Accounting of Optimum Working Capital in Pakistan: Evidence from Manufacturing Sectors

First Author

Saqib Hussain

Business Graduate

IQRA University

Karachi-75300, Pakistan

Email:saqibhu.lecturer@gmail.com

TEL +92-321-8739470

ABSTRACT

The persistence of this study is to scrutinize the relationship between working capital managementandFirm performanceto determine their significance of working capital optimum where performance could be achieved maximum or minimum across the seven industrial sectors namely Cement, Food, Tobacco, Oil and Gas Exploration, Textile, Pharmaceutical and Fertilizer Sector. Panel data have been used of manufacturing firms in Pakistan (Karachi stock exchange index 100). The study reveals about the assigned levels of the each sector, with the help of quadric function. If each sectors will sustains their assigned level of working capital then they will get optimization level of the performance. Our result examined that, if manager sustain the given assigned level of cash conversion cycle and current ratio then they can know and achieve the optimize profits and also create positive value for shareholders by maximization of profit.

Key Words:*Profit after tax, Cash conversion cycle and Current ratio*

1. Introduction

The literature on investment decision grew through much theoretical and empirical contribution. There are so many studies available that show a direct relation between investment & firm value (Burton, Lonie, & power 1999;McConnell &Muscarella, 1985). Authors like (smith 1980;Kim& Chung 1990) all they did suggest that working capital decision would be affected on the performance. Pervious study tells us that Working capital is a very important perspective.In2011 Haq et al did investigate that working capital management would directly effect on the effectiveness of the firm. As a consequence working capital increase theshareholders' value (Ernst & young, 2009) working capital plays significant role in every corporate sector.Firms try to achieve optimum level of working capital because this techniquesindicate the firms are able to meet their operating expenses and can also pay their short term liability or not. Further higher working capital indicate that money is locked up in working capital/current assets (Deloof, 2003)in additional higher working capital might also hamper the ability of the firm to take up other value-enhancing projects.

Firms try to achieve optimum level of working capital because techniques indicate the firms are able to meet their operating expenses and can also pay their short term liability or not. If working capital falls from its point then it is not managing well of the working capital and they can face liquidity crisis with reduction in profitability, hence operating activity would be affected of the concerned firm. Secondly if firm has greater working capital level this indicates that increased their opportunity cost & financing cost. On the other hand, if working capital will even greater than the optimum level companies face more interest expenses, as a result (Kieschnick et al. 2011) and therefore additional praise risk. Further higher working capital indicate that money is locked up in working capital/current assets (Deloof, 2003) in additional higher working capital might also hamper the ability of the firm to take up other value-enhancing projects.

More importantly optimum level of working capital requirement depends on the nature of the firms because different business will have different working capital requirement For instance, manufacturing firms heavily invest in spare parts and tools because their account receivable would be large while Food restaurants inventory level would be large for the goods of resale and receivable level is lower other than the manufacture (Ukaegbu 2014). There are three basic concept of cash conversion cycle, that is inventory period, receivable period & payable period, firm can efficiently working, if they

maintain their working capital level. Investigationpapers show the importance of these three major perspectives that if account receivable and inventory period would increase firm will face imbalance in the level of working capital, similarly account payable period is short then firms can face below & above optimum level of working capital(Ukaegbu 2014;Enqvist, Nikkinen 2014).

Many studies have been done in the past related to the impact of the optimum working capital on the firm's performance, profitability & investment[1]. Many researchers did give scientific result about the variable of Cash conversion period, account receivable period & account payable period, which these entire items is increased or decreased, and then what would be effect on the firm performance & profitability[2]. Some of the researchers also did suggest how should be firm approaches regarding working capital & what would be the decisions about working capital in the Recession & Boom[3]. Additionally we have different theory which provide information that manufacturing firm optimum working capital ratio should be 'two 'rather than less than or more than two. Otherwise firm will not face comfortable liquidity position or bear finance & opportunity cost. The theory also state that optimum working capital will depend on the business nature (it is not necessary that every firm of optimum working capital of two)[4]. However they only determined the optimum working capital toward industry, finished Good firm and covered different areas of the world.

After this research we will be able for the optimum point, where profitability will be maximized or minimized. As per our knowledge there arises the need of the research as the first to analyze the functional form of this relation in the Pakistan non-financial firm whose registered in the KSE-100 index, in which we will investigate and examine relationship between the variable (PAT, CCC, CR) by the help of U-shaped or inverted U-shape (Quadric Function).

Therefore the objectives of this paper is to finding the optimum level of working capital and examineimpact of optimum levelof cash conversion cycles or current ratio on net income of a firm. The rest of this paper is structured as: Section 2reviews the previous literature, Section 3examines the data and the methodology for the current research, Section 4presents results from the data analysis, Section 5concludes.

2. Literature Review

Deloof (2003) also found that the way working capital is managed has a significant impact on the profitability of businesses. He used a sample of 1,009 large Belgian non-financial firms for the period of 1992-1996. However, used trade credit policy and inventory policy are measured by number of day's accounts receivable, accounts payable and inventories, and the cash conversion cycle as a comprehensive measure of working capital management. He founds a significant negative relation between gross operating income and the number of day's accounts receivable, inventories and accounts payable. Thus, he suggests that managers can create value for their shareholders by reducing the

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[1]Deloof, M., (2003),S.Banos-Caballero (2013)& Burton, Lonie, & power (1999)

[2]B.Ukaegbu (2014),MohmmadShaukat Malik &MahumBukhari (2014), Abuzayed, B. (2012)

[3]J.Enqvist et al (2014), Richards, V.D., Laughlin, E.J (1980)

[4]Management of working capital Chapter 7 the institute of charted account of India, CA-IPCC-Chapter of Financial management.

number of day's accounts receivable and inventories to a reasonable minimum. He also suggests that less profitable firms wait longer to pay their bills

BanaAbuzayed(2011)the purpose of this paper is to examine the effect of working capital management on firms performance in the sector of firms listed on a small emerging market, namely as Amman Stock Exchange. In this investigation is conceptual as well as empirical analysis in which collect of the data from a sample of listed firms in the Amman stock Exchange from the period from 2000 to 2008. This investigation result is more profitability firm is less motivated of the managing working capital. This paper suggests the policy maker of the emerging market need to motivate and boost manager & shareholder to give more attention on the working capital through improving investor awareness.

