

Working capital management and firm performance: evidence from non-financial firms in Pakistan

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ABSTRACT

This study analyzes the effects of Working Capital management i.e. inventory management, receivable management and payable management, on the performance of the non-financial firms in Pakistan. Panel data of 280 nonfinancial firms enlisted in Pakistan Stock Exchange have been analyzed from 2000 to 2016. Firms' profitability were proximate with return on assets and return on equity; whereas for growth i.e. sales growth and asset growth were used. The impact of Working Capital management is captured through its constituent policies such as Inventory management, Receivable Management and Payable management. Firm size, liquidity and leverage are used as control variables. Results suggest that Working Capital management has a significant impact on firms' financial performance in terms of profitability, as well as growth. As far as component wise results are concerned, inventory management does influence the firms' growth and Payable management significantly, hence affecting the firms' profitability. However, only receivable management influences both profitability and growth.

Contribution/ Originality

This study contributes by incorporating largest numbers of nonfinancial in Pakistan. Earlier studies, either only focused on KSE100/KSE30 Index firms or they only focused on a specific industry i.e. Manufacturing/ Oil and Gas Sector, Textile or Pharmaceutical etc. This study will reflect consolidated behavior of Working Capital Management from the nonfinancial sector in Pakistan.

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1. INTRODUCTION

Working Capital management plays a vital role in the day to day operations of a business. Proactive management of operations is the key to a successful business. An efficient management of Working Capital addresses several areas of a business, such as payment and collection of cash, timely ordering of inventory, and even sales management. All of these areas contribute towards better financial performance, which in turns accelerates the growth of a firm. Profitability and growth both are reflections of the situation of a firm's operations.

Resource planning and controlling are the two steps for effective Working Capital management. Both steps in synchronization, allow firms to avoid either over-investment or under-investment in short term resources. Firms managing their Working Capital effectively won't need to pay back short-term obligations, by borrowing from external resources. As far as policies of Working Capital management are concerned, two kinds of policies are discussed; namely conservative policy and aggressive policy. In a conservative policy, more investments are in short-term resources, and comparatively less in long-term resources; while in an aggressive policy, there is low investment in short-term resources, whereas investment in long-term resources is high.

Through aggressive investment policy, firms may generate more profits; but on the contrary it makes a risk of not fulfilling short-term debts and insufficient funds for routine operations. For conservative Working Capital financing policy, current obligations are against most parts of long-term obligations. However, when compared with an aggressive policy, larger part of the current obligations are maintained against fixed obligations. To settle greater levels of short-term obligations, more resources are required to be in the current asset form. Business's debt obligations and running operating expenses, are mostly planned and covered through Working Capital (Preve and Sarria-Allende, 2010). For Working Capital management, firms adopt different tailor-made reporting layouts (Filbeck and Krueger, 2005).

The contemporary boom in empirical researches on the Working Capital - performance relation is concentrated towards devising a policy for the short-term asset-obligation mix, which in minimized risk scenario maximizes profitability (Makori and Jagongo, 2013). However, there is a consensus on the effects of Working Capital management on a firm's performance, at least at the component level of Working Capital management. The rationale for such diverse evidence might be the unique economic environments in which business operates. Another reason might be the temporal changes in technology and management practices.

Owing to the different economic conditions, technological changes, and numerable business practices, decisions in regard to Working Capital management and its components also tends to differ. Low corporate performance is generally observed in low economic state or in recession. In economic downturn, requirements of efficient Working Capital increase also have its impact on operational profitability (Enqvist *et al.*, 2014). A company's capacity to settle current liabilities is called liquidity. A firm seeks to have an optimize tradeoff between liquidity and profitability. Although, profitability and liquidity apparently are not indispensable to each other. But profitable business promises proper flow of funds, guaranteeing to meet short term obligations and fulfilling other operational needs. There are strong evidences of the positive relation between Working Capital efficiency and Company's returns. Researches on this theme, tries to find out which component of Working Capital efficiency of a company returns, tends to yield diversified results.

