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THE LINK BETWEEN MONETARY POLICY AND BANKS LENDING BEHAVIOUR: THE GHANAIAN CASE

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Abstract

Purpose – The study examines whether bank lending is constrained by monetary policy in Ghana. **Design/methodology/approach** –- The study uses panel cross sectional data covering the period from 1998 to 2004 from the database of Bank of Ghana, ISSER and International Financial Statistics of IMF. The bank loan is represented by freely allocated bank loan which is presumably more sensitive to changes in monetary policy. Changes in money supply and central bank' prime rate is a proxy of monetary policy. **Findings** – The study reveals that Ghanaian banks lending behaviours are affected significantly by the country's economic activities and changes in money supply. The results of this study also support previous studies that the central bank's prime rate and inflation rate negatively but statistically insignificantly affect banks lending. With the firm level characteristics, the study reveals that bank size and liquidity significantly influence banks' ability to extend credit when demanded. **Originality/value** – The main value of this study is the identification of the monetary policy factors that influence bank lending behaviour in Ghana.

Key words: Monetary Policy, Bank Lending, Behaviour, Ghana.
JEL classifications: G21, E52.

1. Introduction

A financial system of any economy is made of institutional arrangements designed to transform savings into investments. These institutional arrangements are determined by legal rules concerning the design of financial instruments and regulation of banks and also more importantly by banking practices. While there is widespread agreement that banks play a key part in the transmission of monetary policy actions to the economy, there is considerable controversy over the precise role that banks play. The focus of this debate is whether bank lending plays a special part in the monetary transmission mechanism. If a special lending or credit channel exists, changes in the willingness and ability of banks to extend credit may have implications for aggregate economic activity. Moreover, ongoing changes in the role banks play in financial markets may affect this credit channel and so alter the monetary transmission mechanism[1].

There is general agreement among economists and policymakers that monetary policy works mainly through interest rates. When the central bank policy is tightened through a decrease in reserve provision, for instance, interest rates rise. The rise in interest rates leads to a reduction in spending by interest sensitive sectors of the economy, such as housing and consumer purchases of durable goods. Banks play a part in this interest rate mechanism since a reduction in the money supply, which may consist of deposit liabilities of banks, is one of the principal factors pushing up interest rates. In this standard view of the monetary transmission mechanism, however, there is nothing unique about bank lending. According to Bernanke and Blinder (1988) the interest rate mechanism does not necessarily depend on what assets banks hold; the same response would occur regardless of the proportions of a bank's assets that are held as loans or securities.

In contrast to this description of the transmission mechanism, some economists and policymakers have argued that an additional policy channel works through bank credit (see Jaffee, 1971; Keeton, 1979; Stiglitz and Weiss, 1981). In this view, monetary policy directly constrains the ability of

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[1] Bank of Ghana Directives, Universal Banking Directive.

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banks to make new loans, making credit less available to borrowers who depend on bank financing. Thus, in the credit channel, restrictive monetary policy works not only by raising interest rates, but also by directly restricting bank credit

Current literature on a bank credit channel has focused on two issues. The first issue centred whether there are categories of borrowers who depend on bank lending in that any change in banks' willingness to lend immediately affects their investment and spending decisions. The other issue is whether monetary policy changes directly constrain bank lending to borrowers. Both conditions are necessary for bank lending to play a special role in the monetary transmission mechanism. Thus far, research on a credit channel has yielded mixed results. Some recent research provides support for the view that certain borrowers, especially small businesses, are very dependent on banks for financing (Abor, 2004). This finding suggests that disruptions in bank credit could affect economic activity. At the same time, there is also conflicting evidence that bank lending is directly constrained by monetary policy actions (Bernanke and Blinder, 1988). The present study provides additional insight into the second issue, whether bank lending is constrained by monetary policy. The next section looks at the overview of the banking system in Ghana; section three reviews the extant literature on the monetary policy and bank lending behaviour. Section four presents the research methodology. Discussion of the findings is included in section five. Finally section six gives the summary and conclusion.

2. Ghanaian Banking System

Banking activities started in Ghana in 1896 when the British Bank of West Africa, now Standard Chartered Bank (Ghana) Limited (SCB), opened an office in Accra and delivered primary banking services of lending and borrowing of money. 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. Less attention was accorded to prudential banking.

