WORKING CAPITAL MANAGEMENT POLICIES AND RETURNS OF LISTED MANUFACTURING FIRMS IN GHANA

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Abstract

This study sought to determine the effects aggressive/conservative current asset investment and financing policies have on firms' return for six manufacturing firms listed at Ghana Stock Exchange for a period of 2000-2013. Data were obtained from the annual reports of the firms and the Ghana Stock Exchange. The study adopted longitudinal explanatory non-experimental research design applied to dynamic panel ARDL framework in analyzing the data. The results revealed that the current asset investment and financing policies have highly significant positive effects on returns to equity holders in the long-run. The empirical evidence suggests that conservative current asset investment policies increase firms return while conservative financing policies yields negative returns. The study therefore would enable finance managers to be able to fashion out the appropriate working capital management policies. A firm pursuing conservative current asset investment policy should balance it with aggressive current asset financing policy in order to enhance profitability and create value for their investors.

Keywords: aggressive/conservative; current asset investment policies; current asset financing policies; panel ARDL

JEL classification: G31; C23

1. INTRODUCTION

Corporate finance decisions that finance managers are required to make are investment decisions (capital budgeting), financing decisions (capital structure), dividend decisions (profit allocation) and short term financial decisions such as working capital management. Onwumere et al. (2012) consider that none of these four decisions is more important than the other; hence a good financial manager should pay equal attention to each of these decisions as the firm strives to maximize its value. However, the corporate finance literature has traditionally focused on the study of long-term financial decisions particularly investments, capital structures, dividends and firm valuation decisions (Nazir and Afza, 2009).

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Nevertheless, short-term financial decisions are an integral part of the overall corporate and financial strategy and thus among the short-term financial strategies, working capital plays an important role in increasing profitability and creating shareholder value (Pouraghajan and Emamgholipourarchi, 2012; Shin and Soenen, 1998). Although, working capital management decisions concern short-term assets and liabilities, they have both short-term and long-term implications on the profitability and shareholder value which warrant careful attention. Watson and Head (2007) argue that long-term investment and financing decisions will only yield their expected benefits for a company if attention is also paid to short-term decisions regarding current assets and liabilities. Decisions relating to working capital involve managing relationships between a firm's short-term assets and liabilities to ensure a firm is able to continue its operations, and have sufficient cash flows to satisfy both maturing short-term debts and upcoming operational expenses at minimal cost thereby increasing corporate profitability (Barine, 2012).

This makes the management of working capital an important component of corporate financial management because it directly affects the profitability of firms. The existing literatures generally support the assertion that working capital management is important because of its effect on firm's profitability and risk, and consequently its value and survival (see for example Agarwal and Mishra, 2007; Berryman, 1983; Deloof, 2003; Sathyamoorthi and Wally-Dima, 2008; Singh, 2008; Smith, 1980; Osundina and Osundina, 2014).

The working capital management policy concerns the firms' current assets investment and financing decisions and the policy adopted by a firm could dictate the magnitude of its effect on the firm performance as suggested by Nazir and Afza (2009), Salawu (2007) and Weinraub and Visscher (1998). Current assets investing and financing decisions can be approached in three ways, such as conservative, moderate and aggressive. These strategies are mutually exclusive and firms choose one based on their relative benefits. A company is categorized as having a conservative working capital management policy if it has high proportion of its total asset as current asset and low proportion of its current liability relative to its total capital. On the other hand, an aggressive working capital management policy is where a company has low proportion of its current asset as a percentage of its total asset and high proportion of its current liability relative to its total capital. Thus, 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 (Carpenter and Johnson, 1983; Gardner *et al.*, 1986; Weinraub and Visscher, 1998).

Studies on the working capital management and profitability in Ghana mainly concentrated on the relationship between the working capital management components and firm's performance without looking at the specific policies being pursued by the manufacturing companies in Ghana and their effects on firms' return (Agyemang and Asiedu, 2013; Akoto *et al.*, 2013; Korankye and Adarquah, 2013). We fill this gap by examining the effect of working capital management policies on firms' returns of the manufacturing firms listed on the Ghana Stock Exchange. The objectives of the study were to:

- Determine the effect of aggressive/conservative current assets investment policy on firms' return.
- Determine the effect of aggressive/conservative current assets financing policy on firms' return.

