

# The Impact of Working Capital Management on Corporate's Performance: Evidence from Egypt

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## Abstract

Financial management has two main objectives profit and wealth maximization, well organized management of WC components should contribute to the achievement of these objectives. This study clarified the factors which affect WCM, which consequently will affect the business health as a whole and this will influence corporate performance and its corporate value. The study will examine the relation between firms profitability and its corporate value by applying panel data analysis on 16 companies registered in the Egyptian stock market during the period from 2013 to 2017. The performance of companies is measured through profitability using return on assets (ROA) and firms value were measured by Tobin's Q (TQ) ratio. The working capital management was measured by using current assets ratio (CAR), quick ratio (QR) and cash ratio (CR).

**Keywords:** current ratio, cash ratio, quick ratio, profitability, Tobin Q

## 1. Introduction

WCM is essential for corporate's successful outcome or failure as its components affect firms performance through liquidity and profitability and it shows the share of the corporate's capital which is needed for funding short term property, to meet the daily operations. That's why it is necessary to manage working capital effectively, the main aim of WCM is to achieve an excellent balance between the components of working capital and is considered as a vital part of the firms policy. One of the most common measure of the WCM is the cash conversion cycle which is the time delay between buying raw substances or rendering of services and receiving cash from the sale of goods or services provided. As this period increased the need for investment will increase and in turn profitability will decrease and as profitability is one of the measures of performance this means that CCC can have a gloomy impact on the corporate performance. In this study researchers are going to measure corporate performance by measuring profitability using ROA (return on assets) and liquidity using quick ratio, current ratio and cash ratio and measuring firms value using Tobin Q ratio.

Financial managers should be aware about how to make efficient investment decision related to working capital which will lead to reducing external financing by increasing cash flow and affect corporates growth. Working capital management focused on two factors namely, current property held by the firm and the type of property and the methods by which these assets are financed. This takes much of the finance managers' time to take financial decisions.

As maximizing the value of the firm is one of the main goals managers aim to achieve and it can be achieved through maximizing profit, many practical and theoretical researches have been held to assess the factors which lead to maximizing corporate value. Among these factors is the degree of the net working capital, like the extent of cash held up in A/R, inventories, and the quick settlement of accounts payable, and operational cash balances.

The main aim of any company is to maximize profit but it should take into consideration keeping appropriate level of liquidity so the firm should compromise between both goals to achieve the two objectives. There are three types of decisions the first one is related to the firm's financing structure, second decision focused on capital

budgeting and third decision is about managing WC.

WC is a financial measure for running liquidity accessible in a business which will affect firms profitability, and both liquidity and profitability are indicators of corporates performance. Also it is necessary corporates to manage working capital efficiently to be able to face global competition. Because the aim of managing WC is to make sure that the company has the ability to resume its operation and that it has sufficient cash flow to satisfy both maturing short term debt and future running expenses.

The main purpose of our study is to recognize the factors which influence WCM by companies listed on Egyptian stock market as it affects corporate's profitability, risk and consequently its value.

### 1.1 Literature Review

There are preceding studies related to the relation between working capital management components, shareholders wealth and firm's profitability and liquidity provides theoretical arguments to show the impact effective management of working capital on the mentioned independent variables which will consequently affect firms performance. There are many studies on this subject as well.

Table 1. Literature review

Author	Study Period & Population	Variables	Conclusion
AbdulRaheman Mohamed Nasr (2007)	1999 – 2004 Pakistan Sample 94 companies	Components of WCM and profitability of the corporate	The study concluded that net operating profitability was negatively affected by the "average collection period", inventory turnover in days, "average payment period" and CCC . Also there is a negative relation between the shareholder wealth and the number of days accounts receivable and inventories, and profitability and liquidity of corporates are negatively related.
Amarjit Gill ,Nahum Biger , Neil Mathur (2010)	2005-2007 USA Sample 88 companies listed in New York exchange market	CCC and operating profit margin	The study found that gross operating profit was negatively affected by the average days of accounts receivable while it is positively affected by cash conversion cycle and this means the managing working capital effectively can affect the firms profitability
Nor Edi Azhar Binti Mohamad Noriza Binti Mohd Saad (2010)	2003 to 2007 Malaysia Sample 172 companies randomly selected from Bursa Malaysia	Working capital management and firms profitability and market value	The study concluded ROA and ROIC was positively affected by "current asset to total asset ratio" and showed that ROE and ROIC was positively affected by the working capital components. The study focused on the necessity of effectively managing working capital component to enhance firms profitability and market value.
Hassan Aftab Qazi, Syed Muhammad Amir Shah, Zaheer Abbas and Tanzeela Nadeem (2011)	2004 - 2009 Pakistan Sample include 20 companies from automobile and oil and gas	Working capital and firms profitability	The study found that the results of the regression that there is a positive relation between net WCM and the firms profitability. And a negative relation between the " Number of Days of Account Receivable" (NDAR) and Inventory Turnover in Days (ITD) and the firms profitability.