The banking sector in Ghana has traditionally been segmented into merchant, commercial (retail) and development banks. While merchant banks have been restricted to corporate clients, the commercial and development banks have traditionally had customers across the entire financial market segments. It is against this backdrop and the need to create a level playing field for all banks that the idea of Universal Banking was adopted. The aim is to allow all banks that comply with the prescribed capital requirements, the freedom to engage in permissible banking business without restrictions and thereby eliminate the compartmentalization. Hinson (2004) has noted that "before the passage of the Universal Banking Law, banking was conducted along such narrow scopes as commercial, developmental or merchant banking. With the passage of the Universal Banking Law however, all types of banking can be conducted under a single corporate banking entity and this greatly reorganizes the competitive scopes of several banking products in Ghana". He further noted that banks in Ghana have been thrust "firmly into the competitive arena in terms of customers and products" and also that banks throughout Ghana are also "seeking unique ways of differentiating their offering".

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. 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 II and I), Non-Performing Assets Recovery Trust (NPART) and the Foreign Exchange Bureau legislation. A new Banking Law was also promulgated. The Bank of Ghana was strengthened to enhance its capacity to play its regulatory role. These reforms have: strengthened the banks in terms of their capital base and managerial compe-

tence; enhanced supervisory capabilities of Bank of Ghana; improved the quality of assets being held by banks; and increased profitability of the banks.

From independence to 1983, there were twelve (12) banks. These banks were Standard Chartered Bank (SCB), Barclays Bank of Ghana Limited (BBG), Ghana Commercial Bank (GCB), Bank for Housing and Construction (BHC), Agriculture Development Bank (ADB), Bank of Credit and Commerce (BCC), Merchants Bank of Ghana Limited (MBG), Social Security Bank (SSB), National Investment Bank, Ghana Corporative Bank (Co-op), Cal Merchant Bank (CAL) and Ecobank (ECO). Over the last decade (1993-2003) and beyond eleven (11) new banks have been incorporated namely: Prudential Bank Ltd (PBL), Metropolitan Allied Bank (METRO), First Atlantic Merchant Bank (FAMB), The Trust Bank (TTB), International Commercial Bank (ICB), Stanbic Bank, Amalgamated Bank (AMALBANK), HFC Bank, Unibank, Prestige Bank, Standard Trust Bank and Zenith Bank Ghana Limited.

Some significant events have occurred during this period such as mergers (SSB and National Savings and Credit Bank), liquidation (BHC, Co-op), privatization of state owned banks and change of ownership (GCB, SSB, NIB). Competition in the banking sector has escalated over the period. Commercial and development banks have gone beyond their perceived traditional functions and have ventured into international trade financing, commerce and corporate lending, treasury services payment financing, syndication, etc., which should have been the preserve of merchant banks.

One area that has seen fierce competition in the banking industry is in the area of product development. New products such as international funds transfer, school fees loan, negotiable certificate of deposit, car loans, consumer/hire purchase loan, travelers' cheques etc. have been developed. Another development that has occurred over the last decade is computerization and networking of branches. Some of the banks have nationwide network whilst others have reached advanced stage of networking all their branches. Banks operations and information processing have vastly improved.

Automated teller machines (ATMs) have become common giving clients the freedom to transact business at their own convenience. Also home banking, for example telephone banking, SMS banking etc. have been introduced. The banks have pursued consistent programmes of sponsorship, promotion, advertisement of services and products in the print and electronic media etc. The banking sector landscape can be said to be evolving, competitive and promising in terms of savings mobilization, development financing and service delivery.

3. Literature Review

This section provides a review of the literature on monetary policy and bank lending. The study begins with how some borrowers depend on bank for their financing decision and then discusses on how bank lending is constrained by the monetary policy.

3.1. Borrower Dependant on Banks

The view that some borrowers are dependent on banks for financing stems from economic models of asymmetric information that help explain credit market imperfections. The central idea is that the costs of obtaining information about a firm's condition, as well as bankruptcy costs, are differentially greater for smaller firms (see Diamond, 1984; Fama, 1985; etc.). Thus, small firms find it more difficult and more costly to obtain credit. In addition, a special feature of banks is that they may have a comparative advantage over other intermediaries in information processing and monitoring that enables banks to lend to smaller firms at lower cost (Thakor, 1995; Swank, 1996; and Neuberger, 1998).

