

Working Capital Management and Firm's Financial Performance (ROCE)

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Abstract

This undertaking study investigated the relationship between working capital management as an independent variable operationalized by ITO, DTO, and CTO, and the firms' profitability measured by Return on Capital Employed (ROCE) as the dependent variable. Sample of 69 non-financial sector firms of Pakistan which are listed in the Pakistan Stock Exchange for 11 years (2007-2017) was taken. PLS-SEM was used for the first time to examine the relationship. The relationship was examined by descriptive statistics, correlation, path analysis, including path coefficient, P-value, t-value, and path coefficient confidence interval. The path coefficient shows the existence of the relationship, P-value shows its significance, the t-value shows the level of relationship, and the confidence interval shows the significance of the relationship. The results show that without the moderating effect of firm size, overall working capital management has a positive impact on ROCE. Firm size has a significant moderating effect on the relationship between DTO-ROCE and CTO-ROCE. While the effect of firm size as a moderator on the relationships between ITO-ROCE and CCC-ROCE is not significant. This study concluded that to enhance the profitability of the firm, and to get the best results from ROCE, the managers should focus on the efficient management of working capital components (ITO, DTO, and CTO). The limitation of the study is that the samples used are only from the non-financial sector firms of one specific country (Pakistan), using only one ratio (in this case, ROCE) for measuring profitability. Future studies should consider other ratios such as ROE, ROA, and EVAM by using the same model of PLS-SEM.

Keywords: Working Capital Management (WCM), Return on Capital Employed (ROCE), Cash Conversion Cycle (CCC), Average Inventory Turnover (ITO), Days Debtors Turnover (DTO), Days Creditor Turnover (CTO)

1. Introduction

In traditional accounting system, the performance of the firm evaluated from the financial statements which depends on the past records. Measuring the value of the company becomes an interesting, important and challenging task in finance, as how to measure the firm's wealth which reflects the actual performance of the firm. The studies regarding financial performance that is associated with managing the working capital has increased significantly. Although working capital does not show in the income statement, it is the sign of significant revenue of a firm.

One of the objectives of managing the working capital is to ensure that the firm has capability to operate its activities efficiently and to ensure that the firm is able to pay its near future operational expenses and short term debt upon maturity. Working capital management (WCM) has significant effect on the firm's performance and valuation. Firms maintain their investment in working capital for many reasons. One of the

reasons is the current competitive environment of the industry. The current situation has made many firms meet difficulties in generating and maximizing the wealth of the shareholders. Capital is expected to have maximum uses for it to be able to give maximum returns for the shareholders.

Conducting measurement on a firm's profitability primarily means that the firm's performance is measured. This measurement results in helping the firm's manager to make decisions regarding financial structure, the values of subsidiaries divestment and acquisition, continuation or stopping of projects, and the proper incentive for employees setting (Maenuddin, Yusrini, et al., 2020). To improve the firm's performance and to control the financial restrictions, (Maenuddin, Bansal, et al., 2020) said that by implementing efficient WCM. In order to do it there are some measurement tools considered best to measure the firm's performance are the return of asset (ROA), return on equity (ROE), return on capital employed (ROCE), earnings before interest and tax (EBIT), gross profit, and net operating profit after tax (NOPAT). An efficient management of the firm's working capital will make sure that the firm has enough ability for paying the future expenses and the matured short term debts.

(Masri & Abdulla, 2018) in their paper proposed a programming model of multiple objective stochastic to select an efficient working capital strategy. This model considers the conflicting impact of working capital policy on the two firm objectives of liquidity and profitability, and the interrelationships and stochastic aspects of the components of working capital. This model was used to help a start-up retailer to determine its optimal working capital. (Chauhan, 2019) examined the short-term flexibility extension in firm's WCM decisions. Corporate working capital decisions are often cited as short-term financial decisions. Some interesting findings are mentioned here. For instance, this study found that in contrast with the firms' perceived ability to frequently adjust the allocations of the working capital, the systematic and persistence differences in working capital allocations across and within industries. Especially for industries and firms within industries with relatively higher or lower working capital allocations remain so for a sustained period of time, often exceeding 15 years.

The current study focuses on the impact of WCM components on the firms' profitability measured by Return on Capital Employed (ROCE). The findings highlight the importance of providing a better service for the needs of the shareholders, customers, and employees. From the findings of this study, it is hoped that the contribution can help the firm managers to manage the firm's working capital thus increase the firm's profitability at the end.

2. Literature Review

A firm's financial performance variation can be explained by capital structure, dividend policy, and investments. These are also the elements which form the financial decision. Another key financial decision which a representative of firms' total assets significantly is the working capital management (WCM) (Aktas et al., 2015; Juan and Martinez-Solano, 2007). Many studies put WCM in the highlight as working capital is very important to maximize the firms' value (Deloof, 2003; Garcia-Teruel and Martinez-Solano, 2007; Aktas, 2015; and Chang, 2018). To achieve it, it is needed to keep a proper inventory mix, a generous trade policy, and account receivables and payables that are managed efficiently. Trade credits may stimulate sales by giving customers the opportunity to access product quality before they pay. It can also be used as an inexpensive source of credit. Likewise, any late payment to suppliers gives the company the opportunity to reach the quality of the product before paying for it, and is a relatively cheap and more flexible source of financing for the company. However, companies can incur significant opportunity costs because they cannot take advantage of the discounts available for timely payments. Additionally, delaying debt can portray a negative image of the company in terms of financial strength. The ideal pay period is random and varies for different companies but the average contractual payment period is 41 days (Deloof, 2003).

To measure WCM, many studies highlighted the use of the cash conversion cycle (CCC). It is the average time interval for a firm between incurring costs to purchase raw materials and collecting receivables after selling finished goods. There are two aspects to the bigger lag time. A larger CCC is the indicator of high revenue growth and a large investment in working capital and thus can lead to higher profitability. On the other hand, a

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larger CCC can put downward pressure on the company's profitability. The latter is often the case when the investment costs in working capital exceed the benefits of holding access inventory and granting credit sales. There are a number of literature examining the relationship between CCC and business performance, see for example: (Shin and Soenen, 1998; Nobanee et al., 2011; Vahid et al., 2012; Abuzayed, 2012; Enqvist et al., 2014; Mathuva, 2015; Chang, 2018; Yakubu et al., 2017; and Singh et al., 2017).