Mohammad (2011) also examined the association between working capital management and corporate profitability in Iranian industrial firms between 2001 and 2006. Using variables on CCC as independent variables and gross operating profit as a dependent variable, he found that there is a significant negative relationship between average collection period and profitability. Likewise, the association between inventory turnover days and profitability was found to be significant. This implies that firms should decrease the CCC in order to improve profitability since the longer the CCC, the greater the firm's need to look for ways of financing its operations.

S.Banos-Caballero(2013),investigates linkage between working capital management & corporate performance for the sample of non-financial UK companies. They did investigate a large and statistically significant inverted U-shaped relation between corporate performance and working capital. This paper examine the net trade cycle, if net trade cycle would be double then firm performance would be negative in which inverted U shape relation exist between the working capital & firm performance also this paper finding indicate that at working capital levels below the optimum level then higher sales would be effected, contrariwise the opportunity & finance cost dominate. Further they did find turning point in their research paper is 66.95 days as called optimum level of working capital.

Ben Ukaegbu(2014), the purpose of this study is to examine the relationship between working capital efficiency & corporate profitability. This paper examines the manufacturing firm in Egypt, Kenya, Nigeria and South Africa on the basis of quantitative approach using balance of panel data for the period of 2005-2009 also in order to check whether the result is appropriate use the multiple regressions. In this paper investigate there is a strong negative relationship between profitability & cash conversion cycle across four different countries, if cash conversion cycle would be increase then profitability become negative further he also find the Account receivable collection period days should be at minimum & account payable period should be at maximum days then profitability become positive. Manager can create positively value of shareholder by reducing a days of the account receivable & sale their inventory quickly as soon as possible further delaying the payment of their supplier that they could increase their profitability. This paper can provide best knowledge of the working capital management influence profitability across within four countries.

2.1 Importance of working capital management

Many researchers have explained the importance of cash conversion cycle that, how could Cash conversion cycle effect on the profitability (Ukaegbu 2014; Enqvist, Graharm and Nikkinen2014). The cash conversion cycle (CCC), a useful and comprehensive measure of working capital manage-ment, has been widely used in the literature (see for example Deloof, 2003; Gill et al., 2010). The CCC measured in days, is the length of time between a company's expenditure for the procurement of rawmaterials and the collection of sales of finished goods. We adopt this as our measure of working capitalmanagement in this study. Previous studies have established a link between profitability and the CCCin different countries and market segments.Efficient working capital management practices aims to shorten the CCC to optimize to levels thatbest suites the requirements of the specific company (Hager, 1976). A short CCC indicates quick col-lection of receivables and delays in payments to suppliers. This is associated with profitability giventhat it improves corporate efficiency in its use of working capital. Deloof (2003), however, positsthat low inventory levels, tight trade credit policies and utilizing obtained trade credit as a means offinancing can increase risks of inventory stock-outs, decrease sales stimulants and increase accountspayable costs by forgoing given cash discounts.Deloof (2003), Wang (2002), Lazaridis and Tryfonidis (2006), and Gill et al. (2010) all propose a negative relationshipbetween the cash conversion cycle and corporate profitability.

Current ratio is the most significant liquidity determinant which affects profitability (Makori, Jagongo 2013). The current ratio and cash conversion cycle relation exist between the profitability and liquidity(Eljelly 2004). The main advantage of current ratio is that it is easy to calculate and represent all the current asset and current liability. Higher current ratio in general considered good but if the ratio is too high, there is efficiency in asset usage. On other side, if current ratio would below, it seems to be bad for the profitability (Li-Hua, Szu-Hsien, Yi-Min, Chun-Fan 2014). Current ratio represents current asset over current liability.

3. Data Collection and Methodology.

In this study, two modelswill be representing. In which we will use two independent variables that will measure the working capital management (cash conversion cycle, current ratio) and one dependent variable measure theperformance of the mentioned sectors (Profit after tax). Many authors have explained the cash conversion cycle or current ratio that these variables are effective for the measurement of working capital management (Enqvist, Graham,Nikkinen 2014;Baños-Caballero, García-Teruel, Martínez-Solano 2013).