These theories provide a rationale for observed differences in large and small firm financing. Generally speaking, larger firms have a greater array of financing options, including equity, long-term debt, and short-term debt, in addition to bank loans and internal cash flow. In contrast, smaller

firms appear to have much less access to capital markets and depend more on bank loans, trade credit, and internal funds for financing (Mash, 1982; and Abor, 2004). This means that the greater dependence of smaller firms on bank financing, in turn, suggests they may be more vulnerable than larger firms to disruptions in credit availability.

A number of studies have provided evidence that these credit market imperfections may explain differences in behaviour of small and large firms during periods of tight credit. For example, small firms appear to account for a larger share of the decline in manufacturing activity and reduced inventory demand that follows a monetary tightening (Gertler and Gilchrist, 1994). Similarly, small firms appear to have less access to bank and non-bank external finance in periods of monetary tightening (Oliner and Rudebusch, 1994). This behaviour is consistent with the view that restrictions in the availability of bank credit could have macroeconomic consequences by affecting the investment and spending decisions of bank-dependent borrowers.

3.2. Monetary Policy and Bank Lending

For monetary policy to operate through a credit channel, not only must there be bank dependent borrowers, but monetary policy must also directly affect banks' willingness to lend. To determine whether monetary policy affects bank lending, some studies have examined how banks adjust their portfolios in periods of monetary tightening, while other studies have looked at changes in the price and non-price terms of lending (see Keeton, 1979; Stiglitz and Weiss, 1981; Romer and Romer, 1990; Bernanke and Blinder, 1992; Gertler and Gilchrist, 1993).

3.2.1. Bank portfolio behaviour

One approach to identifying a bank lending channel is to see how banks alter their assets and liabilities during periods of monetary restraint. Accordingly, a number of studies have examined how banks adjust loans, securities, and deposit and non-deposit liabilities to changes in monetary policy. Several stylized facts about bank portfolio behaviour have emerged from this line of research (Bernanke and Blinder, 1992; Romer and Romer, 1990). First of all, in response to a tightening of policy, bank transactions deposits or core deposits fall immediately, then total bank loans decline, but only after a significant lag of two to three quarters. Subsequently, banks are able to maintain lending in the face of a decline in core deposits by selling securities and issuing managed liabilities such as time deposits and Eurodollar borrowings. Finally, the eventual decline in bank lending is roughly contemporaneous with a decline in economic activity as measured by industrial production.

Taken as a whole, these results do not resolve the debate over the existence of a credit channel. While there is some evidence that bank lending declines when policy is tightened, the time lags appear quite long. Moreover, the contemporaneous decline in loans and output is consistent with a reduction in lending as it causes output to fall. According to Morris and Sellen (1995) this is equally consistent with a decline in output causing a fall in loan demand.

An additional problem with many of these studies is that they use total bank loans, which include consumer and real estate lending, rather than business loans. Based on the discussion of credit market imperfections, business lending would appear to be the more appropriate measure in testing for a credit channel. Indeed, given the large number of non bank credit sources for consumer and real estate lending and the extensive securitization of these loans, it is difficult to believe the informational problems that make small businesses dependent on bank credit apply to other types of lending (Morris and Sellen, 1995).

Focusing on business lending still does not necessarily resolve the debate. Gertler and Gilchrist (1993) conducted a study that specifically looked at how bank business lending responds to policy tightening. Their study reveals that business lending does not decline when policy is tightened. They concluded that the entire decline in total lending comes from a reduction in consumer and real estate loans. Moreover, they added, when the analysis is narrowed further to loans to manufacturing firms, bank lending actually shows a significant increase in response to tighter policy. In-

deed, for manufacturing firms, most of the increased lending appears to go to large firms; while loans to small manufacturing firms are largely unaffected by policy tightening. Thus, there is little evidence banks actually reduce lending to small firms when monetary policy is tightened.