The research hypotheses of the study are:

H1: *Aggressive/conservative current assets investment policies have no significant effects on firms' return.*

H2: *Aggressive/conservative current assets financing policies have no significant effects on firms' return.*

Our study differs from the previous studies (Agyemang and Asiedu, 2013; Akoto *et al.*, 2013; Korankye and Adarquah, 2013; Mohamad and Saad, 2010; Mwangi *et al.*, 2014; Nazir and Afza, 2009; etc.). We use a recently developed econometrics techniques which are capable of dealing with the issue of spurious results and possible biases in the parameter estimate. It also brings out both short and long run implications of working capital management decisions on firms return. Thus, finance managers would be in a better position to evaluate the implications of their short term financial decisions. The rest of the paper reviews the empirical literature (Section 2) and also discusses the research methodology (Section 3 and 4) and results of the study (Section 5). The paper ends with the conclusion section (Section 6).

2. REVIEW OF PREVIOUS WORK

The review of empirical literature suggests mixed findings with regard to the working capital management policies and profitability. Whilst Onwumere *et al.* (2012) and Jose *et al.* (1996) contend that aggressive working capital investment policies have positive relationship with profitability there are enormous studies that suggest that conservative working capital investment policies significantly enhance profitability (Mohamad and Saad, 2010; Mwangi *et al.*, 2014; Nazir and Afza, 2009; Raheman *et al.*, 2010). On the financing of working capital, Al-Shubiri (2011), Mwangi *et al.* (2014) and Onwumere *et al.* (2012) find that an aggressive working capital financing policies better enhance profitability whereas Nazir and Afza (2009), Raheman *et al.* (2010), Mohamad and Saad (2010) concluded that conservative working capital financing policies increase profitability and create shareholder value. Ogundipe *et al.* (2012) as well as Pirashanthini *et al.* (2013) find no significant relationship between working capital investment and financing policies with profitability in Nigeria and Sri Lanka respectively.

Jose *et al.* (1996) examined the relationships between the cash conversion cycle and alternative measures of profitability and found that cash conversion cycle has significant negative relationship with profitability, indicating that more aggressive working capital management is associated with higher profitability. On the contrary, Nazir and Afza (2009) found out that managers can create value if they adopt a conservative approach regarding current assets investment and financing policies.

Raheman *et al.* (2010) analyze the impact of working capital management on firm's performance of 204 manufacturing firms listed on Karachi Stock Exchange in Pakistan. The study revealed that working capital financing policy had significant negative effect on firm performance. However, the ratio of total current assets investment policy was found to have a significant positive relationship with the profitability. Similarly, Mohamad and Saad (2010) also found that there are significant negative associations between working capital financing policies and firm's financial performance, whilst a significant positive relationship between working capital investment policies and performance were established.

Al-Shubiri (2011) investigated the relationship between aggressive/conservative working capital policies and profitability as well as risk for some selected companies listed on Amman Stock exchange in Jordan for a period of 2004-2008. The author found that aggressive investment policy is negatively related to market value and aggressive financing policy is positively related to market value.

In Nigeria, Onwumere *et al.* (2012) investigated the impact of working capital policies on profitability. The results showed that aggressive investment policies had positive significant impact on profitability while aggressive financing policies have a positive non-significant impact on profitability. In a related study, Ogundipe *et al.* (2012) examined the impact of working capital management on firms' performance and market value of some selected non-financial quoted firms on the Nigeria Stock Exchange. The study revealed that there was a significant negative relationship between cash conversion cycle and market valuation and firm's performance. However, the multiple regression results show that there is no significant relationship between working capital investment policies and performance.

Similarly, Vahid *et al.* (2012) conducted a study to investigate the impact of working capital management policies on the firms' profitability and value. The results showed that following conservative investment policies have negative effect on the firm's profitability and value, whereas aggressive investment policies have positive effect on the firm profitability and value. Additionally, the results showed that aggressive financing policy negatively affects the firm's profitability and value, whereas conservative financing policy have a positive effect on the firm profitability and value.