In addition to the studies mentioned above, this relationship is also emphasized in emerging markets. For instance, (Gill et al., 2010; Sharma and Kumar, 2011) studied the Indian market while (Ding et al., 2013) studied the Vietnamese market. For studies in emerging markets, i.e. Pakistan, some references are from (Shakoor et al., 2012; Tufail and Khan, 2013; Arshad and Gondal, 2013; Agha, 2014; Khidmat and Rehman, 2014; and (Raza et al.) These past studies state that effective WCM leads to higher business value. A common feature of these studies is their approach to measuring business value from an accounting perspective (return on equity or return on assets).

As Stewart (2009) argues, evaluating performance with appropriate action is very critical. As Michael Jensen claimed, "If it's a relationship and it's a measure of performance, it's wrong and you pay people to do bad things." This means that an inappropriate matrix for measuring solid financial results can lead to a misleading picture of the company. For instance, to estimate earnings per capita people use net income. Managers can easily manipulate this accounting number by applying different accounting policies or by reducing or deferring discretionary expenses and valuable restructuring initiatives. Therefore, this figure cannot show the economic perspective on the value of the company (Stewart, 2009). Another known measure in performance appraisal studies is return on equity (ROE). Companies with a relatively high share of ROE are considered to be financially successful companies. This relationship is also not a safe haven and can be inflated by using a high percentage of financial leverage.

To measure WCM comprehensively, we use CCC. CCC demonstrates effective efficiency in terms of commercial debt, commercial credit and inventory policies. An additional advantage of using this measure is the ease of conversion into measurable units, namely debtor turnover days (DDTO), average inventory turnover (DITO) and creditor turnover days (DCTO). The fundamental reason for choosing these variables is their ability to represent a unique aspect of WCM.

To examine the relationship between WCM and ROCE, we collected basic accounting data for non-financial companies listed on the Pakistan Stock Exchange for the period (2007-2016). The results of the descriptive analysis show that companies with relatively high DDTO and DITO have high CCC, while companies with more efficient management of DDTO and DITO produce lower CCC averages.

This study emphasizes the significance of more reliable performance measures that can meet the needs of shareholders, customers and employees. The results reveal that in order to increase the return on working capital (ROCE), firm leaders must think efficient management of accounts receivable, payable and inventory turnover and adopt this operation seriously.

Many researchers have conducted studies to illustrate the relationship between (WCM) and firm's performance in different types of industries. (Pirttil, Virolainen, Lind and Kärri, 2020) investigated WCM operations in the Russian car supply chain. The theory of transaction cost (TCE) perspective was used, and CCC and ROA were used as targets. Based on the analysis performed in this study, it was found that the payment terms for the paid accounts are long, the inventory is high and the CCC is short. It is also noted that the most profitable companies are companies that make payments to suppliers immediately. It concludes that in order to maintain a company's competitive advantage, companies must successfully finance their supply chains.

Another study on the importance of an effective WCM to improve a firm's financial performance was done by looking at the relationship between effective WCM and financial constraints (Dhole et al., 2019). This study sampled Australian companies and used a document-based financial constraint measure, which is the first to measure document-based financial constraints for Australian companies. Firms' effective WCM was found to

be associated with lower financial constraints over the next two to three years. This study also found that effective WCM has a significant negative relationship between financial constraints and future stock prices.

(Boisjoly et al., 2020) studied the longitudinal effects of continuous improvement programs and active working capital practices on accounts receivable revenue, revenue inventory revenue, number of days paid, and money conversion cycle from 1990 to 2017. Studies show no significant change in resources and variables for these variables consistent with stricter financial management and trade credit risk-taking. This ratio relates to the impact of the capital appreciation and the likelihood of an increase in income recognized as a return on investment capital. The results show that relations are strongest in the transport and telecommunications sector, but weakest in financial services.

(Maenuddin, Bansal, et al., 2020) used CSC as the overall WCM measure in the study. CCC demonstrates solid efficiency in terms of trade debits, trade credits and inventory policies. Another benefit of using this measure is said to be easy conversion into measurable units, i.e. accounts receivable (DTO) days, inventory turnover days (ITO) and accounts payable days (CTO). This study chose these variables for a specific reason, because they can be a unique aspect of WCM. The results, which were based on descriptive statistics and univariate and multivariate regression analysis, show that firms with relatively high DTO and ITO have high CSCs, while firms with more efficient DTO and ITO control result in lower mean values for CCC

The relationship between working capital and firms' performance has also been investigated in Japan (Tsuruta, 2019). The study's aim was to find out how quickly companies can adjust the working capital of the company when the global financial crisis occurs. The data used for this study was quarterly data at the company level. Based on the analysis, this study concluded that the adaptation of working capital is weak during the crisis. In addition, it was found that during the crisis, especially in larger companies, the connection between excess working capital and company performance was clearly negative. It was found that during the outside and inside of the crisis, companies took out loans from banks to fund their excess working capital and reduce their internal liquidity. Thus, the effects of working capital and firms performance in the context of the crisis did not last long.

Research on effective WCM, which have an impact on the profitability of companies, have also been carried out in the healthcare sector, or in this case in hospitals. Hospital managers and decision makers need to consider debt when managing working capital. (Dalci&Ozyapici, 2018) examined the relationship between working capital and the profitability of the hospital with financial leverage as the moderating variable. The samples were 52 hospitals with 468 observations from the ORBIS data set. The results of the regression analysis showed that the longer the CSC duration of heavily funded hospitals, the lower their profitability. On the other hand, for hospitals with little financial support, extending the CCC can increase profitability. This result shows that leverage has affected the relationship between CCC and the hospital's profitability. This result also helps hospital managers and decision makers to deploy effective working capital in terms of the level of financial leverage. Also the decision to increase or decrease CCC to improve profitability.

(Chauhan, 2019) examined the degree of short-term flexibility in corporate WCM decisions. This study opposed the results of the previous literature, which suggested that working capital allocation is determined by firms' concerns about the development of their intertemporal cash flows and sales. The result of this study showed that firm-specific time-invariant factors are the driving force. Research on using a traditional measure such as Return on Investment (ROA) to study business performance was conducted by (Maenuddin, Akhtar, & Raza, 2020). Several statistical tools were used in this study, such as regression for analysis, F-statistics, T-statistics and beta coefficients to measure the moment of economic added value (EVAM). The result of this research says that business managers can create value by lowering their company's CCC. With regard to EVAM, this research shows that the relationship between WCM and the EVAM of companies is significant.

