Relationship of Operating Cycle and Firm's Returns: Cases from Manufacturing Firms Listed In KSE Pakistan.

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Abstract

Working capital management is a valuable factor for successful operations of a firm., that's why many researchers from different disciplines study it with different analysis and in different environments. Operating cycle is a very valuable component for the firms as it directly affects the liquidity and profitability of the firms. The major components of working capital are current assets and current liabilities which are helpful for firms optimal level of returns. This study is conducted to find the relationship between the components of cash conversion cycle and firm's return. to conduct the research only manufacturing firms of Karachi stock exchange were taken as the inventory and collection periods can only be calculated for manufacturing firms. The study results confirm that there is a strong negative relationship between variables of the working capital management and profitability of the firm. As the CCC increases, profitability of the firm decreases, and managers can create a positive value for the shareholders by reducing the CCC to a possible minimum level. There is also a stumpy negative relationship between debt used by the firm and its profitability.

INTRODUCTION

- **Literature and Research Review**
Working capital management is a valuable factor for successful operations of a firm., that's why many researchers from different disciplines study it with different analysis and in different environments. Available literatures related to this study are as below.

(Deloof M. 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 inc ome 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.

Raheman A and Nasr M. (2007) elucidated *that* Most of the Pakistani 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. They 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 using panel data regression analysis of cross-sectional and time series data for a sample of Pakistani firms listed on Karachi 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.

Working capital management is particularly important in the case of small and medium sized companies. Most of these companies' assets are in the form of current assets. Also, current liabilities are one of their main sources of external finance. The objective of the research was to provide empirical evidence about the effects of working capital management on the profitability using Descriptive Statistics, Correlation Matrix, Mean Values by ROA Quartiles & Effect of Working Capital Management on ROA of a sample of 8,872 covering the period 1996-2002
(*Teruel* PJG and Solano PM. 2007).

(Lazaridis I and D Tryfonidis. 2006) observed a negative relationship between profitability (measured through gross operating profit) and the cash conversion cycle which was used as a measure of working capital management efficacy. It seems that operational

profitability dictates how managers or owners will act in terms of managing the working capital of the firm. The data collected were from listed firms in the Athens Stock Exchange Market using a sample of about 300 firms which narrowed down to 131companies for a period of 2001-2004 using regression analysis and Descriptive stastics. Managers can create profits for their companies by handling correctly the cash conversion cycle and keeping each different component (accounts receivables, accounts payables, inventory) to an optimum level.

Afza T and MS Nazir (2008) investigated the relationship between the aggressive/conservative working capital policies for seventeen industrial groups and a large sample of 263 public limited companies listed at Karachi Stock Exchange for a period of 1998-2003. Using ANOVA and LSD test, the study found significant differences among their working capital investment and financing policies across different industries. Moreover, rank order correlation confirmed that these significant differences were remarkably stable over the period of six years of study. Finally, ordinary least regression analysis found a negative relationship between the profitability measures of firms and degree of aggressiveness of working capital investment and financing policies.

Conversion Period(ICP) and Cash Cycle (CCC) for a sample of Indian automobile industry. These results recommend that managers can generate value for their shareholders by minimizing the number of days of accounts receivable and inventories to a reasonable minimum. Additionally, firms are capable of attaining sustainable competitive advantage by means of effective and efficient utilization of the resources of the organization through a careful decline of the CCC to its minimum. In doing so, the performance of the firm is anticipated to enhance. The study also observed that positive link between accounts payable period and profitability. This finding holds that more profitable firms wait longer to pay their bills. These conclusions are in affirmation with Shin and Soenen (1998), Eljelly (2004), Lazaridis and Tryfonidis (2006) and Garcia etal.(2007).

