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WORKING CAPITAL MANAGEMENT PRACTICES AND THEIR IMPACT ON FIRMS' PROFITABILITY: EVIDENCE FROM SELECTED MANUFACTURING COMPANIES

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ABSTRACT

The main purpose of this study is to test empirically the impact of working capital management on profitability. To investigate the relationship between these two, the researcher collected secondary data from 19 manufacturing share companies for the period of 2010 to 2014. Accounts receivable period, inventory holding period and accounts payable period are used as independent working capital investment policy variables. Moreover, cash conversion cycle and current assets to total assets ratio are used as comprehensive measures of working capital investment policy. On the other hand, current liabilities to total assets ratio is used as measure of working capital financing policy. The regression results show inverse relationship between accounts receivable and inventory holding periods with profitability. However there is statistically insignificant relationship between accounts payable period and profitability. The results also show that there exists significant negative relationship between cash Conversion cycle and profitability of the sampled firms. In addition to a significant positive relationship between current assets to total assets ratio and profitability measures has been observed. On the other hand, results show that significant and positive relationship between current liabilities to total assets ratio and profitability. To be profitable, firms must try to keep these numbers of days account receivable and inventory turnover days to minimum level. This helps to minimal the cash conversion cycle also. Since aggressiveness of working capital management investment policies is inversely related to profitability, and aggressive investment policy positively related with profitability, the financial managers of

manufacturing sector should follow conservative investment policy and aggressive financing policy in their working capital management.

Key words: Working capital management, Profitability, Liquidity, cash management and inventory management

Background of the Study

Working capital refers to the capital that companies use in their daily operations and it consists of companies' current assets and current liabilities (Brian, 2009). And management of Working capital is the ability to control the current assets and current liabilities in a manner that provides the firm with maximum return on its assets and minimizes payments for its liabilities. Working capital management efficiency is vital especially for manufacturing firms, where a major part of assets is composed of current assets that will directly affect the profitability and liquidity of firms (Raheman & Nasr 2007). Investments in current assets are inevitable to ensure delivery of goods or services to the ultimate customers, and a proper management should give the desired impact on profitability. If resources are blocked at different stage of supply chain, this will prolong cash operating cycle. Although this might increase profitability (due to increase sales), it may also adversely affect the profitability if the costs tied up in working capital exceed the benefits of holding more inventory and/or granting more trade credit to customers (Arshad, 2013).

Modern Financial management aims at reducing the level of current assets without ignoring the risk of stock outs. Proper working capital management improves firm's profitability and liquidity position, and thus increasing the market value of the firm (Ali, 2011). Liquidity and profitability are two sides of the same coin because they work in opposite directions. Increasing liquidity of the firm will reduce profitability of the firm and vice versa. Therefore finance managers need to maintain a level of working capital that will ensure liquidity of the firm but not reduce its profitability (Brian, 2009). Every firm is required to maintain a balance between profitability and liquidity while conducting its day to day operations. As inadequate amount of working capital impairs a firm's liquidity, holding of excess working capital results in the reduction of the profitability (Seidman 2004). Pass and Pike (1987) emphasized that short term finance area particularly working capital management has given very less attention in contrast to long term investment even if it played a very vital and important role in the growth of firm and in enhancement of profitability. Hence, the main objective of the study is to examine the

relationship between working capital Management and profitability of manufacturing firms. To achieve the stated general objective, the following specific objectives will be used:

To analyze the effect of receivable management on firms performance

To examine the impact of accounts payable management on firms performance

To evaluate the effect of inventory management on firms performance

To evaluate the effect of cash conversion cycle management on firms performance

To examine the effect of working capital investment policy on firms profitability

To determine the effect of working capital financing policy on firms' profitability.

Research Hypotheses: Based on the objectives outlined and review of the literature following alternative hypothesis are developed**.**

H1: There is significant and negative relationship between Account receivable day (ARD) and Profitability of the firm.

H2: There is significant negative relationship between Inventory Conversion Period (ICP) and Profitability of the firm.

H3: There is significant positive relationship between Account payable days (APD) and Profitability of the firm.

H4: There is significant negative relationship between Cash Conversion Cycle (CCC) and Profitability of the firm.

H5: There is strong negative relationship between current assets to total assets (CATAR) ratio and profitability of firms.

H6: There is significant positive relationship between current liabilities to total assets ratio (CLTAR) and profitability of firms.

LITERATURE REVIEW

Working capital has several meanings; firms use it in many ways. The first and most critical use of working capital is providing the ongoing investment in short term asset that the company needs to cover its daily expenditures such as payroll, vendor invoices, and inventory purchases. The business also needs working capital for prepaid business costs such as licenses, insurance policies or security deposits. working capital is needed to sustain firm's growth. The working capital meets the short-term financial requirements of a business enterprise. It is a trading capital, not retained in the business in a particular form for longer than

a year. The money invested in it changes in form and substance during the normal course of business operations. Just as circulation of blood is very necessary in the human body to maintain life, the flow of funds is very necessary to maintain business (Arshad 2013).

Working capital management is very imperative because it affects the firm's risk, profitability and value (Smith 1980). Investment in working capital involves a balance/tradeoff between risk and profitability because investment decision which leads to increase in profitability will be inclined to increase risk and vice versa. Efficiency in working capital management is very important for the manufacturing firms where more than half of the assets are current assets. Efficiency in managing working capital also increases cash flow to the firms which in turn increase the growth opportunities for the firms and return to the shareholders (Blinder and Manccini 1991).