Abbreviations; (for further reference)

CCC = Cash Conversion Cycle ,CR = Current Ratio PAT = Profit after

Cash conversion cycle and current ratioare formula (Nikolai, Bazley, and Jefferson; Mclaney5[th] Edition, 201, p.310)given below,

$$cash\ conversion\ cycle = No\ of\ days\ inventory\ + No\ of\ days\ receivable - No\ of\ days\ payable$$

i. $No\ of\ days\ inventory = \dfrac{365}{inventory\ turnover\ ratio}$

$$Inventory\ turnover\ ratio = \dfrac{cost\ of\ goods\ sold}{average\ inventory}$$

ii. $No\ of\ days\ account\ receivable = \dfrac{365}{receivable\ turnover\ ratio}$

$$Receivable\ turnover\ ratio = \dfrac{Net\ sales}{average\ receviable}$$

iii. $No\ of\ days\ account\ payable = \dfrac{365}{payable\ turnover\ ratio}$

$$Payable turnover ratio = \frac{cost of goods sold}{average creditor payable}$$

iv. $current\ ratio = \frac{current\ asset}{current\ liability}$

According to the (Murekefu&Ouma 2012)this concept of research was established in the relationship between dividend payout and firms performance listed in the Nairobi Securities Exchange. Their result was that dividend payout is major factor to the firm's performance (PAT). According to (Pandey, 2005) shareholder wealth and profit (PAT) making are major objective of the any firm. According to (Azhagaiah&Priya 2008) those shareholders wealth are mainly focused by increasing in sales, improvement in profit margin (PAT) capital investment decision and capital structure decision. According to the (Baker 2001) the dividend policy can affect the value of the shareholder. Firm will not be able to provide dividend without any profit (PAT). PAT is a very important factor on the behalf of dividend, without which firm cannot decide their dividend policy.

According to the (Omah, Okolie, Durowoju 2013) their research paper investigates on the impact of merger and acquisition on the shareholder wealth. The result suggested that the shareholders' value creation is highly dependent on profit (PAT value, operating expense, capital Employed & Expense ratio). PAT is the best indicator for the shareholders wealth.

3.1Data Collection source and Sample Size

We have developed secondary data from the financial statement to investigate the involvement between working capital management and profitability. In our research include non-financial firms inPakistan listed in the Karachi stock Exchange 100 thus, for the principle of this research. Seven sectors are employed for the purpose.

Table 3.1: Sample of Seven Sectors of the Firms (Karachi Stock Exchange index-100)

Cement Sector	Attock Cement Of Pakistan	Fauji Cement Company	Lucky Cement Company	Cherat Cement Company	Kohat Cement Company	D.G Khan Cement Factory	Pioneer Cement Company
Food Sector	Engro Food	Rafhan Maize	RafhanMaimurree Brewery	Nestel Food Company	National Food Company		
Tobacco Sector	Pakistan Tobacco Company						
Oil And Gas Exploration Sector	Paksitan Oilfield Limited	Oil and Gas Development Company	Mari Petroleum Limited	Pakistan Petroleum Limited			
Textile Sector	Gulahmed Textile Company	Nishat Textile Company	Nishat(Chunian) Textile Company	Kohinoor Textile Mil Limited			
Pharmaceutical Sector	Glaxosmithkline Pakistan Limited	Abbot Pakistan Limited	Searle Company	Ferozsons Company			
Fertilizer Sector	Fauji Fertilizer Bin Qasim	Fatima Fertilizer	Fauji Fertilizer	Engro Fertilizer			

The data taken to carry out this study was of the cement sector year (2010 to 2014), food sector (2010 to 2014), tobacco sector (2006 to 2014), oil and gas exploration sector

(2010 to 2014), textile sector (2006 to 2014), Pharmaceuticals sector (2008 to 2014) and fertilizer sector from (2006 to 2014). To analyze the time series data, Panel ordinary least square method technique is used as a statistical technique. Data associated to these seven sectors was collected from a very reliable and dependable source i.e. "Audit/Published Financial Statement as given on their relevant website.

3.2 Hypothesis Model

The study has two different model equations which are as follows

Model 1 $\boldsymbol{PAT = \beta_o + \beta_1 CCC + \beta_2 CCC^2 + e}$

Model 2 $\boldsymbol{PAT = \beta_o + \beta_1 CR + \beta_2 CR^2 + e}$

Y is showing as the dependent variable of the performance in the model 1 and 2. Cash conversion cycle and current ratio its squares is showing as two independent variable after the technique optimum or minimum point can be found where profitability achieve maximum or minimum of the firm beside the idea of cash conversion cycle and current ratio.Time Series error component is error (e). The quadric function concept on this model will be applied to find optimum point in both models. Theory of the Quadric Function has the concept of U-shaped and inverted U-shaped. Quadric function is a special case of the polynomial model (Aiken and west 1991;DeMaris 2004). We could be found the optimum level with the help of inverted U-shaped ($\beta 1 > 0$, $\beta 2 < 0$) and bottom/minimum point with the help of U-shaped ($\beta 1 < 0$, $\beta 2 > 0$) that is according to Quadric Function. Many researchers used this concept in their research (Barios-Coballero 2014; Bruyn, Bergh, Opschoor 1998) and explained the existing relationship between the variables that is a U-shaped or Inverted U-shape. The turning point is found the help of given formula ($-\beta 1/2\beta 2$).

3.3 Hypothesis

Inverted U-Shaped or U-Shaped does not exist in the relation between working capital management and firm performance.

4.Empirical Evidence

We are representing each sector result given below each table will exemplify two models.

4.1 Cement Sector

As a result Panel least square method table 4.1 of displaying 7 non-financial firms (Cement sector) listed in Pakistan, across the Karachi Stock Exchange 100 index for a period of five year from the 2010 to 2014.