From some of the previous studies mentioned above, it is clear that the relationship between WCM and corporate profitability has been researched in different countries, in different sectors and in many areas of business. In this research topic, the aforementioned researchers analyzed the impact of WCM data on business profitability, using various tools to measure business performance. However, the present study aims to expand

the scope of research using PLS-SEM for the first time to examine the relationship between WCM and ROCE in different settings, in non-financial corporations in Pakistan.

3. Methodology

3.1. Research Framework

Methodology is an imperative part of any type of research. It is a way of getting solution of problem by following diverse strategy, structure and arrangements. Furthermore, this part is prominent for researcher to examine the objectives of any kind of study (Anam & Rehman, 2019; S. U. Rehman, Bhatti, Mohamed, & Ayoup, 2019). In addition, the researcher inveterate that suitable analysis methods necessary to achieve objectives and solve any problem practical or theoretical (Bhatti, Saad, & Gbadebo, 2020). In present study, quantitative approach used for data collection and solve the research problem.

This study examined the relationship between WCM (as the independent variable) and the firm's profitability by measuring ROCE (as the dependent variable). The prediction of the relationship is illustrated in the following Figure 1.

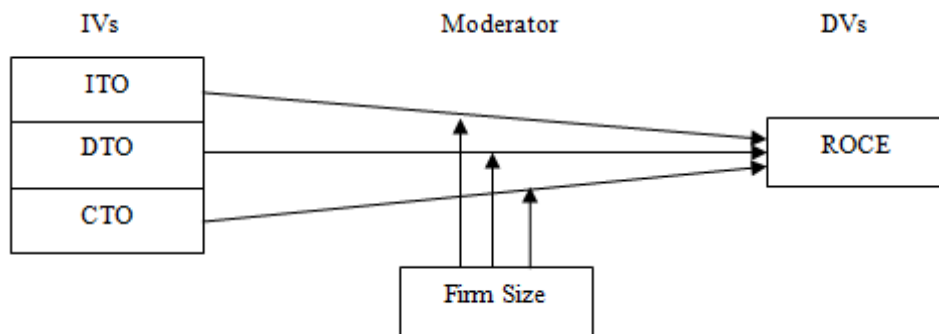


Figure 1: Research Framework

3.2. Data Collection and Sample

This undertaking study took samples of 69 firms of the non-financial sector listed in the Pakistan Stock Exchange (PSE). To get the samples, a purposive stratified random sampling technique was used. Data sources came from secondary data sources from the internet and websites of the sample firms, State Bank of Pakistan, and PSE. Data collected for the study includes Sales, EBIT, taxes paid, interest paid, interest-bearing long term and short-term debts, and equity. Purposive stratified random sampling was used for the study as there is a total of 26 non-financial sectors listed in the PSE. For sample selection and screening, the procedure of the previous study (Maenuddin, Akhtar, & Raza, Muhammad Wajid, 2020) was followed. From each industrial sector, 30 percent of firms were selected for the sample-based on the available data. Condition applied for the sample selection was, the selected firms should be listed for the entire period and should not be delisted even a single time from PSE during the entire period.

3.3. Statistical analysis

In current study Smart PLS-SEM used. Analysis of this study computes with measurement model and structural model. A further study regarding the relationship examined in this study is needed to help the firms' decision-makers decide which tools can assist the requirements of the shareholders, customers & employees better. This study also helps to encourage the firm managers' hard work to improve the performance of the firm through managing the WCM components efficiently and effectively.

3.4. Measurement of Variables

3.4.1. Return on Capital Employed (ROCE)

Capital employed can be calculated as total shareholders' equity plus total interest bearing short term loans and total interest bearing long term loans.

It can be calculated as;

$$ROA = EBIT / Capital\ Employed$$

While *Capital Employed* = Interest bearing short term loan, and interest bearing long term loan.

3.4.2. Working Capital Management (WCM)

The WCM is reflected in the CCC (Leach & Melicher, 2011; Juan García-Teruel & Martínez-Solano, 2007). CCC can be calculated as:

$$CCC = DTO + ITO - CTO$$

Where:

DTO = Days debtors' turnover; ITO = Days Inventory turnover; CTO= Days payable turnover

The components of CCC will be measured as follows:

$$Debtors\ turnover = (Accounts\ receivable / Sales) \times 365$$

$$Inventory\ turnover = (Inventory / Cost\ of\ goods\ sold) \times 365$$

$$Payable\ Turnover = (Accounts\ payable / Purchase\ or\ CGS) \times 365$$

4. Empirical Results and Discussion

For the data analysis and examining the relationship between variables, statistical tool PLS-SEM was used. The main reason behind the use of PLS-SEM is, it does not require the assumption of data normality. This study used the path coefficient to examine the existence of the relationship between the variables. T-statistic was used to examining the level of impact of independent variables on the dependent variable. To examine the significance of the relationships, P-value was used as well as the confidence interval of the path coefficient. The significance of the relationships was also examined from the t-statistic or t-value.

For the first step, this study examined the descriptive statistic, which shows the measures of central tendencies (mean, median, standard deviation, minimum and maximum value). Then the correlations between the indicators were examined to investigate the overall relationships between the different indicators with each other to examine the existence of multicollinearity. This study used overall analysis by regressing WCM components (ITO, DTO, CTO) at the same time on ROCE to examine the relation between WCM and ROCE without any moderating effect. Finally, this study tested the hypothesis by examining the relationships between each independent variable (ITO, DTO, CTO) and dependent variable (ROCE) individually with the moderating effect of firm size (see Table 1).

Collinearity Statistics (VIF)

	ROCE	ITO	DTO	CTO
ROCE				
ITO	1.063			
DTO	1.021			
CTO	1.052			

Descriptive Statistics

Table 1 indicated missing value, mean value, median value, minimum value, maximum value, kurtosis, and skewness for each of the variables.