		sector .exc hange market			
		2005-2009			
		Jordan			
Dr. ThairA.Kaddumi, Dr. Imad Z. Ramadan (2012)	Sample include 49 Jordanian Industrial corporatio ns at Amman Stock		WCM and profitability		The study concluded that firms shareholder wealth was positively affected by the WCM through reducing CCC and net trading cycle. The current assets to total assets ratio affect positively profitability which indicates that the Jordanian industrial firms generally have a strict investment strategy in working capital. While the current liabilities to total assets ratio has great negative effect on profitability will lead to less strict financing policy in the WC.
Gamze VURAL, Ahmet Gökhan SÖKMEN, Emin Hüseyin ÇETENAK (2012)	2002-2009 Turkey 75 manufacturing companies		Leverage CCC, AR collection period and corporate value.		The study concluded that the profitability of the firm raised by decreasing the AR average collection period and the CCC, while the firm value will be positively affected by corporate size but it will be negatively affected by leverage .
J. Aloy Niresh (2012)	2008 to 2011 Sri Lanka 30 companies		ROA,ROE and CCC and current ratio		The study found a positive relation between ROA, ROE as a performance measure and CCC. Also a positive but not strong impact of current ratios on return on assets and return on equity.
E. Ogundipe, AbiolaI dowu and Lawrencia. O. Ogundipe (2012)	1995-2009 Nigeria Sample 54 firms		Components CCC and market value		The study concluded that decreasing the CCC will help in achieving the goal of profit maximization in the firm which in turn will increase the market value
Robert Kieschnick, Mark Laplante and RabiH Moussawi (2013)	1990 – 2006 USA		WCM and shareholders wealth		The study concluded that the evaluation of the aggregated dollar invested in net operating WC is greatly affected by a firm's future sales predictions, its debt load, its financial obstacles, and its default risk; and the value of the aggregate dollar extended in credit to one's customers has a considerable effect on shareholders' wealth than the aggregate dollar invested in inventories for the average corporate.
A.N.R. Jayarathne (2014)	2008-2012 Sri-Lanka Sample 20 manufacturing companies listed in the CSE		ROA, CCC, sales growth , debt ratio and number of days of inventory and account payable		The study found that there is a negative correlation between the profitability and the liberal credit policy and keeping inventories in the stores. Also the study showed that cash conversion cycle must be reduced however the study didn't take into consideration technological and demand changes.

