Full Length Research Paper

Impact of working capital on firms' profitability

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The correlation between working capital and profitability of firms is analyzed for the management of cash cycle management. Working capital is made by the three important factors, debtor, creditor and stock. When we include cash conversion cycle (CCC) to working capital then it becomes working capital management (WCM). Two sectors are selected as a sample size: automobile and oil and gas sector. The time period is from 2004 - 2009. Different variables affecting the profitability of firms are selected. In this study, networking capital, inventory turnover in days, average account receivable and financial asset to total assets (FATA) are taken as independent variables. The result shows positive movement of working capital (WC) on firm's profitability. R shows the fitness of the model which is 49.95%. The independent variables explain 49.95% of the model.

Key words: Working capital management (WCM), cash conversion cycle (CCC), account receivable (AR).

INTRODUCTION

A good number of firms have put sufficient cash in working capital. Working capital management (WCM) is an important factor of financial management (FM). Debtor, creditor and inventory are the major components of working capital (WC). Large stock and trade credit policy can increase the sales volume. Inventory is the main part of the working capital. Increase in the inventory will give decrease in the risk of stock out. Inventory is done for fulfilling the demand of the public. Inventory is the liability of the company to sell it. The other element of working capital (WC) is accounts payable (AP). Firms can check the quality of the products provided by the producer by giving them late payment, whether it is suitable for the firm or not. Late payments create very bad impression of the firm in the market. Accounts receivable is also the major part of the working capital. Delay in the days of receivable creates more complication for the company. Working capital management is still taken lightly by some companies. It works as a key to free the cash from

stock, accounts payable (AP) and accounts receivable (AR). To deal with the less important aspects of efficient and effective Working Capital (WC), firms can sharply reduce the out sourcing and they can save the money for future investment or opportunities. This can create more financial flexibility and increase the worth of the firm by reducing capital employed (Buchmann and Jung, 2008).

This study basically focuses on the long run financial decisions, future investments and allocations of funds, dividends and valuation of the firm in the stock market. However, balance sheet components assets and liabilities are significant in short term planning and they need to be carefully analyzed by the firm. Short term assets and liabilities are managed carefully by working capital management (WCM) for the growth of the firm's profitability (Smith, 1980). For creating good worth of the share in front of shareholders, firms have to manage working capital efficiently and effectively. Working capital management process starts from the purchase of raw material up to the sales of the goods. It creates significant impact on the profitability and liquidity of the firms (Shin and Soenen, 1998). Net working capital (NWC) and gross working capital (GWC) are the two major concepts of working capital (WC). The total current assets and

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working capital (WC) can be replaced as a Gross working capital of the firm. By subtracting Current Liabi-lities from Current Assets it becomes Net Working Capital. Net working capital (NWC) can also be used to measure the liquidity but it is not useful when firms are compared with each other regarding performance, but useful in measuring the internal control of the firm. The net working capital helps to compare the liquidity of previous record of the firm performance. The main purpose of the working capital management (WCM) is to make the sustainable level of the working capital (WC) which is favorable for the firm. Net working capital (NWC) is the part of the currents assets which is main-tained through funds having maturity life more than one year. Current assets represent the source of short terms funds. If the firm has less short term funds then it is supported by long term funds and sustains the firm value and market share price. This is very useful for the ana-lysis of trade between profitability and risk in the shares of the firm. Positive working capital (PWC) and Negative Working Capital (NWC) are the two possible signs.

Positive working capital (PWC) is the sign of firm healthiness. Positive working capital (PWC) means that firm have the ability to pay the liabilities which maturity date are less than one year of the firm on due date. Positive working capital (PWC) is calculated by comparing Current Assets (CA) by current liabilities (CL). Negative Working Capital is the sign of firm weakness. Negative working capital means that company does not have the ability to pay the short term liabilities. When the Working Capital (WC) shows negative sign, it indicates long term funds support the short term funds and firm can easily pay the obligations on due date and save the value or worth of firm in the market. But in the different case, firm declining means bankruptcy. If declining working capital ratio continues for longer period then it can affect the firm value. If the firm efficiency is more in the operation, the more increase in working capital (WC). It can be analyzed by comparing the operation of working capital (WC) periodically. Working capital is raised from profits or outsourcing. Outsourcing means when there are more sales in the season but the firm is not able to invest and produce more products. From outsourcing, more liabilities arise but on the other way from investing more, revenue will generate from more sales and it will increase the assets of the firm. Working Capital Management (WCM) has its impact on profitability as well as liquidity of the company and the primary goal of a company is to increase the annual revenues. Keeping the company liquid is an extremely main task also. Increase in company profitabiliy by reducing the liquidity of the company can bring some serious problems for it. Goals cannot be ignored at any cost because each individual goal has its own importance. If goal of maximizing the profit is

ignored, survival is not possible for a longer time. Similarly, if liquidity objective is ignored, insolvency or bankruptcy could be faced. Because of these bases, proper attention should be given to Working Capital Management (WCM) which affects the companies profits and through this, it will show the effect of the Working Capital (WC) on profitability (PRT).

