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THE EFFECT OF FUNDING SOURCES ON LENDING PATTERNS OF BANKS IN GHANA

ANGELA AZUMAH ALU

10228352

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DECLARATION

I, Angela Azumah Alu, do hereby declare that this thesis is a result of my own work and has not been presented to any other academic institution. All references in the work have been duly acknowledged. I also declare my full responsibility for any shortcomings in the document.

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ANGELA AZUMAH ALU DATE

10228352

CERTIFICATION

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

…….. ……

DR. K. A. OSEI DATE

(SUPERVISOR)

…… ……

DR. M. AMIDU DATE

(SUPERVISOR)

DEDICATION

I dedicate this work to the Almighty God and all my family members, especially my parents. I say God bless you all.

ACKNOWLEDGEMENT

Thank youto God Almighty for the gift of life, family and everything else. My heart is filled with gratitude for your grace and mercy which have brought thus far. Ebenezer; this is how far you have brought me, LORD. Thank you for the morning of the finished thesis.

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ABSTRACT

This study set out to investigate the effect of funding sources on the lending patterns of banks in Ghana. Using a large and representative sample of 22 banks operating in Ghana from 2005 to 2011, the study investigates the funding sources, the lending patterns of banks in Ghana as well as the effect of funding sources on lending patterns.The study made use of a panel data methodology using a panel corrected errors estimation technique.

The findings of the study indicate that deposits comprise the majority of funding sources while non deposit funding sources and internal funding follow in that order. On lending patterns of banks in Ghana, the study finds that most of the loans are allocated to the tertiary sector followed by the secondary sector with the primary sector lagging behind. Additionally, the regression results show a positive and significant relationship between lending to the primary economic sector, the tertiary economic sector, total lending and deposits. Furthermore, the findings suggest that in Ghana, bank loans to the primary and secondary sector are financed by internal funds. The study gives rise to very important policy recommendations. The study recommends that policy makers should put in placepolicies that would make it more attractive for banks to channel more of their lending to the primary economic sector especially as their deposits increase.

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CHAPTER ONE

INTRODUCTION

1.1 Background

Banks and other financial intermediaries perform an important developmental function, especially in Africa, where capital markets are not very developed. Banks help institutions to take advantage of productive investment opportunities which may not otherwise materialize (Demetriades & Fielding, 2012). In developed countries there generally exists a highly organized and broad system of financial intermediation to facilitate the flow of loanable funds between borrowers and lenders, while in developing countries the financial system is much less evolved (Claus & Grimes, 2003). This makes the study of banks and banking systems in developing regions very necessary so as to understand clearly the intermediation role they play as tools for development.

Banks form one major type of financial intermediary that perform the task of providing loanable funds for deficit spending units in an economy. Kashyap et al. (2002) define banks as institutions that engage in two distinct types of activities, one on each side of the balance sheet: deposit-taking and lending. Essentially, banks produce a net social benefit by exploiting scale economies in processing the information involved in monitoring and enforcing contracts with borrowers which must be done at the lowest possible cost (Amidu & Wolfe, 2012).

Traditionally, banks are funded by customer deposits, which include savings, demand and time deposits. Deposits from customers are generally considered as a relatively cheap funding mode (Ianotta et al. 2007; Dinger and von Hagen 2005; and Gilkeson et al. 1999). Other sources of

funds banks make use of are wholesale funds, which include short term borrowings from the Central Bank, commercial papers, interbank borrowings and repurchase agreements (Huang & Ratnovski, 2009). Additionally, other authors present internal capital as another source of bank funds (Houston et al. 1997, Amidu & Wolfe, 2012).

According to Kashyap et al. (2002), lending involves acquiring costly information about opaque borrowers, and extending credit based on this information. All sectors of the economy are affected by bank lending as banks serve as a major source of funding for firms, the state owned enterprises and individuals, especially in developing countries (Ladime et. al, 2011). Bank lending could be examined from different angles: length of lending, purpose of lending or sector of the economy to which the lending is done. Many factors influence these patterns as some banks lend to various sectors and virtually ignore other sectors. Some of these patterns include: Commercial real estate loans (Liu, 2012), residential real estate loans (Liu, 2012), lending to consumers (Cull & Martinez Peria, 2012), corporate loans (Cull & Martinez Peria, 2012) construction firms/real estate loans, other business loans, that is, commercial and industrial loans. Cottarelli et al. (2003) also identify other bank lending patterns: lending to the private sector, individuals and to the state. Additionally, Joeng (2009) identifies household lending and corporate lending while Chernykh and Theodossiou, (2011) make reference to long term lending (3-10 years) and short term lending. Additionally, banks lend to the various sectors of the economy: agriculture (primary), manufacturing (secondary) and services (tertiary) (Dee et al, 2003). This study focuses on lending to thee primary, secondary and tertiary sectors of the economy because in Ghana, where the study is set, all banks report their lending to the various sectors of the economy.

Bank lending provides a means for firms to expand their operations, venture into new areas of business and generally produce more. As such, whichever sector of the economy is receiving more by way of loans is bound to grow faster thereby directly influencing development in the country. It has been established in the literature that lending patterns of banks are influenced by deposits and other funding sources the banks make use of (Olokoyo, 2011). Studying the relationship between funding sources and lending patterns will inform banks as to which funding source feeds which sector of the economy. Then depending on the performance of the various sectors which will determine which sector a bank would want to give priority to when lending, a bank can then pay attention to developing the particular funding source that primarily feeds that sector, this way banks can thrive well in a competitive environment.

This paper extends the credit availability literature by examining the effect of funding sources on lending patterns of banks in Ghana because it has been proven that funding sources affect how banks lend. Berlin and Mester (1999) examine the relationship between deposits and relationship lending in the United States of America and conclude that access to deposits with inelastic rates (core deposits) permit a bank to make contractual agreements with borrowers that would be infeasible if the bank must pay market interest rates for funds. They provide empirical evidence for an explicit link between banks liability structure and their distinctive lending behavior. Additionally, Olokoyo (2011) also shows that deposits constitute the most significant determinant of lending behavior of banks. Since bank lending directly influences development, (Levine 2004), anything as crucial as funding sources that affects bank lending patterns must be examined and empirically investigated.

1.2 Problem Statement

Banks may specialise in making certain types of loans due to competencies and skills developed over time in select sectors of the economy. Additionally, it has been established that that different banks lend proportionately high amounts to select sectors of the economy while virtually ignoring other sectors. The theoretical and empirical finance literature suggests that the availability of bank credit is an important determinant of economic growth and development in developing markets (Chernykh &Theodossiou, 2011). This is especially relevant because of the relatively underdeveloped nature of the capital market in developing regions such as Ghana.

This study sets out to examine the effect of funding sources on the lending patterns of banks in Ghana because its banking sector has seen many significant changes in the past years. After the financial crisis of the 1980s, the government instituted many reforms which deregulated the Ghanaian banking sector. Many more banks were set up. Additionally, the passage of the Universal Banking Act in 2004 led to the establishment of banks that were not restricted in the kind of loans they had to give out as compared to previous years where banks were set up as Commercial Banks, Development Banks or Merchant Banks.

The deregulation of the banking sector and the influx of banks into Ghana suggests that all banks are 'scurrying' for the same funding such as deposits and wholesale funds (non deposit funding sources). The question therefore arises as to whether the particular funding sources banks make use of in any way influences the kind, value and amount of loans it gives out to customers, given the competitive nature of the banking sector. How can a bank differentiate itself from other banks in terms of its funding? What difference does that make in the way it lends?

This study is important in Ghana because the banking sector is a fast growing one and any such empirical finding would provide strategies to help the banks in their core duty of efficiently allocating funds to the various sectors of the economy.

1.3 Objectives of the Study

The main objective of this study is to investigate how funding sources affect bank lending patterns in Ghana. Specifically, the study seeks to:

1. to examine the distribution ofthe funding strategies of banks in Ghana.
2. to investigate the distribution of the lending patterns of banks in Ghana.
3. to examine the effect of the funding sources on the lending patterns of banks in Ghana.

1.4 Research Questions

The study seeks to find answers to the following research questions in its bid to examine the effect of funding sources on lending patterns of banks in Ghana.

1. What is the distribution of the funding sources used by banks in Ghana?
2. What is the dispersion of the lending patterns of banks in Ghana?
3. What is the relationship between the funding sources and the lending patterns of banks in Ghana?

1.5 Significance of the Study

The study provides empirical evidence on the funding sources and lending patterns of banks in Ghana as well as the relationship between their funding sources and lending patterns.For banks, this information is important as it will inform them on their deposit and other funding source mobilization as well as on their lending patterns. It is expected that findings of this study will

inform banks on efficient credit allocation given their funding sources. This study is also expected to provide information that will enable banks strategically plan their lending so as to remain profitable in a competitive environment.Policy makers and regulators will benefit from this study as it aims to provide information on the lending environment in Ghana that can inform policy decisions. Businesses and individuals who access credit or have the intention of accessing credit from the Ghanaian banking sector will be well informed about bank lending patterns and thereby know which type of credit to access from banks operating in Ghana.

1.6 Scope and Limitations

The study focuses on 22 out of the 27 universal banks in Ghana established before 2006. Additionally, it covers the period from 2005-2011.

1.7 Chapter Disposition

Chapter one presents the introduction, comprising the background to the study, the problem statement, research questions, objectives of the study, significance and the scope and limitations of the study. Chapter two presents a review of relevant literature in an attempt to position the study in an appropriate theoretical framework. Thus it discusses findings of related studies on the funding sources and lending patterns of banks. Chapter three presents an overview of the Ghanaian banking sector whilst chapter four details the methodology employed for the study detailing the sources of data, the variables used in the study, the model specification and the estimation strategy. Chapter five presents an analysis of the results whilst chapter six details the summary, conclusions and recommendations of the study as well as areas for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The discussion of the literature on bank funding sources and lending patterns first considers definitions and the general theories of financial intermediation, banking and lending. This is followed by a review of the empirical literature on bank funding sources and lending patterns. In addition, this section reviews other facts that affect bank lending patterns.

2.2 Review of Theoretical Literature

This section reviews literature on the various theories relevant to the study. It reviews the theory of financial intermediation and banking.

2.2.1Theory of Financial Intermediation

Theoretically, Pyle (1971) outlines the major characteristic of a financial intermediary: it issues claims on itself and uses the proceeds to purchase other financial assets. Claus and Grimes (2003) posit that financial intermediaries exist because they can reduce information and transaction costs that arise from information asymmetry between borrowers and lenders. Financial intermediaries thus assist in the efficient functioning of markets, and any factors that affect the amount of credit channelled through financial intermediaries can have significant macroeconomic effects. Two strands of literature that formally explain the existence of financial intermediaries focus on their provision of liquidity and their ability to transform the risk characteristics of assets. Financial intermediaries play an important role because they reduce the

cost of channelling funds between relatively uninformed depositors to uses that are information intensive and difficult to evaluate.