Table 1: Overall Descriptive Statistics

Indicators	Missing	Mean	Median	Min	Max	SD	Excess kurtosis	Skewness
ROCE	0	5.124	5.105	3.255	5.740	0.148	4.658	-0.200
ITO	0	5.056	5.017	5.002	5.995	0.122	20.002	4.265
DTO	0	5.108	5.045	5.003	5.970	0.154	7.693	2.615
CTO	0	5.081	5.032	5.001	5.927	0.130	11.401	3.161
CCC	0	5.083	5.037	4.185	5.935	0.205	3.533	0.628
Firm size	0	23.056	23.134	16.948	27.803	1.651	0.745	-0.275

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From the results, it was found that there is no missing value in the data set. The mean values for ROCE, ITO, DTO, CTO, CCC and firm size are 5.124, 5.056, 5.108, 5.081, 5.083 and 23.056 respectively. Similarly, the median values are 5.105, 5.017, 5.045, 5.032, 5.037 & 23.134. The standard deviations for each of the variables of ROCE, ITO, DTO, CTO, CCC, and firm size are 0.148, 0.122, 0.154, 0.130, 0.205 & 1.651. Similarly, the minimum values, maximum values, skewness values, and kurtosis values are also available in the above-mentioned table of descriptive statistics.

Correlation

Table 2 shows the correlation between the indicators/variables.

Table 2: Overall Indicator Correlations

Indicators	ROCE	ITO	DTO	CTO	CCC	Firm Size
ROCE	1.000					
ITO	0.147	1.000				
DTO	0.131	-0.117	1.000			
CTO	0.166	0.205	0.058	1.000		
CCC	0.081	0.377	0.642	-0.467	1.000	
Firm size	0.290	0.247	0.135	0.199	0.122	1.000

As per the results mentioned above, the correlation between ITO and ROCE is 0.147, which means they are 14.70 percent correlated. The correlations between DTO with ROCE and ITO are 0.131 and -0.117, show that both DTO and ROCE have a positive correlation of 13.10 percent, while the correlation between DTO and ITO is 11.70 percent but in opposite direction. It displays that there is a negative relationship between DTO and ITO, whereby every increase of one variable the other one decreases. The correlation values of CTO with ROCE, DTO, and CTO are 0.166, 0.205, and 0.058 respectively. These show that there is a positive relationship of 16.60 percent between CTO and ROCE, 20.50 percent with ITO, and 5.80 percent with CTO. The correlation of firm size (as the moderating variable) with ROCE is 0.290 (29.00 percent), with ITO is 0.247 (24.70 percent), with DTO is 0.135 (13.50 percent), with CTO is 0.199 (19.90 percent), and with CCC is 0.122 (12.20 percent). These values show that firm size has positive relationships with all of the independent and dependent variables.

4.1. Relationship between WCM Components and ROCE

4.1.1. Path coefficient and P-value

The relationships between independent variables (ITO, DTO, and CTO) with the dependent variable (ROCE) are shown in Figure 2 below.

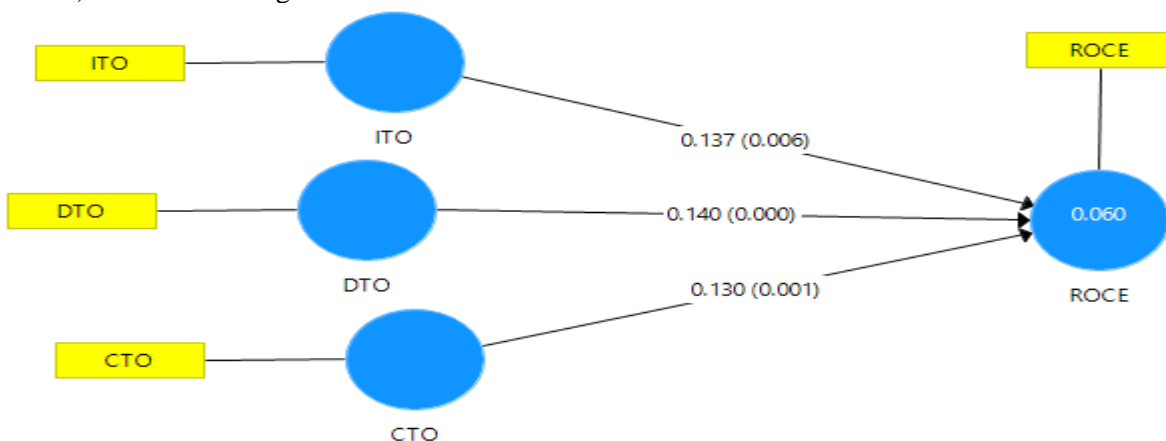


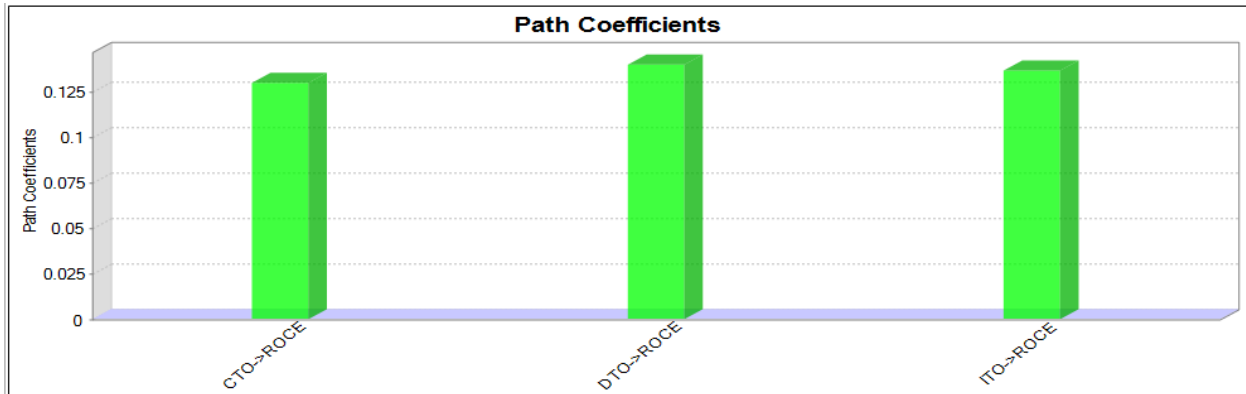
Figure 2: Path Coefficient with P-value

Figure 2 shows the value of the path coefficient along with the P-value of significance. It also shows the explanatory power of the model or coefficient of determination R-square. The path coefficient shows the existence of a relationship as the null hypothesis for the path coefficient ($H_0 = \text{the coefficient is zero}$).

P-value shows the significance of the relationship between variables with the null hypothesis (H0 = the relationship between variables is not significant).

R-square shows the explanatory power of the model, as to how many variations caused by independent variables due to the change in independent variables.