The research problem of this study is: does working capital have significant impact on profitability of a company? The objective of this reseach is to find out the correlation between working capital and profitability (PRT) through statistical analysis of a sample of listed companies. The purpose of this research is to analyze the impact of traditional working capital policies (WCP) on the profitability (PRT) of the firms, to analyze whether Working Capital Policies (WCP) can become stable over a long run-up and to draw a conclusion about the impact of working capital on the profitability of companies.

LITERATURE REVIEW

A significant portion of financial research is concerned with the Management of working capital (MWC). This issue has been investigated at both theoretical and empirical levels. Different researchers have worked on working capital from different perspectives and in different economic environment. The environments and perspectives are discussed in detail in this work.

This paper is conducted for the association between working capital (WC) and value creation for shareholders. Working capital has three parts. First, account receivable; second, account payable; and third, inventory. Account receivable is a part of balance sheet, placed in the Asset Side (AS) and it is the inflows of firm. Account receivable is maintained when a company makes sales on credit bases. Account payable is also the part of the balance sheet, placed on the liabilities side and also the outflows of the firm. Account payable is maintained when a company do sum expenditures on the credit bases and make a payment on different terms. Inventory is main-tained for generating the revenues from sales. The standard measure for working capital management (WCM) is cash conversion cycle (CCC). Cash conversion period reflects the time span between disbursement and collection of cash. Cash Conversion Cycle (CCC) is based on three components: number of days of account receivable, number of day of accounts payable and number of day of inventory. It is measured by the sum of inventory conversion period less payable conversion period. Different researchers use the name like net trade cycle for calculating the Working Capital Management (WCM). In this, every component is calculated in percent-tage of sales (Soenen, 1998).

In Marc's view most firms invest cash in working capital (WC) and it shows that the management of Working Capital leaves good impression on the Profitability of firms. Similarly, firm's Working Capital Management (WCM) is a major part of financial positions. It helps the firms in maximizing their wealth and value of the shares. Larger inventory and trade policy can make higher sales for the firm. Large inventory reduces the risk of stock out for fulfilling the demand of the public. By providing credit sales to the customers, suppliers have significant cost advantage over financial institution (Deloof, 2002).

Different researchers have different views that they test on the working capital. There is a positive correlation between account receivable and operating income of firm. Because if the good provided on credit bases then the days of the accounts receivable will not be for long period. On the basis of the accounts receivable, firms running their operations can meet the payment on due date. Efficient liquidity management (ELM) is a process which includes planning and controlling of current assets (CA) and current liabilities (CL). Liquidity and profitability of firm have great relation with each other. This relationship can be analyzed by current ratio (CR) and cash gap (CG) (Abdual, 2007).

Firms short terms liabilities are directly related to the former while the continuity of liabilities is concerned with the latter. Higher investment blocked in stock and accounts receivable creates problem for operation. Decrease in number of days of account receivable gives increase in early reserves (Padachi, 2006). Financial managers can gain profit by maintaining component of cash conversion cycle (CCC) at a higher level (Nazir and Afza, 2009). If the inventory gets to the minimum level and the number of days account receivable (NDAR) also becomes minimum, then firms can increase their profits and run their project efficiently and effectively (Abdul, 2007). The policies of working capital management can help to measure the WC.

If the policies which the firm is going to implement are very strict and helpful for the firm then the firm will not bear losses or stock out or less short term assets. The financing policies mean how to allocate the revenue to different departments and after how many days the firm is going to receive their payments and ability to pay his own payments. The share value can be created by the financial managers if they efficiently manage through conservative approach (Nazir and Afza, 2009).

Different researchers use different analysis models. For empirical investigation, the anova and Pearson correlation analysis is applied. From these models, firm size and cash cycle can be measured easily. It is easy to measure the efficiency of working capital management (WCM), performance evaluation and the whole efficiency of the firm by setting up their targets. For calculating the overall efficiency of the firm, the target has to be achieved in limited time period. Researchers use pooled data for the analysis.

In the pooled data, different independent variables such as regress combine with the dependent variable (Zariyawati, 2009). The financial leverage and growth in sales are the major factor of firm profitability. Firms have to select the best policy to improve their collection and payment period. Efficient management financing of working capital can increase their operational profitability (Abdul, 2010). After studying the above articles, it is seen that the results of all researchers are the same on working capital management (WCM) and profitability (PRT) regardless of different companies, environments and situations.