The manner in which a firm's manages its Working Capital, can directly impact its liquidity and profitability (Shin and Soenen, 1998). While maintaining adequate liquidity, every firm's main objective is to maximize its profit. A balanced trade-off is the dilemma in WORKING CAPITAL Management between financial performance and liquidity (Raheman and Nasr, 2007). Firm's liquidity is not based on the liquidation value of the assets, but rather on cash flows generated by these assets (Joshi, 1997).

Efficient Working Capital management is not limited to the liquidity of firms, but has an impact on solvency and long-term existence. For value creation through profitable investment projects, fund requirement can either be met with loans or by minimizing its investment in short-term resources; so, a firm can increase opportunities of returns to shareholders. Many small businesses in developed and developing countries fail because of not having ample amount of funds (Rafuse 1996). Whereas, if short-term resources are underinvested, then the firm may face liquidity crunches, and insolvency may occur. The focus of this study is to analyze the relationship between Working Capital and the performance of firms.

Efficient Working Capital Management plays a vital role in the survival of a business. A premised fact is that, having too less cash in hand makes business survival shaky; whereas too much investment in short-term resources proves unprofitable. Some firms are unable to fulfill their short-term obligations and operational needs, because they do not hold a right mix of cash, inventory and other operational assets. Compromising on Working Capital adequacy results in a firm's inability to expand its operations, which in turns results in hampering growth (Oladipupo and Okafor, 2013).

Although efficient use of Working Capital components i.e. short-term assets and short-term obligations, provides companies with an immediate advantage of increasing profitability; it also generates indirect venues of increasing returns, by providing idle cash to invest. In the context of the aforementioned notions, the study attempts to empirically give an evidence of the claimed association between Working Capital Management and financial performance; and the research problem can be stated as follows:

“This paper will investigate whether or not, the efficient & effective management of working capital has an impact on financial performance in terms of profitability as well as growth with the core focus on the non-financial sector in Pakistan.”

This research took into consideration the non-financial firms in Pakistan for a period of 16 years. For this, the concurrent relationship of Working Capital components with the financial performance in terms of profitability and growth of non-financial firms in Pakistan was investigated. Such investigation would not only be helpful for corporate managers, but also for investors during decision making. Researchers and academicians will benefit by having an understanding and insight of the dynamics of Working Capital, in the context of emerging economies in general, and Pakistan in particular.

Hence the objectives of this research are as follows:

- To understand the impact of Working Capital Management in terms of its components on firms' profitability.
- To understand the impact of Working Capital Management in terms of its components on firms' growth.

Thus, in the first section, the discussion is on the understanding of Working Capital Management. This part includes the introduction, where definitions and deliberations on Working Capital Management, and its importance with respect to firms' performance are shown. Second section would contain the literature review, which is provided in a converging manner. Different authors' definitions are discussed at the beginning of the literature review, followed with the literature review itself, to broaden the concepts needed for the current study. Finally, the core research problem of the study is discussed with reference to the existing literature. Third section provides the methodology and analysis, which encompasses research design, sample framework & method, source of data, building hypothesis, econometric modeling and results.

2. LITERATURE REVIEW

There is usually a tradeoff between liquidity and profitability; effective Working Capital Management enhances profitability of firms while achieving optimal level of liquidity. Control of short-term resources and short-term obligations in such a way that a firm is provided with maximum return on assets, while minimizing its liquidity risk, so that the firm's reputation is not put at stake, is known as efficient and effective Working Capital Management (Raheman and Nasr, 2007). Efficient management of inventories, accounts payable, accounts receivable and cash, falls under Working Capital Management. For easy comprehension, commonly cited explanation is, Working Capital simply means how much liquidity is available to fulfil the short-term obligation imposed because of the level of operations (Preve and Sarria-Allende, 2010).

Efficient WORKING CAPITAL Management results to boosted cash flows; therefore, firms need to rely less on external financings (Deloof, 2003). When we talk of efficient and effective management of Working Capital, it means that the firm's management finds efficient and effective ways to deal with daily available cash in hand, for optimum impact to be achieved (Bhutto *et al.*, 2015). Working Capital Management basic purpose is to have controls on financial resources in such a way that, profitability and risk associated with them, can be balanced (Ricci and Vito, 2000).