Problem Statement and Justification of the Research Project/Hypothesis and Objectives of the Study
- To show the relationship between working capital management and profitability on selected cases from selected firms of Pakistan.
- To show the effect of different components on WCM.
- To examine the ratio of debt to profitability in Pakistan's firms.
- To emphasize the importance of working capital management.
- To derive the conclusions on the relationship of WCM and Profitability.
- comparing working capital management in highly profitable firms and less profitable firms

The study and sample: The population was Pakistan manufacturing companies which are listed in KSE. The sample size was of thirty companies—from petroleum, Cement, Automobiles, food and Pharma, selected on the basis of purposive sampling technique. The period of the

study was one year from 2012 to 2013.

Data Collection: The data was collected through secondary sources i.e. websites of KSE, and data from companies websites. The dependent variable was the (Sales/income) as a measure of Profitability. In this study four independent variables were taken to measure the relationship of operating cycle with the firm's return. These includes; collection period, numbers of days inventory , payment period and cash conversion cycle.

Data Analysis Tool: in order to fulfill the objective Multiple Regression using SPSS has been applied.

Research Method(s)

The purpose of this paper is to contribute towards an important concept of working capital management with reference to Pakistan. Here we will examine the relationship between working capital management practices and its effects on profitability of selected 50 Manufacturing Pakistani firms for a period of three years from 2011 – 2013. This section of the article discusses the firms and variables included in the study, the distribution patterns of data and applied statistical techniques in investigating the relationship between working capital management and profitability.

- ## Variables:
  The variables of working capital are taken by secondary data like previous research papers on working capital management.
- **Number of days Account receivable** has been used as proxy for the Collection Policy is an **independent variable** (ID.V)calculated by dividing account receivable by sales and multiplying the result by 365 (number of
   days in a year).
- **Number of days Inventory** has been 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.
- **Number of days Account payable** has been 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 (Number of days Account receivable + Number of days Inventory - Number of days Account payable).
- **Profitability**(SALES/REVENUES)is a dependent variable(D.V)

- ## Conceptual Framework:
The relationship among dependent (D.V) Vs independent variables (I.V)
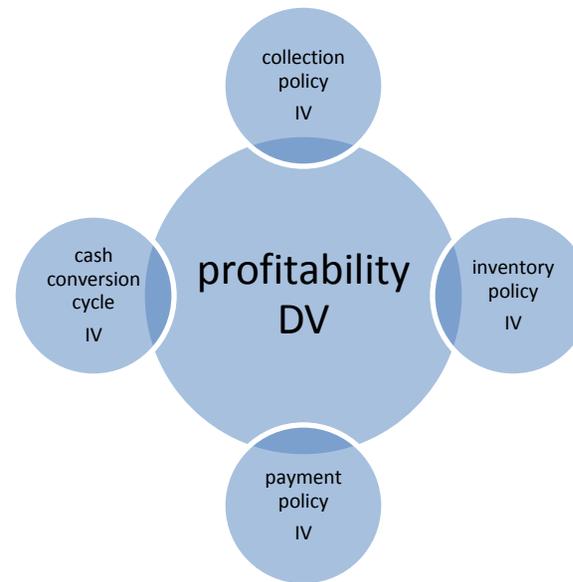
- **Hypotheses Testing**

Hypothesis of the Study

The study was undertaken with the following hypotheses:

The study makes a set of testable hypothesis {the Null Hypotheses (H0) versus the Alternative ones (HA)} to examine the relationship between working capital management and Profitability.

A

H_0 1:Numbers of days account receivables (collection policy) has no relationship on a firm's profitaility.
H_A 1:Numbers of days account receivables (collection policy) has an relationship on a firm's profitability.

B

H_0 2:Numbers of days inventory (inventory policy) has no relationship on a firm's profitability.
H_A 2:Numbers of days inventory (inventory policy) has an relationship on a firm's profitability

C

H_0 3:Numbers of days accounts payable (payment policy) has no relationship on a firm's profitability.
H_A 3:Numbers of days accounts payable (payment policy) has an relationship on a firm's profitability

D

H_0 4: cash conversion cycle has no relationship with profitability of the firm.
H_A 4: ccc has a relationship (positive/negative) with profitability of the firm.