Niresh (2012) observed the relationship between working capital management and financial performance of 30 manufacturing firms listed on the Colombo Stock Exchange in Sri Lanka for the period of 2008-2011. The results indicated that working capital investment policy has positive association with the performance measures. On the other hand, working capital financing policy negatively related to return on asset and positively related to return on equity. Contrary to the findings of Niresh (2012), Pirashanthini *et al.* (2013) found that there was no relationship between the profitability measures of firms and working capital investment and financing policies. In addition, the working capital aggressive investment and financing policies have no impact on profitability measures.

More recently, Hassani and Tavosi (2014) investigated the relationship between aggressive/ conservative working capital policies and profitability risk in the Tehran Stock Exchange. Their empirical results indicated a negative relationship between working capital investment policy and profitability risk measures. They also found a positive relationship between working capital financing policy and profitability measures.

Javid and Zita (2014) also examined the relationship between working capital management policy and firm's profitability of cement companies listed in Karachi Stock Exchange. The results of the study showed that there is significant negative relationship between working capital policies and profitability of the firms. Mwangi *et al.* (2014) investigated the effect of working capital management on the performance of 42 non-financial companies listed in the Nairobi Securities Exchange (NSE), Kenya for the period 2006-2012. Employing Feasible Generalized Least Square (FGLS) regression, the study revealed that an aggressive financing policy had a significant positive effect on return on assets and return on equity while a conservative investing policy was found to affect performance positively.

In Ghana, the authors found scant empirical study linking working capital management policies and firm's profitability. The study by Akoto *et al.* (2013) examined the relationship between working capital management practices and profitability of listed manufacturing firms in Ghana. The study found a significantly negative relationship between profitability and accounts receivable days. However, the firms' cash conversion cycle significantly positively influence profitability.

Similarly, Korankye and Adarquah (2013) investigated working capital management and its impact on firm profitability of six out of seven traditional manufacturing firms listed on the Ghana Stock Exchange from 2004 to 2011. The results revealed that working capital cycle significantly affects firm profitability negatively. The study also finds that inventory turnover period, account receivables collection period and account payables payment period each negatively correlates with profitability.

3. CONCEPTUAL FRAMEWORK FOR THE STUDY

The conceptual framework depicts the relationship between the working capital management policies and firms' return of the manufacturing firms listed on the Ghana Stock Exchange. From the literature review, the following conceptual framework (see Figure no. 1) is adopted to show the effect of working capital management policies on firms' returns.
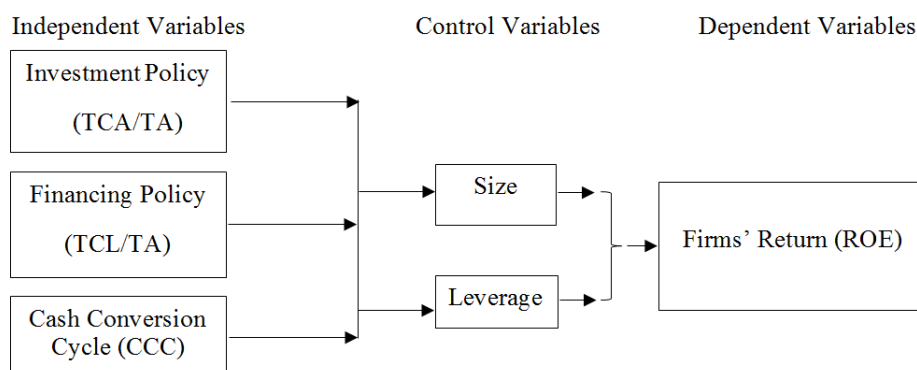

Figure no. 1 – Conceptual Framework
Source: authors' elaboration

4. RESEARCH METHODS

This study examined manufacturing companies that are listed on the Ghana Stock Exchange. These manufacturing companies are made up of food and beverages, pharmaceuticals, wood and paper converters and traditional manufacturing firms. The choice of the manufacturing firms was due to the fact that these firms contribute greatly to the socio- economic development in Ghana through employment creation, economic stability and GDP as well as capital mobilization.