Working Capital is vital for smooth business operations (Filbeck and Krueger, 2005). Effective WORKING CAPITAL Management is essential not only for profitability and liquidity, but also for solvency of a firm (Mukhopadhyay, 2004). Desired level of liquidity and profitability are both explicitly affected by Working Capital Management (Raheman and Nasr, 2007). Profit can drastically decrease if a firm invests heavily in its Working Capital, because earning would be foregone; which could be earned through the investment of additional liquid resources. It also results to increase in inventory handling and storage (Arnold, 2008).

Financial performance of a company depends on the efficiency of Working Capital Management (Taleb *et al.*, 2010). Company's strategy to enhance the wealth of share-holders is the prime objective of effective Working Capital management (Afza and Nazir, 2008). Companies try to keep an optimal level of Working Capital that maximizes their value (Deloof, 2003). Working Capital Management has two approaches i.e. Static and Dynamic (Moss and Stine, 1993; Lancaster *et al.*, 1999; Jakpar *et al.*, 2017; and Farris and Hutchison, 2002). Measures that use cash inflow & outflow per day, for a given period of time in achieving speedy cash cycles were regarded from a dynamic view. While, static view of liquidity analysis measures it at a particular point of time (Gill *et al.*, 2010).

One of the determinants of Working Capital Management is size (Qurashi and Zahoor, 2017). Mixed results were found, when size was considered as a determinant to Working Capital. Almeida and Eid (2014), and Onaolapo *et al.* (2015) showed a positive relation; whereas Jose *et al.* (1996), and Abbadi and Abbadi (2013) demonstrated a contrary result that, Working Capital and Company size are inversely related. Relatively less investment in short-term resources is found for highly leveraged firms, because such companies reduce their short-term financing requirements. Working Capital and leverage is inversely related due to the payment of principal and interests (Onaolapo *et al.*, 2015). But it was shown in the studies that excess, financial resources are required in highly leveraged companies.

In order to meet funding needs of rapidly growing Companies, Working Capital Management should be efficient. Researchers have shown positive significant relationship between Working Capital and growth. Mohamad and Elias (2013), and Nazir and Afza (2008) concluded that, fast growing Companies rely more on internal funds. Onaolapo *et al.* (2015) stated that, there was a positive relationship between Working Capital and profitability; on the contrary, Lazaridis and Tryfonidis (2006) found an inverse relation between profitability and Working Capital Management.

Any firm's operating cycle which depends on a Working Capital Management Operating cycle, is reduced when they manage Working Capital efficiently (Paul and Wilson, 2006). A firm with long operating cycle requires more efforts to efficiently manage Working Capital. There are some studies which have proven an inverse relationship with operating cycle, empirically e.g. Deloof (2003), Afza and Nazir (2011). On the other hand, Onaolapo *et al.* (2015) proved that there exists a positive relation between Working Capital and operating cycle.

Lamberson (1995) and Zariyawati *et al.* (2010) observed that Working Capital requirement reaches its peak during economic booms and vice versa. Moreover, Nazir and Afza (2008), and Taleb *et al.* (2010) stated that there exists no significant relation between Working Capital and economic activity.

Majority of the researches confirm the classical theory of Working Capital-profitability i.e. the existence of a positive relation. Deloof (2003), while analyzing Belgian Companies and Wang (2002), analyzing Japanese and Taiwanese Companies, stated that profitability and management of Working Capital components has a significant positive impact on Companies' performance. Reduction in inventories and reducing receivable turnover, directly impacts directly profitability. Moreover, higher value for shareholders, attains efficient management of Working Capital components. Shin and Soenen (1998), using Net Trading Cycle (NTC) for measuring WORKING CAPITAL Management, reported a significant inverse relation between NTC and profitability. However, Shin and Soene (1998) could not find any significant relation between them for the same industry. Jose *et al.* (1996) took industry wise data, and analyzed that several industries show higher profitability against more aggressive liquidity management. They controlled industry and size differences and measured liquidity by cash conversion cycle.

