

The Effect of Working Capital Management of Ghana Banks on Profitability: Panel Approach

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Abstract

This paper examines the working capital management of Ghanaian banks on profitability during the period 2005–2010 using panel regression models. More specifically, we investigate whether the working capital management of selected Ghana banks is associated with more profitability. Our empirical findings suggest that cash conversion cycle is inversely related to bank's profitability marginally. In particular, we find that leverage of the banks exhibit statistically significantly a positive impact on banks' profitability.

Keywords: working capital management, banks, profitability, fixed effect, random effects, Ghana

1. Introduction

Banking service contributes to economic growth by producing the financial means to facilitate production in other industries (Rajan & Zingales, 1998; Levine, 1998). However, the banking firms sometimes find it difficult to finance its operation. This financing problem also affects the management of working capital of the individual banks which intend affect their level of profitability (Goddard et al., 2004).

The important role played by banks in the developing countries include providing financial services necessary for enterprises and customers to undertake their business operations, and providing of jobs for citizens in the country. Besides, banks also have a significant qualitative role of cash remittances from abroad and payments of Cocoa Akafo Cheques to rural peasant farmers, especially in Ghana. This function is mostly performed by some government banks like the Agricultural Development Banks Ltd and Ghana Commercial Banks Ltd. This role leads to an increase in the number of local banks in quantity to perform such significant role. The acquisition and merging exercises are still predominant in the banking industry due to increased in the capital requirement by Bank of Ghana (BoG) recently. For example, Trust bank Ltd has merged with the Ecobank Ghana Ltd and Access Bank Ltd has merged with Intercontinental Bank Ltd. This supposition heightens the importance of studying banks with regards to working capital management on their profitability levels.

Financial analysts agree that ineffective working capital management is one of the most significant hindrances to profitability growth of banks and in reaching out to more customers (OECD, 2006; Goddard et al., 2004). Besides, Ghanaian banks do find it difficult to obtain external loans from other corporate financial institutions to expand their working capital requirements. Where the borrowing is feasible, the cost of borrowing from such sources is becoming quite unbearable arising from high interest costs. Also, the government policies such as high debt burden, persistent increased in inflation, increased in minimum capital requirement of the Bank of Ghana (BoG) and intense competition in the banking industry are indications of the need to undertake a study into working capital management of banks in Ghana.

This could bring to bear the evidence for working capital practices and recommend methods and policies for improving their profitability levels so as to ensure expansion of their operations (Peterson, Lozmetsky and Ridgway, 1983; Deloof, 2003). Despite the immense and increasing importance of banks for the Ghanaian economy, they are faced with financial problems. Most of the studies in working capital are conducted in large corporate developed banks as opposed to developing countries like Ghana. Although, financial management of banks of both developing and developed economy depicts some similarities, their working capital management strategies are not the same. Such significant disparities tend to underpin the study of working capital management of banks in Ghana (Weston and Copeland, 1986; Yeboah and Adjei, 2011). Working capital management is related to short-term financial planning of cash level or liquidity, which tends to underscore smooth running and operational performance of firms. It is against this background that this paper aims to examine the relationship of working capital management on profitability of banks in Ghana. To arrive at the above purpose, the following research questions are developed: In what way working capital management influence profitability of the Ghanaian banks, and that which of the factors have a predictive influence on banks profitability?

Our sample includes nine banks in Ghana that have a complete set of data for the study in the period under consideration. The study employed panel data in consideration of both fixed and random effect models to make estimations (Greene, 2007). Our empirical analysis supports prediction that a change in cash conversion cycle is inversely related to banks' profitability marginally (Garcia and Martinez, 2007). There is also positive relations and significant between the leverage of the firm (TDA) and bank's profitability, which is in consistent with Adjei and Yeboah (2011) but contrast Deloof (2003) assertion.

Our study is the latest attempt to estimate working capital management of Ghana banks with profitability using the fixed and random effect estimators. Our study also serves as a complement to the prior study of the working capital management of banks on profitability in general.

The next section reviews the theoretical and empirical literature, followed by a description of the methods used. The discussion of the results and conclusion are subsequently presented.

1.1 Nature of Ghana Banking Environment

The net profit for the industry has also increased to over 120 per cent over the period between 2002 and 2010. The industrial net profit after tax remained constant of 24.1 per cent in the same period. Industrial return on equity has decreased by about 8.3 percent to 26.5 per cent, giving an indication of the increasing competitive nature of the industry. Despite this, there is growing synergy of merger and acquisition of banks in the industry due to a demand for meeting the new minimum capital requirement of GHs 60 million in the industry by the Bank of Ghana (BoG). Moreso, the regulators are of the believe that all banks in the industry use the International Financial Reporting Standards (IFRS) to corroborate with the BoG reporting requirements of banks for achieving the quality financial reporting. This standard requires all banks to make changes to their corporate governance and accounting systems, and management expertise. A low cash position of individual banks arising from poor working capital management has compelled some banks to merge with another to meet the demand of capital requirement so as to stay in the banking business (BoG, 2010; Graphic Business, 2009) and as well to meet their customers' unannounced cash demands.

