




WORKING CAPITAL FINANCING AND CORPORATE PROFITABILITY OF PAKISTAN MANUFACTURING FIRMS: EVIDENCE FROM FMCG, CEMENT & CHEMICAL SECTOR



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ABSTRACT

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The aim of conducting research is to explore the dynamic relation of working capital financing with respect to profitability of the firm & for that purpose data has been gathered from three different sectors i.e. chemical, cement & FMCG. For analyzing the results panel least square method has been employed for which stationarity level of data series has been checked through panel unit root test & results shows data series were non-stationary on level 1 but it has been stationary on 1st difference. This study is also among very few of the researches which uses quadratic model and panel regression models to verify the results. Additionally, this study explore the working capital management effect on profitability along with liquidity and short-term obligation as a measure of working capital management through considering specifically manufacturing sector by using the fixed/random effect regression model, on which no previous research has been done. Finding indicate that there is an insignificant but negative relationship between Return on assets (ROA) and all the control variables of working capital except current assets and sales in pooled regression model and current assets & debt ratio in fixed/random effect model. In brief, study suggests that profitability of firm is not dependent on investment in working capital of chemical, cement and consumer sectors of Pakistan.

Contribution/ Originality: This study contributes in the existing literature of finance through checking working capital management effect on profitability along with liquidity and short-term obligation as a measure of working capital management

1. INTRODUCTION

1.1. Background

Working capital management is a concept that conventionally appears in all standard company finance textbooks focusing on its importance for corporations (Aktas *et al.*, 2015). WCM is important to companies because it includes a trade-off among risk and performance (Godfred, 2016). The prime concern of WCM is to guarantee the maintenance of reasonable level of working capital in a way that will avert excessive or insufficient availability of working capital. It is crucial to focus that inefficient WCM not only minimize profitability but also prime to financial crises and its related effects.

Extensive studies has been done for exploring the importance of working capital management and its effect on firm's profitability, risk and value of the firm (Baños-Caballero *et al.*, 2016). Working Capital management refers to all actions and decisions that emphasizes on keeping efficient level of current assets and current liabilities for making it certain that a firm has adequate cash flow in order to encounter its short-term obligations. Firm's ability to create wealth and increase profitability is highly influenced by the decisions made for managing working capital (Akoto *et al.*, 2013). However, inefficient management of working capital can lead to losses and even a bankruptcy of a firm which is a major concern for any business. Therefore, financial executives are highly responsible for success or failure of a firm. WCM is also a major issue in developing countries, like Pakistan, where maintaining an optimal level of working capital is indispensable (Kaur and Singh, 2013).

However, Investment in working capital management is not the only crucial decision which has to be done efficiently, but the financing strategies of working capital is also one of the key things to consider because how working capital is financed may also impact profitability (2014). Improvements in working capital is one of the easiest way to enhance shareholder value and it is the only investment on which a firm doesn't expect a clear return (Wasiuzzaman, 2015).

The literature review suggests a significance relationship between WCM and firm's Profitability. But profitability is not the long term measure of performance because sometimes managers over represent their profits to increase sales and demand of their product and for many other reasons. However, Firm's value shows the truer picture of its performance (Wasiuzzaman, 2015). Since WCM is in a firm's control and doesn't affect much by the macroeconomic factors so it help firm in adaptation of economic changes and add value in it. Efficient working capital management help firm in freeing its cash flow and consequently adding value in it Keischinik *et al.* (2013). According to Kaddumi and Ramadan (2012) management of working capital is imperative for enhancing firm's value in all type of sectors but Specifically, in manufacturing firms where huge amount of money is frequently invested in inventory and work-in-progress which are main components of working capital and therefore, satisfactory management of these resources is principal if the firm wanted to grow financially. Among other things, sound WCM safeguards that organizations have the capability to meet their short-term obligations properly and on time. Moreover, this makes it possible to control the situation where firms have gathered idle resources which are not used to generate any profit or as specified earlier prevent absence of sufficient financial resources required for meeting short-term obligations. Thus, this therefore enlightens why it is frequently argued that efficient WCM is very critical in achieving the over-arching aim of the firm i.e. shareholder's value maximization.