Working Capital Policies

Working capital policy can be best described as a strategy which provides the guideline to manage the current assets and current liabilities in such a way that it reduces the risk of default (Brian,2009). The role of working capital management policies on firm performance and the importance of a tradeoff between liquidity and profitability were investigated by Vishnani and Shah (2007) they provided two basic reasons behind the tradeoff between profitability and liquidity. On the one hand if a firm wanted to take higher risk for higher profits, than it reduced the level of its working capital. On other hand if firm wanted to improve liquidity, it increased the amount of working capital which puts a negative impact on the profitability of firm.

The Level of Working Capital Policy

Aggressive policy: An aggressive policy with regard to the level of investment in working capital means that a company chooses to operate with lower levels of inventory, trade receivables and cash for a given level of activity or sales (Cheatham 1989). According to Gallagher & Joseph (2000) an aggressive policy will increase profitability since less cash will be tied up in current assets, but it will also increase risk because the difference between short term or liquid assets and short term liabilities turns very little. A company with aggressive working capital policy offers short credit period to customers, holds minimal inventory and has a small amount of cash in hand. This policy increases the risk of

default because a company might face a lack of resources to meet the short term liabilities but it also gives a high return as the high return is associated with high risk (Vishnani& Shah, 2007).

Conservative policy: conservative and more flexible working capital policy for a given level of turnover would be associated with maintaining a larger cash balance, perhaps even investing in short-term securities, offering more generous credit terms to customers and holding higher levels of inventory by using long term debt and equity. Such a policy will give rise to a lower risk of financial problems or inventory problems at the expense of reducing profitability because long term debt offers high interest rate which will increase the cost of financing (Cheatham 1989). Mostly the companies that are operating in an uncertain environment prefer to adopt such a policy because they are not sure about the future prices, demand and short term interest rate. In such a situation it is better to have a high level of current assets. E.g. helps to keep the higher level of inventory in the stock to meet the sudden rise in demand and to avoid the risk of stoppage in the production. This policy provides the shield against the financial distress created by the lack of funds to meet the short term liability but as we discussed earlier long term debt have high interest rate which will increase the cost of financing. Similarly funds tie up in a business because of generous credit policy of the company also have its opportunity cost. Hence this policy might reduce the profitability and the cost of following this policy might exceed the benefits of the policy (Arnold, 2008).

A moderate policy: A moderate policy would trample a middle path between the aggressive and conservative approaches. So, In order to balance the risk and return these firms are following the moderate approach. This approach is a mixture of defensive working capital policy and aggressive working capital policy. In these approach temporary current assets, which appear on the balance sheet for short period will be financed by the short term borrowings and long term debts are used to finance fixed assets and permanent current asset. Thus the follower of this approach finds the moderate level of working capital with moderate risk and return (Siddiquee and Khan 2008).

All three approaches are shows that the working capital policies of a company can be characterized as aggressive, moderate or conservative only by comparing them with the working capital policies of similar companies. There are no absolute benchmarks of what may be regarded as aggressive or otherwise, but these characterizations are useful for analyzing the

ways in which individual companies approach the operational problem of working capital management.

Liquidity and Profitability

For number of years maintaining liquidity has been one of the prime goals of the firms and financial managers because, maintaining high or low liquidity affects the profitability of firm in an adverse manner. The profitability and liquidity, both are important goals for any firm, and to forego one goal at the cost of other can create serious problems for the firm. Profitability is a long term goal for any firm because it is required for the survival of the firm and firm will not continue to exist without profits. On the other hand liquidity is relatively shorter term goal which needs to be addressed to protect the firm from bankruptcy (Scharf 1984). Different authors addressed this issue of maintaining a tradeoff between these two conflicting goals of profitability and liquidity but only gave a general approach to solve the problem. A research by Smith (1980), Raheman & Nasr, (2007), also states the main purpose of any firm is to maximize profit. But, maintaining liquidity of the firm also is an important objective. The problem is that increasing profits at the cost of liquidity can bring serious problems to the firm. Thus, strategy of firm must maintain a balance between these two objectives of the firms. Therefore the profitability liquidity tradeoff is important because if working capital management is not given due considerations then the firms are likely to fail and face bankruptcy.

Empirical Review

Empirical results of the past studies show that ineffective management of working capital is one of the significant factors causing industrial sickness. Efficient management of working capital is thus an important indicator of sound health of an organization which requires reduction of unnecessary blocking of capital in order to bring down the cost of financing (Arshad 2013).

Deloof (2003), Surveyed on Belgian Firms to find out whether the working capital management affects profitability, using correlation and regression tests he found a significant negative relationship between corporate profitability and number of days accounts receivable, inventories and accounts payable of Belgian firms. On the basis of these he suggested that manager could increase corporate profitability by reducing the number of day's accounts receivable and inventories to a reasonable minimum. The negative relationship

between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

Samiloglu and Demirgunes (2008) investigated the effect of working capital management on firms' profitability for a sample of manufacturing firms listed in Istanbul Stock Exchange (ISE) for the period 1998-2007. The data was taken from the quarterly financial statements of the sampled firms from ISE database and 5,843 firm quarter data was used. The dependent variable, firm profitability, was measured by return on assets. Accounts receivable period, inventory period and cash conversion cycle were used as proxies for working capital management policies. Like other many working capital literatures, firm size, firm growth, leverage and fixed financial assets were used as control variables. The data has been analyzed under a multiple regression model. The empirical results of the study showed that accounts receivable period, inventory period and leverage significantly negatively affect profitability of the sample firms, while firm growth (in sales) significantly and positively. However, it was also concluded that cash conversion cycle, size and fixed financial assets have no statistically significant effects on profitability of the sampled firms.