Financial intermediaries obtain information about individual lenders at lower cost. They also exploit cross-sectional information and re-use information over time thereby reducing moral hazard and adverse selection problems. In addition, they reduce the cost of channeling funds between borrowers and lenders, leading to a more efficient allocation of resources. (Claus & Grimes (2003); Gulde et al. (2006)). Financial intermediation is a two pronged affair: obtaining funds and lending out those funds. Kashyap et al. (2002) clearly shows that these two functions operate side by side in banking institutions.

2.2.2 Theory of Banking

A bank is, firstly, a subset of financial intermediaries in general. That is, it secures funds from surplus spending units and transmits them to deficit spending units. (Klein, 1971). The banking sector plays an important role in the mobilisation of deposits and disbursement of credit to various sectors of the economy. A sound and efficient banking system is a *sine qua non* for maintaining financial stability (Jaiswal, 2010).

Banks are the most important financial intermediaries in most economies that provide a bundle of different services. As financial intermediaries, banks play a crucial role in the operation of most economies. The efficiency of financial intermediation can also affect economic growth. Besides, banks insolvencies can result in systemic crisis. Economies that have a profitable

banking sector are better able to withstand negative shocks and contribute to the stability of the financial system (Athanasoglou et al. 2005).

Banks are distinguished from other intermediaries because the former can attract one source of funds, demand deposits, without the payment of explicit interest. This is so because demand deposits are a generally acceptable medium of exchange which is superior to currency (which also bears no explicit yield) in a wide variety of transactions. The issuance of demand deposits means that banks are the administrators of the nation's payments mechanism. Such administration constitutes a service provided by the banking system to the non-bank public. Two points should be noted. First, scarce resources are utilized in the provision of this service. That is, there is a social cost to the utilization of the payments mechanism.

Funds secured by banks in the form of time deposits, demand deposits, and ownership claims are invested in a wide variety of earning assets, the revenue from which constitutes the main source of bank income. These assets differ widely in terms of their expected returns, market and/or default risk characteristics liquidity, and so forth.

In Diamond and Dybvig (1983) the illiquidity of assets provides both the rationale for the existence of banks and for their vulnerability to runs. If banks and other intermediaries provide credit to a large fraction of firms, who otherwise would not be able to borrow, the amount of credit channelled through the banking system can have significant macroeconomic effects, highlighting the importance of public policy in designing policies that ensure the soundness of the banking system.

Swank (1996) reviews the literature on banks and concludes that banks supply services that are generally thought to be vital for the well functioning of a modern society. They intermediate between borrowers and lenders. They transform and accept risks. They provide liquidity and thereby facilitate all sorts of transactions. They have an interbank market, are inter connected and are the foremost transmitters of monetary policy. Various theories that explain the behavior of banks include: risk management theories, portfolio models, imperfect market models and real resource models (Swank, 1996). Risk management theories regard individual banks as risk neutral agents that maximize expected profits while allowing for a particular type of risk. Portfolio models explain that banks are risk averse investors, maximizing a concave utility function in profits. Imperfect market models explain that individual banks maximize profits or size by exploiting a set of market demand and supply functions through interest rate setting. In real resource models, the bank is conceived of as a business firm producing financial services by combining labour and physical capital. Risk management theories are further divided into: reserve management models, capital decision models, gap management models, loan commitment theories and credit rationing theories.

Reserve management models are partial theories dealing with a bank's funding risk while capital decision models are models of liability management dealing with the bank's solvency position. They owe their existence to credit risk, price risk and exchange rate risk. The basic problem faced by the bank is to determine the optimal proportion between deposits and equity capital. Gap management models deal with a bank's interest rate risk, arising from a maturity mismatch or gap of assets and liabilities. Monti (1972), using a simplified model found bank's lending decisions to be independent of the deposit rate and the volume of deposits. However, most

additions to the standard model have found that assets, liabilities and interest rates have become interdependent.

Lending, which is one major activity of banks, involves acquiring costly information about opaque borrowers, and extending credit based on this information. (Kashyap et al, 2002). Transactions account information is most readily available to banks; this provides a rationale for the coexistence of deposit-taking and lending within a single institution, that is, the commercial bank. This is a key question in the theory of financial intermediation. Bossone (2001) points out that one unique capacity of banks is that they lend out claims on their own debt which the public accepts and uses as money. Their primary intermediation function is channeling funds from lenders to borrowers (Amidu & Wolfe, 2012).

2.2.3 Bank Lending Patterns

Bank lending patterns can be analyzed in different ways: length of lending, purpose of lending or sector of the economy to which the lending is done. Many factors influence these patterns as some banks lend to various sectors and virtually ignore other sectors. Some of these patterns include: Commercial real estate loans (Liu, 2012), residential real estate loans (Liu, 2012), lending to consumers (Cull & Martinez Peria, 2012), corporate loans (Cull & Martinez Peria, 2012) construction firms/real estate loans, other business loans, that is, commercial and industrial loans. Cottarelli et al. (2003) also identify other bank lending patterns: lending to the private sector, individuals and to the state. Additionally, Joeng (2009) identifies household lending and corporate lending while Chernykh and Theodossiou, (2011) make reference to long term lending (3-10 years) and short term lending. Additionally, banks lend to the various sectors of the

economy: agriculture (primary), manufacturing (secondary) and services (tertiary) (Dee et al. 2003). Bank loans can also be categorized into commercial loans, industrial loans, real estate loans and consumer loans. Other categories include lending to the private sector, lending to government, household lending, installment finance, lease finance, mortgage advances and other loans (Akinboade & Makina, 2009). Cottarelli et al. (2003) conclude that "excessive" credit to particular sectors of the economy may result in macroeconomic imbalances and lead to asset price bubbles.

2.3 Bank Funding Sources

The following section presents a brief review on bank funding sources: deposits ,non deposit/wholesale funding and internal funding/capital.

2.3.1 Deposits

Deposits form the traditional source of bank funds. They include demand, saving and time deposits. They are considered a cheaper funding source relative to other funding sources. (Ianotta et al., 2007). Deposits has been measured in literature as total deposits as a percentage of total assets. (Norden & Weber 2010; Amidu & Wolfe, 2012)

Edwards and Mishkin (1995) conclude that the decline in traditional banking, caused by deregulation, has caused banks to lose their cost advantages in raising funds through deposits and substantially increased their cost of funds. Furthermore, Norden and Weber (2010), examining the funding modes of German banks and the implications for lending and profitability from 1992-2002, find that for many banks, deposits from customers decrease in relative terms while

interbank liabilities increase as a source of funding. However, they do not detect a negative impact of the relative decline in deposits on lending. Again, Ratnovski and Huang, (2009) study the relative resilience of banks which relied more on deposits than on wholesale funding. They conclude that deposits made banks more resilient during the financial crisis. Olokoyo (2011) shows that deposits constitute the most significant determinant of lending behavior of banks. Chernykh and Theodossiou (2011) find that a bank's ability to extend long term loans depends on the availability of long- term liabilities.

2.3.2 Wholesale Funds/Non-Deposit Funding Sources

Non deposit funding sources refers to funding sources from other banks and other sources and includes notes, debentures, short term bills, large time deposits, brokered negotiable CDs with short remaining maturities, overnight funds purchases, large-denomination certificates of deposits, brokered deposits, repurchase agreements, federal funds, commercial papers and other short-term borrowings whose price and supply fluctuate with credit market conditions ((Berlin & Mester (1999); Feldman & Schmidt (2001); Ratnovski & Huang (2009); Amidu &Wolfe (2012)). They are purchased from other financial institutions and are usually raised on a short-term rollover basis. They constitute short term funding with relatively higher interest cost as compared to deposits from customers. This is measured as all other debts (except deposits) divided by total assets (Amidu & Wolfe, 2012).

Amidu and Wolfe (2012) find that larger banks rely heavily on wholesale funds in financing their operations. However, Norden and Weber (2010) conclude that interbank liabilities can only serve as a resource for some banks, not for the whole system. Furthermore, they indicate that

apart from serving as a buffer for temporary asset-liability imbalances, interbank liabilities may also fill structural funding gaps. However, Huang and Ratnovski (2011) attempt to reconcile the traditional view on the virtues of wholesale funding with the recent experience of the global financial crisis. They argue that wholesale funding is beneficial when informed, but exacerbates inefficiencies and can create severe liquidity risks when uninformed. Demirguc Kunt and Huizinga (2010) also conclude that the bank rate of return is seen to be highest for the banks that do not attract any non deposit funding. They find that banks that rely prominently on attracting non-deposit funding are very risky.

In addition, Yorulmazer (2008) finds that British banks that relied more on funding from wholesale markets were more affected in the wake of Northern Rock's collapse. Poghosyan and Cihak (2009) also examine bank distress in European Union countries from mid-1990s to 2008 and find that wholesale financing can distinguish sound banks from vulnerable banks.

Demirguc Kunt and Huizinga (2010) argue that a bank's composition of debt and its ability to fund itself in wholesale capital markets provide signals of bank creditworthiness that are relevant to potential depositors at the bank as well. Similarly, Calomiris (1999) discusses how holders of subordinated debt can perform the function of monitoring a bank if such debt is credibly excluded from deposit insurance. Hence, non deposit funding in a bank's funding mix could reduce bank fragility through better monitoring.

2.3.3 Internal Funding/Capital

Internal funding, as distinguished from other bank funding strategies, refers to funds raised internally by the bank. This could be from a foreign parent bank. Houston, James and Marcus (1997) identify internally generated funds as a source of funding for firms. They measure it as net income before extraordinary items plus depreciation and additions to loan loss provisions, since loan loss provisions are a non cash expense and are included in regulatory capital, and scale this measure by the company's loan balance at the end of the previous year. They find a strong positive relation between loan growth of the U.S. bank holding companies and internally generated funds. Their results indicate that financial intermediaries find it costly to raise capital externally, suggesting that intermediaries face adverse selection and moral hazard costs similar to that of other firms. In this respect, their results do not necessarily contradict the framework suggested by Diamond (1984), but they suggest that the intermediation process is not complete. Similarly, Stein (1997) has argued that the creation of an internal capital market has many features similar to the intermediation problem modeled by Diamond. In particular, internal capital markets may reduce some agency costs while at the same time creating another layer of agency problems. Their results suggest that bank holding companies find that the benefits of internal capital markets exceed the additional agency costs involved in coordinating actions within the holding company.

Similarly, Amidu and Wolfe (2012) define internal capital as the sum of net profits before extraordinary items and loan loss provisions relative to bank loans at the end of the period. Their findings suggest that banks in developing countries are shifting their asset financing towards internally generated funds which have been the preserve of holding companies in advanced

countries. The findings of Amidu and Wolfe (2012) support the hypothesis that external financing is expensive relative to internally generated funds.