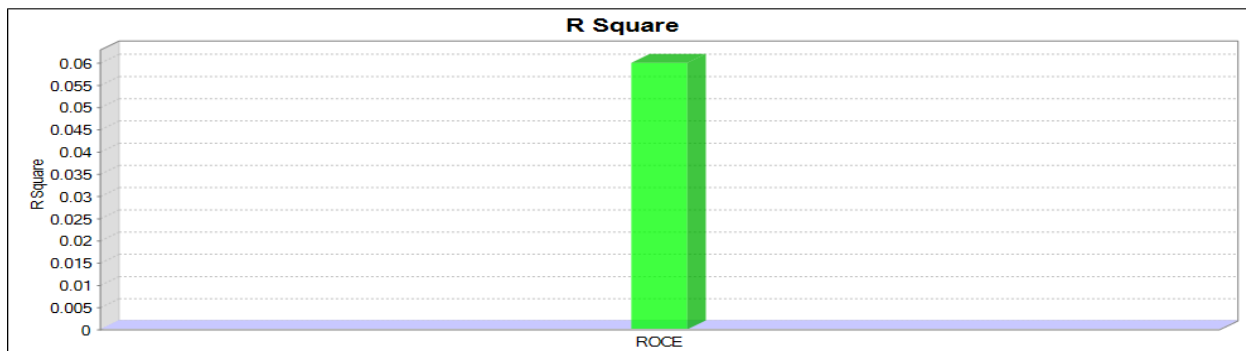
As per the above Figure No. 2, the path coefficient value between ITO and ROCE is 0.137, and P-value is 0.006, the p-value is more than the significant level of 0.05. Thus the relationship is not significant at a 5 percent level of significance. The path coefficient value and P-value for DTO and ROCE are 0.140 (0.000). It shows that the relationship between DTO and ROCE is significant at 1 percent level of significance. The path coefficient value for CTO and ROCA is 0.130(0.001). It explains that the relationship between CTO and ROCE is significant at 1 percent level of significance.



R-Square

The value of the coefficient of determination or the explanatory power of the model is 0.060, which shows that 6.0 percent of the variation in the dependent variable is due to these independent variables ITO, DTO, and CTO.

	R-Square	Adjusted R-Square
ROE	0.060	0.056



4.1.2. Summary of Structural Model

In this part of study, test the direct and indirect relationship between independent variables (ITO, DTO, and CTO) and dependent variable (ROCE). Values of loadings and path-coefficient deliberate that accomplish bootstrap with 5000 subsamples(Hair et al., 2013). Table 3 below shows the summary of the structural mode. It concludes mean, standard deviations, Path Coefficient, T-statistics (individual significance test), significance value (P-value), and Path Coefficient confidence interval.

Hypothesis Path	Mean	S.D	Path Coeff.	T-Value	P-Value	Confidence Interval 2.5% -> 97.5%	Result
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ITO -> ROCE	0.136	0.049	0.137	2.787	0.006	0.036 -> 0.230	Significant
DTO->ROCE	0.142	0.041	0.140	3.860	0.000	0.076 -> 0.217	Significant
CTO->ROCE	0.130	0.047	0.130	2.787	0.001	0.058 -> 0.212	Significant

Table 3: Path Analysis Matrix

As per the results, the inventory turnover ratio (ITO) has a mean of 0.136 with a standard deviation value of 0.049. The t-statistic value is 2.787 and P-value is 0.006. The t-statistic value is more than the critical value of 1.96, and the P-value is less than 0.05 or 5 percent level of significance which shows significant relationship at a 5 percent level of significance. The debtor turnover ratio (DTO) has a mean value of 0.142 with a standard deviation value of 0.041. The t-statistic value is 3.860, which is higher than the critical value of the two-tailed test 1.96. It shows the significance of the relationship. The P-value is 0.000, which indicates the relationship is significant at 1 percent level of significance. From the above table, it is noted that all the variables have a P-value of less than 0.05 and a t-statistic value of more than 1.96. The mean value of CTO is 0.130 with a 4.7 percent deviation around the mean. The individual significance test or t-statistic value is 2.787 which is higher than the critical value of 1.96 for two-tailed tests, which shows the significance of the relationship. The P-value is 0.001, which explains the significant relationship between CTO and ROCE at a 5 percent level of significance. Therefore, this study concluded that Independent variables ITO, DTO and CTO has a significant impact on the firms' profitability measured by return on capital employed (ROCE).

Instead of reporting P-value or T-value, this study also examined the significance of the path coefficient or the relationship from the bootstrap confidence interval. It can be seen if a path coefficient is different significantly from zero or not. It is based on standard error derived from bootstrapping and specifies the range into which the true population parameter will fall assuming a certain level of significance of 5 percent. If the range of confidence interval does not include zero for an estimated path coefficient, the H0 (path is equal to zero) is rejected and is concluded as a significant result.

From Table 3, it is recorded that the confidence interval for the path coefficient of ITO and ROCE is 0.036 -> 0.230, which means there is zero in the range (the minimum value is less than zero or Mini<0). It shows that the relationship is insignificant. The confidence interval for DTO to ROCE is 0.076 -> 0.217, which shows there is no zero in the range (the smaller value is higher than zero), thus the relationship is significant. The confidence interval for the path coefficient of CTO and ROCE is 0.058 -> 0.212, which means there is no zero in the range (the minimum value is greater than zero). It is concluded that the H0 is rejected, and concluded that the relationship is significant. From all of the above-mentioned tests of path coefficient, t-statistic, P-value, confidence interval of path coefficient, it is concluded that there are significant relationships between WCM components ITO, DTO and CTO with firms' profitability (ROCE).

