IMPACT OF MONETARY POLICY ON CAPITAL STRUCTURE AND
FINANCIAL PERFORMANCE OF FIRMS IN GHANA

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DECLARATION

I hereby declare that this dissertation is the result of my own original research and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any degree of any University, except where due acknowledgement has been made in the text.

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CERTIFICATION

I hereby certify that this long essay was supervised in accordance with the procedures laid down by the University of Ghana.

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DEDICATION

I dedicate this work to my parents and to my best friend, Raheal Yusif, who has been of immense help to me throughout my study and MBA program. God bless you all.
ACKNOWLEDGEMENT

My first gratitude goes to Almighty Allah for the strength, wisdom and ability HE has bestowed on me to complete this work successfully.

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LIST OF ABBREVIATIONS

BOG – Bank of Ghana

CR – Credit Rating

GDP – Gross Domestic Product

GSE – Ghana Stock Exchange

GMM – Generalised Methods of Moments

MM – Miller and Modigliani

MPR – Monetary Policy Rate

WACC – Weighted Average Cost of Capital
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ABSTRACT

This research examines the impact of monetary policy on capital structure and financial performance of companies in Ghana. The research uses panel data from 2008-2017 for 33 firms on the Ghana Stock Exchange. A system GMM-technique is used to analyze the data. This technique allowed the researcher to control for autocorrelation to ensure a robust result is achieved.

The study finds that firms prefer to borrow long-term when monetary policy is contracting (increasing policy rate). Also, firms decrease their short-term debts when the base rate is increasing. The study finds that firm’s performance decreases as base rate increases. Policy rate has an insignificant relationship with the companies’ ability to make earnings on its assets and net-profit levels.

This research recommends that, when managers are making choices about debt/equity mix for funding their businesses, changes in monetary policy should be considered since it is better to borrow long-term debt when monetary policy is increasing. Firms should also seek to use their relationship with banks to ensure a stable interest rate in order to maintain their performance by negating the effect of base rate on their financial performance. Policy makers can also consider establishing a bond market in the country to facilitate access to long-term debt by firms. This will offer a variety of alternative to bank-loans when businesses want to increase long-term investment during increasing policy rate.

Keywords: Monetary policy, Capital structure, Financial Performance, Stock Exchange
CHAPTER ONE
INTRODUCTION

This section discusses the study’s background, the research problem, the purpose and objectives of the work, the research questions, methodology and the significance of the study. In addition, it presents the scope and chapter organization of this research.

1.1 Background of the Study
The importance of a company’s financing structure and how a firm is financed has been the subject of intense debate between two schools of thought: the traditionalist view and the modernist view. The traditionalist view postulates that companies have an optimal capital structure and they can benefit from the tax advantages associated with debt finance by including some good stock of debt-finance in their capital structure. Miller & Modigliani (1958) as key pioneers of the modernist view, argue that the capital structure and financing decisions are exclusive of each other (Watson and Head, 2004). The key issue regarding capital structure is how to manage the cost and benefit of each source of finance and how to arrive at a choice that reduces the cost and increases value to the business. In making this decision, internal and external factors that impact capital structure has to be taken into consideration to ensure maximum benefit to the firm. Factors within the firm such as profitability and asset tangibility are within management control whilst external factors such as monetary policy, GDP and inflation are beyond their control. Given that questions relating to the relationship between corporate finance and monetary policy have received great prominence (Prasad and Ghosh, 2005), this paper focuses on how monetary policy impacts the capital structure and financial performance of companies in Ghana.

Current research in monetary theory have highlighted the significance of analyzing the influence of monetary policy on funding decisions of various companies. In particular, the credit view states
that businesses that rely on bank borrowing are more likely to be affected by monetary tightening compared to firms that depend more on capital markets and less on bank-financing (Bernanke and Gertler, 1995). Listed firms will be able to adjust their debt position by issuing equity whilst private firms cannot do so if they face higher information cost (Ghosh and Sensarma, 2004). However, a counter opinion by Rajan (2002) suggests that both banks and firms will benefit if they use their relationship to maintain the supply of funds and help avoid the effects of changing monetary policy (Bernanke and Gertler, 1995). Regarding the interface between monetary policy and financial performance, monetary shocks impacts consumption, aggregate demand and economic activity and this affects business performance.

In Ghana, raising debt or equity is a major challenge facing firms because the Ghana Stock Exchange (GSE) is not well developed and most firms rely on bank financing. The creation of the GSE was to help transition the country to a market economy where firms can easily raise capital to finance their operations. However, a study by Kyereboah-Coleman (2007) revealed that even though trading volume and share index have increased on the GSE, Ghanaian firms use about 90 percent of non-current liabilities in financing their operations. Abor and Biekpe (2005) also found that total debts constitute over 50% of the source of funds of listed corporations. This shows that debt-financing has become much more important than capital market financing in the country.

Monetary policy shocks also impacts on firm performance since it makes it easy or expensive for companies to borrow, expand operations and increase output. When the policy rate rises, interest rates on credit facilities become more expensive and businesses that depend more on bank financing are likely to incur high cost of borrowing funds. Also, a drop in the policy rates promotes borrowing and spending (Saunders and Cornett, 2008) and as firms borrow at cheaper rates, they are able to increase output and improve performance. In Ghana, the monetary policy dropped to
16% as at March 2019 and it is expected that this will result in price stability, increase consumption and output. The lower rate should translate to lower interest rate on credit so that businesses can borrow and spend more to improve their performance. Given that interest charged on credit in Ghana respond slothfully to fluctuations in monetary policy (Kovanen, 2011), this work also probes if performance of corporations in Ghana is affected by changes in policy rate.

1.2 Statement of the Problem
In Ghana, total debt constitute a greater portion of the capital structure of listed corporations, (Abor and Biekpe, 2005; Kyereboah-Coleman, 2007) and this highlights the significance of debt-finance to the growth of businesses in the country. Coupled with this is the fact that the GSE is not well developed to support firms to raise sufficient capital for their operations (Abor, 2007). The reliance on debt exposes these firms to monetary policy shocks and their ability to access credit since it directly affects the interest rates on credit given by banks to businesses. This means that in times of tightening monetary policy, the cost of debt finance will be high and firms may either borrow at a high cost, cut down operations or even shelf projects that will yield enormous profits and contribute to their growth. On the other hand, under monetary loosening, interest rates falls and bank-base financing becomes cheaper. This will allow corporations to obtain credit at a lower cost and expand their operations.

In developed economies, it has been found that listed firms will be able to adjust their debt position by issuing equity in reaction to monetary policy fluctuation (Ghosh and Sensarma, 2004). Will the same findings hold for listed firms in a developing economy like Ghana? Furthermore, Monetarist posits that monetary policy action has bigger effect on economic activity and unanticipated changes affects output and growth of businesses. Firm performance is also expected to improve because when prices are stable, consumption and investment spending increases and corporations
are also able to acquire credit at cheaper rates. The low interest rates coupled with increase in consumption, investment spending and output growth should improve the bottom line of businesses in the country. However, since, the real economic effects of movements in monetary policy takes time to transmit into the Ghanaian economy, it is yet to be known whether variations in the monetary policy rate will impact firm financial performance. This work then seeks to obtain further proof in Ghana on whether the policy rate variation influences financial performance.

1.3 Research Purpose
The purpose for this research is to examine the impact of monetary policy on capital structure and performance of companies in Ghana.

1.4 Research Objectives
The primary object is to assess the effects of monetary policy on the capital structure and financial performance of listed companies in Ghana.

The research objectives are:

1. To examine the impact of monetary policy on capital structure of firms.
2. To investigate the link between monetary policy and the financial performance of firms.