Table 4.1:Estimation Result Cash Conversion Cycle or Current Ratio Firm Performance Relation of Cement Sector

Cash Conversion Cycle				*Current Ratio*			
Variables	*Coefficient*	*t-statistics*	*Prob.*	*Variables*	*Coefficient*	*t-statistics*	*Prob.*
C	- 631367.8	-0.860005	0.3962	C	-402229.0	- 0.438194	0.6642
CCC	137068.3	4.038991	0.0003	CR	1500376.	1.615595	0.1160
CCC^2	- 752.1435	-2.855545	0.0075	CR^2	29369.12	0.159415	0.8743
R-squared	0.401635			R-squared	0.505007		F-
F-statistic	10.73955			statistic	16.32371		
Prob.(F-statistics)	0.000270			Prob.(F-statistics)	0.000013		

Source : Author Estimation

The table reveals that the inverted U-Shape curve does subsist between the working capital management and firm performance in the model 1 and its null hypothesis is rejected as a result is insignificant, revealing optimum level of performance besides the idea of net trade cycle (CCC). According to the coefficient, optimum level is 91.11 days giving implication to the cement sector in which if sustain the cash conversion cycle then it will get optimum performance. Shareholders value and their profits will be maximized if cement sector sustain their cash conversion cycle on the assigned level, on the contrary sector will face decreasing performance if cash conversion cycle will be below from the assigned level.

However null hypothesis is accepted of model 2 as result is insignificant there is no any U-shaped or inverted U-shaped curve subsist between the working capital management and firm performance in the model 2 beside the idea of current ratio.

4.2 Food Sector

As a result Panel least square method of table 4.2 of displaying 5 non-financial firms (Food sector) listed in Pakistan, across the Karachi Stock Exchange 100 index for a period of five year from the 2010 to 2014.

Table 4.2:Estimation Result Cash Conversion Cycle or Current Ratio Firm Performance Relation of Food Sector

Cash Conversion Cycle				*Current Ratio*			
Variables	*Coefficient*	*t-statistics*	*Prob.*	*Variables*	*Coefficient*	*t-statistics*	*Prob.*
C	1641269	2.402622	0.0252	C	7141532	4.148983	0.0004
CCC	66667.10	2.785283	0.0108	CR	- 4593276	- 2.715892	0.0126
CCC^2	- 631.6885	-3.566099	0.0017	CR^2	773920.7	2.247285	0.0350
R-squared	0.431112			R-squared	0.339400		
F-statistic	8.335969			F-statistic	5.651530		
Prob.(F-statistics)	0.002020			Prob.(F-statistics)	0.010455		

Source : Author Estimation

The table reveals that their inverted U-Shape does subsist between the working capital management and firm performance in the model 1. Hence null hypothesis is rejected as a result of significant, in which case we can recommend optimum level of performance besides the idea of cash conversion cycle. According to the coefficient, optimum level is 5.27 days where we can give implication to the food sector, if firms will sustain their cash conversion cycle on assigned level then they will get maximum performance. Managerscan enhance shareholders value and maximize their profit if they sustain their cash conversion cycle on 5.27 days. Otherwise performance of the firm will decrease if cash conversion cycle goes below the assigned level.

However model 2 is also significant and according to research design U-shaped does exist between the working capital management and firm performance.We can alsorecommend minimum level of the performance besides the idea of current ratio. Our result is indicated by the quadric relation, minimum level is 2.96times, where we can give implication to the food sector, that if firms will retain their current ratio on the times of

2.96 then they will get at least minimum performance. In the indication of U-shaped curve, current ratio will be raised from the assigned level and performance will also increasevice versa.

4.3 Tobacco Sector

As a result Panel least square method table 4.3..1 of displaying 4 non-financial firms (Tobacco sector) listed in Pakistan, across the Karachi Stock Exchange 100 index for a period of nine years from the 2006 to 2014.

Table 4.3: Estimation Result Cash Conversion Cycle or Current Ratio Firm Performance Relation of Tobacco Sector

Cash Conversion Cycle				Current Ratio			
Variables	Coefficient	t-statistics	Prob.	Variables	Coefficient	t-statistics	Prob.
C	- 77260182	- 3.163353	0.0195	C	- 66721361	- 66721361	0.1014
CCC	1117617.	3.180615	0.0191	CR	1.3608	1.892749	0.1072
CCC^2	- 3864.036	- 3.093990	0.0213	CR^2	- 66425401	- 66425401	0.1258
R-squared	0.683628			R-squared	0.583706		F-
F-statistic	0.683628			statistic	4.206445		
Prob.(F-statistics)	0.031666			Prob.(F-statistics)	0.072144		

Source : Author Estimation

The table reveals that there inverted U-Shape does subsist between the working capital management and firm performance in the model 1 and its null hypothesis is rejected as a result of significant, in which we can recommend optimum level of performance beside the idea of cash conversion cycle. According to the coefficient, optimum level is 144.61 daysgiving implication to the tobacco sector that can sustain itscash conversion cycle on the assigned level to get maximum performance. Shareholders value and their profit can only be maximized if they will sustain their cash conversion cycle on the assigned level otherwise decrease in the cash conversion cycle from the assigned level then performance will also decrease.

However null hypothesis is accepted in the model 2, the table reveals that there is an inverted U-shapebetween the working capital management and firm performance according to quadric functionbut thereis a delinquent in significance of value because of which inverted U-shaped does not exist between the working capital management and firm performance. Regardless of the current ratio recommended optimum level cannot be achieved.

4.4 Oil and Gas Exploration Sector

As a result Panel least square method table 4.4 of displaying 4 non-financial firms (Oil and Gas exploration Sector) in Pakistan, across the Karachi Stock Exchange 100 index for a period of five year from the 2010 to 2014.