There is an increasingly intense competition in the Ghana banking industry. This is because, the industry is much more attractive in terms of long-term returns on investors' fund and profit attractiveness, despite the global economic downturn in the past years. Such long term return serves to attract local banks to expand in branches. Besides, it serves as incentive to foreign banks to enter into the industry. However, the BoG compliance order for increasing capital requirement of banks has caused intense pressure to deploy part of their working capital to top-up the capital requirement. This has a negative effect on their working capital levels. For most of the banks to meet this requirement, the industry is now witnessing a stream of mergers and acquisitions. For example, Trust bank Ltd has merged with the Ecobank Ghana Ltd and Access Bank Ltd has merged with Intercontinental Bank Ltd. The global financial crisis effect has spread to Ghanaian economy and has particularly undermined foundations of the entire global financial systems. In the developed countries, governments have attempted desperately to provide liquidity as financial guarantees to contain the crisis and to rejuvenate some banks (Price Waterhouse Coopers, 2009).

2. Related Literature Review

The literature section highlights on the aspect of Ghana Banking Act, in addition to both theoretical and empirical considerations.

1. Theoretical Considerations

a. Ghana Banking Act

Regulation and recent developments in the Ghanaian banking sector makes it mandatory for banks to maintain liquidity in addition to ensuring that they have enough cash to meet customer untimely withdrawals. Section 31 of the Banking Act (2004) states inter alia that the Bank of Ghana may prescribe (a) that a bank shall hold liquid assets or a specific amount and composition; (b) the amount provided for under paragraph (a) either ascertain percentage of all bank's deposit liabilities or in another manner, and; (c) different percentages for different classes of deposits or assets, as the Bank of Ghana may determine in any particular case. The section also outlines some penalties for non-compliance.

Evidence shows that Ghana banking sector as of January 2008 show a continuous surge in asset growth resulting mainly from credit expansion (BoG, 2010). Banks' deposits and borrowings were used to fund the growth in assets.

The period between January 2007 and January 2008 witnessed significant change in the structure of the banking sector. The level of concentration in the industry remained low with the market share of the 5 top banks (in terms of assets) also declining over the period. The ratios of assets to Gross Domestic Product (GDP), loans to GDP and deposits to GDP rose significantly, suggesting an increased financial deepening. Generally, the industry recorded improved profitability and asset quality and increased operational efficiency. All the banks maintained a Capital Adequacy Ratio (CAR) above the statutory required minimum of 10.0 percent. Credit continues to be concentrated in a few sectors, including the Commerce and Finance, Services and Manufacturing sectors, with a combined share of 66.5 per cent of total outstanding credit in January 2008, compared with 68.5 per cent for the corresponding period in 2007 (BoG, 2009). The banks in Ghana are operating in the confines of the directives by regulators, while complying with the Banking Act of 2004, Act 673 which replaced the Banking Law 1989 (PNDC Law 225), the Credit Reporting Act 2007 (Act 726), the Foreign Exchange Act 2006 (723), and the amendment to the Banking Act 2007 (Act 726) (Graphic Business, 2009).

b. Concept of Working Capital

Working capital meets the short term financial requirements of a business enterprise (Gitman, 2005). Therefore, working capital is the investment required for running daily business activities. It is the result of the time lag between the expenditure for the purchase of raw materials and the cash collection of the sales of finished products or services rendered (Gitman, 2005). The working capital requirements decide the liquidity and profitability of a firm (Shin and Soenen, 1998). This task goes a long way to affect the financing and investing decisions of firms.

c. Working Capital and Profitability Theory

Financial investment in the working capital influences the performance of the firm. Financial management principle stipulates that a high investment in the working capital elements can lead to increase in firm's performance in term of cash flow and profitability. Conversely, the performance of the firm decreases when the investment in working capital is low. Previous research proved that we expect firm's profitability and working capital to relate positively at low levels of working capital, but negatively at higher levels (Brigham and Houston, 2003).

2. Empirical Considerations

Key areas under empirical literature that is worthy to consider include the following areas:

Using panel regressions technique, Al-Haschimi (2007) studies the determinants of bank net interest rate margins in 10 SSA countries. He finds that credit risk and operating inefficiencies (which signal market power) explain most of the variation in net interest margins across the region. Macroeconomic risk has only limited effects on net interest margins in the study.