1.2. Problem Statement

Liquidity is the fundamental concern for companies as this cover the business operations, daily expenses & other unplanned cost of running a business moreover risk appetite of companies also depend on liquidity management whereas working capital management is a best measure of liquidity. Wasiuzzaman (2015) documented took a prudent decision with respect to working capital management is decisive since it contributes in increasing revenue as well as maintaining liquidity. For instance, in case of reducing investment on company assets, leads to availability of funds which could be invested in more profitable ventures but maintaining liquidity is still an issue when management unable to amateur their short term debt. Financial literature suggests various strategies for managing working capital as Kaddumi and Ramadan (2012) suggest various alternative methods to deal with working capital management & also explain the effect on risk appetite & profitability.

This article addresses these problems by emphasizing the often-ignored role of working capital as both an input and a readily reversible store of liquidity. Our basic argument proceeds as follows. For a number of reasons, it is costly for firms to change the level of fixed investment, and thus they will seek to maintain a stable fixed investment path, other things equal. Financial constraints may impede this objective whenever firms cannot causelessly offset cash-flow fluctuations with external funds. Even constrained firms, however, can offset the impact of cash-flow

shocks on fixed investment by adjusting working capital, even setting working capital investment at negative levels. These actions release short-run liquidity, allowing firms to smooth fixed investment relative to cash-flow shocks. The marginal opportunity cost of adjusting working capital in this manner, and therefore the extent of investment smoothing, should depend on the firm's initial stock of working capital, a variable related to the strength of its balance sheet.

1.3. Gap Analysis

Baños-Caballero *et al.* (2016) explained the relationship of working capital ratio and performance of firm. Raheman and Nasr (2007) highlighted the cash conversion cycle as a fundamental determinant of working capital management and explore significant impact on profitability moreover, also suggest that liquidity ratio is a significant component of working capital management which needs to explore further (Ben-Nasr, 2016) explore the relationship of working capital management & profitability in the industry of real state and found a significant effect on performance of firm but due to methodology and sample constraints didn't consider the manufacturing industry which specifically consider in this study (Flannery, 1986) explaining the short term obligations as an determinant of working capital management and also explore how it'll effect on profitability. Falope and Ajilore (2009) and some other scholars (mentioned in literature review and rest of the paper) had contributed significantly to finance literature by conducting empirical researches on the subject. These researches were done specifically with regard to either developed nations like USA and in other countries where the macroeconomic variables and country's financial position had a great impact on firm's financial management decisions but in emerging countries relation become change which needs to be explore further and fill the gap in existing literature. on this so this study is a step to fill that niche

Some studies like (Wasiuzzaman, 2015) were conducted on Pakistan specifically, for examining the relationship of Firm's profitability with working capital management. Raheman and Nasr (2007) took 94 Pakistani firms as a sample and found a significant inverse relationship amid liquidity and profitability, a positive relationship amid firm's size and profitability and also inverse relationship between firm's profitability and liability was found. In a similar manner. Though, this study ignored the fixed effect of each firm, as separate firm has its unique features and also overlooked sector wise investigation of working capital management performance of manufacturing firms (Raheman *et al.*, 2010). Studies the financing policies and fill the gap through explaining the relation of working capital management and firm performance in Pakistan market, however results specify that the inventory turnover, net trading cycle and cash conversion cycle, are significantly impacting the performance of the firms moreover, unable to focus to consider the payment and collection policies due to time constraint

To the best of our knowledge, this study is also among very few of the researches which uses quadratic model and panel regression models to verify the results. Additionally, this study explore the working capital management effect on profitability along with liquidity and short-term obligation as a measure of working capital management through considering specifically manufacturing sector by using the fixed/random effect regression model, on which no previous research has been done.

1.4. Research Objectives

Businesses have to face tradeoff over the maintaining liquidity and increasing profits. One objective could not be achieved at the cost of other which create problem and detailed analysis of this issue become crucial. The primary objectives of this study are:

- To study the fluctuations in profitability of manufacturing firms with respect to working capital financing in cement, chemical & FMCG sector.
- To explore the correlation & dependence level of profitability on working capital financing through least square model.