METHODOLOGY

This research is to analyze the impact of working capital (WC) on the profitability (PRT) of oil and gas and automobile industry with reference to Pakistan. Different statistical tools are applied to analyze the significance of the variables. So, the method of coefficient of correlation has been selected. Regression analysis is applied for testing the model reliability and significant relationship between variables.

Data set and sample

Two sectors are selected from Karachi Stock Exchange. The first is oil and gas and the second is automobile sector. A total of 20 companies are taken as sample for the data collection, which are collected from different sources. They are taken from 2004 - 2009 from the annual report. Some data are collected from the State Bank of Pakistan (SBP). State Bank of Pakistan (SBP) provides an analysis report of different sectors and companies which were listed in Karachi Stock Exchange (KSE).

In this study, different variables are taken to measure the working capital (WC). Working Capital is taken as independent variable (WC) while profitability is taken as dependent variable (PRT). In this case, profit after tax is taken as profitability of firms. Working Capital can be measured by different ways.

First is net working capital (NWC), which is measured by current assets (CA), divided by current liabilities (CL). Second is inventory turnover in days (ITID), which is calculated by inventory divided by Cost of Goods Sold (CGS) and multiplied by 365.

Third is number of day of accounts receivable (AAR), which is calculated by other current assets divided by sale and multiplied by 365.

Forth is financial asset to total assets (FATA), which is calculated by adding cash and investment and the whole divided by total assets. In addition, current ratio (CR), debt to equity ratio (DER) and sales natural logarithm (LOS) are taken as control variable in this analysis.

All the aforementioned variables are affecting the Working Capital, Working Capital Management (WCM) and it will have negative or positive impact on the profitability of the firms.

Hypotheses testing

The objective of this research is to examine the impact of Working Capital (WC) on the profitability of firms. Figure 1 shows the impact
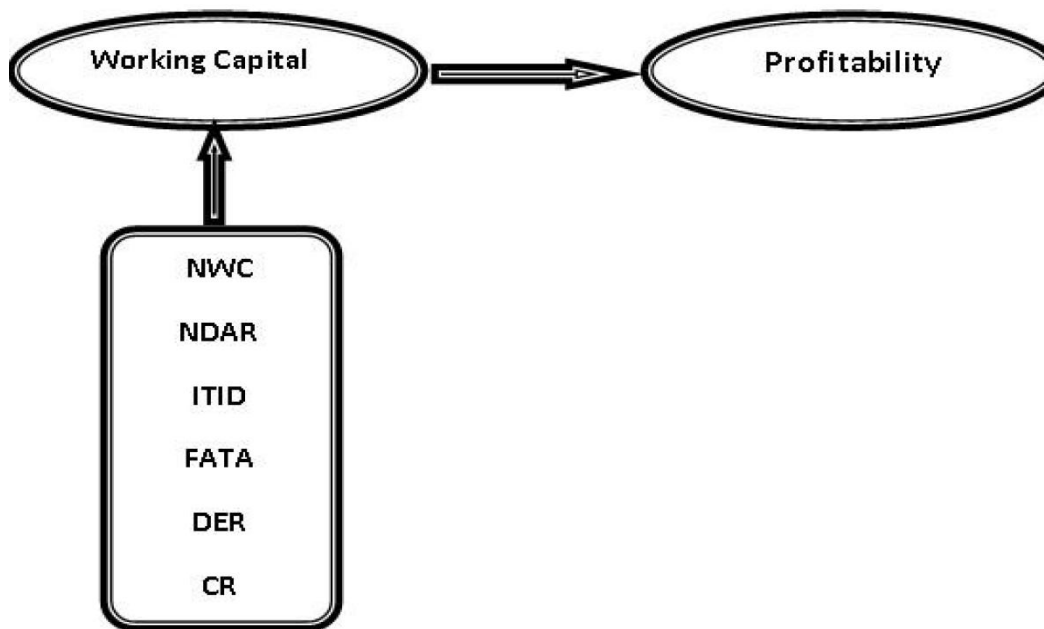
Figure 1. Impact of Working Capital on Profitability.

of working capital on profitability"

H₁: Working capital has positive effect on the profitability of firms.
H₀: Working capital has no positive effect on the profitability of firms.

Model specification

In this study, panel data regression analysis and time series of data are taken. For the regression analysis, pooled data are used. In this pooled data, all variables are combined on the same level and selected variables are grouped as independent and dependent variables.

After that, all variables are selected for regression and correlation analysis.

Model equation

$PRT\ it = \beta_0 + \beta_1\ (AAR\ it) + \beta_2\ (ITID\ it) + \beta_3\ (CR\ it) + \beta_4\ (DER\ it) + \beta_5\ (LOS\ it) + \beta_6\ (FATA\ it) + \beta_7\ (NWC\ it) + \varepsilon$

PRTi t = Net Profit t; i = 1- 20 firms.