Gelos (2006) studies the determinants of bank interest margins in Latin America using bank and country level data. He finds that spreads are large because of relatively high interest rates (which in the study is a proxy for high macroeconomic risk, including inflation), less efficient banks, and higher reserve requirements.

Using bank level data for 80 countries in the 1988–95 periods, Demirgüç-Kunt and Huizinga (1998) analyze how bank characteristics and the overall banking environment affect both interest rate margins and bank returns. In considering both measures, this study provides a decomposition of the income effects of a number of determinants that affect depositor and borrower behavior, as opposed to that of shareholders. Results suggest that macroeconomic and regulatory conditions have a pronounced impact on margins and profitability. Lower market concentration ratios lead to lower margins and profits, while the effect of foreign ownership varies between industrialized and developing countries.

Athanasoglou, et al. (2006b) apply a dynamic panel data model to study the performance of Greek banks over the period 1985–2001, and find some profit persistence, a result that signals that the market structure is not perfectly competitive. The results also show that the profitability of Greek banks is shaped by bank-specific factors and macroeconomic control variables, which are not under the direct control of bank management. Industry structure does not seem to significantly affect profitability. Contrary to this study is that, the banks specific financial statement variables of interest were employed, and therefore ignore the macroeconomic factors.

Deloof (2003) study tested the relationship between working capital and corporate profitability by using a sample of 1,009 of large Belgian non-financial firms for a period of 1992- 1996. By using correlation and regression tests, he found a significant negative relationship between gross operating income and the CCC of Belgian firms. In the same manner, Lazaridis and Tryfonidis (2006) investigated the relationship between working capital management and corporate profitability of listed company in the Athens Stock Exchange. They conducted a panel study by using a sample of 131 firms listed on the Athens Stock Exchange for the period of 2001–2004. The result from regression analysis showed that, there is statistically significant relationship between profitability that is measured through gross operating profit and the cash conversion cycle.

The study carried out by Samiloglu and Demirgunes (2008) was aimed at investigating the effect of working capital management on firm profitability. A sample of 5, 843 Turkish listed manufacturing companies for the period of 1998- 2007 are analyzed under a multiple regression model. Empirical results show that, accounts receivables period, inventory period and leverage significantly and negatively affect profitability of Turkish manufacturing firms. However, it was asserted that firm growth (in sales) significantly and positively affects firm profitability.

Flop and Ajilore (2009) used a sample of 50 Nigerians quoted non-financial firms for the period 1996-2005. Their study utilized panel data econometric in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found a significant negative relationship between net operating profitability the cash conversion cycle. Furthermore, they found no significant variations in the effects of working capital management between large and small firms.

Various empirical studies have found the following as the factors that affect bank profitability to include:

1. Size

Long standing relationship between firm size and profitability (Mekonnen, 2011) has been as a result of economies of scale and increased customers bargaining power. Large banks with huge total assets based that are managed well and tend to cause increased in bank profit level and are able to outperform smaller banks with small total assets based. Larger banks also measure a lower average costs (Mekonnen, 2011).

2. Growth

Firms that have opportunities to grow tend to have more avenues to make the investment of their funds. Growth could be affected by loans granted and repayments received by banks, as well as their incomes from their investment. There is a positive influence of future interest income growth on the bank's cash conversion cycle (Kieschnich et al., 2008). Therefore, growth would be measured by using the ratio $(\text{interest income}_1 - \text{interest income}_0 / \text{interest income}_0)$. Earnings flow from firm's growth is likely to improve their working capital which in turn has a positive effect on profitability. The reverse is true for firm with little or no growth opportunities.

3. Credit Risk

Credit risk is the risk that some borrowers may not be able to pay the principal and its associated interest when fall due. This is the hurdle faced by the many banking firms in Ghana, especially the local banks. This is assessed by the loan loss provision in relation to total loans given out as an acceptable proxy.

The higher the credit risk ratio, the greater the negative effect on the profitability (Sufian, 2011) of banks in Ghana, which in turn leads to influence the performance of banks.

4. Capital Structure

This indicator is measured by the total equity over total assets. It reveals the intensity of how the bank is being financed in terms of owners invested funds and outsiders funds. It depicts capital adequacy and captures the general safety and soundness of the bank. The highest level of equity financing banks would have a positive impact on bank profitability due to a decreased cost of capital (Javaid et al, 2011).