1.5 Research Questions
Based on the above stated objectives, this work aims to find answers to the questions below:

1. What is the effect of monetary policy on capital structure of firms?
2. What is the relationship between the monetary policy rate and performance of firms?

1.6 Methodology
This research uses a quantitative approach to assess the influence of monetary policy on capital structure and performance of firms in Ghana. The study’s population consist of all listed companies
on the GSE. A sample of 33 companies is selected randomly and also taking into consideration data availability. A panel data covering 2008 – 2017 is collected and analyzed using system GMM technique. The sources of data for the study are: Annual Report Ghana, Bank of Ghana website and the World Bank website.

1.7 Significance of the study
The implication of this work can be viewed through its contribution to research, practice and policy. Concerning its significance to research, this work goes further than current research on capital structure by examining how monetary policy rates impact the capital structure of registered firms on the GSE. The use of company-level data provides further evidence on capital structure of corporations in Ghana and the extent to which these decisions are influenced by the monetary policy. With regard to significance of the study to practice, it will provide guidance to investors by helping them understand how monetary policy affects financial performance of companies so that they can readjust their portfolios given fluctuations in monetary policy rates. Lastly, concerning significance to policy, the study provides the monetary policy committee feedback on the effect of monetary policy on the blend of capital that firm managers use in the businesses and also the effect of the policy variation on the performance of businesses in the country. This will serve as rich input in determining the appropriate policy rate. It gives them insight into how companies respond to policy rate fluctuations and its consequential effect on investment in the country.

1.8 Scope of the Study
The study focuses on corporations registered on the GSE over the period 2008 – 2017. This period captures the modern monetary policy framework. Earlier periods that reflects various other monetary policies is note included in this research because most of the entities used for the
study do not have data or those earlier periods. Also, unlisted companies are excluded from this research.

1.9 Organisation of the Study
This study is organized as follows: Chapter One starts with the Introduction to the study. It then discusses the study’s background, research problem and the purpose of this work. Other sections of the chapter presents the objectives and questions of the research, implication of the work and the study’s scope.

Chapter Two focuses on overview of Ghana’s monetary policy implementation. It discusses the various policy frameworks implemented in Ghana.

Chapter Three discusses and evaluates theories and literature relevant to the study. It also discusses empirical findings related to this work.

Chapter Four presents the methods used to achieve the purpose of the research. It discusses the research approach used, the population, samples and the sample size. It also discusses the origins of data used in the study and the means by which the data is analysed.

Chapter Five speaks to the results of the data analysis. It also contains discussions of the results of the regression output.

Finally, Chapter six speaks to the summary, conclusion and recommendations of the study.
CHAPTER TWO
OVERVIEW OF MONETARY POLICY IN GHANA

2.0 Introduction
This section delves into the monetary policy regimes implemented in Ghana. The purpose is to review the different policy frameworks and how this has impacted access to credit.

2.1 History of Monetary Policy Implementation in Ghana
The various policy frameworks used in Ghana can be divided into two separate phases: the time when direct monetary control was used and the time when there were no controls.

Prior to 1983, Bank of Ghana used a direct monetary control framework. This framework of monetary management required the use of measures such as direct credit control. There were ceilings on amount of credit banks could lend and this had to be in line with the country’s macroeconomic targets (Kwakye, 2012). Quartey and Afful-Mensah (2014) notes that the direct control framework was inefficient because it was not able to give the appropriate signals for optimal allocation of the nation’s resources. These weaknesses led to improvements in the management of the policy rate and that led to liberalization in 1983.

Liberalization came with gradual de-regulation leading to the adoption of an open-market system of monetary management. This was supported by Act 612 (2002) and gave freedom to BOG to decide on the appropriate policy framework to use for price stability. This made it possible for BOG to adopt inflation-targeting policy framework later on.
2.2 Monetary targeting era

Monetary targeting approach, which targets monetary aggregates, is centered on the fact that excessive expansion of money supply causes inflation (Acheampong, 2005). Prior the implementation of inflation-targeting, monetary-targeting was the policy framework used by Bank of Ghana for monetary management in the economy. This is in tandem with the quantity theory of money which links the rate of growth of monetary aggregates to inflation (Addison, 2001). Domestic credit control and Open Market Operations were the key operating instruments used by Bank of Ghana during the monetary targeting era.

With regards to domestic credit control, the BOG sought to control monetary expansion by monitoring and controlling domestic credit as a way to achieve its targets. The central bank would issue directives to commercial banks to vary sectorial lending limits according to the macroeconomic priorities of the government. Aggregate domestic credit was shared between banks and the government. The government portion was computed based on the public-sector borrowing requirement (PSBR) whilst the rest was shared amongst the banks (Kwakye, 2012). However, the credit ceilings that were set, particularly for the government, were violated due to higher budget financing.

From 1992, open market operations (OMO) was used as the key instrument for monetary policy. The aim was to increase or decrease liquidity in the economy by reaching a target reserve money on the BOG balance sheet. In the case of Ghana, OMO is mostly used to decrease liquidity. This tool is also used by a country’s apex bank to influence the amount of reserves held by commercial banks. Aside using OMO as a policy tool, BOG also used it as a means to sell treasury bills to raise money to meet the PSBR. The use of OMO for both monetary policy and to meet PSBR
undermined the ability of OMO to contain liquidity in the economy due to lack of clear separation between the two.

### 2.3 Inflation Targeting

The focus of this framework is to keep inflation within a predetermined boundary. Inflation targeting is the policy framework used by the BOG to anchor inflation expectations in the nation. To meet the target, the BOG adjusts the policy rate periodically and by using open market operations, they are able to ensure that the interest rate target is retained for some time. Hence, a central bank that uses inflation targeting approach will increase or decrease interest rates based on a specific target inflation. How long the interest rate is sustained changes on a month-on-month basis and so it is reviewed every month or quarter by the BOG Monetary Policy Committee.

This approach was first used in 1990 by New Zealand. It is currently used in countries such as Australia, Brazil, Canada, Chile, United Kingdom among others. Mishkin (2007) enumerated five key components that constitute the inflation targeting approach. These components are:

- **a)** The communication of an inflation target for the medium-term.
- **b)** A fundamental objective of price stability and an obligation to achieve this goal by ensuring all other goals are linked to it.
- **c)** A strategy that uses all available information in formulating the policy instruments;
- **d)** Being transparent about the monetary policy strategy by ensuring that regular information about the policy strategy is made available to the public.
- **e)** The need for the nation’s apex bank to be held responsible for achieving its inflation targets.

Lin and Ye (2007) argued that the success of this approach can be influenced by a nation’s characteristics such as the central bank’s willingness to restrict the fluctuations of exchange rates, government’s fiscal position and the desire of the central bank to meet the requirements for policy
adoption. Compared to exchange rate targeting, this approach has the edge by ensuring that monetary policy concentrates on local economy and responds to shocks in the economy. Inflation-targeting is also different from exchange rate targeting by ensuring that all information is captured in setting the monetary policy rate.

In Ghana, given the limited success in using monetary targeting to achieve inflation targets, BOG decided in 2007, to move from monetary-targeting to inflation-targeting. The policy rate serves as the basis for lending to commercial banks and this influences other interest rates in the country. BOG ascertains its inflation forecast using a wide range of economic indicators. This is then balanced off against economic growth with relevant adjustments made to the policy rate.

2.4 Monetary Policy and Domestic Credit Growth
The different monetary policy frameworks adopted in Ghana over the years have had varying impact on domestic credit growth. Figure 2.1 below shows increase in domestic credit when the monetary policy rate decreases. The percentage growth in domestic credit during the monetary targeting era was better compared to the inflation targeting era.