2.4 Other Determinants of Bank Lending Patterns

A number of empirical studies have identified firm-level characteristics that affect the lending patterns of banks. Among these characteristics are ownership, bank size and bank capital/equity. Macro economic variables which are found to affect the lending patterns of banks include GDP growth, monetary policy rates and inflation.

2.4.1 Ownership

Bank ownership has been found to be one of the variables that affects bank lending patterns. Banks are usually either foreign owned, locally owned or government owned (Berger et al. 2008). Clarke (2005) finds that lending by foreign banks is lower than lending by domestic counterparts. Results in the literature about the effect of bank ownership on lending patterns of banks are quite mixed. Cull and Martinez Peria (2012) examine the impact of bank ownership on credit growth in developing countries before and during the 2008-9 financial crisis. They find that foreign parent characteristics can explain some of the variation in foreign bank lending in Eastern Europe, while subsidiary solvency is important in the case of Latin America. However Chernykh and Theodossiou (2011) who examine long term lending in Russia, find that a bank's ability to extend long-term business loans depends on its size, capitalization, and the availability of long-term liabilities rather than its type of ownership. Furthermore, Sapienza (2002) finds that state owned banks charge lower rates than do privately owned banks to similar or identical firms, even if firms are able to borrow more from privately owned banks. State owned banks mostly

favour large firms and firms located in depressed areas. They also find that the lending behavior of state owned banks is affected by the electoral results of the party affiliated with the bank: the stronger the political party in the area where the firm is borrowing, the lower the interest rates charged. Similarly, Micco and Panizza (2006) investigate whether state ownership of banks is correlated with lending behavior of the business cycle. The provide evidence for the fact that state owned banks may play a credit smoothing role. Berger et al (2008) investigate the role of bank ownership type in banking relationships for foreign, state owned and private domestic banks. They find that foreign banks are more likely to enter into multiple banking relationships and to maintain a larger number of such relationships. If this is the case and state banks indeed fulfill the social welfare agenda, there should be a positive and significant relation between the state-controlled dummy and the ratio of long-term loans, after controlling for all other potential explanatory variables in the regression analysis. Foreign-controlled banks may also pay a distinct role in allocating long term loans in an emerging market. In particular, they may have comparative advantages in issuing long-term loans due to better risk management and/or their ability to "cherry pick" low risk borrowers (Bhaumik & Piesse, 2008). In the inherently risky emerging markets, foreign banks also tend to establish relations with more transparent corporate borrowers.

2.4.2 Bank Size

Bank size is considered an important determinant of bank lending behaviour (Berger &Udell, 2006, Uchida et al. 2007). Additionally, Chernykh and Theodossiou (2011) find that a bank's ability to extend long term business loans depends on its size. They posit that larger banks are more diversified, have larger pools of funds available, have access to larger and more

creditworthy corporate borrowers, and have more resources for the development of advanced credit risk management and evaluation systems and find a positive relationship between bank size and lending patterns.

Kashyap and Stein (1994) disaggregated banks' portfolios, particularly the asset side, and found that within the category of loans, larger banks tend to concentrate more heavily on Commercial and Industrial (C&I) loans, while smaller banks tend to concentrate on agriculture, real estate, and consumer lending. Since there is some evidence that C&I lending responds more sluggishly to monetary shocks than other forms of lending (Gertler & Gilchrist (1994)) this provides some explanation for why loan demand at small banks is more procyclical than loan demand at large banks. In addition, large banks usually lend to large firms whose loan demand is less cyclical than that of smaller firms. Berger and Udell (2006) provide that large and complex organizations banks tend to lend few loans to small scale firms. Stein (2002) explains that small banks have comparative advantages in producing soft information whereas large banks also have comparative advantages in lending based on hard information. On the other hand, when large and complex banks are able, through technical expertise, to process soft information about small scale firms, then there would be a positive relationship between bank size and lending. Additionally, Dinger and von Hagen (2005) study the liberalized banking systems in Eastern Europe and find that incumbent banks are able to generate higher profits than new entrants due to their stronger positions in deposit markets.

2.4.3 Bank capital/Equity

Bank capitalization is measured by the book equity to assets ratio. Bank capitalization can affect bank willingness and ability to extend loans in several different ways. Banks with larger capital cushion against credit risks should have higher capacity to extend risky loans. In addition, better capitalized banks can attract more creditworthy borrowers that will qualify for loans. Alternatively, high levels of capital can reveal risk averse and conservatively managed banks that may be reluctant to issue risky loans. Therefore, the relationship between bank capital and lending patterns could either be positive or negative (Chernykh & Theodossiou, 2011). Berrospide and Edge (2010) also find that the effect of changes in bank capital on the extension of bank credit is a key determinant of the linkage between financial conditions and real activity. Huang and Ratnovski (2009) also measure capitalization as a ratio of total equity over total assets. This leverage-based measure has a number of shortcomings stemming from its simplicity: it is not risk-weighted and does not consider off-balance sheet exposures.

2.4.4 GDP Growth

The macroeconomic environment within which a bank operates matters for its lending behaviour. The real GDP growth rate is the most general and most direct measure of macroeconomic development (Bikker & Hu, 2002). In Italy, Vazakidis and Adamopoulos (2009) indicated that economic growth had a positive effect on credit market development. For instance, in the period of economic boom, businesses demand for loans to take advantage of expansion and banks investment opportunities equally soar. On the other hand, in period of economic recession, demand for credit plummets. This provides a pro-cyclical relationship between economic growth and bank lending. Bank credit expansions tend to be pro-cyclical that is, high

rates of growth in GDP tends to induce a high rate of growth in bank credit (Ladime et al. (2011); Dell'Ariccia & Marquez (2006)). This is because in the period of economic boom, banks relax their criteria and lend to both good and bad projects, then in times of economic recession most loans become non-performing and the source of credit dries up, rationing out even good projects. GDP growth is expected to have a positive impact on bank lending behavior.

2.4.5 Inflation

Inflation is an increase in the general price level and is typically expressed as an annual percentage rate of change. Inflation depreciates the value of money. It has been speculated that inflation hurt economic growth by interfering with the role financial intermediaries play in an economy. Inflation affects banks because they typically deal in nominal financial instruments which make up the bulk of bank assets and liabilities. Inflation exacerbates so-called frictions in credit markets. In smoothly operating credit markets, banks can easily adjust nominal interest rates when they need to, but frictions create obstacles that make this adjustment difficult. Since empirical studies have shown that credit market frictions are more severe in developing countries than developed countries, these frictions may play an important role in explaining the impact inflation has on economic growth in these countries (Boyd & Champ, 2006). One way inflation might affect economic growth through the banking sector is by reducing the overall amount of credit that is available to businesses. Higher inflation can decrease the real rate of return on assets. Lower real rates of return discourage saving but encourage borrowing. First, as inflation increases beyond some point, bank lending should decrease. Several economists have found that countries with high inflation rates have inefficiently small banking sectors and equity markets.

This effect suggests that inflation reduces bank lending to the private sector, which is consistent with the view that a sufficiently high rate of inflation induces banks to ration credit.

It has been suggested that that the amount of bank lending declines with inflation. Moreover, inflation affects bank lending even at relatively low inflation rates they still find a statistically significant negative relationship between inflation and banking sector size. Boyd and Champ (2006) find that the size and profitability of the banking sector both are negatively associated with inflation. There is no a priori sign for the coefficient on inflation. Theoretical models suggest that any sign is possible. Cukierman and Hercowitz (1990) present a model where loan demand is positively related to inflation. In their model, firms make use of both money and bank loans to pay for working capital. High inflation penalizes money holdings by firms and makes bank loans more attractive. However, De Gregorio and Sturzenegger (1997) develop a model where the demand for bank credit by firms reduces with inflation because, in their model, higher inflation is related to lower productivity levels, which, in turn, reduces the demand for labour. Huybens and Smith (1999) find that both outcomes are possible depending on the nature of the steady-state equilibrium in the economy. Amidu (2006) finds inflation negative and not significant in a study on bank lending in Ghana. Ladime et al. (2011) find that increases in inflation reduces the real return to the banks and hencerestrict the amount of money the banks wish to lend.

2.4.6 Monetary Policy

Monetary Policy is a mechanism to control the volume of money to attain general economic activities (Sheng-Yi, 1974). It is generally concerned with the cost, amount and direction of credit. Similarly, Mishkin (1992) interpretes monetary policy as a tool to control interest rates

and money supply. Monetary policy can be described as the management of short term interest rates by Central Banks in pursuing of the domestic policy objectives, typically defined in terms of inflation and economic growth. In general, the ultimate target of monetary policy is to attain price stability, which allows the economy to grow at its potential rate (Kolnikaj, 1995). Instruments of monetary policy may differ from country to country but most countries use the same instruments: open market operations, the policy rate and reserve requirements.

The bank lending channel hypothesized that the contraction of monetary policy either through and increase in the interest rate or a decrease in money supply can force a bank to cut loans. (Bernanke 1993). In practice, the monetary authority has the power to influence the domestic interest rate. Many studies have been done to support or contend the argument that monetary policy tightening plays a major factor in contributing to the decline in bank loans. Some studies such as Kashyap and Stein (1995), Loupias et al. (2001), Brissimis et al. (2001) and Haan et al. (2002) have suggested that monetary tightening has a significant impact on bank lending whereas other studies have argued that a restrictive monetary policy does not have a significant impact on bank lending. (Bernanke and Bliner, 1992; Kakes et al. 1999; Kaufmann, 2002; Morris and Sellon, 1995). Karim et. al (2006) also looked at the effect on monetary policy on lending across sectors in the Malaysian banking environment and found a negative relationship between monetary policy and lending to the various sectors. Amidu (2006) studies whether bank lending is constrained by monetary policy in Ghana. The study reveals that Ghanaian banks lending behaviours are affected significantly by the country's economic activities and changes in money supply. He finds a positive albeit insignificant relationship between the Central Bank Rate and credit allocation by banks in Ghana. An increase in the policy rate is expected to negatively

affect bank lending behavior. The results also indicate that prime rate impacts positively, but statistically insignificant, on bank credit. Thus the advancement of loan and credit of Ghanaian banks does not necessarily depend on the level of central bank prime rate. The results also indicate a statistically significant positive relationship between broad money supply on one hand and bank credit on the other. This results show that bank lending may respond to a tightening of monetary policy. Thus, when central bank expands or increases money supply, it induces banks to increase their credit portfolio. Some recent research provides support for the view that certain borrowers, such as small businesses, are very dependent on banks for financing. This finding suggests that disruptions in bank credit could affect economic activity. Research suggests that bank lending is directly constrained by monetary policy actions. Amidu (2006) does so by analyzing how banks adjust the amount and terms of business lending when monetary policy is tightened. Evidence presented in the article suggests that bank business lending is not constrained by restrictive monetary policy.