In contrast to Gertler and Gilchrist (1993) study, Kashyap and Stein (1995) find evidence that business lending may respond to a tightening of monetary policy. They examine the lending behaviour of small and large banks, rather than loans received by small and large firms. They find that when policy is tightened, both total loans and business loans at small banks fall, while loans at large banks are unaffected. The differential response of small banks may indicate they have less access to alternative funding sources than large banks and so are less able to avoid the loss of core deposits when policy is tightened. Since small banks lend primarily to smaller firms, their finding is consistent with the view that monetary policy may work, in part, through a credit channel.

Another line of research consistent with Kashyap and Stein examines the behaviour of business loans not made under terms of a loan commitment (Sofianos et al., 1990; and Morgan, 1992). These loans would appear to be most vulnerable to monetary tightening. Their study reveals that uncommitted loans fall in periods of monetary tightening, while loans made under the terms of an existing commitment are unaffected. Thus, restrictive policy may work primarily by reducing the availability of bank credit to business borrowers without a loan commitment.

3.2.2. Terms of bank lending

Given these conflicting results, most researchers agree that analyses of aggregate bank balance sheets need to be supplemented with more detailed information on bank lending behaviour. One limitation of balance sheet data is that they contain no information on the rates banks charge on new loans or on other terms of loan contracts. In addition, the value of loans on banks' balance sheets may change for a variety of reasons having little to do with monetary policy. For example, while loans on balance sheets could decline as a consequence of restrictive monetary policy, they could also fall as a result of increases in nonperforming loans or because banks sell loans to other financial institutions.

Information on the terms of bank lending may also be useful in distinguishing between the "lending view" and the "credit rationing" explanations of a bank credit channel. In this case, Kashyap and Stein (1995) note that the lending views is a statement about the relative magnitude of shifts in the demand for and supply of loans when policy is tightened. According to the lending view, the volume of new loans should decline and loan rates should rise relative to market rates when policy is tightened. This behaviour they added would indicate loan supply shifts are relatively larger than loan demand shifts. In contrast, most theories of credit rationing suggest that, while the volume of new loans should decline when policy is tightened, bank loan rates should actually increase less than market rates.

Recent studies on bank lending using survey data on the terms of lending have found little evidence in favour of either credit rationing or the lending view. Berger and Udell (1992) find little supporting evidence. While they do find a key element of rationing, a sluggish response of bank loan rates to market rates, other characteristics of rationing are not present. In particular, they noted that interest rates on loans made under commitment are as sluggish as rates on uncommitted loans. While Berger and Udell (1992) do not directly examine the lending view, the stickiness of bank loan rates found in their study suggests banks do not reduce the supply of new loans when monetary policy is tightened.

4. Research Methodology

The present study explores the connection between Bank lending behaviour and the central bank monetary policy. Most of the empirical research on the bank lending made use of aggregate time-series data (see Bernanke and Blinder, 1992; Gertler and Gilchrist, 1993; and Kashyap et al., 1993). The use of aggregate data is far from ideal as a result of the difficulty of disentangling demand and supply effects. However, since the seminal work of Kashyap and Stein (2000), the use

of bank level data has been preferred in the literature to better deal with the identification problem (see Brissimis et al., 2003; Ehrmann et al., 2003; Farinha and Robalo Marques, 2003; Gambacorta, 2003; and Worms, 2003). The sample selected includes all banks supervised by the country's Central Bank (Bank of Ghana). AU in all, eighteen banks qualified for this study. The study uses panel cross section data covering the period of 1998 to 2004 from the database of Bank of Ghana, ISSER[1] and International Financial Statistics of IMF[2].

The dependent variable in this study is represented by freely allocated bank loan (*Lend*) such loans refer to the portion of total bank loans that are granted at market interest rates and which are, presumably, more sensitive to changes in monetary policy. Freely allocated credit includes loan to the private sector, non-financial public enterprise and government institutions. Previous research on the credit channel has used two types of monetary policy measures. Most studies use a short term interest rate, such as Treasury bill rate to measure policy action. Some also use a record of dates of significant monetary policy actions developed by Romer and Romer (1989).