In their study Falope and Ajilore (2009) present empirical evidence about the effects of working capital management on firms' profitability by using secondary data sources from annual reports and financial statements of 50 non-financial firms listed in Nigerian Stock Exchange for the time period 1996-2005. The dependent variable, firms' profitability, was measured by return on assets. The independent variables, number of days of accounts receivable, number of days of inventory, number of days of accounts payable and cash conversion cycle were used to measure working capital management. Size (defined as logarithm of assets), sales growth, debt and economic cycle (annual GDP growth rate) were also used as control variables. The study utilized panel data econometrics in a pooled regression with fixed effect models, where time- series and cross-sectional observations were combined and estimated. Significant negative relationship was found between profitability and average collection period, inventory turnover in days, average payment period and cash conversion cycle. According to the researchers, a negative relationship between number of days of accounts payable and profitability was consistent with the view that less profitable firms wait longer to pay their bills. In this case, profitability affects the account payables and vice versa. Furthermore, the study found no significant variations in the effects of working capital management between large and small firms. Finally, the researchers were suggested that

managers can create value for their shareholders if they manage their working capital in more efficient ways by reducing the number of days of accounts receivable and inventories to a reasonable minimum.

Bhunia (2012) was examines the relationship between the working capital management and profitability of Indian private sector small-medium steel companies. Working capital management and profitability indicators over the period from 2003 to 2010 was modeled as a linear regression system in multiple correlation and regression analysis. The study shows a small relationship between working capital management, including working capital cycle and profitability. Multiple regression tests confirm a lower degree of association between the working capital management and profitability. They conclude that liquidity position has no impact on profitability. The study concluded that there is no association between debt financing and profitability and working capital management and working capital cycle has no impact on profitability.

The study conducted by Kaddumi (2012) reviled the effect of working capital management on performance. The study utilizing unbalanced data for a sample of 49 Jordanian Industrial corporations listed at Amman Stock Exchange - 2005 to 2009. He used two alternative measures of profitability as proxy for the performance and five proxies for the Working Capital Management. Twenty models panel data cross-sectional time series have been tested by employing two regression models; the Fixed-Effects Model and the Ordinary Least Squares Model. The findings of the study were significantly consistent with the view of the traditional working capital theory. The researcher suggests that working capital management and performance are positively correlated. The regression result also shows that Jordanian industrial firms follow a conservative investing policy and less aggressive financing policy.

Arshad (2013) conducted a study to find out the relationship between working capital management and profitability of Pakistan cement sector. The research adopted quantitative method of research approach to test a research hypothesis. The survey use rations of 21 listed cement companies in Karachi stock exchange during the period of 2004 – 2010. In the study the researcher uses regression analysis to investigate the effect of current ratio, quick ratio, net current assets to total assets ratio, working capital turnover ratio and inventory turnover ratio on firm profitability. The result of study showed that there is significant

relationship between working capital management and profitability of the firms, the study also indicate that accounts receivables and inventory periods and account payable period lengthen then the profitability increase. The other variables that have significant effects on firm profitability are quick ratio affecting it negatively. This means that any increases in stock increase profits. The other variables included in the regression model working capital turnover ratio and inventory turnover ratios have no statistically significant effects on firm profitability.

Although lot of scholars provided much descriptive and empirical evidence on financial management practices, it appears that there are still some gaps in the literature which need to be addressed. The main objective of this study is to examine the relationship between working capital Management and profitability of manufacturing firms.

RESEARCH DESIGN

In this study Quantitative methods approach has been applied to meet the overall objective of the study and to answer research hypothesis under it. In quantitative analysis, here, First: The researcher used correlation to measure the degree of association between different variables under consideration. Second: Regression analysis has been conducted to estimate the causal relationships between the chosen dependent and independent variables. According to Kothari (2004) regression analysis is concerned with the study of how one or more variables affect changes in another variable.

Population and Sampling Procedure

The population of study comprised from 25 manufacturing share companies in operating in and around Addis Ababa. In selecting firms included in this study, convenience and purposive sampling designs have been used. The purposive sampling method used is due to the following requirements. The study first selects companies that are engaged only in manufacturing sector from the business classification. This helps to avoid bias that may result from industrial classification since firms operating in different industries have different decision criteria in selecting sources of funds needed for executing investment opportunities and have different working capital requirements Kaddumi (2012). To mitigate this problem the researcher limited the study population only to those companies engaged in manufacturing industry. The other criterion used in selecting sample units to be included in the study was holding a complete 5 years financial statement data which is from 2010 to 2014. The reason for selecting to this

period is due to the latest data for the investigation available for these periods. Therefore, According to CSA (2014) there are 25 manufacturing share companies in Addis Ababa. And the sample consists of 19 manufacturing share companies in Addis Ababa which is 76 percent of the population. Since some companies whose data not available for the entire study period or whose financial years were not uniform and some of the companies have started their operation after the year 2010 G.C. further increment of sample size become impossible. All the data were collected on annual base and the figures for the variables were on June 30 of each year under study. According to Brooks (2008) while there is no definitive answer for an appropriate sample size for model specification, it should be noted that most testing procedures in econometrics rely on asymptotic theory. This theory says that as the sample size approaches to the population, the results from the sample estimates are more appropriate for generalizing to the general population. Thus in this case the sample size was large enough to make appropriate generalization to the overall population.