2.5 Conclusion

This chapter presented a review of literature on the various theories underlying financial intermediation, banking and lending and further reviewed literature on the various funding sources banks make use of. It additionally reviewed literature on various other bank specific (ownership, size and equity) and macroeconomic (GDP growth, monetary policy and inflation) determinants of bank lending with the aim of setting this study within the literature. The review reveals that in their role of efficiently allocating funds between surplus and deficit units, banks make use of deposits, wholesale/non deposit funds and internal capital. These funding sources affect how bank lends. This study aims to examine the exact nature of that relationship taking

into account the sectoral lending patterns of banks in Ghana, that is, their lending to the primary, secondary and tertiary economic sectors given that each of these sectors contributes to the GDP growth of the nation. Additionally, the study takes into account other bank specific and macroeconomic variables that affect the lending patterns of banks. Future studies could look at the other lending patterns of banks in Ghana, namely, lending to the government sector, the private sector and individuals.

CHAPTER THREE

OVERVIEW OF THE GHANAIAN BANKING SECTOR

3.1 Introduction

This chapter presents an overview of the Ghanaian banking sector. It presents a historical overview as well as some current trends within the Ghanaian banking sector with the aim of setting the study within in a context.

3.2 Historical Overview

According to Annin (2000), banking in Ghana begun in the late 18th century with the establishment of the British Bank of West Africa, now Standard Chartered Bank Limited, in 1896 followed by Barclays Bank in 1917. During the early years of Ghana's independence, the government intervened extensively in the financial markets in Ghana in an attempt to control the cost and direction of finance. Public sector banks were set up and administrative controls were imposed on interest rates and sectoral allocation of bank credits.

Government, after independence, adopted development priorities that emphasized rapid industrialization, modernisation of agriculture and the national economy. The government established banks like the National Investment Bank (NIB), Agricultural Development Bank Limited (ADB), Bank for Housing and Construction, Social Security Bank and Cooperative Bank to address the imbalance by providing needed financial assistance to both the public and private sectors. This was also done to accommodate sectors and enterprises that were considered strategic. These activities came along with guiding policies in the form of price controls. Interest

rate and exchange rate controls were administratively controlled by the bank of Ghana and a variety of controls were also imposed on the asset allocations of banks such as sectorial credit directives. However these policies further highlighted the gaps in the regulatory framework and necessitated a stronger structural and regulatory framework.

The passage of a new Banking Act in 2004 enabled banks in Ghana to be registered as universal banks and thus removed any restrictions that may have existed in their lending patterns. During the early years of Ghana's independence, the government intervened extensively in the financial markets in Ghana in an attempt to control the cost and direction of finance. Public sector banks were set up and administrative controls were imposed on interest rates and sectoral allocation of bank credits. However, over the last decade, the Ghanaian banking sector has seen appreciable growth as a result of reforms instituted by governments before this period. Some of the reforms implemented include the Financial Sector Adjustment Programme (FINSAP II and I), Non-Performing Assets Recovery Trust (NPART) and the Foreign Exchange Bureau legislation (Amidu, 2006).

The banking system in Ghana consists of a national network of licensed and statutory financial institutions engaged in the business of banking under the banking laws of Ghana. The Bank of Ghana is the central bank and it regulates the activities of all the banks. The banking sector over the last decade has seen appreciable growth and improvements in performance as a result of reforms instituted by governments before this period. Some of the reforms implemented include the Financial Sector Adjustment Programme (FINSAP I and II), Non-Performing Assets Recovery Trust (NPART) and the Foreign Exchange Bureau legislation.

Following FINSAP, the health of the banking sector appeared to have improved. For example, at the dawn of FINSAP in 1988, 41% of all bank credit was considered non-performing, but the corresponding average for the period 2001-2006 was just about 14%. The number of banks in the system too has increased steadily. At the end of 2006, 23 banks were operating in the country as against about six at the start of the exercise in 1988. However, on the face of it, the banking industry appears to be dominated by a few banks, thus raising the prospect that they may behave as monopolists or oligopolists, possibly to the detriment of social welfare.

These reforms have: strengthened the banks in terms of their capital base and managerial competence; enhanced supervisory capabilities of Bank of Ghana; improved the quality of assets being held by banks; and increased profitability of the banks. Additionally, new products such as international funds transfer, school fees loan, negotiable certificates of deposit, car loans, consumer/hire purchase loan, travelers' cheques etc. have been developed.

The banking industry worldwide is experiencing dynamic changes as a result of innovations, government policies and improvements in information technology. Intense competition in this sector has led to banks providing an increasing assorted number of services. Traditional banks now provide services such as brokerage, mortgage, consultancy and investment services. Competition and growth in the finance industry as well as financial markets has resulted in the expansion of market based financing worldwide.

Traditionally, banks in the country can be segmented into merchant, commercial and development banks. However the need to create a level playing field for all banks resulted in the creation of universal banking. Under this umbrella, all banks are licensed to offer services that were earlier reserved for the different categories (commercial, development and merchant). Currently, there are 28 institutions licensed by the BOG to operate as universal banks. Of these, 9 are locally owned and the rest are foreign - owned. The banking sector is highly concentrated with three largest banks in the country controlling almost half of the financial market. The financial system is dominated by banks who make up three-fourths of the system, (Kovanen, 2011).

The global influx of innovation and new technologies in banking has increased the growth level of the industry. There has been an increase in foreign banks' penetration which has created high level of competition in the banking industry. A recent mandate by the BOG for all banks to increase their capital has forced banks to take to several investment strategies in order to avoid mergers or takeovers. This has increased the profitability of banks, strengthened their capital base and improved the asset quality of these banks.

3.3 Current Trends

Ghana's financial system has undergone rapid growth and major structural transformation over the last decade, which has brought new opportunities and risks. The authorities have been implementing reforms to strengthen the regulatory and supervisory framework and financial infrastructures.

The state has controlling interests in five banks accounting for 29 percent of the banking system assets. The performance of these state-owned banks has been poor, due to lending practices that focus on developmental objectives at the expense of prudential considerations. The losses of state owned banks have also created contingent liabilities for the government.

Commercial banks account for 75 percent of the total assets of the financial system, pension funds follow distantly with a 12 percent share, and the insurance sector is small with 4 percent. Of the 26 commercial banks operating in Ghana, 13 are subsidiaries of foreign banks and their market share is estimated at 51 percent of bank assets. British banks dominate, but the combined share of banks from the Africa region is larger, particularly from Nigeria and Togo. The market share of the five largest banks declined from 61 percent at end 2005 to 46 percent at end 2010, in part reflecting the licensing of several banks. Commercial banks are highly exposed to credit risk, since lending accounts for the bulk of assets and it has grown in an environment of weak credit risk management and enforcement of creditor rights. Concentration risk is high with large exposures to single obligors and economic sectors.

Banks face high funding costs because of: (i) the practice of benchmarking the corporate deposits rates to t-bill rates; (ii) a deposit structure that includes a large share of term deposits that lock in rates for periods of time, (iii) high overheads; and (iv) high NPLs and associated provisions that require banks to maintain high interest rate margins. In 2007, the minimum capital requirement was increased from ¢7 million to ¢60 million. Foreign banks had to meet the new requirements by end-December 2009. Local banks were required to meet the new requirement by end-2012 but in the interim to increase their minimum capital to ¢25 million by end-December 2010.

State banks account for a large share of banking system assets and this group of banks has underperformed due to conflicting development and commercial banking objectives that have led to weaknesses in lending practices. In addition, government domestic arrears have been a recurring source of banking system vulnerability as they undermine capacity of providers of services to the government to repay their bank loans in a timely manner. Furthermore, since term deposits are benchmarked to treasury-bill (t-bill) rates, high fiscal deficits affect banks' funding costs, contribute to high lending rates, and erode capacity to service debts.

More generally, small banks are more exposed to liquidity risk than big banks. This is because big banks have a network of branches through which they are able to tap low-cost deposits, while smaller banks rely heavily on public sector and other wholesale deposits. Some of the smaller banks also use their t-bills as security for corporate deposits and the encumbered assets would not be available to meet deposit withdrawals. The decline in t-bill rates has also helped reduce funding costs, while the banks continued to benefit from high interest rates on their holdings of long-term bonds and loans.

3.4 Conclusion

This chapter presented a brief overview of the Ghanaian banking sector beginning with a historical overview and took a look at some current trends in the banking sector.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter presents the methodology for the study. It outlines the sources of the data, details the variables used and presents the econometric model and estimation strategy used for the study.

4.2 Data sources

The study made use of micro-bank level data and macro-country level data. Bank level data was obtained from the Center for Business Banking and Sustainable Development (CBBSD), Accra and from the Ghana Association of Bankers. Data frequency was yearly covering a sample of 22 banks operating in Ghana over a seven year period, 2005-2011. Macroeconomic data on GDP growth and Inflation were obtained from the World Bank Development Indicators. Monetary policy rates were also obtained from the Bank of Ghana.

4.2 Definition and Measurement of Variables

This section presents the variables used for the study, the justification for their inclusion and their measurement.

4.2.1 Lending Patterns

The dependent variables are the various lending patterns of Ghanaian banks. Banks in Ghana have several lending patterns: according to the sectors of the economy, that is, primary, secondary and tertiary economic sectors; according to ownership, that is, to the government and state owned enterprises, to private firms and to individuals; and according to the length of time:

overdrafts and term loans; and the purpose of the loan: real estate, mortgage and commercial loan among others.

One major pattern is according to the various sectors. Dee et al. (2003) identified the three sectors of the economy: primary, secondary and tertiary sectors. The primary sector comprises agriculture forestry, fishing and the extractive sectors. This is measured as total loans allocated for primary economic activities relative to total loans. The secondary sector also known as the industrial sector comprises manufacturing and construction. This is measured as loans allocated to the secondary economic sector relative to total loans. The tertiary economic sector comprises electricity, gas, water, transportation, storage, communications, commerce, finance and all other services. It is measured as loans allocated to the tertiary sector relative to total loans. Additionally, the total of loans allocated to each of these sectors is scaled by total assets to measure total lending.

4.2.2 Funding Sources

The independent variables are the various funding sources the banks make use of, namely deposits, non-deposit /wholesale funds and internal capital. Deposits include demand, savings and time deposits and are considered a relatively cheaper funding source for banks (Ianotta et al. 2007). This is measured as the ratio of total deposits to total assets. Non deposit funding includes interbank borrowings, repurchase agreements, notes, debentures, short term bills and all other related debts not covered by deposit funding. Non deposit funds are short term funding sources with relatively higher interest as compared to deposits from customers. This is measured as the ratio of total non deposit sources to total assets (Huang and Ratnovski, 2009). Internal funding is

calculated as the sum of the net profit before extraordinary items and loan loss provisions relative bank loans at the end of the period (Houston et al. 1997, Amidu and Wolfe, 2012).

4.2.3 Other Determinants of Bank lending Patterns

Other variables which affect the relationship of interest are outlined below with their measurement. They include bank level variables such as ownership, bank size and bank equity. Macroeconomic variables included are inflation, the policy rate and GDP growth.