1.5. Significance of Study

Management of working capital is vital for the financial strength of all businesses, regardless of type and size (Aktas *et al.*, 2015). The idea that working capital management affects a firm's profitability and risk is generally accepted and has recently received considerable attention, Several authors including (Ben-Nasr, 2016); (Byoun, 2008); (Flannery, 1986); (Arslan and Karan, 2006) have stressed the significance of efficient Working capital management in creating value for stockholders. In developing countries, the call to board on optimal WCM practices is even more noticeable, given that it has the potential of restoring the manufacturing sector with its consequent benefits of tax contributions and job creations (Kaddumi and Ramadan, 2012).

Although finance magazines and online newsletters offer huge focus on working capital management problems, there is still a lack of significance given to this issue academically (Wasiuzzaman, 2015). More specifically, the inadequate general theory which does relate to working capital management comes from the finance literature and emphasises on the association between risk and profitability (Falope and Ajilore, 2009). Therefore, it appears to be crucial to explore this phenomenon in Pakistan's context, as due importance was given by literature to working capital management and its impact on firm's profitability in different countries of the world. There is a tremendous need for improving working capital management in business environment as this is a fundamental determinant of business growth moreover, also need to give an ample focus to explore this phenomena academically.

2. LITERATURE REVIEW

There are several factors which affects the profitability of the firm. Because earning sufficient profits is one the main concern for any business therefore ample amount of work has been done to know the various factors which could affect the firm's profitability. One of them is working capital management. Many researchers has worked on this by taking different sectors of different countries to examine the relationship between working capital management and corporate profitability.

Nazir and Afza (2009). Focused on the effective working capital policies and decisions taken by financial managers and first to identify the influence of decision making and policy implication of managers in the relation of working capital management and profitability of the firm (Afeef, 2011) conducted research on small and medium sized firms of Pakistan by predicting that SME's could have more impacted by WCM decisions than large size firms and conclude that indicators of WCM are significantly related with the profitability of firms, therefore, no previous research highlighted that phenomena. The findings revealed the significant negative relationship.

Falope and Ajilore (2009). Studied the effects of working capital management on profitability of Nigerian non-financial firms. Significant negative relationship of profitability had been found with inventory turnover, Days sales outstanding, average payment period and cash conversion cycle. It suggests that the Value of the firm in terms of profits could be increased by minimizing DSO and inventories. When the same sort of study was done by Wasiuzzaman (2015) with respect to emerging markets in Malaysia, it was found that the efficient working capital management could contribute positively towards firm's value. However, financing constraints was one of the main factor which influenced the relationship. Firms with lack of finance, could increase their firm's value by increasing working capital efficiency while no relationship has been found between the two for financially unconstrained firms. Whereas, Kaddumi and Ramadan (2012) analyze the effect of WCM on performance of Jordanian Industrial corporations. Findings were found similar with the traditional working capital theory i.e. working capital management is directly proportional to the corporate performance and found that by shortening the cash conversion cycle and net trading cycle, wealth of the shareholders could be increased. However, Rahimah found mixed results depending on the variables used for measuring profitability. Working capital management does not affect ROA of the Government linked companies of Malaysia means cash tied up in working capital has no significant impact on ROA. Whereas significant positive relationship has found between the DPO and GOI. If the firms want to increase its profitability then it can delay its payable and utilize this cash (Agarwal and Varma, 2013).

Assess the working capital performance of 366 non-financial Indian firms listed in stock index BSE 500. A significant positive relationship has been found between working capital management and firm's profitability.

Kaur and Singh (2013). Conducted research on 200 BSE companies. Suggestions of the study include that the financial managers should focus to shorten the days operating cycle and days working capital cycle and efficiently manage the cash conversion cycle because this primes to improved efficiency of working capital, which would leave a positive impact on profitability of a firm. So, lessening in volume of investment in current assets which can reduce the cost of financing working capital and can enhance profitability of the firm by reducing the cost of financing working capital. In a similar manner (Akoto *et al.*, 2013). Examined the same variables for Ghana manufacturing firms and findings were also similar with the previous studies i.e. by shortening the days of account receivable collection, profitability could be increased. While a significant positive relationship had been found between profitability and company's cash conversion cycle, current asset ratio, and current asset turnover. Researchers suggest that account receivable days could be reduced by providing incentives to debtors. Similarly, Akoto *et al.* (2013) analyze the same relationship for small and medium sized corporations. However, a non-linear relationship between the two variables was examined which showed that the relationship between firm profitability and working capital level is concave. In other words, optimal working capital level of SMEs was found as one of the factors through which SMEs profitability could be maximized. But it can decline if a firm moves away from their optimal level. The same researchers in 2014 analyze the above relationship and also focus towards the financing strategies as a gap of their research and it was found that the relationship between two variables would change during financial crisis and depends on a firm's financial flexibility. It is not enough to just invest in the working capital but managers should also focus towards how this investment was financed (2014).