5. Risk of Banks

The risk of the banks is measured by taking the standard deviation of the profitability indicator during the period this study covers. The pooled estimation measure recognizes this result. Other school of thought measured bank risk by using exchange rate risk arising from foreign loans that are denominated in foreign currency. The results of either a gain or loss on exchange have impact on working capital and the bank's profitability.

6. Cash Conversion Cycle

The cash conversion cycle approach was introduced by Lyroudi and Lazaridis (2000) and is employed as a dynamic liquidity measure of firms. Brigham & Houston (2003) defined the Cash Conversion Cycle (CCC) as the length of time funds are tied up in working capital, or the length of time between paying for working capital and collecting cash from the sale of the working capital. The cash conversion cycle is a measure of the efficiency of working capital management as it indicates how quickly current assets are converted into cash (Brigham and Houston, 2007).

7. Cash Management

Brealey and Myers (2003) indicated that cash is the blood stream which promotes a survival and growth, and is the basic indicator of firm health. Cash includes both cash in hand and cash at bank. Transaction and speculation purposes are most predominant reasons for companies' need of cash (Baumol, 1952). The liquidity of a company is obtained if cash is maintained by the company. Surplus cash of a firm could be invested into a short term security. This is because, it provides more liquidity than marketable securities (Baumol, 1952). Cash is very important for the efficient and effective running of the business operations. It is no doubt that, the investment income from the investment could be used to pay its short-term liabilities when fall due. Businesses hold cash surplus for meeting business capital expenditures (Baumol, 1952). Firms should have adequate cash at their disposal to pay its current liabilities when fall due. However, there is the need that firms do not keep idle funds since there is no return for keeping them. The minimum level of cash reserve depends on the ability of a company to raise cash when it is required. Future cash needs of companies compel them to keep cash for safeguarding future unexpected events. Companies should have enough cash surplus to exploit other investment opportunities future has for the companies to generate more earnings (Baumol, 1952). The maximum level of cash surplus will depend on investment opportunities available in the future, return on these investments and transaction cost of making the investments (Gallagher and Joseph, 2000).

8. Loan Management

They are the short-term instruments that the banks give to their customers for repayment in due time. Loans and advances are also components of current assets of banks. The high repayments of loans by the customers could improve their earnings, which improve their profitability. Loans and advances are initially measured at fair value plus incremental direct transaction costs, and subsequently measured at their amortised cost using the effective interest method. Banks with lower loans level and inefficient collections affect working capital and could lead to reduced profitability of the banks (Cooper et al., 2003).

3. Methodology

Conceptual Framework

The study used both descriptive and econometric model to analyse the effect of working capital on profitability of selected banks in Ghana. The descriptive statistics made use of mean, median and maximum and minimum. These are used to describe the general behaviour of the data. The analysis is based on a panel data from the selected banks' financial statements obtainable from the Ghana Stock Exchange. The study then estimated the determinant of profitability by using the ordinary least squares (OLS).

Therefore, from Raheman and Nasr, (2007), the study could adopt

$$Profit_{it} = \beta_0 + \sum_{i=1}^n \beta_1 X_{it} + \varepsilon \tag{1}$$

Where

Profit_{it} = Gross operating profit of a firm i at time t; i = 1, 2, 3..., firms.

β₀ = the intercept of equation

β₁ = Coefficient of X_{it} variables

X_{it} = the different independent variables for working capital management of firm i at time t.

t = Time from 1, 2... years and ε=Error term

Finally, the above general least square model is converted into specified variables as follows;

$$Profit_{it} = \beta_0 + \beta_1 TDA + \beta_2 size + \beta_3 ccc + \beta_4 risk + \beta_5 growth + \beta_6 creditrisk + \varepsilon \tag{2}$$

$$Profit_{it} = \beta_0 + \beta_1 TDA + \beta_2 size + \beta_3 cpp + \beta_4 dcp + \beta_5 risk + \beta_6 growth + \beta_7 creditrisk + \varepsilon \tag{3}$$

Where the variables are defined in Table 1 together with the independent variables

Table 1: Variable Descriptions

Description of variables	
Name	Definition
Profitability (Prof)	Ratio of earnings before interest and taxes to Equity fund for Bank I in time t
Cash Conversion Cycle (CCC)	The difference between Debtors Collection Period and Creditors Payment
Debtors Collection Period (DCP)	The ratio of Bank current assets to interest income in 365 for Bank I in time t
Creditors Payment Period (CPP)	The ratio of bank short-term debt to interest expense in 365 for Bank I in time t
Size(SIZE ₁)	The Log of total assets for the bank I in time t
Leverage(TDA)	The ratio of total debt to total net assets for Bank i in time t
Growth(GRO)	Year on Year change in interest income for Bank i in time t
Risk(risk)	Standard deviation of Profitability
Debt maturity structure (LDEBT)	L-T debt / Total debt
Creditrisk	The ratio of non-performing loans on total gross loans
E	Error term

Equations (2) stated to include CCC while equation (3) included the components of the CCC (CPP and DCP) as the independent variables. The study also used the fixed effect model in examining the determinants of profitability. The fixed effects formulation implies that differences across groups can be captured in differences in the constant term (Greene, 2007).