Ownership is a dummy variable measuring bank ownership, 0 if the bank is state or locally owned, 1 if it is foreign. Cull and Martinez-Peria (2012) found ownership significant in explaining lending patterns however Chernykh and Theodissiou (2011) found that other variables other than ownership explained lending patterns of banks. It is therefore expected that the relationship could either be positive or negative.

Bank Equity is measured as the ratio of bank equity to total assets and is used as a measure of the level of capitalization (Chernykh and Theodossiou, 2011, Amidu and Hinson, 2006). Chernykh and Theodissiou (2011) argue that better capitalized banks can attract more creditworthy borrowers that will qualify for loans. Alternatively, high levels of capital can reveal risk averse and conservatively managed banks that may be reluctant to issue risky loans. Therefore, the relationship between bank capital and lending patterns could either be positive or negative.

Bank size is measured as the logarithm of total assets (Hyung-Kwon Joeng, 2009; Chernykh and Theodossiou, 2011). Chernykh and Theodossiou (2011) find a positive relationship between

bank size and lending patterns. It is expected that the relationship between bank size and lending patterns will be positive.

GDP growth is measured as yearly GDP growth rates and represents the economic cycle. Akinboade and Makina (2009) argue that bank lending is procyclical. The real GDP growth rate is the most general and most direct measure of macroeconomic development (Bikker and Hu, 2002). It is expected that the relationship will be positive.

Inflation is measured by the yearly Consumer Price Index (CPI).Cukierman and Hercowitz (1990) present a model where loan demand is positively related to inflation. In contrast, De Gregorio and Sturzenegger (1997) develop a model where the demand for bank credit by firms reduces with inflation because, in their model, higher inflation is related to lower productivity levels, which, in turn, reduces the demand for labour. Huybens and Smith (1999) show that both outcomes are actually possible depending on the nature of the steady-state equilibrium in the economy. So the relationship could be either negative or positive.

Monetary Policy is measured as the yearly average of the Bank of Ghana policy rate and represents the monetary transmission mechanism. (Amidu, 2006) finds that an increase in the policy rate is expected to negatively affect bank lending behavior. Therefore a negative relationship is expected.

4.2.4 Interaction of Monetary Policy with Bank Funding Sources

To further examine the impact of monetary policy on the various funding sources of banks, due to the important role banks play as transmitters of monetary policy (Swank 1996), the study interacted monetary policy with the various funding sources banks in Ghana make use of: deposits, non deposit/wholesale funds and internal funding/capital. To do this each of the funding sources is multiplied by monetary policy.

4.3 Model Specification

The main focus of this study is to examine the relationship between the funding sources and lending patterns of banks in Ghana using a panel data framework. A panel study permits inquiry into "variables" that elude study in simple cross-sectional or time-series as well as capture not only the variation of what emerges through time or space, but the variation of these two dimensions simultaneously. This is because, instead of testing a cross-section model for all banks at one point in time or testing a time series model for one bank using time series data, a pooled model is tested for all banks through time. The study therefore makes use of an econometric model with lending patterns as the dependent variable and funding sources and other bank specific and macroeconomic variables as explanatory variables. The general form of the model can be specified as:

$$Y_{i,t} = \propto + \beta X_{i,t} + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where the subscript *i*denotes the cross-sectional dimension and *t* represents the time series dimension. The left-hand variable,$Y_{i,t}$ represents the dependent variable in the model while $X_{i,t}$contains the set of explanatory variables in the estimation model, α is the constant and β represents the coefficients. $\varepsilon_{i,t}$is the error term. Thus the model can be specified as:

$$LP_{i,t} = \beta_1 FS_{i,t} + \beta_2 X_{i,t} + \sum_{j=1}^{3} \beta_j M_{i,j} + (FS_{i,t} * MP_t) + \varepsilon_{i,t}$$

Where LP represents lending patterns, namely: lending to the primary (PRI), secondary (SEC) and tertiary (TERT) economic sectors and total lending (TOTAL); FS represents the various funding sources banks in Ghana make use of, namely deposits (DEP), wholesale/non deposit funding (WSF) and internal funding (INTF); X represents a set of bank specific characteristics that affect lending patterns namely, bank size (BS), bank equity (BE) and bank ownership (OWN); M represents macroeconomic variables which affect lending patterns: that is, inflation (INF), GDP growth (GDPG) and the monetary policy rate (MP) and $\varepsilon_{i,t}$ represents the error termwhich is made up of $\mu_i and v_{it}$. $\mu_i$represents the unobserved time invariant bank specific effect while v_{it} represents the disturbance term. For the interaction, each of the various funding sources is multiplied by monetary policy (FS*MP) to test for the sensitivity of the various funding sources to changes in the policy rate. DEP*MP is for the interaction between deposits and monetary policy; WSF*MP is for the interaction between wholesale/non deposit funding and monetary policy and INTF*MP is for the interaction between internal funding/capital and monetary policy.

4.4 Estimation Strategy

Given the results of the Hausman specification test, the fixed effects model was the preferred estimation technique.However, the study made use of the Panel Corrected Standard Errors (PCSE) model of the Ordinary Least Squares (OLS) which is robust to heteroscedasticity and first order serial correlation.

4.5 Conclusion

This chapter detailed the methodology employed in conducting the study. It began with the data and sample; detailed the variables and specified the model and estimation strategy for the study. The study made use of a fixed effects Ordinary Least Squares (OLS) model robust to possible autocorrelation and heteroscedasticity, with lending patterns as the dependent variable, their various funding sources and other bank specific and macroeconomic variables which affect bank lending as the dependent variables. The study further interacted the various funding sources with monetary policy to examine their sensitivity to changes in the policy rate.

CHAPTER FIVE

ANALYSIS AND DISCUSSION OF RESULTS

5.1 Introduction

This chapter presents the findings of the study on the effect of funding sources on the lending patterns of banks in Ghana. It comprises summary statistics of the variables used, correlation analysis and the regression results. It also presents a trend analysis of the funding sources and lending patterns of banks in Ghana.

5.2 Descriptive Statistics

Table 5.1 presents the summary statistics of the sample banks financial variables used in the study. The table shows the mean, median, maximum and minimum values as well as the number of observations of the variables used for the study.

Table 5.1 Descriptive Statistics

	PRI	SEC	TERT	TOTAL	DEP	WSF	INTF	BE	BS	GDPG	MP	INF	OWN
Mean	0.09	0.24	0.68	0.48	0.64	0.12	0.08	0.13	8.54	0.08	0.15	0.13	0.45
Median	0.05	0.23	0.69	0.48	0.68	0.11	0.05	0.11	8.60	0.09	0.14	0.11	0.00
SD	0.09	0.16	0.20	0.21	0.16	0.08	0.37	0.10	0.45	0.02	0.02	0.04	0.50
Min	0.00	0.00	0.05	0.02	0.02	0.00	-0.64	0.01	7.33	0.04	0.13	0.09	0.00
Max	0.43	0.87	0.99	0.99	0.98	0.42	4.44	0.92	9.62	0.14	0.18	0.19	1.00
N	136	148	147	148	146	131	146	145	148	154	154	154	154

PRI represents loans allocated to the primary economic sector , SEC stands for loans allocated to the secondary economic sector ,TERT represents loans allocated to the tertiary economic sector, TOTAL stands for total loans, DEP stands for deposits, WSF is Wholesale/non deposit funding, INTF represents internal funding, BE stands for bank equity, OWN stands for ownership, BS represents bank size, MP is monetary policy, INF represents inflation; GDPG stands for GDP growth

The average percentage of loans allocated to the primary economic sector is 9% whilst that of the secondary sector is 24% and the tertiary sector is largest at 68%. Total lending accounts for 48% of total assets implying that loans make up almost half of total bank assets. Deposits account averagely for about 64% of total assets whereas wholesale funds account for about 12% of total assets, possibly indicating the weak nature of the interbank market in Ghana. Internal capital makes up about 8% of funding. For the other bank specific variables, bank equity is has a mean of 13%; while the log of total assets, which is a proxy for bank size has a mean of 8.54. Ownership has a mean of 45% meaning that most of the banks in the sample are locally owned. Over the period, GDP growth was at an average of 8%; the policy rate had an average of 15% and the average inflation rate was 13% over the period.

5.3 Correlation Matrix

The linear independence of the explanatory variables is examined using a correlation matrix. The Pearson product moment coefficient of correlation for pairs of independent variables measures of the degree of linear relationship between two or more variables. The table below shows the correlation matrix for the variables used in the study and indicates that weak relationships exist among the independent variables, thus preventing any potential multicollinearity problems in the regression estimates.

Table 5.2 Correlation Matrix

	PRI	SEC	TERT	TOTAL	DEP	WSF	INTF	BE	BS	GDPG	MP	INF	OWN
PRI	1.00												
SEC	0.18**	1.00											
TERT	-0.59***	-0.89***	1.00										
TOTAL	-0.12	0.04	0.02	1.00									
DEP	-0.12	-0.08	0.09	0.06	1.00								
WSF	0.17*	0.26***	-0.27***	-0.01	-0.32***	1.00							
INTF	-0.03	0.03	-0.01	0.00	0.15*	-0.27***	1.00						
BE	-0.03	-0.07	0.06	0.04	-0.05	-0.17*	-0.04	1.00					
BS	0.05	-0.10	0.05	-0.13	0.07	-0.03	-0.08	0.03	1.00				
GDPG	0.15*	-0.09	0.01	-0.09	0.13	-0.04	-0.01	0.05	0.54***	1.00			
MP	0.05	-0.04	0.02	0.13	-0.05	0.23**	0.04	-0.19**	-0.02	-0.07	1.00		
INF	0.06	-0.03	0.01	0.12	-0.08	0.23**	0.05	-0.18**	-0.10	-0.10	0.68***	1.00	
OWN	-0.09	-0.19	0.19**	-0.37***	0.07	-0.25***	-0.03	0.23**	0.11	-0.06	0.00	0.00	1.00

PRI represents loans allocated to the primary economic sector , SEC stands for loans allocated to the secondary economic sector ,TERT represents loans allocated to the tertiary economic sector, TOTAL stands for total loans, DEP stands for deposits, WSF is Wholesale/non deposit funding, INTF represents internal funding, BE stands for bank equity, OWN stands for ownership, BS represents bank size, MP is monetary policy, INF represents inflation; GDPG stands for GDP growth

Generally, it was not expected that there would be strong correlations among the independent variables. The correlations between the independent variables ranged between -0.89 and 0.68 as shown in Table 5.2. The highest strongest correlation was reported between Monetary Policy and Inflation. (0.68). However, being less than 0.70, it is not considered sufficiently large as to cause multicollinearity problems.