4.2. Examining the Moderating role of firm size

4.2.1. Relationship between ITO and ROCE with the moderating effect of firm size

The path coefficient, p-value and R-square for the relationship between ITO and ROCE are displayed in Figure 5 below:

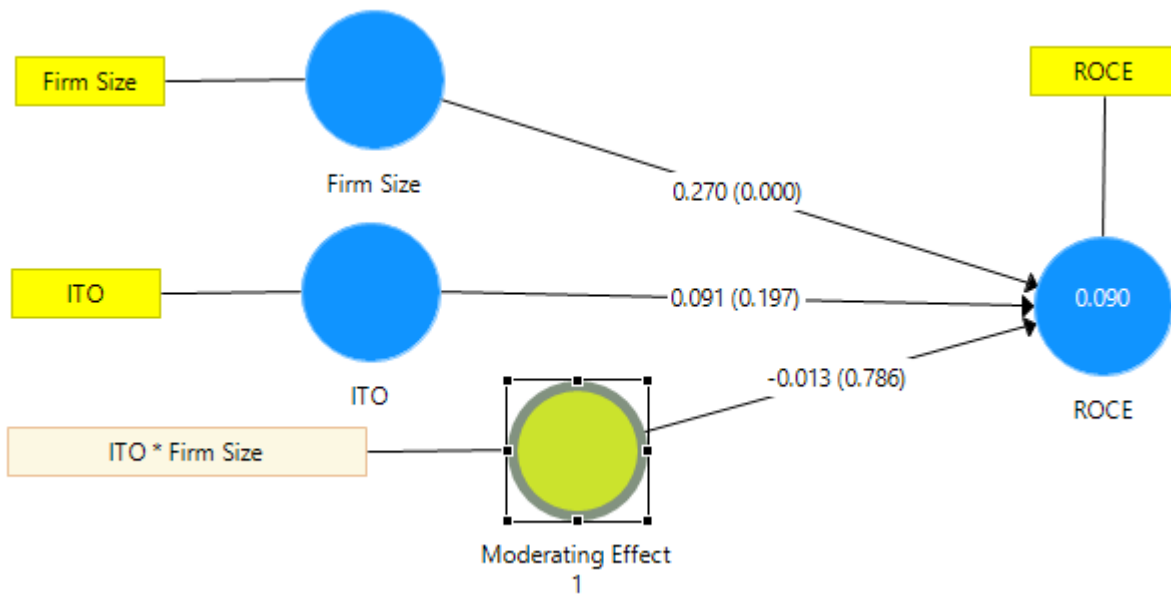


Figure 3: Path Coefficient with P-value

The path coefficient value for the relationship between ITO → ROCE = 0.091 (0.197), Firm size → ROCE = 0.270 (0.000) and moderating effect → ROCE is -0.013 (0.786). The moderating effect of firm size on ROCE is not significant. It is concluded that firm size has not moderating the effect of ITO on ROCE.

4.2.2. Summary of Structural Model

Table 4 shows the complete path analysis including mean, standard deviations, path coefficient, t-statistics (individual significance test), significant value (P-value), and path coefficient confidence interval.

Hypothesis Path	Mean	S.D	Path coeff.	t-value	P-value	Confidence interval		Result
						2.5%	97.5%	
ITO and ROE	0.091	0.071	0.091	1.272	0.197	-0.046	0.230	Insignificant
Firm Size and ROE	0.271	0.045	0.270	6.025	0.000	0.184	0.357	Significant
Moderating Effect	-0.014	0.048	-0.013	0.273	0.786	-0.103	0.082	Insignificant

Table 4: Path Coefficient Matrix

From Table 4 above, it is noted that the confidence interval for ITO and ROCE is -0.046 → 0.230, zero is included in the range (the minimum value is less than zero), which means that the relationship is insignificant. The confidence interval for Firm Size and ROCE is 0.184 → 0.357, and the moderating effect has a confidence interval of -0.103 → 0.082, which means that the relationship is not significant (the minimum value is less than zero). T-value for ITO and ROCE relationship is 1.272 with p value of (0.197). The t-value for firm size and ROCE relationship is 6.025 (0.0000) and for moderating effect and ROCE is 0.273 (0.786). R-square is 9.0 percent. From the result, it is noted that the t-value of moderating effect and ROCE relationship is less than the critical value of two-tailed test 1.96 which explains that the relationship is not significant. Thus, from the overall test results of path coefficient, t-statistic, P-value, and path coefficient confidence interval, it is concluded that the moderating effect of firm size on the relationship of ITO and ROCE is not significant.

4.3. Relationship between DTO and ROCE with the moderating effect of firm size

4.3.1. Path coefficient and P-value

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The following Figure 7 shows the path coefficient and P-value for the relationship between DTO and ROCE with the firm size as the moderating variable.

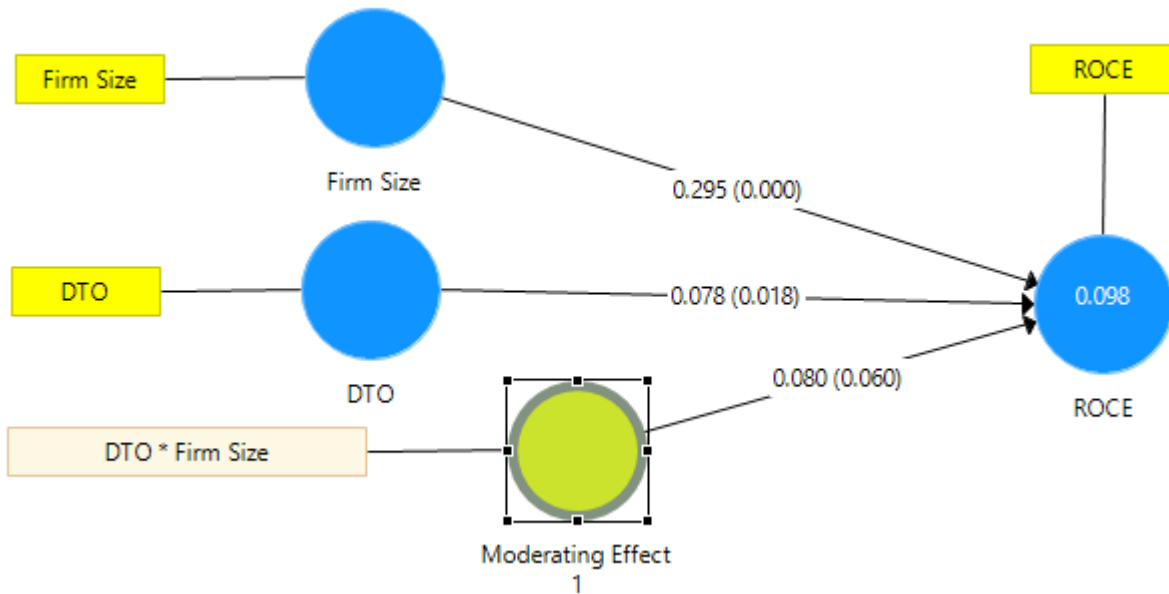


Figure 4: Path Coefficient with P-value

Figure 7 shows the path coefficient value for the relationship between DTO \rightarrow ROCE = 0.0078 (0.018), Firm size \rightarrow ROCE = 0.295 (0.000) and moderating effect \rightarrow ROCE is 0.080 (0.060). The p value of moderating effect of firm size on ROCE is more than 0.05, mean that the impact is insignificant. It is concluded that firm size has a no significant moderating effect on the relationship of DTO and ROCE.

