operating Income + Depreciation) / (Total Assets – Financial Assets). 2- Average collection period = (account receivable * 365) / Sales. 3- Inventory Turnover in days = (inventories * 365) / Cost of sales. 4- No. of days accounts payable = (accounts payable * 365) / purchases. 5- Cash conversion cycle = (Average collection period + Inventory turnover in days – Average payment period). 6- Current Ratio = current assets / current liabilities. 7- Debt Ratio = Total Debt / Total Assets. 8- Financial assets to Total Assets = financial assets / Total assets.

APPENDIX 2: RESULT OF REGRESSION ANALYSIS

REGRESSION	CONSTANT	CR	DR	LOS	FATA	ACP	ITID	APP	CCC	R ²	F-VALUE
1	0.763	-0.003	-0.305	0.013	0.075	-0.002				0.437	47.257
t-Statistics	4.468	-1.368	-9.135	-1.751	0.424	-4.339					
P-value	.000	.172	.000	.081	.672	.000					.000
2	0.746	-0.002	-0.385	0.015	0.226		-0.0002			0.403	40.979
t-Statistics	4.135	-0.876	-13.216	-1.908	1.259		-0.265				
P-value	.000	.382	.000	.057	.209		.791				.000
3	0.694	-0.005	-0.384	0.01	0.22			-0.003		0.426	45.069
t-Statistics	4.018	-2.06	-13.788	-1.285	1.261			-3.506			
P-value	.000	.040	.000	.200	.208			.001			.000
4	0.725	-0.003	-0.39	0.014	0.241				-0.0002	0.403	40.977
t-Statistics	4.010	-0.962	-12.615	-1.784	1.334				0.255		
P-value	.000	.337	.000	.075	.183				.799		.000

Notes: 1- Net Operating Profitability = (Operating Income + Depreciation) / (Total Assets – Financial Assets). 2- Average collection period = (account receivable * 365) / Sales. 3- Inventory Turnover in days = (inventories * 365) / Cost of sales. 4- No. of days accounts payable = (accounts payable * 365) / purchases. 5- Cash conversion cycle = (Average collection period + Inventory turnover in days – Average payment period). 6- Current Ratio = current assets / current liabilities. 7- Debt Ratio = Total Debt / Total Assets. 8- Financial assets to Total Assets = financial assets / Total assets.

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