Table 4.4: Estimation Result Cash Conversion Cycle or Current Ratio Firm Performance Relation of Oil and Gas Exploration Sector

Cash Conversion Cycle				Current Ratio			
Variables	Coefficient	t-statistics	Prob.	Variables	Coefficient	t-statistics	Prob.
C	61188177	4.954542	0.0001	C	- 23728810	- 0.856286	0.4037
CCC	- 1407240.	- 2.891039	0.0102	CR	24139786	1.478312	0.1576
CCC^2	7909.886	2.745138	0.0138	CR^2	- 1284476.	- 0.621823	0.5423

R-squared	0.331542		R-squared	0.415745		F-
F-statistic	4.215828		statistic	6.048430		
Prob.(F-statistics)	0.032594		Prob.(F-statistics)	0.010378		

Source : Author Estimation

The table reveals that there U-Shape does exist between the working capital management and firm performance in the model 1 and its null hypothesis is rejected, in which we can recommend minimum level according to the quadric relation which is 88.94 days where firm's performance will be minimized. If cash conversion cycle will be increase from the assign level then performance increases vice versa, cash conversion cycle will be declined from the assigned level but performance also increases at 88.94 days. "The firm performances involuntarily increase when cash conversion cycle decreases"

However null hypothesis is accepted of model 2 and its result is insignificant. the table reveals that there is an inverted U-shape between the working capital management and firm performance according to quadric function but there is a delinquent in significance of value because of which inverted U-shaped does not exist between the working capital management and firm performance. Regardless of the current ratio recommended optimum level cannot be achieved.

4.5 Textile Sector

As a result Panel least square method table 4.5 of displaying 4 non-financial firms (Textile sector) listed in Pakistan, across the Karachi Stock Exchange 100 index for a period of nine years from the 2006 to 2014.

Table 4.5: *Estimation Result Cash Conversion Cycle or Current Ratio Firm Performance Relation of Textile Sector*

Cash Conversion Cycle				Current Ratio			
Variables	*Coefficient*	*t-statistics*	*Prob.*	*Variables*	*Coefficient*	*t-statistics*	*Prob.*
C	1.7908	0.277859	0.7829	C	- 2.4909	- 7.147808	0.0000
CCC	- 5829135.	- 0.389918	0.6991	CR	4.3109	6.325385	0.0000
CCC^2	35372.02	0.441944	0.6614	CR^2	- 1.7209	- 5.302609	0.0000
R-squared	0.008879			R-squared	0.641093		F-
F-statistic	0.147823			statistic	29.47285		
Prob.(F-statistics)	0.863152			Prob.(F-statistics)	0.000000		

Source : Author Estimation

The table reveals a U-shape between the working capital management and firm performance according to quadric relation. Null hypothesis is accepted of the model 1and its result is insignificant. U-shaped does not exist between the working capital management and firm performance because of significance value, in which minimum level cannot be assigned so as the firm's performance in the cash conversion cycle.

However model 2 is significant, null hypothesis is rejected, there is exists inverted U-shaped between the working capital management and firm performance the with recommend optimum level of current ratio. Our result is sustain on Quadric Function theory where optimum level of current ratio is 1.25times where we can confer implication

to the textile sector then firms will acquire maximization of performance. Shareholders worth can be maximized with the help of assign level of current ratio.

4.6 Pharmaceuticals Sector

As a result Panel least square method table 4.6 of displaying 4 non-financial firms (Pharmaceuticals Sector) in Pakistan, across the Karachi Stock Exchange 100 index for a period of five year from the 2008 to 2014.

Table 4.6: *Estimation Result Cash Conversion Cycle or Current Ratio Firm Performance Relation of Pharmaceutical Sector*

Cash Conversion Cycle				Current Ratio			
Variables	*Coefficient*	*t-statistics*	*Prob.*	*Variables*	*Coefficient*	*t-statistics*	*Prob.*
C	3219431	8.213487	0.0000	C	-2166500	-1.962647	0.0609
CCC	- 30265.88	- 4.555114	0.0001	CR	2126045	2.748012	0.0110
CCC^2	75.20053	3.017840	0.0058	CR^2	-311947.1	-2.580783	0.0161
R-squared	0.717399			R-squared	0.247891		
F-statistic	31.73193			F-statistic	4.119936		
Prob.(F-statistics)	0.000000			Prob.(F-statistics)	0.028412		

Source : Author Estimation

The table reveals that there U-Shape does exist between the working capital management and firm performance in the model 1 and its null hypothesis is rejected, in which we can recommend minimum level according to the quadric relation which is 201.23 days where firm's performance will be minimized. If cash conversion cycle will be increase from the assign level then performance increases vice versa, cash conversion cycle will be declined from the assigned level but performance also increases at 201.23 days. "The firm performance involuntarily increases when cash conversion cycle decreases" (Ukaegbu 2013; Makori, Ambrose Jagongo, 2013; Ayub 2015; Lazaridis and Tryfonidis, 2006; García-Teruel and Martínez-Solano, 2007; Falope and Ajilore, 2009). As evident the U-shaped this happens when it lowers from the assigned level.

However model 2 is significant and its null hypothesis is rejected, there is exists inverted U-shaped between the working capital management and firm performance the with recommend optimum level of current ratio. Our result is sustain on Quadric Function theory where optimum level of current ratio is 3.4times where we can confer implication to the pharmaceuticals sector then firms will acquire maximization of performance. Shareholders worth can be maximized with the help of assign level of current ratio

4.7 Fertilizer Sector

As a result, Panel least square method of table 4.7 of displaying 4 non-financial firms (fertilizer sector) listed in Pakistan, across the Karachi Stock Exchange 100 index for a period of nine years from the 2006 to 2014.