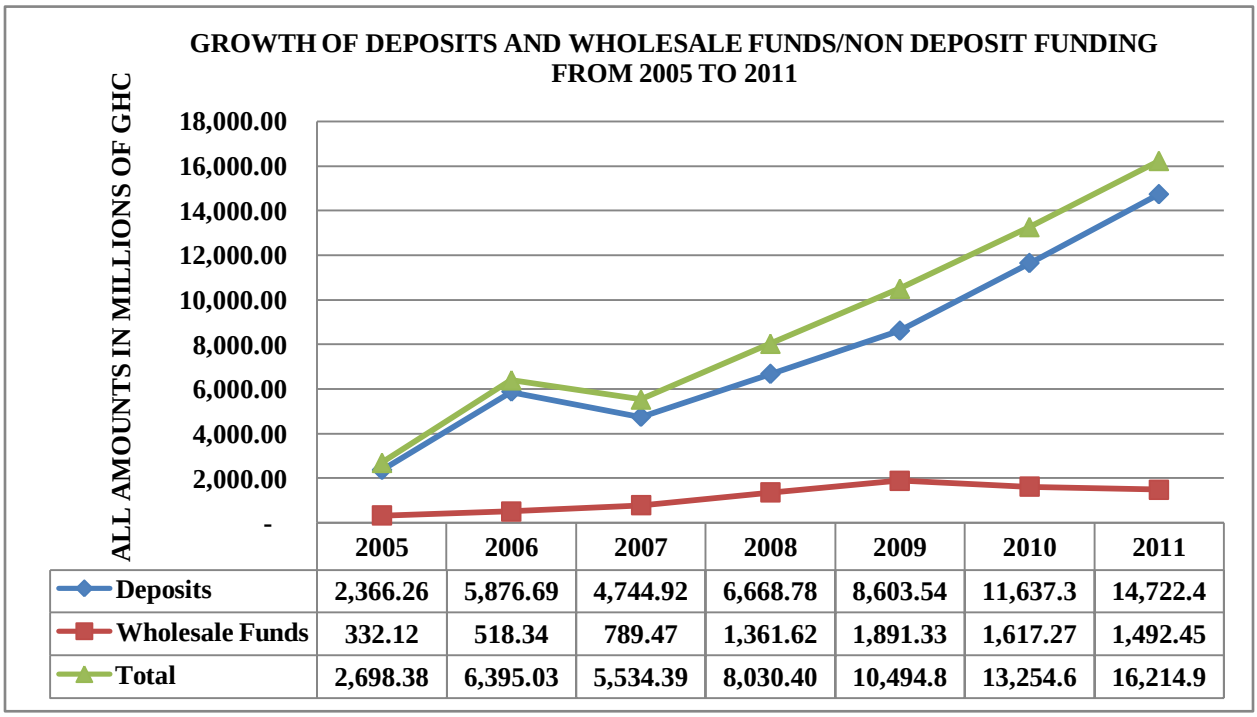
5.4 Funding sources of banks in Ghana

In line with the first research questions of the study, this section shows the distribution of the funding sources of banks in Ghana. Banks in Ghana make use of three main funding sources: deposits, wholesale funds and internal funding. Most banks in Ghana rely on deposits and direct borrowing for funding (IMF, 2011).

The first funding source that was examined was deposits. As shown in Figure 5.1, deposits account for about 64% of bank funding sources. They are received from individuals, private institutions, the government and state owned institutions and comprise time, savings and demand deposits. The growth of deposits mobilized by banks in Ghana generally follows an upward trend.

Non deposit funding sources/wholesale funds comprise mainly borrowings from other financial institutions and other borrowings. On the average, they account for about 12% of total liabilities as depicted in Figure 5.1. There generally appears to be an upward trend in the growth of wholesale funds employed. However, in 2009 it goes higher than other years, possibly, the after effect of an election year and reduces in the subsequent years. Internally generated funds/internal capital account for about 8% of funding sources of banks in Ghana as Figure 5.2 shows.

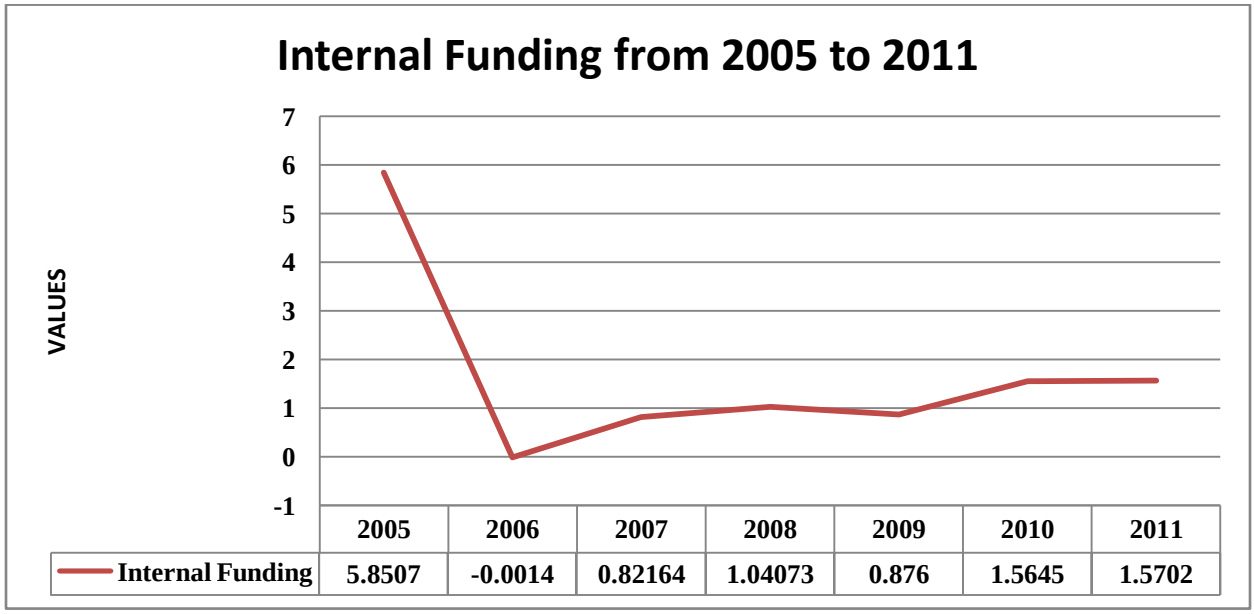
Figure 5.1 Deposits and Wholesale Funds raised by Banks in Ghana from 2005-2011.



	2005	2006	2007	2008	2009	2010	2011
Deposits	2,366.26	5,876.69	4,744.92	6,668.78	8,603.54	11,637.3	14,722.4
Wholesale Funds	332.12	518.34	789.47	1,361.62	1,891.33	1,617.27	1,492.45
Total	2,698.38	6,395.03	5,534.39	8,030.40	10,494.8	13,254.6	16,214.9

Source: Bank Financial Statements and Author's own computations

Figure 5.2 Internal Funding raised by Banks in Ghana from 2005-2011.

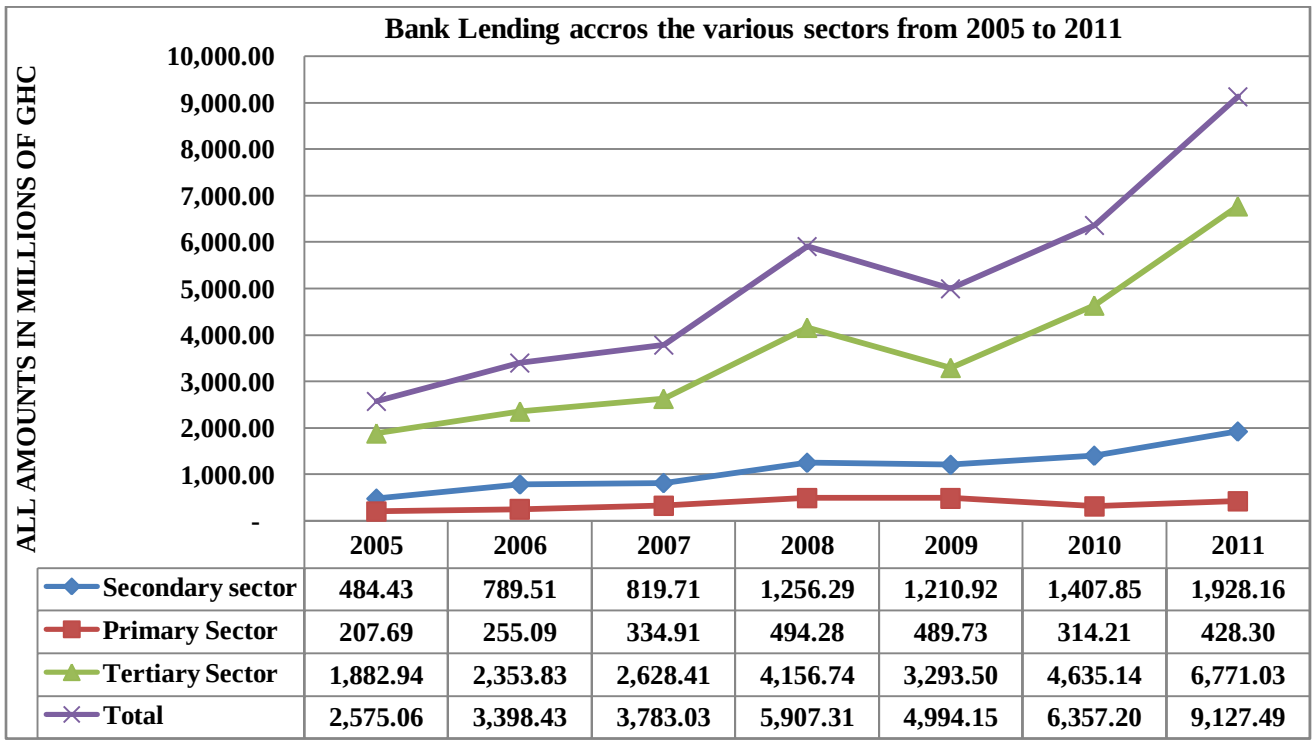


Source: Bank Financial Statements and Author's own computations

5.5 Lending patterns of banks in Ghana

The second objective of the study was to analyze the dispersion of the lending patterns of banks in Ghana. This was done according to sectoral lending practices to the various sectors of the economy aggregating them into three main sectors: primary economic activities (representing agriculture, fishing, forestry, mining and quarrying); secondary economic activities (manufacturing and construction) and tertiary economic activities (electricity, gas, water, transportation, storage, communications, commerce, finance and all other services). The graphs below show the distribution of financing given.

Figure 5.3 Lending Patterns of Banks in Ghana from 2005-2011



	2005	2006	2007	2008	2009	2010	2011
Secondary sector	484.43	789.51	819.71	1,256.29	1,210.92	1,407.85	1,928.16
Primary Sector	207.69	255.09	334.91	494.28	489.73	314.21	428.30
Tertiary Sector	1,882.94	2,353.83	2,628.41	4,156.74	3,293.50	4,635.14	6,771.03
Total	2,575.06	3,398.43	3,783.03	5,907.31	4,994.15	6,357.20	9,127.49

Source: Bank Financial Statements and Author's own computations

Loans advanced to the secondary sector comprises loans and advances to the manufacturing and construction sectors. From Figure 5.3, this accounts for 24% of total loans given out by the banks. There is generally an upward trend in the financing advanced to this sector. It is estimated that since the construction sector has the government as one of its largest clients and government has a low risk of payment default, loans allocated to a sector largely bankrolled by Government contracts will have a lower risk rating.