E

H_0 5: r=0(correlation) between ccc and ROA of a firm.
H_A 5: $\pm$r between ccc and ROA.

- **Data Collection, Analysis and Evaluation of Data (in empiric research):**
  Data Analysis Tool: in order to fulfill the objective Multiple Regression using SPSS has been applied.

Descriptive Statistics

	Mean	Std. Deviation
Net Income	108.966151	273.234949
Accounts receivables	15.1100	16.63423
Inventory period	124.6645	130.61726
Payment period	133.2155	134.51580
Cash Conversion cycle	6.5591	74.72113

Correlations

		Net income	Accounts receivables	Inventory period	Payment period	ccc
Pearson Correlation	Net income	1.000	.807	-.222	-.244	.232
	Accounts receivables	.807	1.000	-.126	-.299	.541
	Inventory period	-.222	-.126	1.000	.872	.150
	Payment period	-.244	-.299	.872	1.000	-.343
	ccc	.232	.541	.150	-.343	1.000
Sig. (1-tailed)	Net income	.	.001	.256	.235	.247
	Accounts receivables	.001	.	.357	.186	.043
	Inventory period	.256	.357	.	.000	.329
	Payment period	.235	.186	.000	.	.151
	ccc	.247	.043	.329	.151	.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.845[a]	.715	.592	174453231.35192	.715	5.844	23	7	.025	1.504

a. Predictors: (Constant), ccc, inventory period, accounts receivables

b. Dependent Variable: net income

R-Square is the proportion of variance in the dependent variable (**net income**) which can be predicted from the independent variables (**CCC, inventory period, collection period** and **payment period**). This value indicates that 71.5% of the variance in **net income** scores can be predicted from the variables **CCC, inventory period, collection period** and **payment period** . Note that this is an overall measure of the strength of association, and does not reflect the extent to which any particular independent variable is associated with the dependent variable. R-Square is also called the coefficient of determination.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53353586871862 3040.000	23	17784528957287 4336.000	5.844	.025[b]
	Residual	21303750950388 7552.000	7	30433929929126 792.000		
	Total	74657337822251 0590.000	30			

a. Dependent Variable: net income
b. Predictors: (Constant), ccc, inventory period, accounts receivables

Yes, the independent variables reliably predict the dependent variable". It indicates that the group of variables **CCC, inventory period, collection period** and **payment period** can be used to reliably predict **profitability** (the dependent variable).

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order
(Constant)	-103097634.754	103450376.395		-.997	.352	-347718903.613	141523634.106	
accountsrecievables	15536645.108	4070833.808	.946	3.817	.007	5910652.762	25162637.453	.807
inventoryperiod	-129968.354	441084.598	-.062	-.295	.777	-1172967.692	913030.985	-.222
ccc	-989843.823	909418.720	-.271	-1.088	.312	-3140277.384	1160589.738	.232

a. Dependent Variable: netincome

The regression equation of this research is
Net income Predicted = -103097635 + 15536645 accounts receivables + (-129968.354) inventory period+ (-989844)CCC

- **Accounts receivables**- The coefficient (parameter estimate) is **15536645**. So, for every increase in Accounts receivables, a **15536645** increase in net income is predicted, holding all other variables constant.
- **Inventory period** - For every increase in **inventory period**, there is a -**129968.354** decrease in the predicted profitability score, holding all other variables constant.
- **Cash conversion cycle (CCC)** - The coefficient for CCC is **-989844**. This means that for an increase in the CCC, we expect an approximately**-989844** point decrease in profitability. However it is statistically significant,

- ## Conclusion

It is important to study the role of working capital *management* policies on profitability of a company. In this paper the effect of working capital management on the profitability of manufacturing companies in Pakistan during the period 2011-2013 has been examined by regression analysis. The findings of the study indicate that inventory days, collection days and cash conversion cycle are directly related variables with working capital management, and have significantly negative effects on firm profitability. The negative correlation between cash conversion cycle and profitability will indicate an efficient management of working capital.

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