4.3.2. Summary of Structural Model

Relationships	Mean	S.D	Path Coeff.	T-Value	P-Value	Confidence Interval 2.5% -> 97.5%	Result
DTO and ROCE	0.079	0.033	0.078	2.383	0.018	0.014 -> 0.145	Significant
Firm size and ROE	0.294	0.042	0.295	7.081	0.000	0.209 -> 0.374	Significant
Moderating Effect	0.082	0.042	0.080	1.893	0.060	-0.001 -> 0.164	Insignificant

Table 5: Path Coefficient Matrix

From Table 5 above, it is noted that the confidence interval for DTO and ROCE is 0.014 \rightarrow 0.145, Firm size and ROE is 0.209 \rightarrow 0.374 and Moderating Effect is -0.001 \rightarrow 0.164. Zero is included in the range (the minimum value is less than zero), which means that the relationships are insignificant in case of moderating effect and ROCE relationship. The t-value for DTO and ROCE relationship is 2.383 with p-value of (0.018). The t-value for firm size and ROCE relationship is 7.081 (0.000) and for moderating effect and ROCE is 1.893 (0.060). R-square is 9.80 percent. From the result, it is noted that the t-value of moderating effect and ROCE relationship is less than the critical value of two-tailed test 1.96 which explains that the relationship is insignificant. From this presentation, it is concluded that firm size has no significant moderating impact on the relationship of DTO and ROCE.

4.4. Relationship between CTO with ROCE with the moderating effect of firm size

4.4.1. Path coefficient and P-value

The following Figure 9 shows the path coefficient, p-value and R-square value for the relationship between CTO and ROCE along with the firm size as the moderating variable.

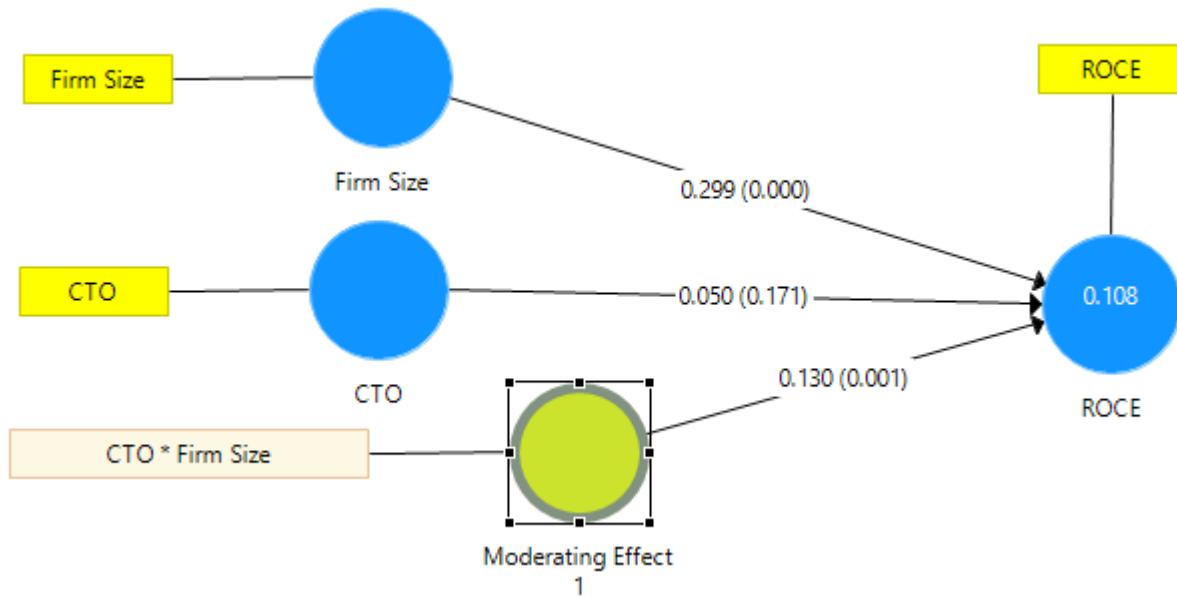


Figure 8: Path Coefficient with P-value

Figure 8 shows the path coefficient value for the relationship between CTO → ROCE = 0.050 with P-value (0.171), Firm size → ROCE = 0.299 (0.000) and moderating effect → ROCE is 0.130 (0.001). The p-value of moderating effect of firm size on ROCE is less than 0.05, mean that the impact is significant. It is concluded that firm size has a significant moderating effect on the relationship of DTO and ROCE.

4.4.2. Summary of Structural Model

The following Table 6 shows the path coefficient matrix for the relationship of CTO and ROCE with the moderating effect of firm size.

Relationships	Mean	S.D	Path coeff.	t-value	P-value	Confidence interval 2.5% -> 97.5%	Results
CTO and ROE	0.050	0.036	0.050	1.375	0.171	-0.017 -> 0.124	Insignificant
Firm size and ROE	0.298	0.041	0.299	7.276	0.000	0.214 -> 0.375	Significant
Moderating Effect	0.130	0.040	0.130	3.234	0.001	0.051 -> 0.211	Significant

Table 6: Path Coefficient Matrix

Table 6 shows that the confidence interval for CTO and ROCE is -0.017 -> 0.124, Firm size and ROCE is 0.214 -> 0.375 and Moderating Effect is 0.051 -> 0.211. Zero is not included in the range for the relationship of Moderating effect → ROCE (the minimum value is more than zero), which shows that the relationships of moderating variable and ROCE is significant. The t-value for CTO and ROCE relationship is 1.375 with p-value of (0.171). The t-value for firm size and ROCE relationship is 7.276 (0.000) and for moderating effect and ROCE is 3.234 (0.001). R-square is 10.80 percent. From the result, it is noted that the t-value of moderating effect and ROE relationship is more than the critical value of two-tailed test 1.96 which shows that the relationship is significant. From this presentation, it is concluded that firm size is moderating the relationship of CTO and ROCE.

4.5. Relationship between CCC and ROCE with the moderating effect of firm size

4.5.1. Path coefficient and P-value

The relationships between CCC and ROCE, firm size and ROCE, and moderating effect of firm size on ROCE are presented in the following Figure 11.