The explanatory variables include interest rate (*Irate*), changes in money supply (*Msup*), economic growth (*Gdpg*), inflation rate (*infl*), bank size (Size) and bank liquidity (liqq). Interest rate is the central bank prime rate. Money supply is the change in money supply. Economic growth is growth in real GDP. Inflation rate is measured by the monthly variation of the consumer price index calculated by the Statistical Service, Ghana, which is also official inflation targeting indicator. The bank size is measured by the logarithm of total bank assets, where the total bank assets are the sum of current assets and non-current bank assets. The liquidity is defined as the ratio of liquid assets to total bank assets. The liquid assets is the sum total of bank cash and cash equivalent.

4.1. Model Specification

Stemming from the above discussion, it must be noted that researchers have adopted one model or the other with the view of obtaining an accurate specification of a model within the context of the environmental and economic peculiarities of an economic setting. For this study, the empirical test of the lending channel in Ghana follows that of Ehrmann et al. (2003) model as a benchmark. Their model is adapted to the case where there is more than one policy instrument. The market for bank deposits is described by an equilibrium relationship, where deposits (D) are taken to be equal to money supply (M), with both being functions of the interest rate i set by the monetary authority, as follows:

$$L_i^d = L_i^s . \tag{1}$$

Bank i faces a loan demand (L_i^d) that depends on economic activity ($Gdpg$), on the inflation rate ($\inf l$), and on the loan nominal interest rate ($Irate$):

$$(L_i^d) = \beta_1 Gdpg + \beta_2 \inf l + \beta_3 Irate . \tag{2}$$

Loan demand is supposed to be positively related to economic activity, and negatively related to the loan nominal interest rate. There is no a priori sign for the coefficient on inflation. Theoretical models suggest that any sign is possible. Cukierman and Hercowitz (1989) 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. By contrast, De Gregorio and Sturzenegger (1997) develop a model where the demand for bank credit by firms reduces with inflation because, in their model,

[1] Institute of Statistical, Social & Economic Report, Ghana (ISSER annual report).
[2] International Monetary Fund: International Financial Data.

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.

The loan supply by bank i (L_i^s) is a function of the available amount of money or deposits ($M\sup p$), of the loan nominal interest rate ($Irate$), and of the monetary policy instrument (Z), where the instrument can either be the interest rate set by the Central Bank or the reserve requirements rate on deposits or both. The direct impact of the policy interest rate represents the opportunity costs for banks when banks make use of the interbank market as a liquidity source. Thus, loan supply is given by:

$$L_i^s = \beta_4 M\sup p + \beta_5 Irate + \beta_6 Z . \quad (3)$$

The study also assumed that not all banks are equally dependent on deposits. In particular, the model considers that the impact of a change in deposits is smaller the lower the bank characteristic related to size ($Size$) or liquidity ($Liqq$). The equilibrium condition in the lending market plus equations (1) to (3) result in the following reduced form for the model:

$$Li = \beta_0 + \beta_1 Gdpg + \beta_2 \inf l + \beta_3 Irate + \beta_4 M\sup + \beta_5 Z + liqq . \quad (4)$$

The coefficient β_5 relates the reaction of bank i's loans to the monetary policy interacting with its characteristic. Under the model assumptions, a significant β_5 coefficient implies that the monetary policy affects the supply of loans. An implicit identifying assumption is that the interest rate loan demand elasticity does not depend on the bank characteristic (x_i).

The assumption of a homogeneous reaction of the loan demand is crucial for the identification of the monetary policy effects on loan supply. This assumption rules out the cases where, for example, small or large bank customers are more sensitive to interest rate changes. From the above discussion, the regression model is specified as:

$$Lend_{it} = \beta_0 + \beta_1 Gdpg_t + \beta_2 \inf l_t + \beta_3 Irate_t + \beta_4 M\sup_t + Size_{it} + Liqq_{it} + \dot{e}_{it} , \quad (5)$$

where:

$Lend_{it}$ = loan and advances to total assets for firm i in period t;

$Gdpg_t$ = the growth of GDP in period t;

$inlf_t$ = the inflation rate in period t;

$Irate_t$ = the central bank prime rate in period t;

$M\sup_t$ = the change in money supply in period t;

$Size_{it}$ = log of total assets for firm i in period t;

$Liqq_{it}$ = cash and cash equivalent to asset for firm i in period t;

e_{it} = the error term for firm i in period t.