The General Fixed Effect model is of the form:

$$y_{it} = x'_{it} \beta + c_i + \varepsilon_{it} \tag{4}$$

In terms of data collection methods, we picked all the relevant variables from the financial statements of the selected banks (GCB, CAL, ECOBANK, HFC, THE TRUST, BARCLAYS, PRUDENTIAL, SGSSB, and STANDARD CHARTERED).

After collecting relevant information, the researcher processed the raw data and produces the descriptive statistics from STATA 11 software; the OLS and FIXED EFFECT estimations were done using GRETL 1.9.5. It is known that different software packages have different features used to generate some statistical output even if the result is the same. For the sake of convenience in presenting the regression output and balancing limitations of each package, the researchers used both softwares in different cases throughout the analysis. Hence, for the test of classical linear regression model (CLRM) assumptions both software packages were used together in different cases. The study used descriptive statistics, Pearson correlation coefficient and regression analysis.

Descriptive analyses were used to describe patterns of behaviour or relevant aspects of phenomena and detailed information about each variable. Thus, it shows the average, and standard deviation of the different variables of interest in the study. Moreover, it also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable can achieve by using Stata.

The study used correlation analysis, specifically Pearson correlation to measure the degree of association between different variables under consideration. Similarly, with the help of Eviews software the study used multiple regression analysis to estimate the causal relationships between profitability and working capital variables. As it can be mentioned above, for this research OLS (Ordinary Least Square) were used. We tested the basic CLRM assumptions for reliability and validity before regression tests were carried out. Consequently, the basic CLRM assumptions tested in this study are normality of the error distribution, and linearity.

4. Discussion of Empirical Results

4.1 Descriptive Statistics

The maximum and minimum values measure the degree of variations in the variables. Profitability ranges between negative 7.7 percent and positive 77 percent (see Table 2). That is profit can rise as high as 77 percent and fall as low as negative 7.7 percent among the banks involved. The arithmetic mean which measures the central tendency of the variables is of good fit and it is supplemented by coefficient of variation and standard deviation. The coefficient of variation shows that the most volatile variable is the CCC. This shows that there is extreme variation in CCC among the various banks. The coefficient of variation also shows that tda is the less volatile variable. This means that tda among the banks does not differ much.

Table 2: Summary Statistics, using the observations 2005-2010 for 9 Banks

variables	Obs.	mean	Std. Dev	minimum	maximum	Skewness	Kurtosis	C.V
profit	66	.3571288	.1754781	-.077	.77	.032386	2.560569	0.4914
cpp	66	9425.619	17039.73	3.735841	140860	7.104261	55.31174	1.8078
dcp	66	4511.594	6962.844	979.926	43030.86	4.364571	22.03066	1.5433
tda	66	7.980455	3.832492	.433	20.108	.9127151	4.613765	0.4802
size	66	2.07e+08	2.49e+08	860.637	8.13e+08	1.004848	2.864711	1.2042
ccc	66	-4914.02	18231.46	-138677.	30373.11	-5.95969	45.5877	3.7101
risk	66	.0712796	.0904809	0	.4433559	1.963526	7.450889	1.2694
growth	66	.3293727	.2608764	-.1751	1.5599	1.748782	9.088945	0.79204
creditrisk	66	9700.939	18609.05	1.2	85748	2.831727	10.0014	1.9183

Source: Authors estimation

Skewness implies asymmetry of a distribution. A distribution with an asymmetric tail moving towards the right is known as positively skewed while the one with the asymmetry tail widening to the left direction is known as negatively skewed. The estimate of a skewness lies within the range of negative unity and positive unity and an absolute value above 0.2 indicates great skewness (Hildebrand, 1986). In Table 2 all the variables except CCC are positively skewed. Additionally with the exception of tda and profit all the variable have values of skewness greater than 1. This shows that almost all the variables have outliers.

4.2 Analysis of Correlation Coefficient

Table 3 shows that only the correlation coefficient between size and profit, CCC and cpp, and growth and cpp are quite high. However, since CCC and cpp are not found in the same regression, it will not pose any problem of multicollinearity.