Keischinik *et al.* (2013) studied the relationship between working capital management of US Corporation and shareholders' wealth. The results showed that the firm's debt, its financial constraints, risk, future sales expectations influence the value of additional dollar invested in net working capital. It was also concluded that one additional dollar which is in cash is worth more than a dollar invested in net operating capital which emphasizes the importance of net working capital (Aktas *et al.*, 2015). Examined that whether efficient working capital management enhances the firm's value or not? The evidence revealed that the firms could enhance their value when there is an optimal level of working capital policy present. A firm could achieve that optimal level by increasing or decreasing its working capital. By efficient WCM redeploying of underutilized corporate resources is also possible.

The influence of cash flow has been analyzed by Godfred (2016) for the relationship between working capital and firm's performance. The findings revealed that in the absence of cash flow the relationship between the two is strongly concave while it became convex in the presence of cash flow. It suggests for managers to consider their cash flows when investment would be made in working capital. On the other hand (Ben-Nasr, 2016) analyzed this phenomenon by taking into account a state and foreign ownership firm. The question raised by this researcher was that whether a firm's ownership affects the net working capital value curve shape or not? Multinational privatized firms were taken as a sample from 54 countries.

2.1. Conceptual Framework

To analyze the relation between working capital management and profitability of a firm, we use the variables short-term financing, current assets, current liabilities, sales, debt ratio, total assets & liquidity as a measure of working capital management. Thus, to test the possible non-monotonic relationship between WCM and profitability, we regress firm profitability against the working capital management variables and its square. Additional variables are also included in the performance regression model to control for other potential influences on the performance of the firm. The WCM of a firm has an important influence on its performance and liquidity (Shin and Soenen, 1999; Aktas *et al.*, 2014). The particular type of strategy adopted will determine the influence of

working capital management on profitability on the firms. Typically, a firm may decide to pursue either an aggressive strategy by reducing investment in working capital or alternatively by adopting conservative working capital policy designed to increase the level of profitability (García-Teruel and Martínez-Solano, 2007; Tauringana and Adjapong Afrifa, 2013).

The choice of variables is mainly guided by prior empirical studies and availability of data. Therefore, the variables are defined to be consistent with those of Panda and Nanda (2018) and other literature quoted above. All the variables have been defined in the table given below:

2.1.1. Dependent Variable: Profitability

As a measure of firm's profitability, return on assets (ROA) is taken as a dependent variable (Godfred, 2016) used the same measure (ROA) as a substitute for market-based and accounting measure of financial performance.

2.1.2. Independent Variable: Working Capital Management

As a measure of working capital management, Debt ratio, Liquidity, Current assets, Current liabilities, Sales, total assets and Short-term borrowings have been taken as a proxy (Falope and Ajilore, 2009) used same sort of variables in their study too. See Table 1

Table-1. Defining Variables.

| Variables | Acronyms | Description |
|-----------------------|----------|--|
| Return on assets | ROA | A profitability ratio which provides that how efficiently a firm is using its assets to generate its income. |
| Debt ratio | DR | Ratio of total debt to total assets of a firm. It measures the extent of a business's leverage. |
| Liquidity | LI | Ratio of current assets to current liabilities. It measures the extent with which a company can meet its short-term borrowings with liquid assets. |
| Sales | SA | Amount generated from selling the products in a certain time period. |
| Current assets | CA | Key component of a company's working capital which include Cash and other resources that could be turn into cash or to be used within a year. |
| Current Liabilities | CL | Company's obligations that are due within one year of accounting cycle. |
| Total Assets | TA | Includes all of the assets owned by the companies. |
| Short-term borrowings | STB | All Indebtedness in respect of lent money due on demand or in less than one year. |

Source: Abbreviations or explaining the variables.