Figure 2.1: MPR verses Domestic Credit Growth

Source: Author
CHAPTER THREE
LITERATURE REVIEW

3.1 Introduction
This part reviews theories and prior findings associated with the research topic. In this regard, the chapter evaluates key concepts, appropriate theories and findings of prior literature in order to highlight the issues in the literature and, hence, build the conceptual basis for the research.

3.2 Capital Structure of Firms
3.2.1 Traditional view of Capital Structure
The traditionalist believes that companies have an optimal capital structure. They posits that a business can enhance their value by an efficient blend of debt and equity in its financial structure. It suggests that a business should have the mix of liabilities and shareholder’s fund that reduces overall cost of capital and increases owner’s wealth. The traditional view also argue that debt-finance is cheaper compared to equity which implies that when a company’s non-current liabilities increases, the cost of capital should decrease (Watson and Head, 2004).

A drawback with this view is that increase in debt levels will result in equity-holders demanding increased returns to cater for the financial risk that comes with rising debts. This may result in the cost of borrowing outweighing any benefits resulting from the extra advantage associated with debt-finance. Current debt-holders may also demand increased return or put in place protective covenants. These and many other shortfalls of the traditional view resulted in further research on capital structure and new theories were developed as alternatives to the traditionalist view.
3.2.2 Modigliani and Miller Theory on Debt/Equity mix

Modigliani and Miller (1955) proposition 1 postulate that there is no optimal capital structure and a corporation’s WACC remains the same at different quantum of debt (Watson and Head, 2004). It also reveals that a company’s value does not change when the composition of its capital varies on the premise of some assumptions that must hold true for proposition I. These assumptions include: there is no information asymmetry, a perfect capital market exist and so cost of transacting business and bankruptcy cost are nil, zero taxes and cost of debt-finance is the same for participants. Using these assumptions, Modigliani and Miller (1958) argued that managerial choices regarding valuation of the business and the financial structure composition are mutually exclusive. Thus, how a levered firm is valued is not different from how an unlevered firm is valued irrespective of the particular mix of long-term funds it adopts.

One major flaw of the proposition I is that the assumptions are unrealistic and do not make practical sense. This led to more research on capital structure and in an attempt to make their theory more practical, Modigliani and Miller came up with proposition II which inculcated the influence of tax on cost of each source of funds. This means that as an entity increases gearing by using more debt-finance, it protects itself from tax (Watson and Head, 2004). The tax shield advantage from replacing equity with debt ensures that the company’s WACC falls as debt-finance rises. The key point from proposition II is that the best capital structure for an entity is 100 per cent debt-finance. However, this creates a weakness in the theory for practical application because in reality, businesses do not rely only on debt. The drawbacks of Modigliani and Miller propositions I and II led to further research in capital structure and the development of other theories to either validate or provide a counter explanation to the MM propositions.
3.2.3 Perking-Order Theory
The theory argues that companies do not have a particular combination of debt and shareholders’ funds which reduces the cost of capital. Rather, there is a preferred rank with regard to the various sources of funds available to the firm when it is considering options in financing its business. Using Korean listed firms as a sample, Lee and Hurr (2009) finds supportive evidence for the perking order theory. According to their study, debt ratio significantly falls as cash flow, ROA, physical assets, and size appreciates. Also, their study shows that debt ratio falls as cash flow and ROA increases, which is in tandem with the pecking order. In a related study, Zoppa and McMahon (2002) investigated the extent to which the pecking-order theory explains the capital structure amongst SMEs in Australia. The research provides empirical evidence backing the pecking order financing behavior amongst SMEs.

Based on his study, Goossens (2011) claims this theory highlights the instance where there is high information asymmetry between managers and outside investors and these external investors require a premium on their investment to compensate for the cost associated with this information gap.

3.2.4 Trade-Off Theory
This theory posits that businesses often view capital structure as a trade-off between tax-shield benefits associated with debt-finance and financial distress. Increasing the quantum of debt-finance in the capital structure results in interest tax shield advantage and so debt becomes less expensive. But this increase in debt-finance exposes the entity to high financial distress and agency cost because debt holders are settled first before equity holders in the case of liquidation. The trade-off theory also posits that companies have an optimum ratio for their capital composition and gradually work towards achieving it. In their study, Awan and Amin (2014) suggest that every
source of fund has its own benefits and costs and these are linked to the company’s ability to make more earnings and its exposure to insolvency risk. Thus, firms with high tax shield advantage will favor higher debt for their businesses (Chang, Chen and Leung, 2011). Hardiyanto (2014) focus on testing the trade-off theory and their study finds that listed companies in Indonesia work towards a target of 0.438 of debt-finance in their capital a year. A flaw with this theory is that it does not account for why some successful business thrive with little debt.

3.2.5 Market-Timing Theory
The Market-Timing Theory, pioneered by Baker and Wurgler (2002), puts forward the argument that a company’s financing structure changes as a consequence of prior efforts to time the market by issuing new stock when the market value is high and by repurchasing shares when it is low. The study focused on the importance of market-timing relationship with capital structure. Results of their study shows that changes in market prices of stocks had huge consequences on capital structure the effects of the change persisted for at least ten years.

In assessing the market timing theory in issuing securities to controlling stockholders, Larrain and Urzúa, (2013) find that sale of over-valued securities was as a result of any of the following: outside stockholders being optimistic about the growth of the firm, investors being naïve and this keeps them disadvantaged by purchasing over-valued securities and investors know the intent of shareholders but cannot take measures. According to Virk, Ahmed and Nisar (2014), market timing theory posits that if there is an increase in demand for equity for five to ten years, the firm will decrease equity because it will be undervalued and as suggested by the market timing theory, the firm will try to repurchase the undervalued stock. Graham and Harvey (2001) also notes that most corporate executives agreed to taking decision to issue equity when the value by which the firm’s stock was overvalued or undervalued was a crucial consideration.
One problem with the market timing theory is that it does not explain why at the same period of time and given similar situations various companies take different decisions regarding composition of capital. Also, Alti (2006) focused on how effect market-timing has on firm’s capital-mix choices. The study finds that market-timing effect does not occur after only two years. This is in sharp contrast to Baker and Wurgler (2002) whose research reveals that the continuous effect of market valuation can last for a decade.

3.2.6 Credit Rating – Capital Structure Hypothesis
Kisgen (2006) championed the Credit Rating – Capital Structure (CR-CS) theory as an alternative explanation to the capital structure choices of businesses. This theory states that credit-ratings are linked to managerial financing decisions because the ratings are links costs and benefits to each level a business finds itself. The theory further suggests that companies that are close to a fluctuation in credit-rating are more likely to undertake debt-reducing activities than those that are not. This is because a change in a firm’s credit rating sends information to investors in the market on the firm’s credit situation and may impact current bond covenants and the ability of the firm to issue more debts.

Based on empirical evidence, Kisgen (2009) showed that in addition to using credit ratings as a measure of capital structure, it should also be used to obtain relevant information on the costs and benefits that affects the cost of investment. Hence, the nexus of this theory is that companies on different rating levels will have differences in their capital structure. Also, Sajjad and Zakaria (2018) in their study of the importance of credit-ratings for optimal capital structure reveal companies with high and low-ratings have low leverage whilst companies with mid-ratings have a high level of leverage.
However, the issue of whether credit ratings really impact capital structure has been debated in academia. One flaw of this hypothesis is that it can only apply to credit rated companies. Companies that are not subject to credit rating are likely not to consider these ratings in determining their capital structure. The hypothesis also assumes that all credit rated firms will react equally to potential changes in ratings. However, in practice, different firms exhibit varying sensitivity when closer to an adjustment in credit rating.