Data Collection Analysis and Discussion:

To gather the necessary data copies of audited financial statements in the form of income statement and statement of financial position over the period of five years has been used. the required data obtained from the financial statements collected directly from the respective companies. To test the proposed hypotheses, statistical analyses carried out using the following methods and the *E-Views software* has been used to analyze financial data. First, correlation analyses between dependent and independent variables were made. Then, with using panel Least Squares methods for analysis. Panel data, where time-series and cross-sectional observations were combined to estimate the regression output. The stepwise least square regression method also conducted in order to test the assumptions of classical linear regression model.

Variable Description and Model Specification: The definition of all the variables in the model follows standard finance literature

Dependent Variable

Return on Assets (ROA)

Amongst various measures of profitability ROA is a better one since it relates the profitability of the business to the asset base, and also it is a simplest one to measure the

profitability. It also explains the performance and progress of the business in utilizing its resources to generate the income (Padachi 2006). The major difference between ROA and ROE is that ROA remain unaffected by the company choice of structure i.e. the choice of using debt versus equity to fund operation. The higher the return on assets indicates that the firms effective enough in generating profit from its available and the reverse is true for decrease in return on assets (Gitman 2002)

ROA is calculated by the following formula: ROA = EBIT/ TA

EBIT: Earnings before Interest and Taxes; TA: Total Assets

Independent Variables:

In this research the independent variables, Accounts Receivable days (ARD), Inventory Holding Period (ICP) and Accounts Payable days (APD) were used to measure working capital investment policy. The variable Cash Conversion Cycle (CCC) and Current Assets to Total Assets Ratio (CATAR) used as compressive measures of working capital investment policy. Current Liabilities to Total Assets Ratio (CLTAR) used to measure of working capital financing policy.

Accounts Receivable Days (ARD)

Account receivable days has been used as a proxy for cash collection policy and represent the average time it takes to collect payments from customers. From literatures the higher the investment in account receivable, the lower will be the profitability and vice versa. If a firm collects its accounts receivable quickly the fund will be available for productive usage. This intern leads to more sales which ultimately results in an increase in profitability. Deloof(2003);Padachi (2006); Samiloglu and Demirgunes (2008); Falope and Ajilore (2009) all point out negative relation between account receivables and firms profitability. In other words, having an account receivables policy which leads to low as possible account receivables will lead to the highest profitability. Thus, based on the above explanation and various empirical studies, the following hypothesis is expected:

The formula to calculate ARD is ARD = (Accounts Receivables /Sales) X 365days

Inventory Conversion Period (ICP)

Inventory Conversion Period is the average time it takes to acquire and sell inventory. The longer the inventory storage period, the higher will be the investment tied up in inventory. Therefore, the higher the investment invested in inventory, the lower will be the profitability of firms. The reason for this could be tied up of more funds and/or deterioration and obsolescence of inventory due to longer inventory period leads to lower profitability. (Deloof, 2003),Padachi (2006) , Samiloglu and Demirgunes (2008), Falope and Ajilore (2009) found a significant negative relation between performance of firms and Inventory Conversion Period. This explains that an increase of the inventories may lead to a decrease in sales which leads to lower profit for the companies.

The formula to calculate ICP is: ICP = (Ending Inventory / Cost of Goods Sold) X 365days

Accounts Payable Days (APD)

Account payable days used to proxy for payment policy and tell us how long it takes the firm to repay for purchasing of inventory. Account payable is an interest free form of short term financing and many companies use them to the last day possible before payment is due. Positive relationship between accounts payable period and profitability can be explained by the increased availability of funds caused by the delayed payment of accounts payable because such funds can thus be used for productive purposes that can increase profitability. (Arshad, 2013) stated that account payable is the largest source of short term financing for American corporation.

The formula to calculate PD is: (Accounts Payables/Cost of Goods Sold) X 365 days

Cash Conversion Cycle (CCC)

Cash conversion cycle (CCC) is a comprehensive measure of working capital management. It shows the time lag between expenditure for the purchases of raw materials and the collection of sales of finished goods. The longer the cycle, the larger the funds blocked in working capital hence the greater for the needs of financing of current asset. In their studies Falope and Ajilore (2009) examined the empirical relationship between CCC and ROA show a significant and negative relationship.

The formula to calculate CCC is: Account receivable days + Inventory conversion period - Accounts payable days

Current Assets to Total Assets Ratio (CATAR)

The above four measurements of working capital assets management policy, namely accounts receivable period, inventory holding period, accounts payable period and cash conversion cycle, indicate how efficient are firms in managing their collection, inventory and payment policies. Investment in working capital assets, however, is broader than managing collection, inventory and payment policies. It also includes management of cash and other short term assets. For this reason, we need to have another comprehensive measurement of working capital investment policy which is Current Assets to Total Assets Ratio. This ratio is used to find out the investment policy of working capital adopted by the firms under consideration. This investment policy can be of two types, first the aggressive policy and second the conservative policy. In aggressive investment policy of working capital, less investment is made in the form of current assets as compared to fixed assets to get more returns. On the other hand, in conservative investment policy of working capital, more investment is placed in the form of current assets as compared to fixed assets. Aggressive investment policy allows getting more profits through investing major portion of resources in fixed assets. Conservative investment policy helps to avoid the risk of bankruptcy. A lesser value of Current assets to total assets ratio demonstrates more aggressive policy. Falope and Ajilore (2009) have been used this ratio as an independent variable to find the impact of working capital management on profitability. They all suggested that this ratio has a negative relationship with profitability. In finance literature, there is a long argument on the determinants and the risk/return tradeoff between the different working capital policies. More aggressive working capital policies are associated with higher return and higher risk while conservative working capital policies are concerned with the lower risk and return. So, in this study as well an inverse relation is expected between profitability and current assets to total assets ratio.