Table 3: Correlation Coefficient

	profit	cpp	dcp	tda	size	ccc	risk	growth	creditrisk
profit	1.00								
cpp	0.28	1.00							
dcp	0.26	0.03	1.00						
tda	0.12	0.07	-0.01	1.00					
size	-0.55	-0.24	-0.19	-0.02	1.00				
ccc	-0.16	-0.92	0.36	-0.07	0.15	1.00			
risk	-0.20	-0.16	-0.17	0.07	0.04	0.08	1.00		
growth	-0.058	0.51	-0.21	0.06	-0.02	-0.56	0.08	1.00	
creditrisk	-0.039	0.03	-0.08	-0.06	-0.26	-0.06	0.05	-0.05	1.00

4.3 Results of the OLS

The results of the OLS regression are presented in Table 3 and Table 4. Table 4 reports the results of the regression with CCC while table 5 uses the components of the CCC (CPP and DCP). The results show that TDA has a positive relationship with bank profitability in Ghana. This finding supports Agyei and Yeboah (2011). However, there are significant difference in value between the coefficients this study reported and that of Agyei and Yeboah (2011). They reported 2.2876 while this study reported 0.00488337 (see Table 4).

The size of the bank has marginally a negative (-3.98527) relationship with bank profitability. This might be due to diseconomies of scale that may result from managerial inefficiency arising from expansion of the banking operations and branches. As banks expand, more branches are located in areas which are less lucrative (especially in the rural areas). These areas are also less attractive to staff to accept posting, as a results staff are paid extra (mostly in kind) to entice staff to these areas. This increases the cost of operations of the bank and thus reduces the profitability of the bank.

The cash conversion cycle (CCC) which shows the ratio of payment to outsiders and payment from outsiders to the banks has a negative relationship with profitability. This is quite consistent with what theory stipulate. If the firm is able to extend the time period of its payment, then it can increase its profitability by investing with cash available and vice versa. There is a negative relationship between risk (-0.297844), growth (-0.109265) and credit risk (-0.297844), but these are not statistically significant. The results show that 39.4 percent of the independence variables explain the dependent variable (profitability). The P-value shows that the independent variables are jointly significant.

Table 4: OLS Results (with CCC)

Variable	Coefficient	Std. Error	t-ratio	p-value	
Const	0.467598	0.046017	10.1614	<0.00001	***
TDA	0.00488337	0.002734	1.7860	0.07924	*
Size	-3.98527	6.85908	-5.8102	<0.00001	***
CCC	-1.51976	8.92308	-1.7032	0.09380	*
Risk	-0.297844	0.253675	-1.1741	0.24507	
Growth	-0.109265	0.078778	-1.3870	0.17066	
Credit risk	-1.77077	1.30312	-1.3589	0.17936	

Comparatively, when CCC was substituted with its components, the results (Table 5) show quite the same, however only one components of the CCC (CPP) is significant (p-value = 0.00150). Using the components of CCC although improves the goodness of fit of the model slightly; it does not present any different results from using the CCC alone.

Table 5: OLS Results (with the Components of the CCC)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.433039	0.0583564	7.4206	<0.00001	***
TDA	0.00464453	0.00276486	1.6798	0.09837	*
size	-3.64515e-010	7.3745e-011	-4.9429	<0.00001	***
risk	-0.230138	0.252274	-0.9123	0.36541	
Growth	-0.112437	0.0783493	-1.4351	0.15664	
credit_risk	-1.5831e-06	1.3163e-06	-1.2027	0.23398	
CPP	2.24574e-06	6.73944e-07	3.3322	0.00150	***
DCP	2.24345e-06	1.73336e-06	1.2943	0.20070	

4.4 Results of the Panel Estimates

The study then estimated the model using the panel estimation techniques (both random effect and fixed effect). The result shows that only risk (p-value = 0.01346) is not statistically significant in the panel model. There is a significant improvement of the panel model as compared to the OLS.

Table 6: Result of the Fixed Effect Model (Using CCC)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.487518	0.0530995	9.1812	<0.00001	***
TDA	0.0123941	0.0044117	2.8094	0.00690	***
size	-6.11433e-010	7.59092e-011	-8.0548	<0.00001	***
risk	-0.319102	0.25406	-1.2560	0.21452	
Growth	-0.184762	0.100294	-1.8422	0.07094	*
credit_risk	-3.10763e-06	1.21622e-06	-2.5551	0.01346	**
CCC	-2.24671e-06	1.1202e-06	-2.0056	0.04992	**

The fixed effect regression model shows that only DCP and Risk is not statistically significant (Table 6 and 7). The rest are significant. The result shows improvement over the OLS results.