The theories discussed above try to offer opinions on how companies make capital structure decisions. Modigliani and Miller (1958) irrelevance theory is premised on perfect conditions and so appears to have little real application. The perking-order theory posits that firms have a preferred order when determining how to raise funds to finance their projects. Internal funds are given first priority before external sources of funds. The trade-off theory states that businesses should consider balancing tax shield advantage and risk of financial distress in order to make the best decision that will benefit the business. Also, market timing theory does not believe there is an ideal capital structure. Rather, the debt-equity mix is the outcome of accumulated efforts by businesses to time the equity market and either issue or buy back its own shares when the shares are overvalued or undervalued. Lastly, the CR-CS theory also explains financing structure by stating that credit-ratings are linked to capital structure choices because different levels of ratings have corresponding costs and benefits. The differences in these capital structure theories reflect the attempt by each theory to explain the relevance of taxes, information-gap among others. However, none offers a complete explanation of the capital structure choice of a company and so the capital structure debate continuous to be a puzzle for further research.
3.3 Empirical Review

Prior empirical study have sort to evaluate fluctuations in policy rate effect on financial performance of companies across different industries. Other documented studies shed light on how monetary policy influence corporate behavior and in particular the financing decisions of firms. Below is a review of some empirical findings.

3.3.1 Monetary Policy and Financial Performance

Mulwa (2014) focus on how performance of major banks in Kenya respond to variations in monetary policy. Using data from financial statements of commercial banks, the research finds that monetary policy tools have no substantial effect on the financial performance. Bank size was also found to have a weak positive effect. In another study, Gambacorta and Iannoti (2005) focused on the velocity and unevenness of responses of interest rates to shocks in monetary policy. Applying Asymmetry Vector Correlation Model on data from 1985 – 2002, the study revealed that the rate at which interest rate adjust to shocks from policy variations surged after 1993. The study also finds interest rate adjustment in reaction to cyclical fluctuations in policy rate are uneven in the short rather than long-run.

In contrast to Mulwa (2014), Amidu and Wolfe (2008) find that banks’ lending behavior is affected by the nation’s economic support and fluctuation in money supply. In their study, Prasad and Ghosh (2005) collected data on companies in India over the period 1992 – 2003. The study suggests that a contractionary policy reduces debt including bank-finance.

3.3.2 Monetary policy and Financing Decisions of Firms.

Nguyen and Tran (2016) investigate how changing policy rate affects firms in Vietnam. They conducted a survey of 500 companies operating in Hanoi, Ho Chi Minh City and Da Nang. Using financial data from the consolidated annual audited reports from 2009 to 2015, the results of the
study showed that when there is policy rate changes, the response of firms differ depending on their location. Some firms reduce corporate investment (Yang, Han, Li, Yin, and Tian, 2017) in reaction to policy rate changes whilst others do not respond at all to changes in policy rate.

Chatelain and Tiomo (2003) in examining monetary policy and corporate investment in France, reveal that changing policy rate has the lowest effect among companies and the impact of monetary policy on investments through the credit-channel was larger in France, lower in Germany, Spain and Italy over the last ten years.

Researchers have also documented significant differences in how businesses of various sizes respond to policy shocks. Cooley and Quadrini (2006) revealed that small companies react more compared to large firms when the nation is going through policy rate shocks. This may be attributed to the fact small firms depends more on cash flows and their investment decisions are sensitive to these cash flows. Thus, a contraction or expansion of monetary policy has the chance to affect the cash flows and influence the direction of their investment more rapidly than larger firms.
CHAPTER FOUR
METHODOLOGY

4.1 Introduction
This part discusses the methodology used to achieve the purpose of the study. Specifically, it presents the research design, population and sample of the study, data collection method, model specification and explanation of the variables.

4.2 Research Design
The rationale for the research is to investigate the impact of monetary policy on capital structure decisions and financial performance. To achieve this purpose, the study uses a descriptive research design. Descriptive research design enables the researcher to examine specific behavior as it occurs in the environment. System-GMM estimation technique is the econometric technique used to estimate variables of the study. The study uses this technique because the existence of a lag-dependent variable in the models makes other estimation techniques give biased and inconsistent estimates (Baltagi, 2001). It is also a more efficient estimator than the other IV estimators are if there is heteroscedasticity in the data (Baum, Schaffer and Stillman, 2003).

4.3 Target Population and Sample Size
The population of the research consist of all listed corporations on the Ghana (GSE). The study selects this population due to availability of data. The total population is 42. Random sampling is used to pick a sample of 33 firms for the research.

4.4 Data Source and Description
The research uses data from 33 listed corporations on the GSE from 2008 to 2017 (10years). However, the data is unbalanced due to gaps in years for some of the firms. Also, the study employs panel data because multiple firms are studied over multiple time periods and this helps the researcher to obtain evidence on the experiences of many different firms in the data set as the
variables for each firm evolves over time. The data on all the variables under study are available on Annual Report Ghana, Bank of Ghana Website and World Bank Website. These sources are constantly updated with the financial statements of listed companies in Ghana (Annual Report Ghana), data on monetary policy variables (Bank of Ghana) and other macroeconomic indicators (World Bank Website). These sources of data are also used by most researchers and so it is legitimate for the purpose of this study.

4.5 Model Specification

To evaluate the impact of monetary policy on financial structure decisions, the research refers to the works of Abor (2008) and consequently estimate the following system GMM model:

\[
\begin{align*}
\text{capital\_structure}_{c,t} &= \beta_0 + \beta_1 \text{capital\_structure}_{c,t-1} + \beta_2 m\_policy_t + \beta_3 size_{c,t} + \beta_4 inf_t + \\
&\quad \beta_5 gdpt + \beta_6 age_{c,t} + \beta_7 Type\_f_{c,t} + \beta_8 t\_assets_{c,t} + \beta_9 roa_{c,t} + \pi_{c,t} \quad (1)
\end{align*}
\]

\[\pi_{c,t} = \alpha_c + \rho_{ct}\]

Where, Capital\_structure\_ct represents financial structure decisions of company \(c\) at year \(t\), measured by short and long-term debt ratios of firms (STDR and LTDR); Capital\_structure\_ct-1 represents capital structure of the same firm at the previous year; m\_policy\_ct represents monetary policy of the country at year \(t\), measured by policy rate, base rate and treasury bill rate ; size\_ct is the size of company \(c\) at year \(t\); inf\_t represents the inflation level of the country at year \(t\); gdpt\_t represents the per capita GDP of the country at year \(t\); age\_ct is the age of the firm \(c\) at year \(t\); type\_f\_ct is the type of the firm \(c\) at year \(t\) which take the value 1 if the institution is a bank and 0 otherwise; t\_assets\_ct is the tangible assets of firm \(c\) at year \(t\); roa\_ct is the earnings on assets of company \(c\) assets at year \(t\). \(\pi_{c,t}\) is a composite term consisting of company-specific effect (\(\alpha_c\)) and time effect (\(\rho_{ct}\)), \(c\) denotes firm, and \(t\) denotes year.
To investigate the effect of monetary policy on performance of the firms, the study adapts the model used in Meshack and Nyamute (2016) and estimates the following system GMM model:

\[
\text{performance}_{c,t} = \beta_0 + \beta_1 \text{performance}_{c,t-1} + \beta_2 \text{m}_{policy,t} + \beta_3 \text{size}_{c,t} + \beta_4 \text{inf}_{t} + \beta_5 \text{gdp}_{t} + \beta_6 \text{age}_{c,t} + \beta_7 \text{type}_{f,c,t} + \beta_8 \text{t}\text{-assets}_{c,t} + \beta_9 \text{INT} + \Omega_{c,t}
\]

(2)

\[
\Omega_{c,t} = \alpha_{c} + \rho_{ct}
\]

Where, \text{performance}_{c,t} represents the performance of firm ‘c’ at year t, represented by ROA and net-profit level of the corporation; \text{performance}_{c,t-1} represents performance of the same firm at the previous year. All other variables are defined as above. \Omega_{c,t} is a composite term consisting of company-specific effect (\alpha_{c}) and time effect (\rho_{ct}), c denotes firm, and t denotes year.