4.1 Research design

The study adopted longitudinal explanatory non-experimental research design applied to dynamic panel ARDL framework in analyzing the data. Data were obtained from the annual reports of the firms and the Ghana Stock Exchange for a period of 2000-2013.

4.2 Description of variables used in the study

Return on Equity (ROE)

The effects of working capital management policies on firm's return was analyzed using Return on Equity (ROE). According to Watson and Head (2007), profitability is related to the goal of shareholder wealth maximization. Previous studies used different measures as proxies for returns. For instance, gross operating profitability (Deloof, 2003), Return on Asset (Nazir and Afza, 2009). This study measures firms' returns by using return on equity. Following Abor (2005), Addae *et al.* (2013), Gatsi and Akoto (2010) and Mwangi *et al.* (2014). Return on Equity is calculated as:

$$ROE = \frac{Profit\ Before\ Interest\ and\ Taxes}{Total\ Equity}$$

As argued by Addae *et al.* (2013), the use of PBIT rather than PAIT is to ensure the independent of leverage effect on financing decisions as it does not include the effect of interest and taxes.

To measure the degree of aggressiveness/conservativeness of current asset investment policy, the following ratio was calculated:

$$TCA/TA = \frac{Total\ Current\ Assets\ (TCA)}{Total\ Assets\ (TA)}$$

where a lower ratio (i.e. less than 0.5) means a relatively aggressive investment policy whereas a higher ratio (more than 0.5) means relatively conservative investment policy.

The degree of aggressiveness/conservativeness of a financing policy adopted by a firm is measured by current assets financing policy, and the following ratio is used:

$$TCL/TA = \frac{Total\ Current\ Liabilities\ (TCL)}{Total\ Assets\ (TA)}$$

where a lower ratio (i.e. less than 0.5) means a relatively conservative financing policy whereas a higher ratio (more than 0.5) means relatively aggressive financing policy.

Cash Conversion Cycle (CCC)

The CCC can be used as a comprehensive measure of working capital management (Deloof, 2003; Jose *et al.*, 1996). The CCC is calculated as: Average Inventory Conversion Days (ICD) plus Average Trade Receivables Days (TRD) minus Average Trade Payable Days (TPD). That is:

$$ICD + TRD - TPD$$

where,

$$ICD = \frac{Average\ Inventory}{Cost\ of\ Sales}\ X\ 365 days \qquad TRD = \frac{Average\ Trade\ Receivable}{Revenue}\ X\ 365 days$$

$$TPD = \frac{Average\ Trade\ Payable}{Adjusted\ Cost\ of\ Sales\ *}\ X\ 365 days$$

*Adjusted Cost of Sales = Cost of Sales – Depreciation/ Amortization

Firm Size

Firm size was measured by the natural logarithm of sales revenue.

$$SIZE = Ln\ (Revenue)$$

Financial leverage

Debt-Equity ratio was used as a proxy for financial leverage and is calculated as long term debt to total equity fund.

$$LEV = \frac{Long\ Term\ Debt}{Total\ Equity}$$

4.3 Empirical model

In order to establish whether working capital management policies have effects on firm's return, the following econometric model is specified:

$$y_{it} = \alpha_i + \beta_1 TCA/TA_{it} + \beta_2 TCL/TA_{it} + \beta_3 CCC_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \varepsilon_{it} \qquad (1)$$

where y_{it} is the firm's return proxy by ROE for firm i in period t.

TCA/TA= Total current assets to total assets ratio
TCL/TA= Total current liabilities to total assets ratio
CCC= Cash Conversion Cycle
SIZE = Natural log of total revenue
LEV = Financial leverage of firms measured as long term debt to total equity
α_i = individual specific intercept
β_1- β_5= are parameters to be estimated
ε = Error term of the model and
it= firm i at time period t

4.4 Panel unit root and cointegration tests

In order to deal with the issue of spurious regression and choose the appropriate estimator, the panel unit root test was performed. Three panel unit root methods were applied (Im *et al.*, 2003; Levin *et al.*, 2002 and Maddala and Wu, 1999). After evidence of unit root is established, it necessary to verify the existence of long run relationship between the variables. The study tested the existence of cointegration by applying Pedroni (1999, 2004) panel residual cointegration technique to establish whether there is a long-run stable relationship between working capital variables and return on equity. It must be noted that Pedroni residual based cointegration is applicable for only I(1) variables. For discussion of these techniques, readers are referred to look at the original papers.