The formula to calculate CATAR is: Total Current Assets/Total Assets

Current Liabilities to Total Assets Ratio (CLTAR)

Current Liabilities to Total Assets Ratio included in the study to discover the working capital financing policy. It can also be of two types, aggressive financing policy and

conservative financing policy. In aggressive financing policy a greater portion of current liabilities is used than long-term debts. In conservative financing policy, more long-term debts are used than current liabilities. Kaddumi (2012), Falope and Ajilore (2009) have found a direct relation between current liabilities to total assets ratio and profitability. So, the expected relation between this ratio and profitability is positive.

The formula to calculate the CLTAR is: Current Liabilities/ Total Assets

Control Variables

Control variables play an active role in quantitative studies. These variables are a special type of independent variable that is measured in a study because they potentially influence the dependent variable. In this study the researcher uses firm size, inflation and GDP ratio as a control variable. The most widely used type of measurement for firm size is the natural logarithm of total asset, which is used by many researchers like Lazaridis & tryfonidis(2006) ,Padachi (2006) the size of the firm has been measured by the logarithm of its total assets, as the original large value of total assets may disturb the analysis. The variable GDP was also selected as a control variable since change in economic conditions in the country affect the profitability of firms. The third control variable Inflation was selected as a control variable because according to the recent theory of information asymmetry in the credit market an increase in the rate of inflation drives down the real rate of return not just on money, but on assets in general. The implied reduction in real returns exacerbates credit market frictions. Inflation is calculated based from consumer price index.

Model Specification

The equation to investigate the relationship between working capital management and profitability will be as follows: The researchers has been used the model that was employed by Akoto, A.V, & Angmor, (2013), Raheman A,(2007).The general forms of the model is:

$ROAit=\beta 0 + \Sigma \beta Xit+ uit$…… (Eq. 1)

Where:

ROAit: Return on Asset of firm i at time t.

β0: The intercept of equation;

βi: Coefficients of Xit variables;

Xit: The different independent variables for working capital Management of firm i at time t (Time);

uit: The error term;

Specifically, the above ordinary least squares model is converted into specified variables it becomes:

$$ROAit=\beta0+\beta1ARDit+\beta2APDit+\beta3ICP+\beta4CCCit+\beta5CATARit+\beta6CLTARit+\beta7DROA1113 +\beta8DROA1115 + \beta9LOSit+\beta10GDPit+ \beta11INFit+uit \quad \text{(Eq. 2)}$$

Where:

β0: The intercept of equation;

ROA: the return on assets;

ARD: accounts receivable days;

APD: accounts payable days;

ICP: inventory Conversion Period;

CCC: Cash Conversion Cycle;

CATAR: current asset to total asset ratio;

CLTAR: current liability to total asset ratio;

LOS: Natural logarithm of total asset;

INF: inflation;

uit: The error term;

β7DROA113and β8DROA1115 are dummy variables in the year 2011.

Data Analysis, Results Discusion

Correlation Analysis

Prior to regression result, it is important to check the correlation between different variables on which the analysis is built. Correlation is a way to index the degree to which two or more variables are associated with or related to each other. Table:2 presents the result of the correlation analysis of Profitability Measure of return on asset with inventory holding period,

account receivable period, accounts payable period, cash conversion cycle current asset to total asset ratio and current liability to total asset ratio, GDP, firm size, and inflation.

Table-1: correlation matrix of variables

	RO	ARD	APD	AID	CCC	CLT	CAT	SIZE	GDP	INF
ROA	1.00000									
ARD	-	1.0000								
APD	0.34258	0.5404	1.00000							
AID	-	0.1456	0.00642	1.00000						
CCC	-	-	-	0.72604	1.00000					
CLT	0.06667	-	-	0.04130	0.03806	1.00000				
CAT	0.37669	-	-	0.16071	0.36492	0.04450	1.00000			
SIZE	0.48024	-	-	0.08275	0.17317	0.08212	-	1.00000		
GDP	0.05243	-	0.02512	0.13556	0.06224	-	-	-	1.00000	
INF	0.00932	0.1140	0.02516	-	-	-	-	-	-	1.00000

Source: Financial statement of sampled firms and own computation through E-views

Findings of correlation analysis in *table-1* reveal that there exist negative relationships between account receivable period and profitability measures of return on asset. The implication of this relationship may because of, the collection of receivables in a short period of time may help firms to reduce the probability of uncollectable from default and in addition to that firms can invest the money on other profitable operation, so that it would increase the profit. The correlation analysis also shows that, the relationship between Average inventory days and profitability measures is negative this relationship may exist because in the case of a sudden drop in sales accompanied with a mismanagement of inventory will lead to tying up excess capital at the expense of profitable operations. The correlation between account payable days and the Return on asset show a positive relationship this relation exist because in this case firms make delayed payment, it helps to get interest free money to invest on some other profitable operation.