4.2.1 Dependent variables

The response variables in the first model (1), which is capital structure, is represented by two variables at a time: short-term debt ratio and long-term debt ratio respectively. Short-term debt is the portion of a firm’s total debt that will be due in a year or less. Long-term debt is also the part of a company’s total debt that will be repayable after a year or more. In the second model (2), the response variables, which is firm’s performance is also indicated by two variables at a time: return on assets (ROA) and net profit level respectively. Using different measures of capital structure and performance will enable the researcher to gather evidence on whether the effect of monetary policy fluctuation changes when the measurement variables changes.

4.2.2 Control variables

The research controls for firm-specific variables and other macroeconomic influences that may affect the capital structure and performance of the companies. In line with Abor (2008), the study uses firm size, Age, asset tangibility, interest expense and profitability as firm-specific control variables.
With regards to control for other macroeconomic factors, the study uses annual GDP growth, annual inflation rate. The study controls for GDP growth because it measures economic health and it is expected that a change in GDP growth impacts access to debt finance. Inflation impacts the cost of capital since higher inflation negatively affects the amount of basket of goods money can buy and cost of credit increase. The variables, their measurement and source of data are shown in table 4.1.

**Table 4.1: Variables, measurement and source of data**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
<th>Source of data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Asset (ROA)</td>
<td>Profit before interest and tax (PBIT) divided by total assets</td>
<td>Audited Financial Statements</td>
</tr>
<tr>
<td>Short-Term Debt Ratio (STDR)</td>
<td>Current liabilities divided by (Total debt + Shareholders fund)</td>
<td>Audited Financial Statements</td>
</tr>
<tr>
<td>Long-term Debt Ratio (LTDR)</td>
<td>Non-current liabilities divided by (Total debt + Shareholders fund)</td>
<td>Audited Financial Statements</td>
</tr>
<tr>
<td>Profitability (P)</td>
<td>Ratio of earnings before interest and tax to total assets</td>
<td>Audited Financial Statements</td>
</tr>
<tr>
<td>Monetary Policy Rate (MPR)</td>
<td>Annual monetary policy rate</td>
<td>Bank of Ghana website</td>
</tr>
<tr>
<td>Base Rate (BR)</td>
<td>Annual base rate</td>
<td>Bank of Ghana website</td>
</tr>
<tr>
<td>Tbill Rate (TR)</td>
<td>One-year Tbill rate</td>
<td>Bank of Ghana website</td>
</tr>
<tr>
<td>Size (S)</td>
<td>Log of total asset</td>
<td>Audited Financial Statements</td>
</tr>
<tr>
<td>Inflation (INF)</td>
<td>Log of annual consumer price index</td>
<td>Bank of Ghana website</td>
</tr>
<tr>
<td>Gross Domestic Product (GDP)</td>
<td>Annual GDP growth</td>
<td>World Bank Website</td>
</tr>
<tr>
<td>Age (S)</td>
<td>Number of years in business</td>
<td>Company website</td>
</tr>
<tr>
<td>Type of firm</td>
<td>Dummy variable: 1 if firm is a bank; 0 otherwise</td>
<td>Audited Financial Statements</td>
</tr>
<tr>
<td>Asset Tangibility (T.Asset)</td>
<td>Ratio of Fixed assets to total assets</td>
<td>Audited Financial Statements</td>
</tr>
<tr>
<td>Interest Expense rate (INT)</td>
<td>Interest expense divided by total earnings</td>
<td>Audited Financial Statements</td>
</tr>
</tbody>
</table>
4.6 Estimation Strategy
The estimation strategy used is the system-GMM technique. This is an econometric model that merges economic data with information in the sample moment condition to generate estimates of the parameters in the model. It is a dynamic panel data estimation technique that is used when the models have endogenous regressors and individual specific heterogeneity. The first difference of the system GMM is used to eliminate the individual specific heterogeneity.

This research uses this strategy because the use of lagged response variable as a regressor makes other instrument variable estimators such as least squares generate inaccurate estimates of the regressors (Arellano-Bover, 1995). It is also the best technique to use when there is the need to resolve endogeneity in the panel data (Blundell-Bond, 1998).

With regards to model I, the endogenous variables are the policy rate, base rate and the lag capital structure dependent variables. The policy rate is endogenous because other factors such as the general economic condition can affect it before it influences the response variable. Similarly, the base rate may be affected by other variables such as inflation. The lag of the response variables is endogenous because prior capital structure or performance may be influenced by other factors.

4.7 Diagnostic Test
The research tests for the presence of serial correlation and Multicollinearity in the model. Serial correction is tested to improve the accuracy of the estimates of the variables in model since it biases the standard error and makes the results to be less accurate (Drukker, 2003). Also, Born and Breitung (2016) note that it is crucial to test for serial correlation in the disturbances because ignoring it will lead to inefficient estimates. Heteroskedasticity is a common issue in the panel data and this study controls for its presence by running a robust command of the estimates.
To test for serial correlation, the research uses the Durbin Watson (1951) test for multiple regression. The study corrects autocorrelation and heteroskedasticity by running a robust command.
CHAPTER FIVE
DATA ANALYSIS AND DISCUSSION OF RESULTS

5.1 Introduction
This section provides analysis of the data and examines the results of the analysis. The regression analysis is done using STATA. The chapter starts with a descriptive analysis, followed by diagnostic tests and finally the results of the analysis are discussed.

5.2 Descriptive analysis
Table 5.1 below gives the mean, standard deviation, minimum and maximum values of the variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Assets</td>
<td>0.018</td>
<td>0.199</td>
<td>-2.229</td>
<td>0.658</td>
</tr>
<tr>
<td>STDR</td>
<td>0.675</td>
<td>1.216</td>
<td>0.011</td>
<td>21.126</td>
</tr>
<tr>
<td>LTDR</td>
<td>0.110</td>
<td>0.235</td>
<td>0</td>
<td>2.756</td>
</tr>
<tr>
<td>Profitability</td>
<td>0.124</td>
<td>0.197</td>
<td>0.001</td>
<td>2.530</td>
</tr>
<tr>
<td>M. Policy Rate</td>
<td>0.185</td>
<td>0.045</td>
<td>0.125</td>
<td>0.26</td>
</tr>
<tr>
<td>Base Rate</td>
<td>0.254</td>
<td>0.031</td>
<td>0.197</td>
<td>0.295</td>
</tr>
<tr>
<td>T-bill rate</td>
<td>0.188</td>
<td>0.043</td>
<td>0.113</td>
<td>0.245</td>
</tr>
<tr>
<td>Firm Size</td>
<td>6.547</td>
<td>1.395</td>
<td>3.467</td>
<td>9.446</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.135</td>
<td>0.037</td>
<td>0.086</td>
<td>0.181</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>1707.02</td>
<td>391.027</td>
<td>1086.77</td>
<td>2401.75</td>
</tr>
<tr>
<td>Firm Age</td>
<td>40.814</td>
<td>23.892</td>
<td>2</td>
<td>122</td>
</tr>
<tr>
<td>Type of Firm</td>
<td>0.241</td>
<td>0.429</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Asset Tangibility</td>
<td>0.443</td>
<td>0.339</td>
<td>0.001</td>
<td>3.323</td>
</tr>
<tr>
<td>Interest expense ratio</td>
<td>1.193</td>
<td>5.573</td>
<td>0</td>
<td>94.510</td>
</tr>
</tbody>
</table>

Source: Author’s computation using STATA

From table 5.1, the mean is the average value for each of the variables and the standard deviation speaks to the spread of the variables from the mean. The Min/Max values indicate the extent to which each variable can decrease or increase.
On Return on assets, it was observed that on average the firms used in the study have a return on asset of about 1.795%. This means that for each cedi used to buy assets the firms generate an average return of 0.01795. The maximum and minimum values of ROA are 0.658% and -2.23% respectively.