Contrary to the traditional notion, conservative policy of Working Capital might also result in increased profit. It simply shows that more investment in Working Capital, reduces financial distress cost (Philip, 2015). Similarly, when firm maintains high inventory apart from the cons, there are some pros that are achieved; such as protection against shortage of raw material, price fluctuation, and production process interruption cost (Blinder and Maccini, 1991). Companies holding higher cash balances have higher returns (Czyzewski and Hicks, 1992).

It would be helpful if for the contextualization of this research, few important studies on Working Capital in Pakistan are included (Raheman *et al.*, 2010). Afza and Nazir (2008) studied Working Capital Management in sixteen subsectors of the manufacturing sector in Pakistan, they took a sample of 204 Companies and carved out Working Capital Management determinants for the period 1998-2006. Afza and Nazir (2007), in another paper, studied seventeen subsectors with a sample of 205 Companies listed on KSE (currently PSX) from 1998 to 2005. A comparison between conservative and aggressive Working Capital policies was the core objective of these studies. Results from these researches suggested that the degree of aggressiveness of policies for financing and investments of Working Capital of Companies are inversely linked with Companies' profitability (Azam and Haider, 2011), (Vishnani and Shah, 2007) and (Shah and Khan, 2012).

Raheman and Nasr (2007) verified the relationship between companies' profitability and Working Capital Management, by taking a sample of 94 Companies listed in KSE (currently PSX). An ongoing Working Capital measure and static measure of liquidity was used for a period from 1999 to 2004. Results of that study showed an inverse relation between profitability and Working Capital. Shah and Sana (2006) tested the relation between Working Capital and return on investment in the oil and gas sector of Pakistan, by taking a small sample from 2001 to 2005 for seven Companies. They concluded that financial managers could generate positive shareholders' return, by efficiently managing Working Capital. Azam and Haider (2011) also explored the Working Capital Management impact on the performance of non-financial firms but their sample were only targeting nonfinancial firms of KSE30 index only. Vohra *et al.* (2014) also explored Working Capital Management relationship with financial charges, for the situation in Pakistan, but their main focus

was linking leverage with Working Capital Management, thus they only focused on financial charges, and not the entire overall performance by only taking data for 6 years. Thus, in this study Working Capital Management relationship with firms' performance i.e. profitability and growth were explored using data for 16 years.

3. RESEARCH METHODOLOGY AND ECONOMETRIC MODELING

This study was made to be quantitative in nature; data from financial statements of companies were used for the analysis of the relationship between Working Capital and performance of all non-financial Companies listed in Pakistan's Capital Market. Financial data on annual basis was extracted from *Thomson Reuters* covering the period from 2000 to 2016 for all the maximum available firms i.e. 280, which produced concurrent insights. The data used included financial ratios such as return on equity, return of assets, assets growth, sales growth, liquidity, leverage, inventory turnover, receivable turnover, and payable turnover.

All non-financial companies from various sectors listed in Pakistan's Capital Market were considered as samples. Financial Companies such as banks, open and close ended mutual funds, brokerage houses, insurance companies etc., were excluded from the samples. Companies with missing data for the period of 2000 to 2016 were also excluded from the sample, at the operational level. The samples also did not contain outliers. Data cleansing was carried out using MS Excel to reconcile the data of Pakistan Stock Exchange, with that of Thomson Reuters, as symbols of Companies differ between the two databases. Fixed-effect model was used, since the sample companies were heterogeneous, for regression analysis. Hence, we applied Multiple Regression using the Fixed Effect Model. However, we also checked whether the Fixed Effect Model was appropriate or if the Random Effect was appropriate through Hausman Test.

3.1. Hypothesis

Here are the alternative hypothesis of this research:

HA1: There is a significant statistical effect of Working Capital components on firms' Financial Performance.

HA2: There is a significant statistical effect of Working Capital components on firms' growth.