β_0 : Beta
βi: Coefficients X it
X it: Independent variables i at time t
t: Time = 1-5 years.
ε: The error term

Whereas,
AAR = Average Account Receivable
ITID = Inventory Turnover in Days
CR = Current Ratio
LOS = Sales logarithm

FATA = Financial Assets to Total Assets
NWC = Net Working Capital
DER = Debt Equity Ratio

Qualitative analyses

In this paper, two analyses are applied. First, correlation and statistical tools are applied in these data. We select person correlation model for this study to find out the degree of correlation among dependent and independent variables. In the regression analysis, we gather the data from annual reports and turn it to the same level. This gathering of data is called pooled data. For this analysis, we select E-views software to analyze it correctly in the case of pooled data.

DATA ANALYSIS AND REGRESSION RESULTS

The correlation and determination coefficients are the measures of the regression model. First, correlation coefficient (49.95%) and the determination coefficient (26.12%) show the degree of correlation among working capital and profitability of selected firms from oil and gas and automobile sector over 2004 - 2009.

The standard error value is 6.5926 and F-statistics value is 5.4213 which is significant at 1% and shows 100% fitness of the model (Table 1). Similarly, the Durbin-Watson statistics is 1.9991 which clearly defines that there is no serial correlation in this regression model. Table 2 shows the estimation results of the six antecedents for the independent variable of working capital at

Table 1. Model summary.

R	0.499599
R^2	0.261211
Adjusted R-squared	0.213029
Standard Error of Estimate	6.592679
Durbin-Watson statistics	1.991426
F statistics	5.421362

Table 2. Estimation results.

Variable	Means	SD	T stats	Remarks
NWC	23.58595	8.415465	4.520358	Sig
NDAR	129.4913	351.7532	0.254527	Not Sig
ITID	75.80012	143.2339	0.937944	Not Sig
FATA	0.217936	0.191679	-0.477942	Not Sig
DER	17.96434	3.368055	-0.554939	Not Sig
CR	18.85266	0.597391	0.096545	Not Sig

Table 3. Correlation matrix.

	PROFIT	NWC	NDAR	IITD	FATA	DER	CR
PROFIT	1.000000						
NWC	0.474400	1.000000					
NDAR	0.109619	-0.086246	1.000000				
ITID	0.112621	-0.125120	0.748882	1.000000			
FATA	-0.124623	-0.054646	-0.190807	-0.311687	1.000000		
DER	-0.201328	-0.308676	-0.095937	0.061122	0.078238	1.000000	
CR	-0.217375	-0.397314	-0.040053	-0.118921	0.396036	0.008978	1.000000

1% significance level. The results show that Net Working Capital (NWC) has positive and significant impact on the Profitability (PRT) of firms and the rest of the variables explain the behavior of profitability but have no significant impact on profitability.

In the correlation results shown in Table 3, networking capital has strong positive relationship with profitability of firms while number of days of account receivable (NDAR) and Inventory turnover in days (ITD) are positive but have weak correlation power with profitability of firms; financial assets to total assets (FATA), debt equity ratio (DER) and current ratio (CR) are weak and negatively correlate with the Profitability (PRT) of the firms.

But the correlation results of independent variables somehow showed positive and strong correlation of inventory turnover in days (ITD) with number of days account receivable (NDAR) and a strong but negative correlation of current ratio with net working capital; the remaining variables correlate but are weak in both the positive and negative sense, thus the concept of co-linearity does not exist among the variables as evident by the analysis results.

Conclusion

This study is the relationship of working capital (WC) and profitability (PRT) of firms. working capital (WC) is the major portion of the balance sheet. In this paper, data are collected form Annual Reports (AR) and analysis report which is provided from the State Bank of Pakistan (SBP). In this analysis report, the companies which are listed in stock exchange are analyzed and summarized. In this research, oil and gas and automobile sectors are taken

as sample. Data are taken from 2004 - 2009.

In this research, R shows the fitness of model which is 49.95%. The independent variables explain 49.95% of the model. In the regression results, only net working capital is positive and significant and Number of Days of Account Receivable (NDAR) and Inventory Turnover in Days (ITD) are positive but insignificant; and all other independent variables are negative and insignificant.

In the correlation results, networking capital is positively correlated with profitability of the firms.

The other two variables are weakly correlated with the profitability of firms and the other three independent variables are negatively correlated with profitability of firms.

Hence, the empirical results of the paper show the positive trend of working capital on profitability of the firms. The results are supported by previous studies of Rahman (2007) and Nazir and Afza (2009) and Deloof (2002) on the Working Capital (WC).

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