The average of STDR for the period is about 0.675, with 0.011 minimum and 21.13 maximum. This means that on average, short-term debts constitute 67.5% of the capital employed by the firms. This implies that the firms are exposed to interest rate risk since a surge in short-term interest rate will make this source expensive.

The mean value of LTDR is about 0.110, with 0 minimum and about 2.756 maximum. This means that long-term debt constitutes on average 11% of capital used by the firms. The firms used in the study also have an average age of approximately 41 years. Table 5.1 shows details for the rest of the variables.

Table 5.2 below gives the correlation between the variables used in this study. From Table 5.2, the correlation between the explanatory variables are generally low with the exception of monetary policy rate and Inflation, which recorded about 0.71. The general low correlations mean that there is less collinearity among the variables. However, the highest of about 0.71 recorded necessitates further examination. Hence, the study uses the Variance Inflation Factor (VIF) test for multicollinearity for further investigations.
<table>
<thead>
<tr>
<th></th>
<th>ROA</th>
<th>STD</th>
<th>LTDR</th>
<th>Profit</th>
<th>MPR</th>
<th>Rate</th>
<th>T-bill rate</th>
<th>Size</th>
<th>INF</th>
<th>GDP</th>
<th>AgeA</th>
<th>Bank</th>
<th>Assets</th>
<th>T</th>
<th>INT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STD</td>
<td>-0.7256</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LTDR</td>
<td>-0.1027</td>
<td>-0.1137</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit</td>
<td>-0.4243</td>
<td>0.6597</td>
<td>-0.0117</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MPR</td>
<td>-0.0574</td>
<td>0.0356</td>
<td>0.0381</td>
<td>-0.0325</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Base Rate</td>
<td>-0.0566</td>
<td>0.0111</td>
<td>0.0943</td>
<td>-0.0099</td>
<td>0.4519</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T-bill rate</td>
<td>-0.0641</td>
<td>0.0555</td>
<td>0.0556</td>
<td>0.0317</td>
<td>0.6764</td>
<td>0.1321</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size</td>
<td>-0.0361</td>
<td>0.0517</td>
<td>-0.2423</td>
<td>-0.2123</td>
<td>0.1052</td>
<td>0.0137</td>
<td>0.0471</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INF</td>
<td>-0.0954</td>
<td>0.0509</td>
<td>0.0962</td>
<td>0.0202</td>
<td>0.7053</td>
<td>0.5377</td>
<td>0.6645</td>
<td>0.0389</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GDP</td>
<td>-0.089</td>
<td>0.0933</td>
<td>-0.0782</td>
<td>0.0462</td>
<td>0.3326</td>
<td>-0.3355</td>
<td>0.0841</td>
<td>0.0822</td>
<td>0.0383</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AgeA</td>
<td>0.0762</td>
<td>0.029</td>
<td>-0.059</td>
<td>0.0265</td>
<td>0.0639</td>
<td>0.0082</td>
<td>0.0193</td>
<td>0.0464</td>
<td>0.0165</td>
<td>0.0602</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bank</td>
<td>0.0415</td>
<td>0.0806</td>
<td>-0.2299</td>
<td>-0.2073</td>
<td>-0.0021</td>
<td>-0.006</td>
<td>-0.0092</td>
<td>0.1456</td>
<td>-0.0128</td>
<td>0.0097</td>
<td>-0.062</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T. Assets</td>
<td>-0.0125</td>
<td>-0.1247</td>
<td>0.3546</td>
<td>0.0985</td>
<td>-0.0309</td>
<td>-0.0636</td>
<td>-0.0177</td>
<td>-0.3996</td>
<td>-0.0421</td>
<td>0.0447</td>
<td>-0.0259</td>
<td>-0.4827</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INT</td>
<td>-0.0792</td>
<td>-0.0024</td>
<td>0.0648</td>
<td>-0.0892</td>
<td>0.1085</td>
<td>0.0282</td>
<td>0.0629</td>
<td>-0.0427</td>
<td>0.0637</td>
<td>0.0253</td>
<td>-0.0344</td>
<td>0.0044</td>
<td>0.0834</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s computation using STATA
5.3 Diagnostic Tests

5.3.1 Multicollinearity

An important concern of multicollinearity is that, as its degree increases, the estimated coefficients become unstable and their standard errors can get widely inflated. Also, a severe multicollinearity can cause the coefficients to change signs. To further check for its presence, we employ the Variance Inflation Factor (VIF) test for multicollinearity. Findings of which is shown in table 5.3 below.

<table>
<thead>
<tr>
<th>Variable</th>
<th>VIF</th>
<th>1/VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPR</td>
<td>2.5</td>
<td>0.399933</td>
</tr>
<tr>
<td>INF</td>
<td>2.21</td>
<td>0.452226</td>
</tr>
<tr>
<td>AssetTangi~S</td>
<td>1.56</td>
<td>0.642273</td>
</tr>
<tr>
<td>TypeT</td>
<td>1.33</td>
<td>0.752537</td>
</tr>
<tr>
<td>GDPpercapi~P</td>
<td>1.26</td>
<td>0.795698</td>
</tr>
<tr>
<td>SizeS</td>
<td>1.22</td>
<td>0.819448</td>
</tr>
<tr>
<td>ROA</td>
<td>1.04</td>
<td>0.964468</td>
</tr>
<tr>
<td>INT</td>
<td>1.03</td>
<td>0.969771</td>
</tr>
<tr>
<td>AgeA</td>
<td>1.02</td>
<td>0.976624</td>
</tr>
<tr>
<td>Mean VIF</td>
<td>1.46</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author’s computation using STATA

From table 5.3, the VIF test revealed a general minimal correlation among the explanatory variables. The norm is that VIF should not exceed 10 (Gujarati and Porter, 2009). The VIF of all the variables are less than 10. This means that each of the variables is a linear combination of the dependent variables.

5.3.2 Serial Correlation

Among the salient assumptions that yields consistent parameter estimates is the premise of no correlation between the random noise and the regressors. The study therefore employed the Wooldridge test to verify this assumption. Results of which is shown in table 5.4. From the table,
a Probability value of 0.4246 fails to reject the null hypothesis and confirms the absence of autocorrelation in the panel model.

5.4 Empirical Findings and Discussion

The results displayed in table 5.4 are obtained from estimating equation (1) using the system-GMM techniques. As a robustness check, short and long-term debt ratios are used to measure the company’s Capital structure in table 5.4. To correct for heteroskedasticity, we robust the standard errors of the coefficients.