The cash conversion cycle has negative relationship with firms' profitability the implication is that the increase or decrease in cash conversion cycle will negatively affect

profitability of the firms. It means that the shorter the firm's cash conversion cycle, the higher will be the profitability and vice versa. On the other hand, the relationship between current assets to total assets ratio and return on assets is positive. This implies that there is negative relationship between aggressiveness in working capital investment policy and firms' profitability. As current assets to total assets ratio increases, the degree of aggressiveness in working capital investment policy decreases (working capital investment is considered to be aggressive when investment in current asses is low) and profitability of firms increases. The correlation analysis also shows that, positive relationship between current liabilities to total assets ratio and profitability measures. This means there is a positive relationship between degree of aggressiveness in working capital financing policy and firms' profitability. A firm is said to be aggressive in working capital financing policy when it uses large amounts of current liabilities relative to total sources of funds. The higher the current liabilities to total assets ratio, the higher is the degree of aggressiveness in working capital financing policy, which leads to the corresponding higher level of profitability.

Testing Assumptions of Classical Linear Regression Model:

In this study as mentioned in previous section diagnostic tests were carried out to ensure that the data fits the basic assumptions of classical linear regression model.

Choosing Random Effect (RE) Versus Fixed Effect (FE) Models

According to Dougherty 2011, Brooks (2008) stated that if the observations are based on a random sample then both random effect model and fixed effect model are applicable to it. To check that which of these models should be used, Housman's specification test is applied. But if the sample is not selected randomly fixed effect model is more appropriate. Hence, the sample for this study was not selected randomly FEM is appropriate.

Results of the Regression Analysis

A major weakness of correlations is that it doesn't allow identifying causes from Consequences. To overcome this shortcoming, the researcher use regression analysis to investigate the impact of working capital components on dependent variables: Return on Asset (ROA).

The panel least squares model were:

$ROA_{it} = \beta 0 + \beta 1 ARD_{it} + \beta 2 APD_{it} + \beta 3 ICP + \beta 4 CCC_{it} + \beta 5 CATAR_{it} + \beta 6 CLTAR_{it} + \beta 7 DROA1113 + \beta 8 DROA1115 + \beta 9 LOS_{it} + \beta 10 GDP_{it} + \beta 11 INF_{it} + u_{it} \ldots\ldots\ldots\ldots$ (Eq.)

Where:

β0: The intercept of equation;

ROA: the return on assets;

ARD: accounts receivable days;

APD: accounts payable days;

ICP: inventory Conversion Period;

CCC: Cash Conversion Cycle;

CATAR: current asset to total asset ratio;

CLTAR: current liability to total asset ratio;

LOS: Natural logarithm of total asset;

GDP: gross domestic product;

INF: inflation;

Table:2; Fixed Effect Regression Result

Dependent Variable: ROA Method: Panel Least Squares

Sample: 2010 2014:, Periods included: 5

Cross-sections included: 19

Total panel (balanced) observations: 95

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.672207	0.196800	-3.415689	0.0011
ARD	-8.442105	0.000155	-0.543666	0.0885*
APD	1.550106	0.000106	0.014611	0.9884
AID	-0.000163	9.950105	-1.636261	0.0982*
CCC	-0.230005	-7.210005	-1.280194	0.0150**
CLTAR	0.001241	0.000850	1.460624	0.0889*
CATAR	0.081901	0.041542	1.971522	0.0529*
DROA113	0.153202	0.053534	2.861761	0.0057
DROA1513	-0.166757	0.053794	-3.099923	0.0029
SIZE	0.028632	0.009371	3.055485	0.0033***

GDP	0.011920	0.005693	2.093768	0.0402**
INF	0.142510	0.055337	2.575318	0.0123**
Effects Specification				
Cross-section fixed (dummy variables)				

R-squared	0.828127	Mean dependent var	0.053111
Adjusted R-squared	0.751446	S.D. dependent var	0.085148
S.E. of regression	0.042451	Akaike info criterion	-3.228846
Sum squared resid	0.117135	Schwarz criterion	-2.422358
Log likelihood	183.3702	Hannan-Quinn criter.	-2.902964
F-statistic	10.79955	Durbin-Watson stat	1.823318
Prob(F-statistic)	0.000000		

The starred coefficient estimates are significant at the 1 % (***), 5 % (**) and 10% (*) level.

The result of the regression output presented above shows the impact of working capital management variables on the performance of manufacturing companies. The output shows highest explanatory power of the model. It is measured by R^2. The R^2 measures the success of the regression in predicting the values of the dependent variable in the sample and in this study adjusted R2 value which takes into account the loss of degrees of freedom associated with adding extra variables were inferred to see the explanatory powers of the models. The p-value shows at what percentage the level of each variable is significant or insignificant. From the table-2 the value of adjusted R^2 is 0.75 indicates that the formula is strong fit for predicting the ROA. The value of F-test explains the overall significance of a model. It explains the significance of the relationship between dependent variables and all the other independent variables jointly. We can see from the table-2 of regression result F -statistics of 10.79 highly significant at 1% with p-value of 0.000. In the regression outputs the beta coefficient may be negative or positive; beta indicates that each variable‘s level of influence on the dependent variable. P- value indicates at what percentage or precession level of each variable is significant. The positive beta coefficient means that variable has a positive impact on your dependent variable, and a negative one has a negative impact. The C is the constant, where the regression line intercepts the y axis, representing the amount the dependent will be when all the independent variables are 0. Here C is –0.67 the probability of the coefficient is significant.