Table 4.7: *Estimation Result Cash Conversion Cycle or Current Ratio Firm Performance Relation of Fertilizer Sector*

Cash Conversion Cycle				Current Ratio			
Variables	*Coefficient*	*t-statistics*	*Prob.*	*Variables*	*Coefficient*	*t-statistics*	*Prob.*
C	6304519	4.961121	0.0000	C	1150059	0.427524	0.6718
CCC	7466.462	0.138696	0.8905	CR	10301996	2.401978	0.0221
CCC^2	354.8393	0.349475	0.7290	CR^2	- 3517791.0	-2.332319	0.0259

R-squared	0.003720	R-squared	0.151362
F-statistic	0.061606	F-statistic	2.94293
Prob.(F-statistics)	0.940361	Prob.(F-statistics)	0.066668

Source : Author Estimation

The table reveals that there is no any inverted U-Shape or U-shape is subsist between the working capital management and firm performance, because of which we can't recommend the maximum or minimum performance of the firm. Null hypothesis is accepted, model 1 is insignificant, beside the idea of cash conversion cycle.

However model 2 is significant, null hypothesis is rejected in which we can recommend optimum level. In additional our result is sustaining the inverted U-shaped relation optimum level is 1.46times where we can confer implication to the fertilizer sector, in case if firm will sustain their current ratio on the assessment of 1.46 then firms will acquire maximum performance. If current ratio is below than the assigned level then firm performance will decrease.

5. Conclusion

This investigation has found that there is an assigned level of optimum working capital relationship between the firm performances where sectors can achieve maximum or minimum profits. In addition, we found that there is a significant result of inverted U-Shaped curve or U-shaped Curve between the working capital management and firm performance behalf of this we assigned level of each sector in the contradiction of cash conversion cycle and current ratio. According to result, if cash conversion cycle or current ratio is decreased from their assigned level, then profit after tax will decrease as a significant result of concave relationship between the working capital management and firm performance. Similarly as our significance results of u-shaped curve is indicating that its current ratio or cash conversion cycle will increase and decrease but profit after tax will increases.

A firm must have policy to accelerate cash conversion cycle and current ratio. Cement, Food, Tobacco sectors is an optimum level is 91.11, 5.27, 144.61 days respectively with the significant value, concave relationship subsist between the working capital management and firm performance and on this assigned level sectors can achieve maximum performance beside the idea of cash conversion cycle. However Oil and Gas Exploration and Pharmaceutical sectors optimum level is 88.94, 196.29 days respectively with the significance value but in this sector u-shaped relationship exist between the working capital management and firm performance on this assigned level sectors will achieve minimum performance beside the idea of cash conversion cycle, result is insignificant of the textile sectors in which we cannot be achieve optimum level in the contradiction of cash conversion cycle.

In additional Textile, Pharmaceuticals and fertilizer sectors is optimum level is 1.25, 3.6, 1.46 times respectively with the significance value, concave relationship exist between the working capital management and firm performance on this assigned level sectors can achieve maximum performance beside the idea of current ratio. However Food sector optimum level is 2.9 times with the significance value but in this sector u-shaped relationship exist between the working capital management and firm performance on this assigned level sectors will achieve minimum performance beside the idea of current ratio, further our result is insignificant of the cement, Tobacco and Oil and Gas Exploration sectors in which we cannot achieve optimum point beside the idea of current ratio.This paper therefore recommends that managers can enhance value for their shareholders by maintaining the assigned levelof cash conversion cycle and current ratio. The cash

conversion cycle and current ratio measures how operative administrators are in managing the working capital.

Our findings indicate that profit will be optimum, after it as maintaining the inventory turnover period, account receivable period and account payable period for assigned level. This supports the idea that at lower than level of working capital, managers would prefer to increase the investment in working capital in order to increase firms' sales as perspective of increasing profit for the shareholder value maximized.

There are numerous suggestions of our study which may be applicable for administrator/managers and research on investment in working capital. Our results suggest that managers should be anxious about working capital, because of the costs of moving away from the optimum or minimum working capital level. Managers should avoid negative effects on firm performance through higher profits. This thesis results provide the suggestion for the Cement and Tobacco sectors that they maintain their cash conversion cycle period on the assigned level, if cash conversion cycle will be below form the assigned level then sector will face lower performance and shareholder value will be affected although current ratio is insignificant because of this we cannot give any recommendation behalf of current ratio.

Further Food sector concentrate on the cash conversion cycle policy if they will maintain on the assigned level then maximum performance will be get by the sector and shareholder value will be enhanced although current ratio will be increased or decreased then firm performance and shareholder value will be maximized. However Oil and Gas Exploration sector did not concentrated the cash conversion cycle policy and current ratio because our result is indicate that if cash conversion cycle will be increased or decreased from the assigned level then performance will be maximized because this type of sector are higher profitable, they are less motivated to manage their cash conversion cycle (Abuzayayed 2012; Gill, BigerandMathur 2010) but Oil and gas exploration sector can know about minimum profit from these research (assigned level) we cannot give any recommendation behalf of current ratio because of insignificance value. Textile sector concentrate on the current ratio policy, if they will maintain their current ratio on given assigned level then they can take maximum performance, according to our result cash conversion cycle result is insignificant because of this we cannot give recommendation behalf of the cash conversion cycle.

Pharmaceuticals sectors are higher profitable because of this they are less motivated to manage their cash conversion cycle, if cash conversion cycle will be decrease and increase from the assigned level then performance would be maximized but on the assigned level performance will be minimized, although pharmaceuticals sector manage their current ratio policy on the assigned level then they can achieve maximum performance behalf of current ratio if current ratio will be below then sector will face minimization of performance. In the last fertilizer sector maintain their current ratio on the given assigned level then they can achieve maximum performance if current ratio will be below from the assigned level then performance become reduce, we cannot give any recommendation behalf of cash conversion cycle of this sector because of insignificant result. However, there is assigned level of working capital atwhich a higher or lowerprofit indication arises to be negative and positive in terms of shareholder value hence, the higher profitprobability of reducing bankruptcy and credit risk of firms.