4.5 Pooled mean group /autoregressive distributed lags

To ascertain the long-run relationships, the study employed Pooled Mean Group (PMG)/Panel ARDL proposed by Pesaran *et al.* (1999). This model takes the cointegration form of the simple ARDL model and adapts it for a panel setting by allowing the intercepts, short-run coefficients and cointegrating terms to differ across firms. One of the merits of PMG is that of its

flexibility that it can be applied when the variables are of mixed order of integration (Demirgunes, 2015). The choice of appropriate lags order is critical. The optimal lag order can be determined by SBC or AIC. The study selected the appropriate lag length based on SBC.

Consider an Autoregressive Distributed Lag (ARDL) (1,1,1,1,1,1) for firms' return as in equation (1).

$$
\begin{aligned}
ROE_{it} = \ & \alpha_i + \lambda_i ROE_{it-1} + \beta_{10i}TCA/TA_{it} + \beta_{11i}TCA/TA_{it-1} + \beta_{20i}TCL/TA_{it} \\
& + \beta_{21i}TCL/TA_{it-1} + \beta_{30i}CCC_{it} + \beta_{31i}CCC_{it-1} + \beta_{40i}SIZE_{it} \\
& + \beta_{41i}SIZE_{it-1} + \beta_{50i}LEV_{it} + \beta_{51i}LEV_{it-1} + u_{it}
\end{aligned} \tag{2}
$$

where the number of groups i = 1, 2, …, N; t is the number of periods 1,2, …, T; ROE_{it} is a scalar dependent variable; the coefficients of the lag dependent variables, λ_{it}, are scalars; $\beta_{10i}, \beta_{11i},…,\beta_{51i}$ are the coefficient vectors of the explanatory variables (regressors); and α_i denotes group specific effect.

The re-parameterized form of the above equation can be formulated as follows:

$$
\begin{aligned}
\Delta ROE_{it} = \ & \phi_i(ROE_{it-1} - \theta_{0i} - \theta_{1i}TCA/TA_{it} - \theta_{2i}TCL/TA_{it} - \theta_{3i}CCC_{it} - \theta_{4i}SIZE_{it} \\
& - \theta_{5i}LEV_{it}) - \beta_{11i}\Delta TCA/TA_{it} - \beta_{21i}\Delta TCL/TA_{it} - \beta_{31i}\Delta CCC_{it} \\
& - \beta_{41i}\Delta SIZE_{it} - \beta_{51i}\Delta LEV_{it} + u_{it}
\end{aligned} \tag{3}
$$

where, $\phi_i = -(1 - \lambda_i)$ is the error correction coefficient measuring the speed of adjustment towards long-run equilibrium and is expected to be negative and significant.

Besides, $\theta_{0i} = \frac{\alpha_i}{1-\lambda_i}$, $\theta_{1i} = \frac{\beta_{10i}+\beta_{11i}}{1-\lambda_i}$, $\theta_{2i} = \frac{\beta_{20i}+\beta_{21i}}{1-\lambda_i}$, $\theta_{3i} = \frac{\beta_{30i}+\beta_{31i}}{1-\lambda_i}$, $\theta_{5i} = \frac{\beta_{50i}+\beta_{51i}}{1-\lambda_i}$ are the long-run coefficients, Δ is the first difference operator.

4.6 Data analysis method

The data obtained were analysed using descriptive, panel cointegration and panel ARDL. The descriptive statistics were used to identify the working capital management policies being pursued by the firms. The Pedroni residual based cointegration technique aided to establish whether there is a common trend combining the study variables. The effect of current asset investment and financing policies on firm's return was analyzed through the aid of recently developed Panel ARDL framework using E-views 9.