The results of regression analysis indicate that the coefficient of account receivable days is negative and significant at p-value of 0.08. In conformity with the initial hypothesis which states that there is significant negative relationship between inventories holding period and profitability of firms. Coefficient of Inventory Holding Period is negative and *p*-value of 0.10 attached to the test statistic. Opposed from the initial hypothesis the result of the regressions analysis shows that, Account Payable days has no significant impact on firms' profitability even at 10% level of significance In the regression model, the beta coefficient of Cash Conversion Cycle is - 0.230and the *p*-value of 0.0150 attached to the test statistic shows that this hypothesis significance at 5% level. Opposite to the research hypothesis, the regression output shows that the β- coefficient of current assets to total assets ratio (CATAR) is positive and significant at 10 percent level. The β-coefficient of current liability to total assets ratio (CLTAR), in line with the research hypotheses is positive 0.0889 and it is significant at 10 percent.

Discussion of the Regression Result

Accounts Receivable Days and Profitability

In line with the initial hypothesis, the results of this regression indicate that the coefficient of account receivable days is negative and *p*-value of 0.0885 attached to the test statistic shows significance at 10% level. It implies that the increase or decrease in the number of days taken by firms to collect cash will significantly and negatively affect profitability of the firm. This negative relationship implies the number of days to collect cash from credit customers becomes too long; it will adversely affect profitability of the firms. The reason may because if a firm collects its accounts receivable quickly, the fund will be available for productive usage. In this sense, the negative relationship between accounts receivable period and firms' profitability is consistent with the view that the lesser the time it takes customers to pay their bills, results more cash available to replenish the inventory, this intern leads to more sales which ultimately results in an increase in profitability. The result is basically consistent with the findings of Deloof(2003),Padachi (2006), Samiloglu and Demirgunes (2008), Falope and Ajilore (2009). All point out negative relation between account receivables and firms profitability.

Inventory Holding Period and Profitability

The result from this study is in line with the initial hypothesis which states that there is significant negative relationship between inventory holding period and profitability of firms. Coefficient of Inventory Holding Period is negative and *p*-value of 0.10 attached to the test statistic shows that the variable is almost significant at 10% level. This result is in line with the findings of Deloof(2003),Padachi (2006) , Samiloglu and Demirgunes (2008), Lazaridis and Tryfonidis (2006), Falope and Ajilore (2009), all points out that the companies with low inventory conversion period have more efficient working capital management. The implication is that the increase or decrease inventory holding period will significantly and negatively affect profitability of the firms. In simple terms, the shorter the firm's inventory holding period, the higher will be the profitability and vice versa. It can be also interpreted as if the inventory takes more time to sell, it will adversely affect profitability. The reason for this could be tied up of more funds plus deterioration and obsolescence of inventory due to longer inventory period leads to lower profitability.

Accounts Payable Days and Profitability

Opposed from the initial hypothesis, the result of the regression analysis has no significant impact on firms' profitability even at 10%. The result is basically consistent with the findings of Rafuse, (1996) who founds insignificant relationship between accounts payable period and profitability. The researcher accepts these results for two reasons. First, in the literature of working capital, research findings indicated both negative and positive significant relationships between accounts payable period and profitability of firms. A positive significant relationship between accounts payable period and profitability can be explained by the increased availability of funds caused by the delayed payment of accounts payable. Such funds can thus be used for productive purposes that can increase profitability. On the other hand, a negative significant relationship between accounts payable period and profitability can be explained by the benefits of early payment discounts. What if, if these two benefits off-set each other? There will be no significant relationship between accounts payable period and profitability of firms. Second it is not delaying payment or making it fast that matters. What matters is for what purpose we use the fund at hand i.e. if we make it idle we expect no additional profits from delaying payments for accounts payable. On the other hand, if we use it for productive purpose we can expect some additional profits. Therefore, there may not be a significant relationship between accounts payable period and profitability of firms.

Cash Conversion Cycle and Profitability

The beta coefficient of Cash Conversion Cycle shows a negative and the *p*-value of 0.0150 attached to the test statistic shows the significance of the variable at 5% level of significance. This negative relationship is consistent with some previous findings of Lazaridis and Tryfonidis (2006), Falope and Ajilore (2009). The implication is that the increase or decrease in cash conversion cycle will significantly and negatively affect profitability of the firms. It means that the shorter the firm's cash conversion cycle, the higher will be the profitability and vice versa. As stated earlier, cash conversion cycle is an additive function of accounts receivable period, inventory holding period and accounts payable period; i.e. cash conversion cycle is equal to accounts receivable period plus inventory holding period minus accounts payable period. Managing cash conversion cycle efficiently, means efficient management of these three items. By managing efficiently the accounts receivable period, inventory holding period and accounts payable period (by making short accounts receivable period and inventory holding period and/or making long accounts payable period) managers can control the efficiency of cash conversion cycle and its impact on profitability.