5.4.1 Effect of Monetary Policy on Capital Structure

Two of the coefficients of the monetary policy proxies (policy rate and base rate) are significant in columns (4) and (2) respectively. The coefficient of policy rate in column (4) is positive and significant, hence, the researcher does not reject the hypothesis that monetary policy contraction by way of increase in policy rate leads to an increase in a corporation’s capital structure in the form of increase in the long-term debt stock. The study reveals that an extra unit increase in policy rate leads to an increase in LTDR by 0.191 unit whiles a unit increase in base rate tend to decrease STDR by 0.829 unit. This means that when firms expect policy rate to increase, they substitute long-term debt for short-term debt. The policy rate determines the rate of interest (cost of debt) on loans and so if the rate is expected to increase in future it makes sense for companies to borrow long-term to avoid paying higher interest rate in future when the policy rate increases. This also confirms Bokpin (2009) who revealed that when firms expect interest rate to increase they favour long-term debt. On the other hand, base rate has a negative and significant coefficient in column (2) showing that, firms reduce their current liabilities when the base rate increases. This is because when the base rate increases the cost of STDR, such as bank overdraft, increases and firms may reduce the amount of short-term borrowing.
### Table 5.4: Estimates of equation (1) using System GMM, 2008-2017

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Short-Term Debt Ratio (STDR)</th>
<th>Long-Term Debt Ratio (LTDR)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Lag of STDR</td>
<td>-0.0950*** (0.0181)</td>
<td>-0.0992*** (0.0202)</td>
</tr>
<tr>
<td>Lag of LTDR</td>
<td>0.0869 (0.0681)</td>
<td>0.0991 (0.0721)</td>
</tr>
<tr>
<td>M. Policy Rate</td>
<td>-0.0050 (0.566)</td>
<td>0.191** (0.0910)</td>
</tr>
<tr>
<td>Base Rate</td>
<td>-0.829* (0.471)</td>
<td>1.017 (1.120)</td>
</tr>
<tr>
<td>T-bill rate</td>
<td>-0.164 (0.208)</td>
<td>-0.117 (0.199)</td>
</tr>
<tr>
<td>Firm Size</td>
<td>-0.0913*** (0.0403)</td>
<td>-0.0709** (0.0313)</td>
</tr>
<tr>
<td>Inflation</td>
<td>-1.435 (3.092)</td>
<td>-2.245* (1.559)</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.396 (0.268)</td>
<td>-0.631** (0.263)</td>
</tr>
<tr>
<td>Age of firm</td>
<td>0.0339* (0.0173)</td>
<td>0.0369** (0.0185)</td>
</tr>
<tr>
<td>Type of firm</td>
<td>1.602 (1.272)</td>
<td>1.479 (1.227)</td>
</tr>
<tr>
<td>Asset Tangibility</td>
<td>0.351 (0.905)</td>
<td>0.320 (0.910)</td>
</tr>
<tr>
<td>ROA</td>
<td>-7.611*** (1.193)</td>
<td>-7.652*** (1.167)</td>
</tr>
<tr>
<td>Observations</td>
<td>290</td>
<td>290</td>
</tr>
<tr>
<td>Number of Company</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Sargan's test</td>
<td>108.8</td>
<td>105.7</td>
</tr>
<tr>
<td>2nd Order autocorr.</td>
<td>-1.4241</td>
<td>-1.3468</td>
</tr>
<tr>
<td>No. of instruments</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>F-statistics</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Serial Correlations</td>
<td>[0.424]</td>
<td>[0.424]</td>
</tr>
</tbody>
</table>

In parentheses are the robust standard errors, *** p<0.01, ** p<0.05, * p<0.1. In the Sargan’s test the research indicated the chi2 values. It also presented the z-values for the autocorrelation test. Numbers in square bracket are p-values.

In conclusion, the results corroborate the hypothesis of a negative and significant effect of base rate on STDR and a positive and significant effect of policy rate on LTDR. That is, contractionary monetary policy at the aggregate level decreases financial institutions’ capital structure in the short-term but increases it in the long-term in Ghana.
For the control variables, the results of firm size indicate that a rise in the size of a firm leads to a fall in its long-term debt stock, with no significant influence on short-term debt. This is intuitive because over time the firms are able to attract more equity finance as equity investors will find these firms appealing due to their long successful years in business and the prospects of these firms continuing operations into future.

The coefficients of inflation suggest that, in the short-term, higher inflation decreases debt stock. However, in the long-term, high inflation tend to increase firms’ debt stock. The macroeconomic stability indicator, GDP per capita, is also negative and significant with STDR only in column (2), suggesting that increase in GDP brings down firms’ debt stock in the short run but do not sustain it.

Also, how old the company is in operation affects STDR positively and negatively with LTDR. The coefficients suggest that increase in the age of the institution tend to increase its debt stock in the short run, but eventually reduces it, all else equal. This means that older firms are able to build strong recovery team in the long run to minimize their debt.

The parameter for Type_f is negative and significant under LTDR, suggesting that when the type of firm is a bank, its capital structure has less long-term debt compared to if it is a non-bank firm. This is logical because the capital of banks in Ghana is made up of only equity as contained in section 28 to 32 of Act 2016 (Act 930).

Finally, an increase in the return on the institutions’ assets results in a decrease in the short-term debt of company. This is corroborated by the Perking-Order theory which argues that firms will first exhaust inside sources of finance before considering outside sources of finance. In this case, an increase in ROA means that the firms are making more profit and so have more internal funds
that can be used in place of short-term debts. However, the coefficient of tangible assets was not statistically significant across regressions.

5.4.2 Impact of Monetary Policy on Financial Institutions’ Performance

In table 5.5, only the coefficient of base rate is statistically significant in column (2), therefore we do not reject the hypothesis that tightening monetary policy by way of increasing the base rate tends to decrease the performance (ROA) of firms. In particular, the results in column (2) reveals that, an extra unit increase in the base rate leads to a decrease in Return on Assets (ROA), all else being equal. This outcome follows logic because tightening monetary policy causes an increase in interest on loans and consequently finance cost in the income statement of the firms. Higher finance cost decreases the earnings and therefore return on assets.

In conclusion, the results support the hypothesis of a negative and significant effect of base rate on performance (ROA). That is, contractionary monetary policy decreases firm’s performance in Ghana at the aggregate level.

On the control variables, firm size is positive and significantly related with ROA and negative with Net-profit. This suggests that as the size of the firms increase they benefit from economies of scale, which trickles down to improve their bottom line. The inverse link between company size and net-profits level suggest that a lot of investments and expenses are made to achieve increase in firm size and so net profit level will decrease in the short-term as the benefits of increase in firm size will be realized in the long-term. It also means that net profit levels will decrease if the increase in firm size is not backed by proper management.
### Table 5.5: Estimates of equation (2) using System GMM, 2008-2017

**Dependent Variables:** Firm Performance (Profit level and ROA)

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Return on Assets (ROA)</th>
<th>Net Profit Level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Lag of ROA</td>
<td>0.368***</td>
<td>0.358***</td>
</tr>
<tr>
<td></td>
<td>(0.0714)</td>
<td>(0.0631)</td>
</tr>
<tr>
<td>Lag of Net Profit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level</td>
<td>-0.187</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.215)</td>
<td></td>
</tr>
<tr>
<td>M. Policy Rate</td>
<td>-0.187</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.215)</td>
<td></td>
</tr>
<tr>
<td>Base Rate</td>
<td>-0.394**</td>
<td>0.261</td>
</tr>
<tr>
<td></td>
<td>(0.173)</td>
<td>(0.337)</td>
</tr>
<tr>
<td>T-bill rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm Size</td>
<td>0.199</td>
<td>0.189</td>
</tr>
<tr>
<td></td>
<td>(0.134)</td>
<td>(0.116)</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.171</td>
<td>0.0156</td>
</tr>
<tr>
<td></td>
<td>(0.940)</td>
<td>(0.288)</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>-0.307</td>
<td>-0.395*</td>
</tr>
<tr>
<td></td>
<td>(0.191)</td>
<td>(0.226)</td>
</tr>
<tr>
<td>Age of firm</td>
<td>0.0181</td>
<td>0.0153</td>
</tr>
<tr>
<td></td>
<td>(0.0178)</td>
<td>(0.0142)</td>
</tr>
<tr>
<td>Type of firm</td>
<td>0.256</td>
<td>0.338</td>
</tr>
<tr>
<td></td>
<td>(0.642)</td>
<td>(0.606)</td>
</tr>
<tr>
<td>Tangible Asset</td>
<td>0.381*</td>
<td>0.363*</td>
</tr>
<tr>
<td></td>
<td>(0.225)</td>
<td>(0.212)</td>
</tr>
<tr>
<td>Firm interest rate</td>
<td>-0.000882</td>
<td>-0.00130*</td>
</tr>
<tr>
<td></td>
<td>(0.000754)</td>
<td>(0.000757)</td>
</tr>
<tr>
<td>Observations</td>
<td>290</td>
<td>290</td>
</tr>
<tr>
<td>No. of firms</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Sargan's test</td>
<td>181.08</td>
<td>174.35</td>
</tr>
<tr>
<td>2nd Order autocorr.</td>
<td>1.0498</td>
<td>.97661</td>
</tr>
<tr>
<td>No. of instruments</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>F-statistics</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Serial Correlations</td>
<td>0.425</td>
<td>0.4245</td>
</tr>
</tbody>
</table>