4.7 Limitation of the study

The study covers a very small number of firms thereby placing a limitation on the findings, results, interpretation and generalization of the findings.

5. RESULTS AND DISCUSSIONS

5.1 Descriptive statistics

The descriptive statistics is first presented to portray the underlying properties of the dataset.

Table no. 1 presents the summary of descriptive statistics of the dependent and explanatory variables depicting the average indicators of the variables computed from the financial statement. The Return on Equity (ROE) measured by profit before interest and taxes divided by total equity has mean value of 38.2% with a standard deviation of 25%.

Table no. 1 – Descriptive statistics of the study variables

Variable	Obs.	Mean	Median	Std. Dev	Min	Max	Jarque-Bera	Prob.
ROE	84	0.382	0.401	0.2507	-0.219	1.071	0.1974	0.9060
TCA/TA	84	0.4882	0.4843	0.164	0.165	0.834	2.5177	0.2839
TCL/TA	84	0.4357	0.4130	0.141	0.175	0.785	3.1454	0.2074
CCC	84	74.89	72.07	62.18	-57.22	306.96	48.256	0.0000
SIZE	84	17.19	17.61	1.638	12.75	19.59	10.661	0.0000
LEV	84	0.507	0.103	1.233	0.000	7.844	1444.49	0.0000

Source: Computed from annual reports of study companies from 2000- 2013

The mean value of TCA/TA was 0.4882 with a standard deviation of 0.164 as shown in Table no. 1. Since the mean value is less than 0.5, this indicates that the selected firms are relatively following aggressive current asset investment policy. Again, from Table no. 1, the average current asset financing policy measured by TCL/TA is 0.4357 with a standard deviation of 0.141. This means the firms are being conservative in the management of current liabilities. Thus, the overall policy for the management of working capital by these firms is moderate working capital management policy. This indicated that the selected firms use relatively low proportion of current asset as a percentage of total asset as well as low proportion of current liability to fund total capital. The cash conversion cycle (CCC) as reported in Table no. 1 has a median (mean) days of 72 (75) with a standard deviation of 62 days. This means that on average, it takes a cycle of two and half months for these firms to get cash from their customers and settle their suppliers after purchase of raw materials. Firm size registered an average value of 17.61 as depicted on Table no. 1. Finally, debt-equity ratio also recorded an average value of 10.3% (Mean is 50.8% and SD=123%). This means that on average the selected firms are lowly geared.

5.2 Panel unit root tests

As indicated in the research method section, three panel unit root methods were applied. Table no. 2 below reports summary panel unit root tests on level data of the study variables while Table no. 3 reports the results of the panel unit root test at their first differences.

As can be readily seen, both IPS and ADF tests fail to reject the unit root null for all the variables in the level form except return on equity and debt-equity ratio when individual intercepts were included. When intercept and time trend are considered, the LLC test does reject the null of unit root for all the variables except ROE and TCA/TA. However, firms' gearing ratio is stationary at level as reported by all the panel unit root test methods.

However, it can be observed from Table no. 3 that all the tests do reject the null of a unit root in difference form with or without the inclusion of time trends. Thus, the evidence suggests that the variables are integrated of order one I (1) and that they exhibit nonstationary processes hence the direct application of OLS or GLS on them will produce spurious and biased estimates.

Table no. 2 – Results of Panel unit Root test in order zero (levels)

Variable	LLC		IPS		ADF	
	Intercept	Intercept and trend	Intercept	Intercept and trend	Intercept	Intercept and trend
ROE	-2.599**	-0.6325	-2.7363**	-0.7835	27.076**	15.590
TCA/TA	-1.9429*	-0.7441	-0.9936	0.1632	15.685	10.287
TCL/TA	-2.6140**	-2.3412**	-0.6009	0.3651	14.994	10.879
CCC	0.3188	-2.4517**	0.8696	-0.7629	14.179	20.369
SIZE	-4.6941**	-4.1861**	-1.4146	-1.2447	18.142	20.266
LEV	-10.349**	-15.197**	-5.8977**	-6.4930**	34.933**	30.223**