2.2. Hypothesis

- There is a significant relationship of profitability and working capital financing in consumer sector companies.
- There is a significant difference between the relationship of profitability and working capital financing in chemical sector companies.
- There is a significant relationship of profitability and working capital financing in cement sector companies.

3. METHODOLOGY

3.1. Model Specification

To form the association between working capital financing and firm profitability, model has been established and projected. The study uses a quadratic function to imprisonment the structures of parabolas and to find the vortex, i.e. the point of inflection beyond which the relationship between explained and explanatory variable changes. The projected signs of the coefficients of the linear and quadratic coefficients of Equation 1 would examine the hypothesis of the study, which is founded on the shape of the association. The model is explained below:

Equation 1:

$$ROA_t = \beta_1 (TA)_t + \beta_2 (STB)_t + \beta_3 (SA)_t + \beta_4 (CA)_t + \beta_5 (CL)_t + \beta_6 (DR)_t + \beta_7 (LI)_t + \varepsilon_t \quad (1)$$

The study attempted to control the effects of Return on investment, total assets, short term borrowing, sale, current assets, current liability, debt ratio & liquidity. These time-varying firm-level control variables are lagged by one year to avoid the effect of simultaneity.

3.2. Panel Unit Root Test

Panel data methodology has been used to accomplish the objective of the study. It tests that whether a time series variable is non-stationary and holds a unit root. The null hypothesis is usually defined as the existence of a unit root and the alternative hypothesis is either stationarity, trend stationarity or explosive root reliant on the test used. This methodology contains the amalgamating of cross-sectional units of observations over numerous time dimensions and gives approximations that are more vigorous than employing cross-sectional or time-series estimation technique alone (Akoto *et al.*, 2013).

3.3. Panel Regression

Panel regression is a modeling method adapted to panel data. These are Models that combine Cross-sectional and Time-Series Data. Panel data comprise observations of multiple phenomena gained over multiple time periods for the similar firms (Godfred, 2016).

Table-2. Company Names.

| Sectors | Companies |
|-------------|------------------------------------|
| Cement | Attock Cement Pakistan Limited |
| | Bestway Cement Limited |
| | Dandot Cement Company Limited |
| | DG Khan Cement Company Limited |
| | Flying Cement Limited |
| | Gharibwal Cement Limited |
| | Kohat Cement Limited |
| | Lucky Cement Limited |
| | Pioneer Cement Limited |
| | Thatta Cement Limited |
| Chemical | AkzoNobel |
| | BAWANYAIR |
| | Engropolymer |
| | Ghani Gases |
| | ICI |
| | Ittehad Chemical Industries |
| | Pakistan Oxygen Limited |
| | Shaffi Chemical Industries Limited |
| | Sitara Preoxide Limited |
| | Wah Nobel Group |
| FMCG | Al-Tahur Limited |
| | Engro Foods |
| | Goodluck Industries Limited |
| | Mitchells Fruit Farms |
| | National Foods |
| | Nestle |
| | Sheild Corporation |
| | Treet Corporation |
| | Unilever Pakistan Foods |
| Zil Limited | |

Source: PSX Data Base.

3.4. Correlation Analysis

Correlation analysis is also used in order to know the strength of relationship among both the variables. It is a method of statistical assessment used to know the strength of an association between two, continuous and numerically measured variables.

3.5. Data

For analyzing the research hypothesis, nine years of panel time series yearly data were collected, precisely from three sectors of Pakistan stock market for the period started 2009 to 2017. Moreover, thirty companies from three sectors i.e. chemical, cement & FMCG has been considering for data collection. All the companies yearly financial statement has been consider for gathering data which fetch from their respected websites. See [Table 2](#).