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1. In the Sargan’s test the researcher gave the chi2 values. The researcher gave the z-values for the autocorrelation test.
For the macroeconomic indicators, the coefficient of inflation suggests that higher inflation tends to reduce (ROA) but increase net profit. As well, the results suggest for GDP per capita that higher level GDP tends to decrease return on assets (ROA).

Also, the coefficient of asset-tangibility is positive and statistically significant in columns (1), (2) and (3), revealing that increase in the institutions’ tangible assets tend to increase their return on assets which is logical. Finally, the results of firm interest rate suggest in column (2) that, increase in financial institutions’ interest rate tend to decrease their return on assets.

However, age of the firm and type of institution were not significant across all regression, leaving the researcher with no sufficient evidence to make any conclusion on them.
CHAPTER SIX
SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Introduction
The summary of the research and its findings on the impact of monetary policy changes on capital structure decisions and firm’s financial performance in Ghana are discussed here. It also makes appropriate recommendations for policy implementation, for practice and identifies areas for future research. Limitations of the study are also discussed here. Key limitations of the research are also presented.

6.2 Summary and conclusion
The effect of policy rate changes on financial structure decision of corporations have received much attention and research in this area have highlighted the need to further understand the differential influence of monetary policy changes on capital structure decisions. In particular, some researchers such as Bernanke and Gertler (1995) posits that firms that depend on debt-financing are affected by contractionary monetary policy than firms that rely on the stock exchange. Listed firms will be able to adjust their debt position by issuing equity whilst private firms cannot do so if they face higher information cost (Ghosh and Sensarma, 2004). However, a counter opinion by Rajan (2002) suggests that it is possible for corporations to circumvent the continuous impact of monetary policy changes if they use their long-term relationship with banks to secure deals that will maintain the supply of funds regardless of changes in monetary policy variables. (Bernanke and Gertler, 1995). Will listed firms in a developing economy like Ghana adjust their debt position by issuing equity or will they take advantage of long-term relationship with banks and maintain supply of funds as a way to negate the cyclical variation in monetary policy?
Regarding the link between monetary policy changes and performance of firms, monetary shocks impact consumption, aggregate demand and economic activity and this affects business performance.

In Ghana, raising debt or equity is a major challenge facing firms because the Ghana Stock Exchange (GSE) is not well developed and most firms rely on bank financing. The creation of the (GSE) was to help transition the country to a market economy where firms can easily raise capital to finance their operations. However, a study by Kyereboah-Coleman (2007) revealed that even though trading volume and share index have increased on the GSE, Ghanaian firms use about 90 percent of non-current liabilities in the financing structure. Abor and Biekpe (2005) also found that total debts constitute over 50% of the source of funds of listed corporations. This shows that debt financing has become much more important than capital market financing in the country.

Monetary policy shocks also impact on firm performance since it makes it easy or expensive for companies to borrow, expand operations and increase output. When the policy rate rises, interest rates on credit facilities become more expensive and businesses that depend more on bank financing are likely to incur high cost of borrowing funds. Also, a drop in the policy rates promotes borrowing and spending (Saunders and Cornett, 2008) and as firms borrow at cheaper rates, they are able to increase output and improve performance. In Ghana, the monetary policy dropped to 16% as at March 2019 and it is expected that this will result in price stability, increase consumption and output in the nation. The lower rate should translate to lower interest rate on credit so that businesses can borrow and spend more to improve their performance. Given that interest charged on credit in Ghana respond slothfully to fluctuations in monetary policy (Kovanen, 2011), this work also probes if performance of corporations in Ghana is influenced by variations in policy rate.
The research was carried out to ascertain the impact of policy rate on firm’s decisions on debt/equity mix used in business and to also ascertain the impact of policy rate changes on the financial performance of corporations. To achieve these objectives, the study used a quantitative approach and a panel data methodology since the data collected was panel in nature. A system GMM model was employed as the estimation technique to control for serial correlation and heteroscedasticity whilst at the same time ensuring that a robust estimation result is achieved. This technique was also used to take account of the impact of the lagged variables in the model and thus control for endogenity.

The study used short and long-term debt ratios (STDR and LTDR) as dependent variables in the first equation to measure capital structure decision, and net profit level and (ROA) in the second equation to measure performance. The study also used the monetary policy rate, annual base rate and one-year Tbill rate as main regressors to evaluate the influence of variations in policy rate on the capital structure and performance of companies in Ghana. Adapting the model in Abor (2009), the study controlled for other firm specific factors that may influence the dependent variables in both models. Based on the models (1) and (2) specified in the methodology, the study used a system-GMM model to estimate the variables based on data for 33 listed companies over the period 2008-2017. A robust estimation of the variables was done to nullify the effect of serial correlation and heteroscedasticity. The outcome revealed that monetary policy changes has a significant and positive relationship with long-term debt. This means that businesses tend to borrow long-term when they expect a contractionary monetary policy. Secondly, the study also found that base rate was significantly related to firm performance measured in terms of ROA, indicating that when base rate increases financial performance decreases. This is logical because increase in base rate increases finance cost which decrease earnings.
Therefore, this work concludes that changes in monetary policy variables is critical to firms’ capital structure decisions and that non-current liabilities is preferred to current liabilities when the policy rate is increasing. With regard to policy rate impact on financial performance, the research concludes that base rate, as a monetary policy measure, has a significant and negative relationship with firm financial performance and so to improve performance the base rate needs to decrease.

6.3 Recommendations

Decisions about the financing structure of a firm is crucial to its survival and profitable operation. This research has provided a different perspective on how macroeconomic factors such as monetary policy influences the decisions of managers on whether to borrow long-term or short-term. The study showed that base rate and monetary policy rate are significant determinants of financial structure decisions and performance of firms in Ghana. The following recommendations are made:

The results of the research reveal that policy makers can influence capital structure decisions and financial performance of companies listed on the GSE by using monetary policy rate as a means to encourage firms to engage in long-term investment in the economy. This can be done if policy makers stabilize the policy rate and the base rate so that firms can make appropriate long-term decisions that will go a long way to improve capital investment.

To practitioners, the findings of this work highlights the need to inculcate into their capital structure decisions the changes in monetary policy. Since the outcome of the research showed that as monetary policy increases long-term debt also increases. This suggests that practitioners will be able to make sound decisions when they forecast that monetary policy is going to increase in the foreseeable future. Similarly, base rate negatively impact financial performance and the
relationship between the two is significant as shown in the analysis. It is recommended that to negate the impact of base rate and achieve expected performance, managers and practitioners should seek to use their long-term relationship with providers of funds to secure a stable interest rate.

Finally for academia, given that the study revealed a significant and positive link between changes in monetary policy and long-term debt of listed companies in Ghana, it is recommended that more study should be undertaken to investigate whether non-listed firms will give similar results or not.
REFERENCES