Loans advanced to the primary economic sector comprises loans advanced in favour of agriculture, forestry, forestry, fishing, mining and quarrying. Figure 5.3 shows that this accounts for about 9% of total loans advanced. Some banks, such as Zenith Bank, did not advance any

loans to this sector in the period under review. HFC bank only began advancing loans to the sector in 2010. It is generally the least funded sector. This is regrettable given that agriculture forms one of the major sectors of the economy and is a must for a country like Ghana which has still not achieved self sufficiency in food production. However, it is suggested that this may be explained by the 'variable' nature of the primary sector and the erratic rainfall patterns in Ghana. The other interesting thought is that it also supports the generally held view that Ghanaians depend more on imports since the tertiary sector receives the most loans. Despite the tax concessions, the industry is yet to overcome the peculiar challenges in lending to small holder growers with limited credit history, unpredictable weather condition and market availability.

The tertiary sector is further divided into commerce and finance, electricity, gas and water, transport, storage, commerce and finance, communication and all other services. As shown in Figure 5.3, loans advanced to tertiary sector account for about 68% of total loans advanced by banks in Ghana. Commerce and finance continues to be the most supported sector by the banks. About 31% of the total industry loans and advances were granted to this sector recording an increase from 29% in 2003.

5.6 Regression Results

In line with the third objective of the study, the relationship the relationship between the funding sources and the lending patterns of banks in Ghana is examined while controlling for some bank specific and macroeconomic factors.

An adjusted R^2 of 48% is reported for lending to the primary economic sector whilst 43% is reported for lending to the secondary economic sector. The adjusted R^2 for lending to the tertiary economic sector is found to be 66% and 57% for total lending. These indicate the goodness of fit of the regression results.

The regression results show a positive and significant relationship between lending to the primary economic sector, the tertiary economic sector, total lending and deposits. This suggests that primary economic sector, tertiary economic sector and total lending are mainly funded by deposits. For the primary economic sector, this is rather surprising given the decline in its contribution to GDP. It is conjectured that this may imply that banks in Ghana may be more willing to allocate credit to the primary economic sector as their deposits increase given the potential for growth in that sector. For the tertiary economic sector, this is not surprising since it receives more than half of the credit allocated by the banks. It is speculated that given the less risky nature of the tertiary economic sector which is mainly comprised of services, banks are more willing to allocate credit to that sector. Total lending also exhibits a positive relationship with deposits implying that in general, banks in Ghana allocate credit using their deposits. This is confirmed by the percentage allocation of funding sources where deposits accounts for 64% of total funding. However, there is a negative non significant relationship between deposits and lending to the secondary sector. This shows that that lending to the secondary sector is not affected by deposits. It is surmised that this may be accounted for by the relatively underdeveloped nature of the secondary economic sector in Ghana.

Non- deposit/wholesale funding exhibits a negative non significant relationship with lending to the primary economic sector. This indicates that bank lending to the primary sector is not affected by non deposit funding. It is conjectured that as banks lend to the primary sector using their deposits, they may not be willing to lend to the primary economic sector using wholesale funds which are relatively more expensive and riskier than deposits. Similarly, lending to the tertiary sector shows a negative and in this case, significant relationship with lending to the secondary economic sector. This means that banks may not fund their loans to the tertiary sector with deposits. It is surmised that this may be so because banks already lend to the tertiary sector using deposits. On the other hand, there is a positive and relationship between wholesale funds and lending to the secondary economic sector. This shows that banks in Ghana finance loans to the secondary economic sector with wholesale funds. It is estimated that this may be so given the relatively small size of the secondary economic sector in Ghana. As such, it may be more prudent to allocate funds to them on an as needed basis which may not be regular and as such it may be more prudent to use wholesale funds rather than lock up deposits. Interestingly, the relationship between wholesale funds and total lending is positive but not significant. This indicates that total lending is not affected by non deposit funding. It is speculated that this may be explained by the low level of non deposit funding banks in Ghana make use of.

There is a positive and significant relationship between lending to the primary and secondary economic sectors and internal funding. This suggests that in Ghana, banks finance loans to the primary and secondary sector using internal funds. It is estimated that this may be so because internal funding represents a cheap funding source which banks could use to allocate loans to the risky primary and secondary sectors. Additionally, total lending shows a positively significant

relationship with internal funding. However, the relationship between internal funding and lending to the tertiary economic sector is negative and not significant. It is surmised that banks do not lend to the services sector using internal funds.

The results indicate a negative and significant relationship between bank size and both lending to the primary economic sector and total lending. This indicates that larger banks may actually lend less to the primary economic sector which is quite surprising. However, results from the literature indicate that larger banks may actually be conservative and as such may not be willing to lend to a risky sector such as the primary economic sector. This may also translate toward total lending. On the other hand, there is a positive but not significant relationship between bank size and lending to the secondary and tertiary sectors indicating that size does not affect sectoral allocation of bank credit in Ghana.

For bank equity, the results indicate a negative and significant relationship between lending to the primary and secondary economic sectors. This indicates that better capitalized banks may not allocate much of their credit to the primary and secondary economic sectors. It is opined that better capitalized banks may be risk averse and conservative in lending to these sectors because these sectors are considered quite risky (Chernykh and Theodissou, 2011). On the other hand, there is a positive but not significant relationship between bank equity and lending to the tertiary sector. This suggests that bank capitalization does not affect allocation of credit to the tertiary economic sector. However there is a positive and significant relationship between bank equity and total lending. This suggests that better capitalized banks allocate more credit generally.

There is a positive and significant relationship between lending to the primary, secondary and tertiary economic sectors and ownership. This indicates that in general, foreign banks allocate more credit to these sectors. However, there is a negative relationship with total lending which surprisingly indicates that overall, local banks lend more.

GDP growth has a positive and significant relationship with lending to the primary economic sector and total lending. This indicates that in the years in which the economy is booming, more credit is allocated to the primary economic sector and to total lending. It is speculated that this may be an indication of the primary economic sector's contribution to GDP growth. For total lending, it is speculated that in years in which there is a boom in the economy, more credit will be allocated in general in keeping with the procyclical nature of bank lending (Akinboade and Makina, 2009). However the relationship between GDP growth and lending to the secondary and tertiary economic sectors is negative and significant. This suggests that in those years in which the economy is booming, the banking sector allocates less credit to the secondary and tertiary economic sectors. This is rather surprising but it is conjectured that given the unstable macroeconomic conditions in Ghana, bank lending may not always follow accepted norms.

The policy rate has a negative and not significant relationship with lending to the primary economic sector. This suggests that the policy rate does affect credit allocation to the primary sector. It is surmised that this may be the case because most banks in Ghana allocate little credit to the primary sector given its risky nature and as such changes in the policy rate may not affect their lending to that sector. For the secondary sector, there is a positive but not significant relationship with monetary policy. This suggests that changes in the policy rate do not affect

credit allocation to the secondary economic sector. It is inferred that this may be the case given the low demand for loans from the secondary economic sector. Interestingly, monetary policy exhibits a positively significant relationship with lending to the tertiary economic sector and with total lending. This could mean that that as the policy rate increases, loans to the tertiary sector increase. It is inferred that demand may be high for loans to that sector, given its fast growing nature such that even increases in the policy rate do not lower demand for tertiary sector loans. It is supposed that this may be the case for total lending because loans to the tertiary sector account for the bulk of loans allocated by banks in Ghana. These results contradict those of Karim et. al (2006) who studied the relationship between monetary policy and sectoral allocation of bank credit and found a negative relationship between the two.

There is a positive and significant relationship between inflation and lending to the primary economic sector and total lending. This suggests that as inflation rises lending to the primary economic sector and total lending generally increases. It is speculated that this might be the case because as inflation goes up the costs of the inputs needed for primary activities such as agriculture and given how important food is, banks would still have to allocate credit to farmers and other professionals such as fishermen because, whether inflation goes up or not, people must eat. There is a negative not significant relationship between lending to the secondary economic sector and inflation. This suggests that inflation does not affect lending to the secondary economic sector. However, inflation exhibits a negative and significant relationship with lending to the tertiary economic sector indicating that as the prices of goods go up in general, lending to the tertiary sector generally decreases. It is surmised that this may be the situation because

services and other tertiary economic activities do not represent core activities and as such people may reduce their demand for such services when inflation is high.

Although deposits has a positive relationship with lending to the primary and tertiary economic sectors and total lending, deposits interacted with monetary policy has a negative and significant relationship with lending to the primary and tertiary economic sectors and total lending. This shows that an increase in monetary policy rather causes deposits to decline and thereby leads to a reduction lending to the primary and tertiary economic sectors and total lending. It is conjectured that this may be so because when the policy rate is increased, depositors may expect that banks would increase the interest they are paying on deposits. However, when this does not happen,depositors may not be motivated to deposit their money with the banks and thereby decreasing deposits. This would then translate into a reduction in lending to those sectors.However, the interaction between deposits and monetary policy exhibits a positive but not significant relationship with lending to the secondary sector.

Wholesale funding interacted with monetary policy has a positive but not significant relationship with lending to the primary economic sector. There is a negative and significant relationship between wholesale funds and monetary policy interacted with lending to the secondary economic sector. This indicates that an increase in the policy rate results in a decrease in the use of wholesale/non deposit funding. This translates into a decline in lending to the secondary economic sector which is mainly financed with wholesale funds. The relationship between wholesale funding and monetary policy interacted and lending to the tertiary economic sector is

positive and significant. However, wholesale funding interacted with monetary policy exhibits a negative non significant relationship with total lending.

Internal funding interacted with monetary policy has a negative relationship, which is significant, with lending to the primary and secondary economic sectors and total lending. This suggests that an increase in the policy rate results in a decrease in internal funding and translates into a decline in lending to the above mentioned sectors. This is quite surprising but we conjecture that an increase in the policy rate may cause banks to make use of other sources of funding other than internal funds. However, the relationship between internal funding interacted with monetary policy and lending to the tertiary sector is negative and not significant.