References

Abuzayed, B. (2012). Working capital management and firms' performance in emerging markets: the case of Jordan. *International Journal of Managerial Finance*, *8*(2), 155-179.

Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. Sage.

Aktas, N., Croci, E., &Petmezas, D. (2015). Is working capital management value-enhancing? Evidence from firm performance and investments. *Journal of Corporate Finance*, *30*, 98-113.

Andey, V. K., Shanahan, K. J., & Hansen, S. W. (2005).The relationship between shareholder wealth effects, diversity, and publicity as a marketing strategy. Journal of the Academy of Marketing Science, 33(4), 423-431.

Ayub, Q. M. Y. (2015). Impact of working capital management on profitability of textile sector of Pakistan. *Business and Management*, *7*(1).

Azaridis, I., &Tryfonidis, D. (2006).Relationship between working capital management and profitability of listed companies in the Athens stock exchange. *Journal of financial management and analysis*, *19*(1).

Azhagaiah, R., &Priya, S. N. (2008).The impact of dividend policy on shareholders' wealth. *International Research Journal of Finance and Economics*, *20*, 180-187

Baker, F. B. (2001). *The basics of item response theory*. For full text: http://ericae. net/irt/baker.

Baños-Caballero, S., García-Teruel, P. J., &Martínez-Solano, P. (2014).Working capital management, corporate performance, and financial constraints. Journal of Business Research, 67(3), 332-338.

Brigham E F and Ehrhardt M C (2004), *Financial Management: Theory and Practice*, 11th

Burton, B. M., Lonie, A. A., & Power, D. M. (1999). The stock market reaction to investment announcements: the case of individual capital expenditure projects. *Journal of Business Finance & Accounting*, *26*(5-6), 681-708.

Chakraborty, S. K. (2004). *Cost Accounting and Financial Management*. New Age International Publisher, New Delhi.

Charitou, M. S., Elfani, M., & Lois, P. (2010). The effect of working capital management on firm's profitability: empirical evidence from an emerging market. *Journal of Business & Economics Research (JBER)*, *8*(12).

Charitou, M., Lois, P., &Santoso, H. B. (2012). The relationship between working capital management and firm's profitability: an empirical investigation for an emerging Asian country. *International Business & Economics Research Journal (IBER)*, *11*(8), 839-848.

Chen, S., & Dodd, J. L. (1997). Economic value added (EVA™): An empirical examination of a new corporate performance measure. *Journal of Managerial Issues*, 318-333.

Chhapra, I. U., &Naqvi, N. A. (2010).Relationship between efficiency level of working capital management and profitability of firms in the textile sector of Pakistan.

De Bruyn, S. M., van den Bergh, J. C., &Opschoor, J. B. (1998). Economic growth and emissions: reconsidering the empirical basis of environmental Kuznets curves. *Ecological Economics*, *25*(2), 161-175.

Deloof, M. (2003). Does working capital management affect profitability of Belgian firms? Journal of business finance & Accounting, 30(3-4), 573-588.

DeMaris, A. (2004). *Regression with social data: Modeling continuous and limited response variables* (Vol. 417). John Wiley & Sons.

Ding, S., Guariglia, A., & Knight, J. (2013). Investment and financing constraints in China: does working capital management make a difference? Journal of Banking & Finance, 37(5), 1490-1507.

Eljelly, A. M. (2004). Liquidity-profitability tradeoff: an empirical investigation in an emerging market. *International Journal of Commerce and Management*, *14*(2), 48-61.

Enqvist, J., Graham, M., &Nikkinen, J. (2014). The impact of working capital management on firm profitability in different business cycles: Evidence from Finland. Research in International Business and Finance, 32, 36-49.

Ernst, Young, 2009. All Tied up – Working Capital Management Report 2009 [online] [cited 14th of January 2010] Available Online.

Falope, O. I., &Ajilore, O. T. (2009).Asikhia OU. *Research journal of business management*, *3*(3), 73-84.

Gill, A., Biger, N., &Mathur, N. (2010). The relationship between working capital management and profitability: Evidence from the United States.*Business and Economics Journal*, *10*(1), 1-9.

Gill, A., Biger, N., &Mathur, N. (2010). The relationship between working capital management and profitability: Evidence from the United States.*Business and Economics Journal*, *10*(1), 1-9.

Gul, S., Khan, M. B., Rehman, S. U., Khan, M. T., & Khan, W. (2013). Working capital management and performance of SME sector. *European journal of business and management*, *5*(1), 60-68.

Gul, S., Khan, M. B., Rehman, S. U., Khan, M. T., & Khan, W. (2013). Working capital management and performance of SME sector.*European journal of business and management*, *5*(1), 60-68.

Haq, I., Sohail, M., Zaman, K., Alam, Z., 2011. The relationship between working capital management and profitability: a case study of cement industry in Pakistan. Mediterranean Journal of social Science 2 (2), 365-372.

Houle, M. D. (2008). Economic Value Added. *Senior Honors Papers*, 38.

Ijaiya, M. A. (2014). Dividend Policy and Financial Performance: A Survey of Selected Quoted Firms in Nigeria. *CENTREPOINT JOURNAL (Humanities Edition)*, *17*(1).

Islam, M. N., &Mili, S. A. (2012). Working Capital Investment and Financing Policies of Selected Pharmaceutical Companies in Bangladesh. *Research Journal of Finance and Accounting*, *3*(4), 1-7.

Juan García-Teruel, P., & Martinez-Solano, P. (2007).Effects of working capital management on SME profitability. International Journal of managerial finance, 3(2), 164-177.