5. Empirical Result

5.1. Descriptive Statistics

Table 1 below provides a summary of the descriptive statistics of the dependent and explanatory variables. The mean (median) bank credit (measured by bank total loans and advances divided by bank total assets) of sampled banks was 0.2864 (0.3030). This highlights that more than 81% of total assets are invested outside extending loans and advances. This means that during the period of the investigation, Ghanaian banks prefer to invest in Government treasury bills and bonds. The mean (median) GDP growth for Ghanaian economy is 0.0466 (0.0450). The mean (median) inflation during the period under review was 0.2193 (0.2520). Thus, the real interest rate (measured as nominal interest rate minus inflation) during the period is less than 4%. The mean (median) central bank prime rate is 0.2665 (0.2700). This means that the central bank (Bank of Ghana) charges more than 26% for loans and advances extended to the commercial banks. The mean (median) change in broad money supply was 0.3768 (0.4102). Liquidity is measured as the ratio of bank cash and cash equivalent (liquid assets) to total bank assets and this shows on average 0.1607 (0.1380). This suggests that not less than 83% of Ghanaian banks assets on their balance sheet are less liquid (plant, property and equipment). Size, determined as the natural logarithm of total assets had an average (median) of 797,000 (403,000).

Table 1

Descriptive statistics of Banks in Ghana

	Mean	Std. Dev.	Minimum	Median	**Maximum**
LEND	0.2864	0.1156	0.0036	0.3030	**0.5290**
GDPG	0.0466	0.0063	0.0370	0.0450	**0.0580**
INFL	0.2193	0.0738	0.1240	0.2520	**0.3290**
IRATE	0.2665	0.0473	0.1850	0.2700	**0.3700**
MSUP	0.3768	0.1536	0.1612	0.4102	**0.5946**
LIQQ	0.1607	0.1056	0.0008	0.1380	**0.5901**
SIZE (¢'m)	**797,000**	**1,020,000**	**14,4000**	**403,000**	**5,090,000**

5.2. Regression Results

Table 2 reports regression results between the dependent variable (Bank credit) and explanatory variables. The results show a positive and significant relationship between bank's credit and GDP growth. Banks are prepared to extend credit during economic growth. This finding is consistent with empirical evidence (see Bernanke and Blinder, 1992; Romer and Romer, 1990). The results also show a negative relationship between inflation and banks loan. This means that demand for bank credit by firms reduces with inflation as higher inflation is related to lower productivity levels, which, in turn, reduces the demand for labour. The finding, which is also consistent with the previous studies (De Gregorio and Sturzenegger, 1997; Huybens and Smith, 1999), shows that inflation reduces firm's ability to demand bank loan.

The results also indicate that prime rate is negative, but statistically insignificant to loans and advances. 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 into the system, it induces banks to increase their credit portfolios.

Table 2 also shows how some of the firm level characteristics affect banks lending behaviour. The results show that the coefficient of liquid asset is positive and statistically significant for the panel data estimations. The results seem to suggest that for Ghanaian banks, liquidity influences their credit behaviour. Banks with Liquid assets are in position to give credit to borrowers especially firms who depend on banks for their financing and investment decisions. This result confirmed the previous studies (see Takeda et al., 2005; Amidu and Hinson, 2006). The results also indicate a positive relationship between size and bank credit. The results suggest that the bigger the banks are, the more they are in position to extend credit.

Table 2

Regression Model Results (Dependent Variable: LEND)

Explanatory Variables	Coefficient	t-Statistic	Prob.
GDPG	4.5009	14.6547	0.0000
INFL	-0.0492	-1.3333	0.1857
IRATE	-0.0950	-1.0601	0.2919
MSUP	0.1277	7.3175	0.0000
LIQQ	0.2305	2.9735	0.0038
SIZE	3.87	7.2318	0.0000
R-squared	0.91820		
S.E. of regression	0.10556		
F-statistic	206.5399		
Prob (F-statistics)	0.0000		

6. Conclusion

The monetary policy transmission mechanism through bank loan decisions has recently received attention in banking literature. Kashyap and Stein (2000) study provides empirical evidence that seeks to corroborate the existence of this channel for the US and they concluded that the impact is mostly driven through small banks with less liquid balance sheet. Ehrmann et al. (2003) confirm this when they report that loan supply of less liquid banks is more severely affected by monetary policy changes in several European countries.