Current Assets to Total Assets Ratio and Profitability

The above four measurements of working capital assets management policy, namely accounts receivable period, inventory holding period, accounts payable period and cash conversion cycle, indicate how efficient are firms in managing their collection, inventory and payment policies. Investment in working capital assets, however, is broader than managing collection, inventory and payment policies. It also includes management of cash and other short term assets. For this reason, we need to have this comprehensive measurement of working capital investment policy. In finance literature, there is a long argument on the determinants and the risk/return tradeoff between the different working capital policies. More aggressive working capital policies are associated with higher return and higher risk while conservative working capital policies are concerned with the lower risk and return. Opposite to the research hypothesis, the regression output shows that the β- coefficient of current assets to total assets ratio (CATAR) is positive and significant at 10 percent level. The positive coefficients of current assets to total assets ratio indicates a negative effect of the degree of aggressiveness of working capital investment policy on firms' profitability. It means that as current assets to total assets ratio increases, degree of aggressiveness

decreases, and hence firms' profitability increases. Accordingly, aggressiveness in working capital investment policy affects the profitability of manufacturing share companies negatively. The result may be acceptable because most of firms included in the study may not yet fully use their fixed production capacities. This means that if they want to increase their profitability, they have to increase their investment in current assets until they reach the cost indifference point. Keeping fixed assets constant (even decreasing through depreciation) and investing more on current assets will then result in increased current assets to total assets ratio. So, it may not be surprising to see positive relationship between current assets to total assets ratio and profitability.

Current Liabilities to Total Assets Ratio and Profitability

To this point, the regression analyses were related to working capital investment policy. In examining the effect of management of working capital on firms' profitability, it is also equally important to see the effect of working capital financing policy. Working capital financing policy is measured by the relative aggressiveness/conservativeness in using current liabilities to finance working capital assets. In measuring the effect of working capital financing policy current liabilities to total assets ratio is used. The β-coefficient of current liability to total assets ratio (CLTAR) is positive and p value of 0.0889 which is significant at 10 percent level. This result is in line with the research hypothesis and it is consistent with some previous findings of Kaddumi, 2012; Falope and Ajilore, 2009; the positive coefficients in this study point out the positive effect of aggressive working capital financing policy on firms' profitability. The implication is that the increase or decrease in current liabilities to total assets ratio will significantly and positively affect profitability of the firms. The higher the amount of current liabilities the firm uses to finance its working capital assets, the more profitable the firm will be. This implies that there is positive relationship between aggressiveness in working capital financing and firms' profitability. by and large, the researcher failed to reject five hypotheses that indicate the relationship between profitability measurement of return on asset and ARD, ICP,CCC, CATAR, CLTAR whereas, the researcher rejected one hypotheses indicating the relationship between ROA and APD.

Conclusion

As stated by Siddiquee & Khan (2009) it has been observed that, firms which are better at managing working capital are found to be able to build a better competitive advantage. They are also better at generating fund internally and also face lesser trouble while seeking external sources of financing. Efficient level of working capital should be present for smooth running of business regardless of the nature of business. From this study, it is concluded that maintaining efficient level of working capital is very important for manufacturing sector as well like all other sectors of business. The study used return on assets as, dependent profitability variable, where as Accounts receivable period, inventory holding period and accounts payable period used as independent working capital investment policy variables. Moreover, cash conversion cycle and current assets to total assets ratio has been used as comprehensive measures of working capital investment policy. On the other hand, current liabilities to total assets ratio has been used as a measure of working capital financing policy. In addition, the study used firm size measured by logarithm of total asset, annual GDP growth rate and inflation rate as control variables.

There is significant negative relation between profitability and the number of day's accounts receivable. Showing that the shorter it takes firms to receive their receivables the more profitable they will be. This negative relationship can be elaborated as the number of days to collect cash from credit customers becomes too long, it will adversely affect profitability of the firms. This relationship because of, if a firm collects its accounts receivable quickly the fund will be available for other productive usage. The researcher also found that the negative relationship between inventory conversion period and profitability. It shows that the longer it takes firms to replenish the inventory, the less profitable they will be. This shows the obsolescence of inventory due to longer inventory period leads to lower profitability.

Opposite to the research hypothesis the study has found insignificant relation between account payable days and profitability of manufacturing firms. The study has found that negative significant relation between cash conversion cycle and financial performance of manufacturing share companies. As stated earlier, cash conversion cycle is an additive function of accounts receivable period, inventory holding period and accounts payable period; i.e. cash conversion cycle is equal to accounts receivable period plus inventory holding period minus accounts payable period. Managing cash conversion cycle efficiently, means efficient management of these three items. A greater value of current assets to total assets ratio shows less aggressive

investment policy of working capital (Afza & Nazir, 2008). From this, it can be concluded that a less aggressive working capital investment policy leads to more profitability. If a firm invests more in fixed assets then it can generate fewer profits. If a firm uses more of its resources as current assets then it will lead to success of fixed asset resources. The study has found that positive and significant relation between CATAR and profitability of manufacturing share companies. It implies that, conservativeness in working capital investment policy leads to more profitability. An increase in current liabilities to total assets ratio leads to higher profitability. A higher value of current liability to total assets ratio shows comparatively more aggressive working capital financing policy, that means more investment in current liabilities as compared to long-term debts. An aggressive financing policy results in high profitability. The study found that a significant positive relationship between CLTAR and profitability of manufacturing share companies. The implication is that an Aggressive working capital financing policy, results in high profitability. Generally, the results of the study show that conservative investing policy and aggressive financing policy of working capital results in more profitability.

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