Note: ****, *** *indicate a significant level of 1% and 5% respectively.*
Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. LLC= Levin et al. (2002), IPS= Im et al. (2003), ADF=Fisher type Chi square by Maddala and Wu (1999)

Table no. 3 – Results of Panel unit Root test in order one (first difference)

Variable	LLC		IPS		ADF	
	Intercept	Intercept and trend	Intercept	Intercept and trend	Intercept	Intercept and trend
ΔROE	-7.766**	-7.315**	-6.834**	-5.288**	59.402**	44.262*
ΔTCA/TA	-5.912**	-5.048**	-5.159**	-3.307**	46.175**	31.188**
ΔTCL/TA	-9.421**	-7.569**	-6.634**	-5.285**	58.236**	45.959**
ΔCCC	-8.455**	8.697**	-6.392**	-5.663**	56.110**	47.632**
ΔSIZE	-7.998**	-8.109**	-5.269**	-4.011**	46.168**	35.796**
ΔLEV	-21.183**	-16.561**	-11.908**	-9.055**	58.408**	48.283**

Note: ****, *** indicate a significant level of 1% and 5% respectively.
Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. LLC= Levin et al. (2002), IPS= Im et al. (2003), ADF=Fisher type Chi square by Maddala and Wu (1999).

5.3 Panel cointegration tests results

The recently developed panel residual based cointegration methodology proposed by Pedroni (1999, 2004) was employed to test the existence of a long-run stable relationship between working capital variables and firms' return. The results are presented in Table no. 4. From the Table, it can be observed that the panel PP and panel ADF statistics were all statistically significant at 5%. Wagner and Hlouskova (2009) recommend that the panel statistics based on the ADF are the best to test for the cointegration when the time series dimension is small. Therefore, the present study relied on the ADF t -statistics since the study sample was small.

Furthermore, the Group PP and Group ADF statistics were also significant at 1% and 5% level of significance respectively. The empirical evidence firmly indicates that there is a long-run equilibrium relationship between the study variables. Thus, there is a long-run association between working capital management and profitability. This finding confirms the results of Akinlo (2011) and Awad and Jayyar (2013) who found cointegration between working capital management and profitability.

Table no. 4 – Panel cointegration test for return on equity

Alternative hypothesis: common AR coefs. (within-dimension)				
	Statistics	**prob.**	**Weighted statistics**	**prob.**
Panel v-Statistic	0.1688	.4329	-0.0308	0.4877
Panel rho-Statistic	1.0548	.8542	1.1569	0.8763
Panel PP-Statistic	-2.2608	.0119**	-2.6301	0.0043***
Panel ADF-Statistic	-1.9550	.0253**	-2.2488	0.0123**
Alternative hypothesis: common AR coefs. (between-dimension)				
	Statistics	**prob.**		
Group rho- Statistic	2.1712	0.9850		
Group PP- Statistic	-2.8479	0.0022***		
Group ADF- Statistic	-2.1086	0.0175**		

Note: *, **, *** indicate reject the null hypothesis at 10%, 5% and 1% significant levels respectively. Automatic lag length selection based on SIC with a maximum lag of 1.

5.4 Regression results from the panel ARDL/pooled mean group

The model was estimated by using the recently developed Pooled Mean Group (PMG)/ARDL estimator due to Pesaran *et al.* (1999). Table no. 5 presents the results from the ARDL (1,1,1,1,1,1) for model 3. The lags order are selected based on Schwarz information criteria (SIC).

The results from Table no. 5 revealed that current assets investment policy (TCA/TA) are positively related to profitability in the long-run. The positive coefficient of TCA/TA indicates a negative relationship between the degree of aggressiveness of investment policy and return on equity. As the TCA/TA increases, the degree of aggressiveness decreases, and return on equity increases. Therefore, there is a negative relationship between the relative degree of aggressiveness of current investment policies of firms and profitability measured as return on equity. This empirical finding implies that firms can create value for shareholders if they adopt conservative approach in the management of current asset. This finding is inconsistent with theory that increasing investment in current assets reduces profitability and shareholder value but agrees with the findings of Javid and Zita (2014), Mohamad and Saad (2010) and Mwangi *et al.* (2014). However, the results show that current asset investment policy has negative and insignificant influence on profitability in the short-run implying that in the short-run period increasing investment in non-current assets enhances profitability. The study also shows that current assets financing policy (TCL/TA) has positive and significant influence on return on equity in the long-run at 1% level of significance. This positive coefficient indicates that as the relative degree of aggressiveness of current asset financing policy increases, the more return on equity is yielded.