<p>NtuiPonsian, (2014)</p>	<p>Kiemi Chrispina, Gwatako Tago, HalimMkiibi</p>	<p>2002-2012 Tanzania Sample of 3 manufacturing companies</p>	<p>Gross operating profitability, inventory turnover, CCC and average collection period</p>	<p>The study found that profitability was positively affected cash conversion cycle and is negatively affected by liquidity and when the number of days a company received the payments of sales decreased this will increase profitability. Also when the period of paying for creditors increased the profitability of the company increased.</p>
<p>Anastasia Nwakaego Duru, (2014)</p>	<p>Michael Chidiebere Ekwe</p>	<p>2000-2001 Nigeria Sample food and beverage companies</p>	<p>Profitability and receivables management</p>	<p>The study found that profitability was negatively affected by account receivable while it was positively affected by the growth of sales and the level of debt.</p>
<p>Charles Kiprotich Yegon, (2014)</p>	<p>Kirui Joseph Kiprono, Chepkutto Willy</p>	<p>2005-2012 Kenya Sample 6 tea firms</p>	<p>Profitability of the firm and working capital management components</p>	<p>The study found that the tea firms' net operating profit was negatively affected by CCC, net trading cycle and the number of days of inventory turnover while current ratios have positive impact on the profitability of the tea corporates.</p>
<p>Tanver Bagh, M.I.Nazi, (2016)</p>	<p>Sadaf Razzaq, Muhammed Asif Khan</p>	<p>2005 to 2014. Pakistan random sample of 50 non-financial companies on Pakistani Stock Market</p>	<p>Working capital management and ROA, ROE, EPS</p>	<p>The study found that ROA is negatively affected by inventory turnover, cash conversion cycle and ROE is negatively affected by average payment period while the average collection period affect positively ROE . EPS is negatively affected by inventory turnover and average collection period.</p>
<p>Shahid Husain, Saad Alnefaee (2016)</p>	<p>Husain, Saad Alnefaee</p>	<p>2009-2014 Saudi Arabia Sample include 18 firms in agriculture and food industry</p>	<p>Firms profitability and working capital management</p>	<p>The study concluded that average payment period, inventory turnover in days and CCC are negatively affected by gross operating profitability . And in companies listed in agriculture and food industry average collection period was positively affected by gross operating.</p>
<p>Muhammad Aleem (2017)</p>	<p>Dr. Abid Usman</p>	<p>2006-2014 Pakistan Sample include 15 companies in textile industry</p>	<p>Working capital management and firms profitability</p>	<p>The study found that the firms profitability is positively affected by current ratio and inventory turnover, while quick ratio and trade debt didn't have effect on firms profitability.</p>
<p>Emmanuel Kojo Oseifuah, (2017)</p>	<p>Agyapong Gyekye</p>	<p>2003 – 2012 South Africa Sample include 75 firms listed in JSE</p>	<p>WCM and firms value</p>	<p>The study found that there is a great positive relation between firms' value and both receivables conversion period and inventory conversion period while there is a negative relation between receivables conversion period and inventory conversion period and firms value. Firm's value is negatively affected by the</p>

				corporate's level of debt. And there is a positive relation between profitability and A/P deferral period and between the corporate's value and the corporate's size.
Muhammad usman, sarfarazahmed shaikh, and shahbaz khan (2017)	2003-2015	Scandinavian states	Firms profitability and WCM	The study concluded firm's profitability was negatively affected by inventory days, A/R days, A/P days, and CCC.
Wasantha Perera Pradeep Priya shantha (2018)	2010-2015	Colombia	Gross operating profit ,Tobin's Q ratio and working capital management	The study found that gross operating profit and Tobin's Q ratio were negatively affected by the CCC as a component WCM. There is negative relationship between firm size and Tobin's Q while gross operating profit was positively affected by firm size. Finally managing working capital efficiently can affect companies' shareholders wealth and profitability positively
Pambayun Kinasih Yekti Nastiti, Apriani DorkasRambu Atahau Supramono (2019)	2010-2017	Indonesian	continual growth rate , CCC and return on assets	The study Found that managing working capital components effectively will affect positively the sustainable growth of firms through affecting profitability. Because increasing profit will help the firm to obtain internal funds which in turn will lead to higher sustainable growth.

Through Literature review, the study found the following:

- 1- The firms profit was negatively affected by average collection period, inventory turnover in days, average payment period and CCC.
- 2- Corporates value was positively affected both receivables conversion period and inventory conversion period.
- 3- Sales growth can lead to an increase in corporate's profitability.
- 4- ROA was negatively affected by inventory turnover, cash conversion cycle and ROE was negatively affected by average payment period while the average collection period affects positively ROE.
- 5- Decreasing the cash conversion cycle will help in achieving the goal of profit maximization in the firm which in turn will increase the market value.

### 1.2 Study Problem

The amounts of assets invested in working capital are usually high compared to the amount of total property so it is important to use these quantities efficiently. The effects of WCM on firms performance has been a focal point of great number of researches among long periods. The researches have focused on large corporates working in developed economies. While in developing countries researches concentrating on the relation between managing WC components effectively and the corporate's performance are limited.

Profitability and liquidity are two main indicators of firms' performance but there is a tradeoff between both of them, one of the main reasons which compromise between profitability and liquidity is managing the components of WC efficiently. Improving the performance of firms in the Egyptian economy will affect positively the overall performance of the economy which is considered as a tool for achieving the sustainable development as an aim of the Egyptian plan 20-30.

So the problem can be summarized in the following questions:

What is the relation between WCM components and corporates performance?

What is the effect of working capital components which is measured by cash ratio, current ratio and quick ratio on the performance indicators like ROA and corporate's value which is measured by Tobin's Q ratio?

### *1.3 Study Hypotheses*

According to the study problem, the Study has two Hypotheses which are:

- 1-There is significant impact of WCM components on ROA.
- 2-There is significant impact of WCM components on Tobin's Q.