3.2. Econometric models

The models for hypothesis testing were as follows:

$$ROA_{it} = \alpha + \beta_1 ITOD_{it} + \beta_2 ACP_{it} + \beta_3 APPER_{it} + \beta_4 SIZE_{it} + \beta_5 LIQ_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \dots (1)$$

$$ROE_{it} = \alpha + \beta_1 ITOD_{it} + \beta_2 ACP_{it} + \beta_3 APPER_{it} + \beta_4 SIZE_{it} + \beta_5 LIQ_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \dots (2)$$

$$AG_{it} = \alpha + \beta_1 ITOD_{it} + \beta_2 ACP_{it} + \beta_3 APPER_{it} + \beta_4 SIZE_{it} + \beta_5 LIQ_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \dots (3)$$

$$SG_{it} = \alpha + \beta_1 ITOD_{it} + \beta_2 ACP_{it} + \beta_3 APPER_{it} + \beta_4 SIZE_{it} + \beta_5 LIQ_{it} + \beta_6 LEV_{it} + \varepsilon_{it} \dots (4)$$

Here ROA: Return-On-Assets; ROE: Return-On-Equity; AG: Assets-Growth; SG: Sales Growth; APP: Average Payment - Period; ITOD: Inventory-Turnover-in-Days; ACP: Avg. Collection Period; SIZE: Total Size of Assets; LIQ: Liquidity; LEV) is Leverage a, b, and u are representing constant, coefficient, and stochastic error term respectively; subscripts *i* and *t* are representing cross-sectional units of firms and time units respectively.

For robustness of the analysis, four different models were used. Model 1 and Model 2 for profitability and Model 3 and Model 4 for Growth. Although, ROA and ROE, both showed profitability, but one had components of leverage and the other didn't have. Thus, if our results for both Model 1 and model 2 were robust, we could strengthen our claim. Similarly, in the case of

growth, both sales and assets growth were considered, however, sales growth showed the operational side of business, and assets growth showed the investment side of business. Thus, if our results were robust for both Model 3 and Model 4, we could strengthen our claim that Working Capital Management policies do support growth.

3.3. Variables

The table below represents all the variables used with their respective formula:

Table 1: Variables and their definitions

NOTATION	VARIABLES	DEFINITION
Dependent Variable:		
ROA	Return on Assets	Percentage of EBIT over T. Assets
ROE	Return on Equity	Percentage of EBIT over Capital
AGAsset	Assets Growth	Log (Asset _t /Asset _{t-1})
AGSales	Sales Growth	Log (Sales _t /Sales _{t-1})
Independent Variable:		
ACP	Avg. Collection Period	365/ Receivable Turnover
ITOD	Inventory Turnover in Days	365/ Inventory Turnover
APPER	Avg. Payment Period	365/ Payable Turnover
SIZE	SIZE	Log(Assets)
LIQ	Liquidity	Cur. Asset/Cur. Liability
LEV	Leverage	Total Debt/ Total Assets

4. ANALYSIS & RESULTS

4.1. Regression analysis

Table 2: Regression analysis

VARIABLES	(1) Pool AGSALES	(2) Random AGSALES	(3) Fixed AGSALES
ITOD	-0.0561*** (0.00809)	-0.0561*** (0.00809)	-0.0987*** (0.0128)
ACP	-0.0698*** (0.00766)	-0.0698*** (0.00766)	-0.152*** (0.0133)
APPER	-0.00406 (0.00549)	-0.00406 (0.00549)	0.00185 (0.00660)
SIZE	0.689 (0.430)	0.689 (0.430)	-0.444 (1.277)
LIQ	0.499 (0.428)	0.499 (0.428)	-0.612 (0.587)
LEV	5.306* (2.958)	5.306* (2.958)	14.99*** (5.237)
Constant	8.256 (7.112)	8.256 (7.112)	34.29* (20.27)
Observations	2,334	2,334	2,334
R-squared	0.074		0.120
Number of co		221	221

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2 shows that for pool, random and fixed effects, ITOD and ACP significantly affects sales growth, whereas APPER, SIZE, and LIQ are insignificant. LEV is only significant in Fixed-effect

model only. Once we checked the correlation between the variables, we went for the fixed-effect model, since the sampled companies were heterogeneous, and when the cross-sections of the panel were not homogeneous, fixed-effect model were used for regression analysis. Hausman test was also applied to find out which model was better, either the fixed-effect model or the random-effect model. The results suggested that the fixed-effect model was the most suitable to be used, because of the systematic difference in the coefficients.