Juan García-Teruel, P., & Martinez-Solano, P. (2007).Effects of working capital management on SME profitability. *International Journal of managerial finance*, *3*(2), 164-177.

Kieschinick, R. Laplante, M., and Moussawi, R. (2011).Working capital management and Shareholder wealth.Working Paper.

Kim, Y. H., & Chung, K. H. (1990). An integrated evaluation of investment in inventory and credit: A cash flow approach. Journal of Business Finance & Accounting, 17, 381–390.*).*

Lazaridis, I., &Tryfonidis, D. (2006).Relationship between working capital management and profitability of listed companies in the Athens stock exchange.Journal of financial management and analysis, 19(1).

Lin, L. H., Lin, S. H., Lin, Y. M., & You, C. F. (2014). The Analysis of Company Liquidity A Using Cash Conversion Cycle Application: Evidence from Taiwan. Global Journal of Business Research, 8(5), 97.

Lo, C. M., Liu, C. L., Fan, S. T., Lai, E. C., & Wong, J. (1998). Prospective randomized study of early versus delayed laparoscopic cholecystectomy for acute cholecystitis. *Annals of surgery*, *227*(4), 461.

Lyroudi, K., &Lazaridis, Y. (2000).The cash conversion cycle and liquidity analysis of the food industry in Greece.

Mahmood, M. T., &Shahab, S. Energy, Emissions and the Economy: Empirical analysis from Pakistan.

Makori, D. M., &Jagongo, A. (2013). Working Capital Management and Firm Profitability: Empirical Evidence from Manufacturing and Construction Firms Listed on Nairobi Securities Exchange, Kenya. *International Journal of Accounting and Taxation*, *1*(1), 1-14.

Malik, M. S., &Bukhari, M. (2014). The Impact of Working Capital Management on Corporate Performance: A Study of Firms in Cement, Chemical and Engineering Sectors of Pakistan. Pakistan Journal of Commerce and Social Sciences, 8(1), 134-148.

Management of working capital Chapter 7 the institute of charted account of India, CA-IPCC-Chapter of Financial management.

McConnell, J. J., &Muscarella, C. J. (1985).Corporate capital expenditure decisions and the market value of the firm. *Journal of financial economics*,*14*(3), 399-422.

McLaney, E. J. (2006). *Business finance: theory and practice*. Pearson Education.

Mohamad, N. E. A. B., &Saad, N. B. M. (2010). Working capital management: The effect of market valuation and profitability in Malaysia.*International Journal of Business and Management*, *5*(11), p140.

Murekefu, T.M. and Ouma, O.P. (2012).The Relationship between Dividend Payout and Firm Performance: A Study of Listed Companies in Kenya. European Scientific Journal, 8(9), 199-215

Nazir, M. S., &Afza, T. (2009).Impact of aggressive working capital management policy on firms' profitability. *The IUP journal of applied finance*, *15*(8), 19-30.

Nazir, M. S., &Afza, T. (2009).Working capital requirements and the determining factors in Pakistan. IUP Journal of Applied Finance, 15(4), 28-38.

Nikolai, L., Bazley, J., & Jones, J. (2009). *Intermediate Accounting (Book Only)*.Cengage Learning.

Nwankwo, O., &Osho, G. S. (2010). An empirical analysis of corporate survival and growth: Evidence from efficient working capital management. *International Journal of Scholarly Academic Intellectual Diversity*, *12*(1), 1-13.

Omah, I., Okolie, J. U., &Durowoju, S. T. (2013). Mergers and acquisitions: Effects on shareholders' value evidence from Nigeria. *International Journal of Humanities and Social Science*, *3*(6), 151-159.

Padachi, K., Howorth, C., &Narasimhan, M. S. (2012). Working Capital Financing Preferences: The Case of Mauritian Manufacturing Small and Medium Sized Enterprises (SMEs). Asian academy of management journal of accounting and finance, 8(1), 125-157.

Pandey, M. I. (2005). *Financial Management* (9th ed.). New Delhi: Vikas publishing House Pvt Limited.

Richards, V. D., & Laughlin, E. J. (1980).A cash conversion cycle approach to liquidity analysis.*Financial management*, 32-38.

Saleem, Q., &Rehman, R. U. (2011).Impacts of liquidity ratios on profitability. Interdisciplinary Journal of Research in Business, 1(7), 95-98.

Sharma, A. K., & Kumar, S. (2011). Effect of working capital management on firm profitability empirical evidence from India. *Global Business Review*,*12*(1), 159-173.

Smith, K. (1980). Profitability versus liquidity tradeoffs in working capital management.In K. V. Smith (Ed.), Readings on the management of working capital (pp. 549–562).

Talonpoika, A. M., Monto, S., Pirttilä, M., &Kärri, T. (2014). Modifying the cash conversion cycle: revealing concealed advance payments. International Journal of Productivity and Performance Management, 63(3), 341-353.

Ukaegbu, B. (2014). The significance of working capital management in determining firm profitability: Evidence from developing economies in Africa.*Research in International Business and Finance*, *31*, 1-16.

utukaite, R., &Molay, E. (2011, May). Cash holdings, working capital and firm value: Evidence from France. In *International Conference of the French Finance Association (AFFI*

Van Horne, J.C., Wachowicz, J.M., 2004. Fundamental of Finanacial Management, 12th ed. Prentice Hall, New York.

Wilson, N., Summers, B., & Hope, R. (2000). Using payment behaviour data for credit risk modelling.*International Journal of the Economics of Business*, *7*(3), 333-346.

Zafer, 2013.Pharma and Bio-Tech Sector.BMA capital Management Ltd.