Table no. 5 – Panel ARDL results - dependent variable: return on equity

Long run equation		
Variable	**Coefficient**	**Probability**
TCA_TA	1.4935	.0000***
TCL_TA	1.1380	.0000***
CCC	0.0005	.0000***
SIZE	-0.0633	.0000***
LEV	0.4374	.0004***

Short run equation		
Variable	**Coefficient**	**Probability**
COINTEQ01	-0.5087	.0166**
D(TCA_TA)	-0.0351	.8888
D(TCL_TA)	-0.4526	.2179
D(CCC)	0.0025	.2658
D(SIZE)	0.0671	.8679
D(LEV)	1.3680	.1233
C	0.1882	.3040

Note: ***Significant at 1% level **Significant at 5% level *Significant at 10% level.

Thus, profit is created when firms become relatively aggressive in the current liability management. This empirical evidence contradicts the findings of Mwangi *et al.* (2014), Javid and Zita (2014) and Mohamad and Saad (2010) who reported a negative relationship between current asset financing policy and profitability. The short-run equation coefficients of TCL/TA ratio indicated that there is negative and insignificant influence on ROE. The positive significant coefficients for TCA/TA and TCL/TA ratios reveal clearly that firms pursuing relatively moderate working capital management policies increase profitability and create shareholder value in the long-run.

Cash Conversion Cycle has positive and significant influence on ROE in the long-run whereas it has positive but insignificant relationship with profitability in the short-run. Thus, in the long- run, firms can create value by being less aggressive in the management of short-term resources and finances. This findings validate the findings of Akoto *et al.* (2013) study which indicated that manufacturing firm's CCC has positive significant relationship with return on equity. This means that using cash conversion cycle as a comprehensive measure of working capital management policies, firms can create profit for their shareholders by adopting relatively less restrictive policies in the working capital management. However, it can be observed that the coefficient of CCC is much smaller than the coefficients from the TCA/TA and TCL/TA ratios. This therefore suggests that finance managers should take a holistic approach in the working capital management.

The long-run equation results also revealed that the size of the firm has a negative and significant effect on ROE at 1% significant level whereas in the short-run, there is a positive insignificant relationship between firm size and ROE. Thus, as firms increase in size in the long-run, the profitability reduces. This may be due to the fact that firms increase to a point that may be beneficial beyond which diseconomies of scale may set in and decrease profit. This assertion is consistent with Stimpert and Laux (2011) who argue that bigger is better only up to a point beyond that point additional scale is not associated with greater profitability.

Finally, debt-equity ratio was found to have positive and significant effect on profitability in the long-run. This is due to the fact that leverage increases the profitability of firms and reduces the agency cost, higher leverage is much more likely to indirectly allow firms to create value for shareholders through the earnings (Korankye, 2013).

The speed of adjustment coefficient indicates negative and strongly significant at 5% level of significance indicating the study variables will adjust to long-run trend roughly 2 years after a short drift to equilibrium state.

6. CONCLUSION

This study attempted to determine the effects of aggressive/conservative current asset investment and financing policies on firms' return using recently developed panel ARDL methodology. The results indicated that current asset investment policy proxy as TCA/TA has highly significant positive effect on returns to equity holders in the long-run. The positive coefficient of TCA/TA indicates a negative relationship between the degree of aggressiveness of investment policy and return on equity. On the other hand aggressive current asset financing policies have highly significant positive effect on returns to equity holders in the long-run. The empirical evidence suggests that conservative current asset investment policies increase firms return while conservative financing policies yields negative returns. A firm pursuing conservative current asset investment policy should balance it with aggressive current asset financing policy in order to enhance profitability and create value for their investors.

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