### *1.4 Variables*

The study hypotheses focused on the effect of managing WC components which is represented by dependent variables cash ratio, quick ratio and current ratio on the firms value which is represented by independent variables ROA and Tobin's Q.

Dependent variables:

Tobin Q is used as to measure the market value of the corporates. It is measured as market value of equity plus book value of liability divided by total asset

ROA is used as for financial performance indicator which is a ratio of Earning before Interest and Tax and Total Asset.

Independent variables:

Current ratio: Is used to determine the firm's liquidity by comparing the current liabilities excluding inventory.

Quick ratio: is used to identify corporates liquidity through comparing the total amount of cash and cash equivalent to the amount of current liabilities.

Cash ratio: is used to determine the firm's liquidity by determining the amount of cash and short term equivalents a company has over current liabilities.

## **2. Factors Which Affect Working Capital Components and How It can Affect the Corporate's Performance**

The goal of the study is examining the effect of working Capital Management on firms Performance, clarifying the factors which affect managing WC effectively and Identifying the actual performance in terms of the corporates market value (Tobin Q).

The primary financial goal of the firm is not only creating corporate value but also improving performance and maximizing the value of the company.

WCM with planning current assets and current liabilities to reduce the risk of insufficiency to face due dates of short term liabilities and avoid unnecessary investment in these assets which means it affects both liquidity and profitability of the firm. This can enhance the firm's ability of reducing risk and improving performance. The following section will focus on the factors determining working capital.

### *2.1 Determinants of Working Capital Management*

There are many factors affecting managing working capital efficiently which include the following:

The nature of business, extent of operation production cycle, business cycle, seasonality and production strategy, credit policy, growth and expansion, increase in price level, operating efficiency, availability of raw materials, depreciation policy, taxation, dividend policy and detention policy. Here in our study we will focus on analyzing the items needed to calculate quick ratio, current ratio and cash ratio which are inventory, current assets, current liabilities and cash as they will be used as quantitative indicators for measuring the effect of WCM components on corporate's performance.

#### *2.1.1 Inventory Management*

Inventory management focused on managing operations related to the circulation of inventory in and out of the company. Inventory includes Supplies, Raw materials, work-in-process and finished goods. These components of inventory are crucial for all business operations, regarding account receivables, levels of inventories relies greatly on sales, whereas receivables expansion after sales have been done, inventory must be purchased ahead of sales. To manage inventory effectively financial managers should coordinate between sales, purchasing and Production.

Keeping too little inventory level will increase ordering cost and the corporate can bypass profitable sales which will decrease goodwill and in turn lower upcoming sales. Thus it is essential to keep sufficient inventories on hand to face customer demands, and decreases the cost of goods sold and rises their net profit margin. Inventory policy has been seen as an essential component of WC which in turn will affect firm's profitability.

#### 2.1.2 Account Receivables

Account receivables "makes up a considerable part of the corporate's assets, they literally formed of 25.97 percent of a typical corporate asset. (Martin, Petty, Keown, & Scott, 1991). Because of their immensity any variations in their levels will influence profitability." The amount of investment in account receivables is affected by cash management, level of sales and the credit and collection policies.

#### 2.1.3 Cash

Cash management focused on minimizing the firm's risk of insolvency. Working capital aimed to reduce the time between cash expenses on material and receipt of cash sales. The level of sales also identifies the size of investment in A/R that is, the more sales, the larger the account receivables. So if the corporate has seasonal and constant growth in sales, the level of A/R will be maximized.

### 2.2 Working Capital Management and Firm Performance

Generally working capital is measured by identifying the productiveness of the corporate's investment in the components of working capital. This is done by comparing the firm's sales, gross profits and operating income to cash, A/R, A/P and inventories are to determine the relation between efficient WCM and firms' profitability. And profitability of the firm is considered as one of the indicators of corporate performance.

Another indicator for corporate performance is the liquidity of the firm the amount of current assets which is financed from long-term funds is called WC. The gross WC and net working capital are described as total current assets and excess of current assets over current liabilities respectively. So That's why the study will rely on examining the relation between the cash ratio, current ratio and Tobin Q and the corporate value of firms registered in the Egyptian stock market in the span from 2013 till 2017.