4. RESULTS

4.1. Descriptive Statistics

Table-3. Descriptive Statistics.

| Descriptive | TA | STB | CA | CL | SA | DR | LI | ROA |
|--------------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Mean | 2.06E+09 | 1.39E+08 | 6.78E+08 | 6.05E+08 | 1.94E+09 | 3.548633 | 1.561941 | 11.73100 |
| Median | 25770679 | 1683395. | 9376547. | 7510145. | 25834076 | 2.105117 | 1.093251 | 0.095400 |
| Maximum | 2.94E+10 | 2.75E+09 | 1.62E+10 | 9.63E+09 | 4.94E+10 | 71.71017 | 12.08748 | 2569.304 |
| Minimum | 11687.00 | 0.000000 | 191.0000 | 1433.000 | 1.000000 | 0.006240 | 0.029022 | -1.213650 |
| Std. Dev. | 5.59E+09 | 4.82E+08 | 2.15E+09 | 1.58E+09 | 6.89E+09 | 6.359127 | 1.771308 | 157.7868 |
| Skewness | 3.474714 | 4.402899 | 4.483653 | 3.425182 | 4.823411 | 7.168345 | 3.521565 | 15.89463 |
| Kurtosis | 14.64852 | 21.16384 | 25.26225 | 15.32647 | 27.28565 | 63.85219 | 17.48225 | 257.6360 |
| Jarque-Bera | 2069.803 | 4584.006 | 6480.228 | 2237.280 | 7682.107 | 43970.96 | 2917.589 | 740812.9 |
| Probability | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Sum | 5.56E+11 | 3.76E+10 | 1.83E+11 | 1.63E+11 | 5.23E+11 | 958.1308 | 421.7241 | 3167.370 |
| Sum Sq. Dev. | 8.41E+21 | 6.25E+19 | 1.24E+21 | 6.71E+20 | 1.28E+22 | 10877.96 | 843.9957 | 6697202. |

Source: E-views Data Analysis.

4.2. Correlation Analysis

[Table 4](#) shows the pairwise correlation coefficients with their respective level of significance for the three sectors. Uniformly, in all the cases, profit (ROA) is negatively and insignificantly correlated with WCF and its square term. There is insignificant correlation among firm-specific control factors – Total Assets, short term borrowing, current assets, current liabilities, sales, debt ratio & liquidity. Overall, many variables are significantly correlated with each other in most of the cases. [Table 3](#) reports the summary statistics of firm characteristics for all the sectors. Return on Asset in all the three sectors is approximately higher to normal distribution with skewness closer to 16 and kurtosis nearing to 258. The rest of the variables are largely non-normally distributed with sharp peaks, i.e. too low excess kurtosis. Whereas most of the variables are positively skewed see [Table 3](#).

Table-4. Correlation Test.

| Probability | TA | STB | CA | CL | SA | DR | LI | ROA |
|-------------|-------------|-------------|-------------|-------------|-----------|------------|-----------|-----|
| TA | 1 | | | | | | | |
| STB | 0.279973*** | 1 | | | | | | |
| CA | 0.88554*** | 0.347132*** | 1 | | | | | |
| CL | 0.930041*** | 0.493493*** | 0.79503*** | 1 | | | | |
| SA | 0.862498*** | 0.290885*** | 0.926294*** | 0.762611*** | 1 | | | |
| DR | 0.013429 | -0.08815 | 0.004008 | -0.031342 | 0.015495 | 1 | | |
| LI | -0.041623 | -0.086793 | 0.028892 | -0.095886 | 0.019987 | 0.61521*** | 1 | |
| ROA | -0.027147 | -0.021177 | -0.023285 | -0.028314 | -0.020737 | -0.039618 | -0.052432 | 1 |

*** Significant at 1%.

4.3. Panel Unit Root Test

Non-stationarity is the important issue in the time series panel data & for resolving that problem multiple tools have been used in the empirical part of the study. In panel unit root test we check stationarity level on four mentioned criteria i.e. Levin, perasan, ADF & PP Chi - Square validate the non-stationarity in the data series of all variables at log-level 1 & on 1st difference data series of variables become stationary. See Table 5.

When variables has a unit root at level one, it specifies the presence of spurious regression and observations of variables itself forecast the behavior of data. This lead to spurious LSM results. When we applied the least square test on stationary data, model's significance changed from significant to insignificant.