The present study examines whether bank lending in Ghana is affected by monetary policy instruments. The analyses are performed using data derived from the database of Bank of Ghana, ISSER and International Financial Statistics. The Ordinary Least Square model is used to estimate the regression equation. The results indicate that there is evidence to support the validity of the bank lending channel for Ghana. The study reveals that Ghanaian banks lending behaviour is affected significantly by the country's economic activities and money supply. The results also support the previous studies as the study shows that the central bank prime rate and inflation rate are negatively affected by bank lending. However, the coefficient of the prime rate and inflation rate is statistically insignificant.

With the firm level characteristics, the study reveals that bank size and liquidity influence banks' ability to extend credit when demanded. Bigger banks are in position to attract more investments in the form of deposit and this enhances their ability to extend credit. With regard to the liquidity, studies have shown that banks with more liquid assets extend credit to borrowers.

Interestingly, the study reveals that more than 81% of total assets of banks are invested outside extending credit and loans. The real interest rate during the period is less than 4%.

Following these findings, it would be useful to consider one possible extension by evaluating other bank level data on the bank loan granting decisions.

Reference

1. Abor, J. (2004). 'Internationalisation and Financing Options of Ghanaian SMEs', ACTA Commercii, Volume 4, 60-72.
2. Amidu, M. and Hinson, R. (2006). 'Credit Risk, Capital Structure and Lending Decisions of Banks in Ghana', Bank and Bank Systems, Forth Coming.
3. Berger, A.N., and Udell, G.F. (1992). "Some Evidence on the Empirical Significance of Credit Rationing", Journal of Political Economy, October, pp. 1047-76.
4. Bernanke, B.S. and Blinder, A.S. (1988). "Credit, Money, and Aggregate Demand", American Economic Review, May, pp. 435-39.
5. Bernanke, B.S. and Blinder, A.S. (1992). "The Federal Funds Rate and the Channels of Monetary Transmission", American Economic Review, September, pp. 901-21.
6. Brissimis, S.N., Kamberoglou, N.C., and Simigiannis, G.T. (2003). Is there a bank lending channel of monetary policy in Greece? Evidence from bank level data. In Angeloni, I., Kashyap, A., and Mojon, B., editors, Monetary Transmission in the Euro Area: A Study by the Eurosystem Monetary Transmission Network, pages 309-322. Cambridge University Press, Cambridge.
7. Cukierman, A. and Hercowitz, Z. (1989). 'Oligopolistic Financial Intermediation, Inflation and the Interest Rate Spread', Foerder Institute for Economic Research, Tel-Aviv University, Working Paper n. 17-89.
8. De Gregorio, J. and Sturzenegger, F. (1997). 'Financial Markets and Inflation Under Imperfect Information'. Journal of Development Economics, 54(1): 149-168.
9. Diamond, D. (1984). Financial Intermediation and Delegated Monitoring, Review of Economic Studies 51, 393-414.
10. Ehrmann, M., Gambacorta, L., Mart´ınez-Pag´es, J., Sevestre, P., and Worms, A. (2003). Financial systems and the role of bank in monetary transmission in the Euro area. In Angeloni, I., Kashyap, A., & Mojon, B., editors, Monetary Transmission in the Euro Area: A Study by the Eurosystem Monetary Transmission Network, pages 235-269. Cambridge University Press, Cambridge.
11. Fama, E.F. (1985). What's Different About Banks?, Journal of Monetary Economics 15, 29-39.
12. Farinha, L. and Robalo Marques, C. (2003). The bank lending channel of monetary policy: identification and estimation using Portuguese micro bank data. In Angeloni, I., Kashyap, A., & Mojon, B., editors, Monetary Transmission in the Euro Area: A Study by the Eurosystem Monetary Transmission Network, pages 359-371. Cambridge University Press, Cambridge.
13. Gambacorta, L. (2003). The Italian banking system and monetary policy transmission: Evidence from bank-level data. In Angeloni, I., Kashyap, A., & Mojon, B., editors, Monetary Transmission in the Euro Area: A Study by the Eurosystem Monetary Transmission Network, pages 323–334. Cambridge University Press, Cambridge.
14. Gertler, M., and Gilchrist, S. (1993). "The Role of Credit Market Imperfections in the Monetary Transmission Mechanism: Arguments and Evidence", Scandinavian Journal of Economics, Vol. 95, no. 1, pp. 43-64.
15. Gertler, M., and Gilchrist, S. (1994). "Monetary Policy, Business Cycles, and the Behaviour of Small Manufacturing Firms", Quarterly Journal of Economics, May, pp. 309-40.
16. Hinson, R. (2004). 'The Importance of Service of Quality in Ghana's Banking Sector', The Marketing Challenge, Vol. 7, Issue 3, pp. 16-18.
17. Huybens, E. and Smith, B.D. (1999). 'Inflation, financial markets and long-run real Activity', Journal of Monetary Economics, 43(2): 283-315.
18. Kashyap, A.K. and Stein, J.C. (2000). What do a million observations on banks say about the transmission of monetary policy? American Economic Review, 90(3): 407-428.