4.3. Fixed-effect model

Results of Fixed-Effect Model are shown in Table 3 below

Table 3: Fixed effect model

VARIABLES	(1) ROA	(2) ROE	(3) AGASSET	(4) AGSALES
ITOD	0.0076 (0.0106)	-0.0079 (0.0433)	0.0467*** (0.00822)	-0.0987*** (0.0128)
ACP	-0.0514*** (0.0182)	-0.1080 (0.0740)	-0.0200** (0.0089)	-0.152*** (0.0133)
APPER	-0.0096 (0.0093)	0.183*** (0.0380)	-0.0004 (0.0042)	0.0018 (0.0066)
SIZE	8.033*** (1.819)	5.009 (7.403)	3.229*** (0.822)	-0.444 (1.277)
LIQ	0.8620 (0.8210)	2.164 (3.343)	-0.522 (0.378)	-0.612 (0.587)
LEV	-20.36*** (7.737)	-33.91 (31.49)	-2.437 (3.369)	14.99*** (5.237)
Constant	-113.4*** (28.90)	-62.55 (117.6)	-41.51*** (13.04)	34.29* (20.27)
Observations	2,531	2,531	2,334	2,334
R-squared	0.018	0.011	0.024	0.120
Number of co	221	221	221	221

Standard errors in parentheses

*** p < 0.01, ** p < 0.05, * p < 0.1

In the case of Return on Assets (ROA), ITOD, APPER and LIQ were insignificant whereas ACP, SIZE and LEV were highly significant. ACP and LEV both showed an inverse relation with ROA, while SIZE showed positive relation with ROA. There was a unit increase in ROA, when ACP decreased by 0.0514 points, or when SIZE increased by 8.033 points; or when LEV increased by 20.36. In the case of Return on Equity (ROE), only APPER had significant effects. APPER affected ROE with a positive coefficient of 0.183 value. ITOD, ACP, SIZE, LIQ and LEV had insignificant impact of ROE. But, the firm size, liquidity and leverage were the controlling variables in gauging the impact of Working Capital on Companies' profitability.

In the case of Asset Growth (AGASSET), ITOD and SIZE were highly significant, whereas other variables were insignificant at 1%. Inventory Turnover per day had positive effects, with a coefficient value of approximately 0.05, which was used in this model as a control variable. In the case of Sales Growth, ITOD, ACP and LEV variables were highly significant. Inventory Turnover and Avg. The Collection Period showed an inverse relation, with the Sales Growth having coefficient values of 0.1 and 0.15 respectively. Leverage also affected the sales growth positively, but it was used as a control variable in the model. The remaining variables were insignificant in the model.

5. CONCLUSIONS

Working Capital policies are always important to enhance companies' performance. In this study, we analyzed the effects of Working Capital Management on non-financial companies listed in the Pakistan's Capital Market. Our sample timeframe was from 2000 to 2016. The working Capital was bifurcated into its components such as Inventory Management, Receivable Management, and Payable Management, Companies' financial performance was gauged in terms of Profitability and Growth. Since we performed multiple regression analysis on the panel data, we had to randomly choose from a pool, where the fixed effect was selected as out model. Initial analysis suggested heterogeneity in our cross-sectional units, thus we chose the fixed effect model. Results of Hausman test also support our selection.

Results from the fixed effect model suggested that certain components of the Working Capital Management didn't impact the profitability as well as the growth of nonfinancial Companies in Pakistan. These components varied with proxies of profitability and growth. The impact of inventory turnover and account receivable turnover was very much evident for growth of the Companies; whereas account payable account receivable turnover significantly influenced the profitability of the Companies. If we combined the results of both Companies' profitability and Companies' growth, we could conclude with two main insights; firstly, Working Capital Management has a significant impact on Companies' financial performance in terms of profitability as well as growth; secondly, account receivable policy is a key component of Working Capital Management for the financial performance of Pakistan's nonfinancial firms. Hence, consistent receivable policies over a period of time will be helpful for nonfinancial firms in Pakistan, to boost their financial performance.

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