Table 7: Results of the Fixed Effect Regression Model (with CPP Components)

	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-ratio</i>	<i>p-value</i>	
const	0.465093	0.0614746	7.5656	<0.00001	***
CPP	2.83178e-06	1.0933e-06	2.5901	0.01236	**
DCP	4.24611e-07	1.10579e-06	0.3840	0.70252	
TDA	0.0117534	0.00424161	2.7710	0.00769	***
size	-5.90548e-010	8.3891e-011	-7.0395	<0.00001	***
risk	-0.251322	0.26296	-0.9557	0.34354	
Growth	-0.186705	0.10336	-1.8064	0.07654	*
Sq_growth	0.0447088	0.0906890	0.4930	0.6241	
credit_risk	-2.95759e-06	1.24819e-06	-2.3695	0.02149	**

4.5 General Discussions

The results from both the OLS and the Panel Fixed Effect show that the fixed effect has better estimates than the random effect. Some variables are significant and have a better R-squared. Therefore, the discussion in this section would make more reference to the fixed effect model. From Table 6, CCC is negative and significant. It shows that a change in the cash conversion cycle in the period inversely affect profitability of a company by a marginal unit of 0.00000224671. This shows that although CCC has a negative relation with profitability, its effect is very negligible. This finding is consistent with Garcia and Martinez (2007) who found strong negative relationship between cash conversion cycle and profitability. However, this finding differs from Amarjit et al. (2010) who concluded a positive relation between cash conversion cycle and profitability of firms.

From the table 6 and 7, it can be seen that TDA which measures leverage of the firm is positive and significant. This is consistent with Agyei and Yeboah (2011), although the values differ significantly. This however contrasts Deloof (2003) assertion.

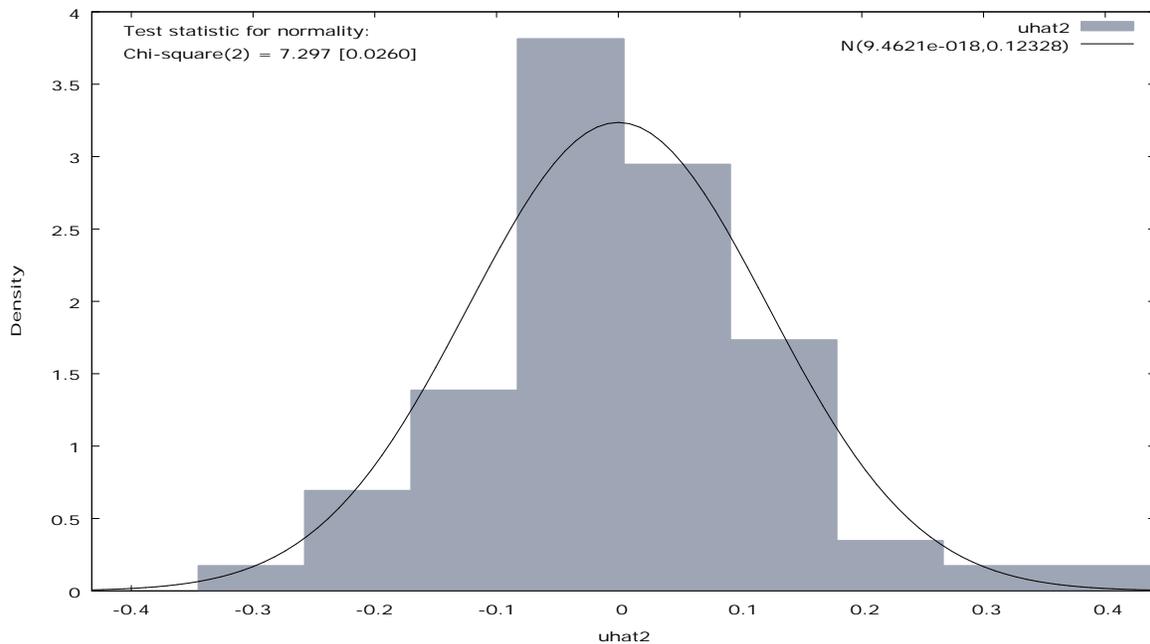
The size of the company represented by the total assets shows a negative relationship; this is consistent with Goddard et al. (2005) however this contradicts the findings of Mekonnen (2011). The negative relations have been explained by Banos-Caballero et al (2012) ascribed to three reasons. First, a greater diversification might lead to a lower profitability, as is demonstrated by previous studies. Second, managers tend to expand firm size to achieve their own pecuniary and non-pecuniary interests, such as managerial benefits of receiving higher remuneration in larger firms.