Table-5. Panel Unit Root Test (Level 1).

| Statistical Tests | Prob.Value | | | | | | | |
|--|------------|--------|--------|--------|--------|--------|--------|--------|
| | TA | STB | CA | CL | SA | DR | LI | ROA |
| Levin, Lin & Chu t* | 0.0000 | 0.0000 | 0.0000 | 0.7881 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Im, Pesaran and Shin W-stat | 0.0000 | 0.2229 | 0.0000 | 0.9999 | 0.0000 | 0.0185 | 0.0000 | 0.3174 |
| ADF - Fisher Chi-square | 0.9766 | 0.0775 | 0.1723 | 0.9957 | 0.1137 | 0.0015 | 0.0245 | 0.0000 |
| PP - Fisher Chi-square | 0.9783 | 0.9544 | 0.9817 | 0.9974 | 0.5556 | 0.0005 | 0.3000 | 0.0000 |
| Panel Unit Root Test (1st Difference) | | | | | | | | |
| | Prob.Value | | | | | | | |
| | TA | STB | CA | CL | SA | DR | LI | ROA |
| Levin, Lin & Chu t* | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Im, Pesaran and Shin W-stat | 0.0847 | 0.0620 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0033 |
| ADF - Fisher Chi-square | 0.0060 | 0.0745 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| PP - Fisher Chi-square | 0.0000 | 0.1896 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Source: E-views Data Base.

4.4. Panel Regression Analysis

Panel fixed/random effect model first assumption in data series should be non-stationary on level one & stationary at first difference. As showed in above tables all the data series fulfill that assumption. In first step we run the pooled regression & the results shows in table: ... model is not significant & overall dependency of fixed variable is very less which clearly shows firm profitability is not dependent on working capital financing even in these three sectors. Moreover, except current assets & sale all the other variables co-efficient have insignificant negative association with profitability of the firm. In order to get more reliable results we run the fixed/random effect model for analyzing the model fitness & significance of dependency level whereas, in fixed effect model results become vary but in random effect model no significant change has been occur.

Table-6. Panel Least Squares Dependent Variable: ROA.

| Variable | Coefficient | t-Statistic | Prob. |
|--------------------|-------------|-------------|-----------|
| C | 32.86912 | 1.384695 | 0.1675 |
| TA | -3.09E-10 | -0.030606 | 0.9756 |
| STB | -1.39E-10 | -0.002397 | 0.9981 |
| CA | 4.45E-09 | 0.257969 | 0.7967 |
| CL | -4.91E-09 | -0.173856 | 0.8621 |
| SA | -3.62E-10 | -0.040027 | 0.9681 |
| DR | 0.255638 | 0.108283 | 0.9139 |
| LI | -13.27245 | -1.22356 | 0.2224 |
| R-squared | | | 0.127417 |
| Adjusted R-squared | | | -0.007403 |
| Durbin-Watson stat | | | 1.191289 |
| F-statistic | | | 0.94509 |
| Prob(F-statistic) | | | 0.563127 |

Cross-section fixed (dummy variables)
Sample: 2009 2017 (9 periods), 30 Companies.

After analyzing pooled regression model, we also test the model significance through fixed/random effect model & appropriateness of model has been decided through Hausman test. As Table 6 shows model is not

significant & overall dependency of fixed variable is 13 % which clearly shows firm profitability is not dependent on working capital financing even in these three sectors. Moreover, except current assets & debt ratio all the other variables co-efficient have insignificant negative association with profitability of the firm. See Table 7.

Table-7. Panel EGLS (Cross-section random effects).

| Dependent Variable: ROA | | | |
|-------------------------|-------------|-------------|------------|
| Variable | Coefficient | t-Statistic | Prob. |
| C | 23.25749 | 1.460431 | 0.1454 |
| TA | -1.23E-09 | -0.139487 | 0.8892 |
| STB | -6.72E-09 | -0.20333 | 0.839 |
| CA | 1.75E-09 | 0.118765 | 0.9056 |
| CL | -8.04E-10 | -0.031775 | 0.9747 |
| SA | 2.19E-10 | 0.051362 | 0.9591 |
| DR | -0.008302 | -0.004126 | 0.9967 |
| LI | -5.852879 | -0.779094 | 0.4366 |
| | | Weighted | Unweighted |
| R-squared | | 0.004121 | 0.0041 |
| Adjusted R-squared | | -0.022487 | |
| Durbin-Watson stat | | 1.078915 | 1.042501 |
| F-statistic | | 0.15487 | |
| Prob(F-statistic) | | 0.993202 | |

Cross-section fixed (dummy variables)
 Sample: 2009 2017 (9 periods), 30 Companies
 Swamy and Arora estimator of component variances.