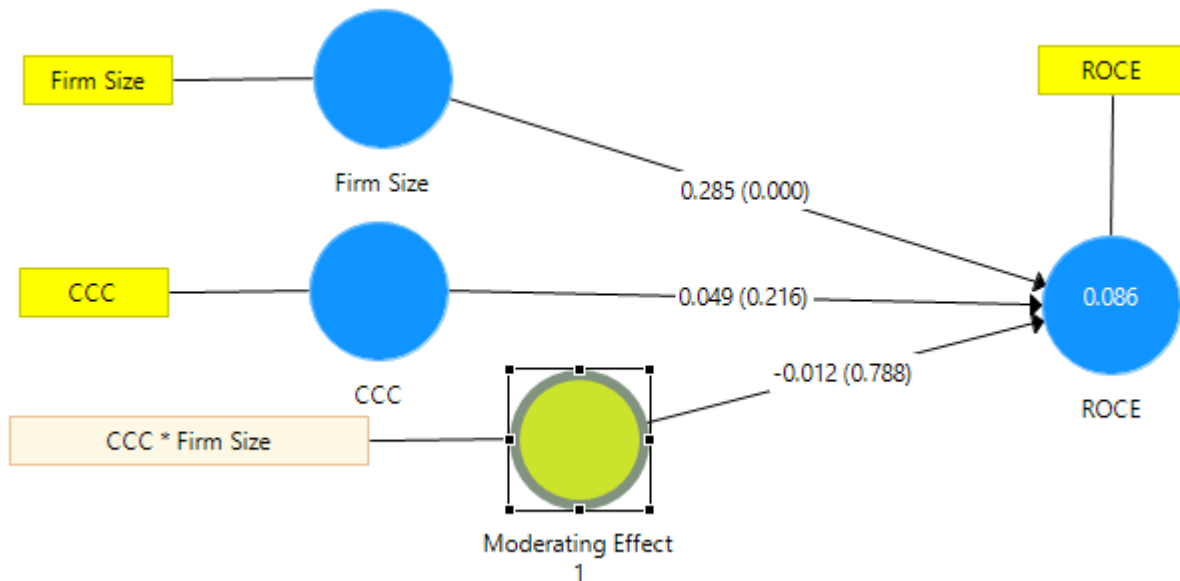


Figure 5: Path coefficient with P-value

Figure 11 shows the path coefficient value for the relationship between CCC → ROCE = 0.049 with P-value (0.216), Firm size → ROCE = 0.285 (0.000) and moderating effect → ROCE is -0.012 (0.788). The p-value of moderating effect of firm size on ROCE is more than 0.05, which means that the impact is not significant. It is concluded that firm size has no significant moderating effect on the relationship of CTO and ROCE.

4.5.2. Summary of Structural Model

The following Table 7 shows the path coefficient matrix for the relationship of the cash conversion cycle with ROCE along with the moderating effect of firm size.

Table 4: Path Coefficient Matrix

Relationships	Mean	S.D	Path coeff.	t-value	P-value	Confidence interval		Results
						2.5%	97.5%	
CCC and ROE	0.049	0.039	0.049	1.238	0.216	-0.030	0.125	Insignificant
Firm size and ROE	0.284	0.042	0.285	6.734	0.000	0.200	0.367	Significant
Moderating Effect	-0.101	0.046	-0.012	0.269	0.788	-0.101	0.080	Insignificant

Table 7 shows that the confidence interval for CCC and ROCE is -0.030 → 0.125, Firm size and ROCE is 0.200 → 0.367 and Moderating Effect is -0.101 → 0.080. Zero is included in the range for the relationship of moderating effect → ROCE (the minimum value is less than zero), which shows that the relationships of moderating variable and ROCE is not significant. The t-value for CCC and ROCE relationship is 1.238 with p-value of (0.216). The t-value for firm size and ROCE relationship is 6.734 (0.000) and for moderating effect and ROCE is 0.269 (0.788). R-square is 8.60 percent. From the result, it is noted that the t-value of moderating effect and ROCE relationship is less than the critical value of two-tailed test 1.96 which shows that the relationship is not significant. From this presentation, it is concluded that firm size is not moderating the relationship of CTO and ROCE.

5. Conclusion

The objective of this study was to examine the relationship between working capital management (WCM) components and firm financial performance measured by return capital employed (ROCE). The main contribution of the study is using PLS-SEM as the tool for investigating the relationships. Secondary data of 11 years from 2007-2017 was collected from 69 non-financial sector firms listed in Pakistan Stock Exchange

(PSE). The data was collected from the company's consolidated annual report, State Bank of Pakistan, and PSE. PLS-SEM was used for data analysis. As per our knowledge, this is the first study where PLS-SEM was used for the investigation of the relationships between WCM components and ROCE.

The relationship between WCM components and ROCE were examined by different techniques to get the best possible results. Path analysis including path coefficient, t-value, P-value, and confidence interval was used to investigate the relationships. Firstly, overall WCM components were regressed on ROE without the impact of the moderating variable. All the relationships were significant and positive. There was a significant positive relationship between WCM components (ITO, DTO, and CTO) with the firm's profitability (ROCE). The same test was repeated to examine the impact of moderating variable firm size. From the individual path analysis, we noted that the significance value or P-value for moderating effect on the relationship of ITO->ROCE is 0.786 for DTO->ROCE is 0.060, for CTO->ROCE is 0.001, and CCC->ROCE is 0.788. P-value for the moderating effect on the relationship of CTO->ROCE is less than 0.05 while other two are more than 0.05. Which shows that firms has significantly moderating the relationship of CTO and ROCE, while it has no significant moderating effect on the relationship of ITO->ROCE, DTO->ROE and CCC->ROCE.

From the overall result, we concluded that management should focus on each component of the WCM at the same time, to enhance the profitability of the firm. To increase the profitability of the firm the managers must consider seriously the efficient management of all of the components of working capital such as inventory, receivable, and payable.

Like every other study, this undertaking study also has some limitations. The PLS-SEM was applied for the first time as our knowledge is concerned, but only one ratio (ROCE) was used to measure the profitability of the firm. The sample was only non-financial sector firms and from one specific country (Pakistan). For future studies, the same PLS-SEM model should be applied with different profitability measurement tools such as newly developed ratio economic value-added momentum in different industrial sectors in different geographical location.

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