Previous studies found that the investment in WC and firm performance is related positively at low levels of WC and negatively at higher levels. A higher speculation in trade credit and inventories may increase the firm performance for several causes because greater inventories can decrease supply costs and price variations and prevent interruptions in the production process and loss of business due to insufficiency of products. Also allow companies to furnish preferable service for their clients and avoid high production costs resulting from high fluctuations in production (Schiff & Lieber, 1974). But sometimes investment in WC negatively affects firms because of the following reasons:

- 1- Increasing investment in WC will lead to greater capital needs by the firm.
- 2- Increasing the level of stock will increase costs of warehouse rent, insurance and security.
- 3- Firms which increase investment in working capital will face more interest expenses and this will increase credit risk.

And this means that managing working capital efficiently will affect firms performance because working capital should be kept at certain level to maintain optimal balance to achieve the best results because exceeding this level may affect performance negatively due to previously mentioned reasons.

The following figure shows the relation between the variables of the study

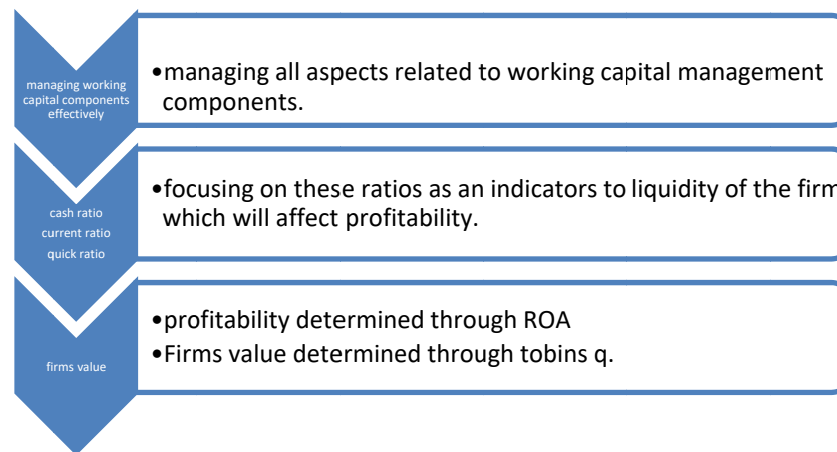


Figure 1. Prepared by the researcher

### 3. Data and Methodology

To hold on the objectives of the study and testing the hypotheses the study use quantitative technique to measure the impact of managing working capital components efficiently on corporate value by determining the effect of current, quick and cash ratios on the ROA and the Tobin’s Q.

#### 3.1 Sample

The source of the data selected for this study was collected from the published annual reports taken from EGX (Egyptian stock market). The studied data has been tabulated, analyzed and explained with the aid of different financial ratios as cash ratio, current ratio, quick and the Tobin Q and statistical tools which is panel data regression method. A total of 16 manufacturing firms were identified and data was collected for five financial years (2013-2017).

#### 3.2 Methodology

The effect of the WCM on performance of Egyptian manufacturing corporates is examined by panel data regression. The panel data regression used has some advantages comparable to period average cross-sectional data as increasing in the degrees of freedom, more accurate estimates due to the efficiency gained by the availability of great number of observations, and decreasing the problem of co- linearity between explanatory variables. These advantages lead to extra impressive estimation. Inferential Statistical Methods Examine the effect of managing working capital component on ROA.

H1: Model 1: Fixed-effects, using 80 observations Included 16 cross-sectional units; Time-series length = 5

Dependent variable: ROA.

Table 1. Test results of examining the first hypothesis using panel data cross section

	Coefficient	Std. Error	t-ratio	p-value	
Const	0.0726157	0.00887837	8.179	<0.0001	***
CAR	0.0307423	0.0140623	2.186	0.0327	**
QR	0.0165782	0.0251670	0.6587	0.5125	
CR	-0.0163556	0.0251613	-0.6500	0.5181	
Mean dependent var	0.078822	S.D. dependent var		0.092208	
Sum squared resid	0.096129	S.E. of regression		0.039697	
LSDV R-squared	0.856885	Within R-squared		0.080086	
LSDV F(18, 61)	20.29055	P-value(F)		2.95e-19	
Log-likelihood	155.4487	Akaike criterion		-272.8974	
Schwarz criterion	-227.6389	Hannan-Quinn		-254.7520	
Rho	0.085156	Durbin-Watson		1.380126	



Joint test on named regressors

Test statistic:  $F(3, 61) = 1.77019$

with p-value =  $P(F(3, 61) > 1.77019) = 0.162302$

Test for differing group intercepts -

Null hypothesis: The groups have a common intercept

Test statistic:  $F(15, 61) = 20.2414$

with p-value =  $P(F(15, 61) > 20.2414) = 3.28717e-018$

Inferential Statistical Methods Examine the effect of managing working capital component on Tobin's q

From the above statistical test it was clear that cash ratio has significant impact on return on asset (ROA) at a significance level 5%. Also R square showed that 8% of factors which affect the ROA are represented by cash ratio. In other words the variability in the ROA was explained by 8% according to the component of the working capital. So there is a great impact of working capital management components on ROA.