5. DISCUSSIONS

Theoretically, a negative association between liquidity and profitability of the firms had been found therefore, according to theory the measures of liquidity, Current Ratio should have negative relationship with the profitability. Nevertheless, empirical researches have got both positive and negative connotation between current ratio and profitability (Raheman *et al.*, 2010).

Similarly, our study suggests that there is no significant relationship between profitability of the firm and control variables of working capital management.

Specifically, it indicates that there is an insignificant but negative relationship between Return on assets (ROA) and all the control variables of working capital except current assets and sales in pooled regression model and current assets & debt ratio in fixed/random effect model which partially resembles with the findings of Afeef (2011) in which no significant relationship was found between cash conversion cycle, Payable Deferral Period and current ratio in correlation analysis and also in regression analysis, indicators of WCM & liquidity and the Return on Assets are not significantly related. However, researcher suggests that the efficient management of working capital does have a impact on profitability.

Whereas, it contradicts with the base paper findings i.e. Different sectors of Indian manufacturing industries have been experiencing dissimilar forms of relationship between WCF and firm profitability. Firms in chemical, construction, and consumer goods sectors of India can finance greater portion of their working capital needs by short-term debt.

Aggressive WCF strategy can enhance firm performance without effecting profitability negatively (Panda and Nanda, 2018). While taking the case of another under developed nation by Akoto *et al.* (2013) results found a significantly negative association between profitability & accounts receivable days by using panel data regression. Yet, the firms' cash conversion cycle, size, current asset ratio, and current asset turnover significantly positively affect profitability. It also suggests that managers can generate value for their stockholders by creating incentives to lessen their accounts receivable to 30 days.

It is additionally recommended that, representations of local laws that protect native firms and limit the activities of importers are important to endorse increase demand for locally manufactured goods in Ghana. These

recommendations are beneficial for all the developing nations as well as Pakistan (Raheman *et al.*, 2010). Results also contradict which specify that the inventory turnover, net trading cycle and cash conversion cycle, are significantly impacting the performance of the firms. It is clear from above mentioned discussion that in general most of the researches highlighted the importance of Working Capital Management as one of the most imperious and crucial facets of short-term financial matters of an organization.

Firms demonstrate sensitivity of their profit earning to the efficient management of their working capital but our results contradict on the basis of several macroeconomic factors and dynamic nature of Pakistan's economy due to the continuous deficits in current accounts of the country and devaluation of currency prevent investors to leave their investments in a liquid form for a long time. Moreover, the economy of Pakistan is also cash based which had impact on business's financial management decisions and ultimately giving different results in present research.

6. CONCLUSION

Working capital management is a concept that conventionally appears in all standard company finance textbooks focusing on its importance for corporations (Aktas *et al.*, 2015). The present study examines the relationship between Working Capital Management and firm profitability for three different sectors of Economy of Pakistan including chemical sector, cement sector & consumer sector. Data was taken from Pakistan stock market for the period of 9 years from 2009 to 2017 of 30 firms from these sectors.

All the companies yearly financial statement has been considering for gathering data which fetch from their respected websites Although there is a lot of literature present, emphasizing on working capital management and its impact on firm performance, the present study is first of its kind which is conducted in Pakistan using these 3 sectors and among very few of the researches which uses quadratic model and panel regression models to verify the results. The choice of variables is mainly guided by prior empirical studies and availability of data. Working capital management is taken as an independent variable and profitability as dependent.

Firstly, panel unit root test was run to make the available data stationary and then panel regression test was used to analyze the relationship among both the variables. The results revealed that there is a insignificant negative relationship between Return on assets (ROA) and all the control variables of working capital except current assets and sales in pooled regression model and current assets & debt ratio in fixed/random effect model. In brief, study suggests that profitability of firm is not dependent on investment in working capital of chemical, cement and consumer sectors of Pakistan. Some policy implications can be drawn from the above findings of the study which include that optimal amount of working capital financing is crucial.

Because literature also provide contradiction findings about the association of WCM with profitability so decisions should not be made on just theoretical arguments. It is commonly argued that firms need to quicken their cash collections and slowdown their payments. Therefore, these financial decisions can only be taken effectively with some professional advice and supervision.

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