A growing firm needs funds to invest in fixed assets and to expand its operations to sustain competitive advantage. This will, in turn, increase investment in current assets to support increased scale of operations. Thus, a growing firm needs additional funds continuously to cater for increased costs of operations in the initial stage, which as a result may have a negative relation with profitability of the firm initially. This at the end has a positive relation in the later stage. This is clearly demonstrated by the results in Table 6 and 7. It shows a negative relation between growth and profitability (see Table 6) and a positive relationship with the squared of growth (see Table 7) to profitability although, it is statistically not significant. This clearly shows that in the initial stage, growth firms do not become profitable, but as the growth last the initial costs of expansion goes out and thus reduces the cost of the firm, which in turn makes the firm profitable.

Diagnostic check of the regression results

To check for the reliability of the estimated model some diagnostic checks were conducted. This is to avoid any inconsistency that may arise (Cotrell and Lucchetti, 2011). The result (see figure 1) shows that the residual are normally distributed, as a result the estimates are consistent.

Figure 4.1: Test Statistic for Normality



5. Conclusions

1. OLS

The OLS uses the components of the CCC (CPP and DCP). The results show that TDA has a positive relationship with bank profitability in Ghana. This implies that as the banks borrow more funds to meet its expanding opportunities at lower cost of capital, their profitability position increases. This synergy supports the statement of high risks with associated high returns theory in the financial management. This finding supports Agyei and Yeboah (2011) views. However, there are significant difference in value between the coefficient this study reported as opposed of Agyei and Yeboah (2011). They reported 2.2876; while this study reported 0.00488337 (see Table 4.1).

The size of the bank has marginally a negative relationship with bank profitability. This might be due to diseconomies to scale that may result from managerial inefficiency arising from expansion of the banking operations and branches. As banks expand, more branches are located in areas which are less lucrative (especially in the rural areas). These areas are also less attractive to staff to accept posting, which could lead to the staff being paid extra (mostly in kind) to entice them to these areas. This increases the cost of operations of the banks, which leads to reduction of the profitability of the banks.

The Cash Conversion Cycle (CCC) shows the ratio of payment to outsiders and payment from outsiders to the banks. The CCC has a negative relationship with profitability. This is quite consistent with what theory stipulates. If the firm is able to extend the time period of its payment and reduce the creditors' payment period, then it injects these funds into their working capital position to go a long to increase its profitability.

There is a negative relationship between risk, growth and credit risk, but are not statistically significant. The results show that 39.4 percent of the independence variables explain the dependent variable (profitability). The P-value shows that the independent variables are jointly significant.

2. Good Predictors of Profitability

Fixed Effect analysis revealed that apart from risk and DCP, all other variables are significant. The result shows an improvement over the OLS results. The implication researcher could infer is that they are good predictors of banks' profitability. Therefore, the bank profitability is positively influenced by all the variables the study used except risk and DCP.

3. Fixed Effect Model and CCC

Fixed effect model revealed that CCC is negative and significant and it shows that a change in the Cash Conversion Cycle is inversely affecting the bank's profitability by a marginal unit of 0.00000224671. This shows that although CCC has a negative relation with profitability, its effect is very negligible. This finding is consistent with Garcia and Martinez (2007) who found strong negative relationship between cash conversion cycle. However, this finding differs from Amarjit et al. (2010) confirmed a positive relationship between the cash conversion cycle and the profitability of firms.

4. Leverage and Profitability

Fixed Effect model revealed that TDA which measures leverage of the firm is positive and significant; this is consistent with Agyei-Yeboah (2011), although the values differ significantly. This however contrasts Deloof (2003). This means that lower cost of the bank's debt tend to increase the earning capacity of the bank since the banks are able to lend more for earning more interest incomes.

5. Size and Profitability

The size of the company represented by the total current asset of the company shows a negative relationship. This is consistent with Goddard et al. (2005) however; this contradicts the findings of Mekonnen (2011). The negative relations have been explained by Banos-Caballero et al (2012) to be due to two reasons. First, a greater diversification might lead to a lower profitability, as is demonstrated by previous studies. Second, managers tend to expand firm size to achieve their own pecuniary and non-pecuniary interests, such as managerial benefits associated with a larger firm since they receive a higher remuneration in larger firms.

6. Growth and Profitability

It was also revealed that there is a negative relationship between growth and profitability but a positive relationship with the squared of growth to profitability, although it is statistically insignificant. This clearly shows that in the initial stage of the growth process, firms do not become profitable but as the growth lasts, the initial cost of expansion goes up and thus reduces the cost of the firm, which in turn makes the firm become profitable.

7. CCC and Profitability

The analysis of the data revealed that the CCC is negatively related to banks' profitability. We could infer that the banks would have to wait longer to receive their account receivables, which will have a decrease effect on the bank's profitability.

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