Table 2. Test results of examining the second hypothesis using panel data cross section

H2 Model 2: Random-effects (GLS), using 80 observations, Included 16 cross-sectional units, Time-series length = 5.

Dependent variable: TQ

	Coefficient	Std. Error	z	p-value	
Const	1.73489	0.386609	4.487	<0.0001	***
CAR	0.226520	0.237358	0.9543	0.3399	
QR	0.803345	0.427208	1.880	0.0600	*
CR	-0.793382	0.427211	-1.857	0.0633	*
Mean dependent var	1.580955		S.D. dependent var	1.524334	
Sum squared resid	170.3614		S.E. of regression	1.487443	
Log-likelihood	-143.7509		Akaike criterion	295.5018	
Schwarz criterion	305.0299		Hannan-Quinn	299.3219	
Rho	-0.225836		Durbin-Watson	1.303559	

'Between' variance = 2.07012

'Within' variance = 0.514733

Theta used for quasi-demeaning = 0.782345

Joint test on named regressors

Asymptotic test statistic: Chi-square(3) = 5.31817

with p-value = 0.149928

Breusch-Pagan test

Null hypothesis: Variance of the unit-specific error = 0

Asymptotic test statistic: Chi-square(1) = 89.085

with p-value = 3.78199e-021

Hausman test

Null hypothesis: GLS estimates are consistent

Asymptotic test statistic: Chi-square(3) = 0.924643

with p-value = 0.819477

From the above statistical tests it was clear that quick ratio and current ratio have great impact on Tobin's q at a significance level 7%. In other words the variability in Tobin's q was explained by 8% according to the

component of working capital. Quick ratio and the current ratio have significant impact on the Tobin Q ratio at 7% level of significance. So there is a significant impact of WCM components on Tobin's q.

The following table shows a list of companies taken as a sample for examining the study hypotheses.

List of Companies	
1.	Amer Group
2.	Arabian Cement
3.	EzzAldekhela
4.	SidiKerir Petrochemical
5.	Madinat Nasr Housing
6.	Palm Hills Development
7.	TaalatMostafa Holding
8.	Paint & Chemicals (Pachin)
9.	Ezz Steel
10.	GB auto
11.	Juhayna
12.	Raya Holding
13.	Six of October
14.	Suez Cement
15.	Oriental weavers
16.	El Ezz Porcelain

#### 4. Conclusion and Recommendation

The aim of our study was to assess the impact of WCM on the firms' performance. The study sample data was 16 manufacturing companies listed in the Egyptian stock exchange market. The study used the ROA and Tobin Q ratio as indicators for firms performance and to measure the WCM used the cash ratio, quick ratio and current ratio.

From the previous studies it was clear that there is a relationship between managing the different components of WC efficiently and firms profitability, liquidity which are indicators of the firm performance. And our research will continue after the previous study using panel data regression to assess the effect of managing working capital efficiently on the firms performance by using the cash ratio, current ratio, quick ratio and the Tobin's Q ratio. The study found according to the statistical results that there is positive relation between cash ratio, current ratio with the ROA and quick ratio with the Tobin's Q ratio. These results are in accordance with that of Wasantha Perera (2018) and Pambayun Kinash (2019), Emmanuel Kojo (2017), Tanver Bagh, M. I. Nazir (2016) and Robert Kieschnick (2013) while other researches like that of Muhammad usman (2017), Charles Kiprotich (2014) and Anastasia Nwakaego (2014) focused on the relation between profitability and other WCM components like account receivable, cash conversion and cycle inventory turnover.

Finally managers should take actions which allow them to efficiently manage working capital components to magnify its impact on improving the financial performance and stock prices of corporates which in turn will increase the shareholders wealth and lead to increasing the sustainable growth of firms by helping companies to obtain internal funds and this is compatible with the Egyptian future development plan of 2030.

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