Table 5.3 Regression Table for lending to the Primary Economic Sector

	Coefficient	Std. Err.	t	P>t
DEP	0.3270	0.1671	1.96	0.0530
WSF	-0.0797	0.2831	-0.28	0.7790
INTF	0.7872	0.3404	2.31	0.0230
BE	-0.0555	0.0305	-1.82	0.0720
BS	-0.0317	0.0136	-2.34	0.0210
GDPG	3.5606	1.0625	3.35	0.0010
MP	-1.7563	1.0782	-1.63	0.1060
INF	2.2396	0.4398	5.09	0.0000
OWN	0.0166	0.0067	2.49	0.0140
WSMP	1.7066	1.9177	0.89	0.3750
DPMP	-2.8427	1.1238	-2.53	0.0130
ITNMP	-6.3266	2.3608	-2.68	0.0090
Constant	0.0440	0.1393	0.32	0.7530
F(12, 109)	10.34			
Prob> F	0.0000			
R^2	0.5324			
Adjusted R^2	0.4809			
Observations	122			
Hausman $chi^2(11)$	20.21			
Prob>chi^2	0.0000			
Hettest $chi^2(1)$	23.22			
Prob> chi^2	0.0000			
Doornik-Hansen $chi^2(26)$	1130.308			
Prob>chi2	0.0000			
Wooldridge test F(1, 17)	10.382			
Prob> F	0.0050			

DEP stands for deposits, WSF is Wholesale/non deposit funding, INTF represents internal funding, BE stands for bank equity, OWN stands for ownership, BS represents bank size, MP is monetary policy, INF represents inflation; GDPG stands for GDP growth.
The standard errors are robust to heteroscedasticity.

Table 5.4 Regression Table for lending to the Secondary Economic Sector

	Coef.	Std. Err.	t	P>t
DEP	-0.4139	0.3854	-1.07	0.2850
WSF	2.5061	0.6850	3.66	0.0000
INTF	1.7076	0.8272	2.06	0.0410
BE	-0.1913	0.0746	-2.56	0.0120
BS	0.0293	0.0316	0.93	0.3550
GDPG	-6.2667	2.5133	-2.49	0.0140
MP	3.2128	2.4819	1.29	0.1980
INF	-1.5014	1.0637	-1.41	0.1610
OWN	0.0471	0.0162	2.9	0.0040
WSMP	-13.1393	4.6361	-2.83	0.0050
DPMP	1.6122	2.5593	0.63	0.5300
ITNMP	-9.6715	5.7358	-1.69	0.0940
Constant	0.2477	0.3214	0.77	0.4420
F(12, 115)	9.07			
Prob> F	0.0000			
R^2	0.4861			
Adjusted R^2	0.4325			
Observations	128			
Hausman chi2(11)	19.15			
Prob>chi2	0.0000			
Hettest chi2(1)	2.54			
Prob> chi2	0.1112			
Doornik-Hansen chi2(26)	1062.722			
Prob>chi2	0.0000			
Wooldridge test F (1, 18)	21.01			
Prob> F	0.0000			

DEP stands for deposits, WSF is Wholesale/non deposit funding, INTF represents internal funding, BE stands for bank equity, OWN stands for ownership, BS represents bank size, MP is monetary policy, INF represents inflation; GDPG stands for GDP growth.
The standard errors are robust to heteroscedasticity.

Table 5.5 Regression Table for lending to the Tertiary Economic Sector

	Coef.	Std. Err.	t	P>t
DEP	1.6252	0.4172	3.90	0.0000
WSF	-3.5034	0.7436	-4.71	0.0000
INTF	-0.3098	0.8953	-0.35	0.7300
BE	0.0087	0.0808	0.11	0.9150
BS	0.0231	0.0342	0.68	0.5010
GDPG	-13.4369	2.7199	-4.94	0.0000
MP	9.8334	2.6868	3.66	0.0000
INF	-3.7166	1.1528	-3.22	0.0020
OWN	0.1937	0.0176	10.99	0.0000
WSMP	27.1288	5.0301	5.39	0.0000
DPMP	-11.2239	2.7703	-4.05	0.0000
ITNMP	-0.8288	6.2088	-0.13	0.8940
Constant	0.5565	0.3478	1.60	0.1120
F(12, 114)	21.66			
Prob> F	0.0000			
R^2	0.6951			
Adjusted R^2	0.6630			
Observations	127			
Hausman chi2(11)	26.63			
Prob>chi2	0.0000			
Hettest chi2(1)	15.76			
Prob> chi2	0.0000			
Doornik-Hansen chi2(26)	1029.736			
Prob>chi2	0.0000			
Wooldridge test F (1, 18)	23.78			
Prob> F	0.0000			

DEP stands for deposits, WSF is Wholesale/non deposit funding, INTF represents internal funding, BE stands for bank equity, OWN stands for ownership, BS represents bank size, MP is monetary policy, INF represents inflation; GDPG stands for GDP growth.
The standard errors are robust to heteroscedasticity.

Table 5.6 Regression Table for Total Lending

	Coefficient	Std. Err.	t	P>t
DEP	2.2841	0.4032	5.67	0.0000
WSF	0.1108	0.7166	0.15	0.8770
INTF	5.2182	0.8653	6.03	0.0000
BE	0.3481	0.0781	4.46	0.0000
BS	-0.0991	0.0331	-3.00	0.0030
GDPG	6.5932	2.6291	2.51	0.0140
MP	6.6489	2.5962	2.56	0.0120
INF	2.9510	1.1127	2.65	0.0090
OWN	-0.1485	0.0170	-8.74	0.0000
WSMP	-0.2119	4.8496	-0.04	0.9650
DPMP	-14.1604	2.6772	-5.29	0.0000
ITNMP	-33.8678	6.0000	-5.64	0.0000
Constant	-0.7308	0.3362	-2.17	0.0320
F(12, 115)	15.25			
Prob> F	0.0000			
R^2	0.6140			
Adjusted R^2	0.5738			
Observations	128			
Hausman chi2(11)	41.96			
Prob>chi2	0.0000			
Hettest chi2(1)	12.81			
Prob> chi2	0.0000			
Doornik-Hansen chi2(26)	987.56			
Prob>chi2	0.0000			
Wooldridge test F (1, 18)	16.11			
Prob> F	0.0000			

DEP stands for deposits, WSF is Wholesale/non deposit funding, INTF represents internal funding, BE stands for bank equity, OWN stands for ownership, BS represents bank size, MP is monetary policy, INF represents inflation; GDPG stands for GDP growth.
The standard errors are robust to heteroscedasticity.

5.7 Conclusion

This chapter presented the results of the study and analysed them line with the objectives of the study. The study analysed the funding sources of banks and concluded that deposits account for about 68% of funding sources whereas wholesale funds account for about 13% and internally generated funds account for about 8% of funding sources. With regard to the lending patterns of banks in Ghana, it was concluded that loans to the primary economic sector account for 7% of total loans whilst loans to the secondary sector accounts for 24% of total loans allocated. The tertiary sector receives the bulk of loans at 68% and of the total assets of banks, about 48% are given out as loans. The study also analysed the effect of funding sources on lending patterns of banks in Ghana and concluded that loans to the primary and tertiary sectors are mainly funded with deposits whereas those allocated to the secondary sector are mainly funded with wholesale funds. Internally generated funds are mainly used to fund loans to the primary and secondary economic sectors. The study further found significant relationships between lending and various bank level variables such as a positive relationship between bank equity and total lending and bank size and total lending. The results show that overall, local banks lend more than foreign banks. Interestingly, the study found a positive relationship between the policy rate and lending to the tertiary economic sector.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter presents the summary of the findings and presents the conclusions drawn. It also makes recommendations for policy makers and other interested parties and ends with future research areas.

6.2 Summary

The study examined the effect of funding sources on the lending patterns of banks in Ghana from 2005 to 2011 using a large and representative sample of 22 banks operating in Ghana. A single country study such as this provides an opportunity to control for the legal and business environment and to provide robust empirical evidence on the funding sources and lending patterns of banks in a developing economy.

The study looked at the funding sources of banks in Ghana which comprise mainly deposits, wholesale funds/non deposit funding sources and internal funding. The findings indicate that deposits comprise the majority of funding sources followed by non deposit funding sources and internal funding. On lending patterns of banks in Ghana, the study finds that the bulk of loans are allocated to the tertiary sector, followed by the secondary sector with the primary sector lagging behind.

The regression results show a positive and significant relationship between lending to the primary sector, the tertiary sector, total lending and deposits. This suggests that primary sector,

tertiary sector and total lending are mainly funded by deposits while loans allocated to the manufacturing sector are mainly funded with wholesale funds. Additionally, the findings suggest that in Ghana, banks finance loans to the primary and secondary sector using internal funds.

Interestingly, the results indicate that larger banks may actually lend less to the primary economic sector while better capitalized banks generally allocate more credit than other banks. The study finds also that foreign banks lend more to the various sectors although local banks lend more overall. GDP growth has a positive and significant relationship with lending to the primary economic sector and total lending but a negative non significant relationship with the secondary and tertiary sectors. Interestingly, monetary policy exhibits a positively significant relationship with lending to the tertiary sector and with total lending. There is a positive and significant relationship between inflation and lending to the primary sector and total lending but a negative and significant relationship with lending to the tertiary sector. Deposits interacted with monetary policy has a negative and significant relationship with lending to the primary and tertiary sectors and total lending. There is a negative and significant relationship between wholesale funds and monetary policy interacted with lending to the secondary sector. The relationship between wholesale funding and monetary policy interacted and lending to the tertiary sector is positive and significant. Internal funding interacted with monetary policy has a negative relationship, which is significant, with lending to the primary and secondary sectors whilst that of total lending is negative but significant.

6.3 Conclusions

From the broader perspective, these results confirm that in addition to the fact already established in literature that various bank level and macroeconomic variables affect bank lending, bank funding sources also affect the lending sectoral lending practices of banks in Ghana with deposits mainly being used to fund primary and tertiary sector loans while wholesale funds are used in the case of the secondary economic sector. Additionally, the study concludes that funding to the primary and secondary economic sectors are also financed with internal funds. By interacting the policy rate with each of these funding sources, the study further finds that an increase in the policy rate results in a decline in deposits which negatively affects lending to the primary and tertiary economic sectors and total lending. Similarly, an increase in the policy rate translates into a decline in the use of wholesale funds which negatively affects lending to the secondary economic sector. Furthermore, an increase in the policy rate results in a decline in the use of internal funding which causes banks to make use of other funding sources in lending to the primary and secondary economic sectors.

6.4 Recommendations

Based on the findings, the study recommends that policy makers should put in place policies to make it more attractive for banks to channel more of their lending to the primary economic sector especially as their deposits increase. Additionally, the study recommends that other financial institutions could look at investing in the various sectors such as the primary economic sector which is presently not very attractive to the banks. Also, investors can look at investing in the tertiary sector since there are a lot of gains to be made.

6.5 Future Research

Future studies could look at the effect of the various types of deposits on the sectoral lending patterns of banks in Ghana since the various types of deposits: i.e. time, fixed and savings deposits have different maturity periods which may further advance the argument on the effect of funding sources of banks in Ghana. Other studies could also look at the effect of funding sources on various other lending patterns of banks in Ghana such as lending to state owned industries, private firms and individuals. Some studies could additionally look at the effect of the rising trend in mergers and acquisitions on the lending patterns and funding sources of banks in Ghana.

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