19. Kashyap, A.K., Stein, J.C., and Wilcox, D.W. (1993). Monetary policy and credit conditions: Evidence from the composition of external finance. American Economic Review, 83(1): 78-98.
20. Kashyap, A.K. and Stein, J.C. (1995). 'The Impact of Monetary Policy on Bank Balance Sheets. Carnegie-Rochester Conference Series on Public Policy, 42: 151-195.
21. Keeton, W. (1979). Equilibrium Credit Rationing. New York: Garland Press.
22. Marsh, P. (1982). 'The Choice Between Equity and Debt: An Empirical Study', The Journal of Finance, Vol. 37, No. 1 pp. 121-44.
23. Morgan, D.P. (1992). "Bank Loan Commitments and the Lending View of Monetary Policy", Federal Reserve Bank of Kansas City, Research Working Paper 92-09, December.
24. Morris, C.S and Sellon, G.H. (1995). "Bank Lending and Monetary Policy: Evidence on a Credit Channel", Economic Review, Second Quarter 1995, 59-75.
25. Neuberger, D. (1995). Diversification, Collateral and Economies of Scale in Banking: Lessons from a Continuous-Time Portfolio Approach, International Review of Economics and Finance 4, 253-265.
26. Oliner, S. and Rudebusch, G.D. (1994). "Is There a Broad Credit Channel for Monetary Policy?" Board of Governors of the Federal Reserve System, Research Working Paper, January.
27. Romer, C.D., and Romer, D.H. (1989). "Does Monetary Policy Matter? A New Test in the Spirit of Friedman and Schwartz", in Oliver Blanchard and Stanley Fischer, eds., NBER Macroeconomics Annual. Cambridge, Mass.: MIT Press, pp. 121-70.
28. Romer, C.D., and Romer D.H. (1990). "New Evidence on the Monetary Transmission Mechanism", Brookings Papers on Economic Activity, no. 1, pp. 149-213.
29. Sofianos, G., Wachtel, P. and Melnik, A. (1990). "Loan Commitments and Monetary Policy", Journal of Banking and Finance, no. 14, pp. 677-89.
30. Stiglitz, J. E., and Weiss, A. (1981). "Credit Rationing in Markets with Imperfect Information", American Economic Review, June, pp. 393-410.
31. Swank, J. (1996). Theories of the Banking Firm: A Review of the Literature, Bulletin of Economic Research 48, 173-207.
32. Takeda, T., Rocha, F. and Nakane, M.I. (2005). 'The Reaction of Bank Lending to Monetary Policy in Brazil,' RBE, Rio de Janeiro 59 (1): 107-126.
33. Thakor, A. (1996). 'Capital Requirements, Monetary Policy, and Aggregate Bank Lending: Theory and Empirical Evidence', Journal of Finance 51: 1 (March), 279-324.
34. Worms, A. (2003). The Reaction of Bank Lending to Monetary Policy Measures in Germany. In Angeloni, I., Kashyap, A., and Mojon, B., Editors, Monetary Transmission in the Euro Area: A Study by the Eurosystem Monetary Transmission Network, Cambridge University Press, Cambridge, pp. 270-283.