วารสารเศรษฐศาสตร์ธรรมศาสตร์ Thammasat Economic Journal
ปีที่ 25 ฉบับที่ 2 มิถุนายน 2550 Vol. 25, No. 2, June 2007

ARE ASSET SIZE AND CAPITAL STRENGTH MATTERS IN INFLUENCING THE BANK-LENDING CHANNEL?

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ABSTRACT

This paper attempts to prove the role of asset size and capital strength to the monetary shock on bank lending channel in Malaysia. Basically, undercapitalized banks (of any size) tend to respond more to change in policy rather than well capitalized. Besides that, some smaller banks hold less liquid assets which they can't use to offset monetary shock. However, most of large banks easily shield their operation from the monetary stance. Therefore, by using panel data of 25 commercial banks in Malaysia from 1997 to 2004 this paper tries to prove whether both variables play an important role in the monetary shock on the bank lending channel. We assume that asset size and capital ratio as controlled variables that have been included in the model. Generalize Least Squares method on the Fixed Effects has been chosen as the estimation method. The findings show that there exists a bank lending channel in Malaysia. Unfortunately, we failed to prove the size of asset and capital ratio play important role to the changes in monetary policy.

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JEL Classification numbers: E51; E52; E58;

Keywords: bank-size; capital ratio; transmission mechanism; monetary policy; lending channel; pooled data;

INTRODUCTION

There has been long determined and interest on the role of banks in the transmission of monetary policy and business cycle. For example, Keynes (1936) found that money plays an important role to economic growth. Furthermore, Gurley and Shaw (1995) began to redirect attention toward the overall interaction between financial structure and real activity, emphasizing financial intermediation, and particularly the role of financial intermediaries in the *credit supply process* as opposed to the money supply process.

However, Bernanke and Blinder (1988) produced another view that looked into the assets side as a monetary policy channel to influence the economic activities. For example, in a monetary contraction, banks' reserves decrease because of reserve requirements and hence reduce the deposits. Consequently, it may increase the short-term and long-term interest rate and also reduce the supply of bank loans. If bank-dependent borrowers are dominant, thus it will reduce the investments and thereby in economic activity. This view known as balance sheet channel, is further argued by Bernanke and Gertler (1989). They claim that monetary policy can also affect a borrower's financial position or net worth, thereby influencing the costs of external finance to the borrower (arising from the loss of creditworthiness). Consequently, effects the borrowers' investment and spending plan.

However, the recent studies made by Altunbas , Fazylov , and Molyneux (2002) found that across the EMU systems, undercapitalized banks (of any size) tend to respond more to change in policy. Furthermore, Huang (2003) analyzed the cross-section differences between bank-dependent and non-bank-dependent listed companies and between listed and non-listed companies. Their results concluded that small firms bear most of the reductions in bank loan supplies, and since they do not

have many alternatives to bank finance, they suffer more from monetary tightening than big firms. Furthermore, he found that big, non-bank-dependent firms can benefit more from the bank-firm relationship than small, bank-dependent firms.

The changes in the monetary policy channel give an idea to regulate and strengthen the banking industry. Thus, several questions can be highlighted: how do the changes in the monetary policy tools affect the bank portfolio? If bank lending plays as monetary policy

channel, do they affect the other portfolio? Do the current regulations (such as capital requirement) affect the bank portfolio behaviour? Thus, we hope this paper could be contributed to the policy makers for making a good policy in order to stabilize the economy condition as well as banking industry.

Therefore, the objective of this paper is to analyze bank lending channel as one of the important transmission mechanism of monetary policy. We also want to examine whether deregulation can produce a counteract affect on the bank supply of loans (assets side).

The organisation of this paper is as follows. Section 2 discusses recent literature on monetary transmisson and bank lending. Then, section 3 is our research design. Section 4 we present our empirical results. Ultimately, section 5 concludes.

PRIOR STUDIES

The role of bank as a transmission of monetary policy can be seen from both assets and liabilities. Money channel tries to highlight an important role of banks in order to generate the liabilities. Bank expands their money through the deposits and placements earning from customers, banks and other financial institutions. These deposits and placements are subject to required reserve requirement, hence it can influence the ability of banks to increase their deposits.

The role of banks in the transmission of monetary policy emanates also from their assets. Loans are the main banks' asset, thus monetary policy action will also influence the variables. The

transmission of the monetary policy on the bank lending has been classified into two wide views which is traditional *money view* and *credit view* which affects the aggregate demand and thus the output.

The influence of monetary shocks on real economic activity has two dimensions in the credit view that is the borrower net worth channel (also known as the balance sheet channel) and the bank-lending channel.

First, a monetary shock can influence the financial position of a borrower firm. A higher net worth of a firm's balance sheet makes external financing from loan market possible and hence, stimulates investment decisions. As the transmission of monetary shocks to the real economy occurs through the borrower's balance sheets, this channel is called the *balance sheet channel (loan demand).* Second, monetary shock can also influence the bank's loan supply to bank dependent firms. This change in the availability of loans influences the investment decisions of the borrower firms by reducing external source of finance. The transmission through such a channel is called the *bank-lending channel (loan supply).*

The approach to the monetary transmission mechanism appears to be an important channel of credit view as there are bank dependent borrowers who have few or no alternative sources of finance other than bank loans. Any frictions in the asset-liability management of banks due to monetary shocks would be transmitted to real economic activity through bank dependent producers in the economy. A tight monetary drains reserves from the banking system and restrict the supply of loanable funds so that it increases the external finance premium of bank dependent borrower firms.

In other words, in this channel, Kishan and Opiela (2000) conclude that asymmetric information and time deposits purchasers exposes these purchasers to the default risk through the non-reservable, uninsured deposits (that is, time deposits). Consequently, inducing of reserves by central banks may affect some banks unable to completely offset with an increase in time deposits.

This implies that open market operations can directly affect loan supply and create an additional channel of monetary transmission.

The presence of an active bank-lending channel may serve to explain the amplified and propagated conventional effects of policy shocks. It has been noted that since bank lending channel focuses only on the lending behavior of banks affected by monetary policy shocks, this transmission channel view is assumed to be narrow typed credit channel approach.

Hence, as with the Kashyap and Stein (1995) findings, their evidence suggest there are effects on informational imperfections in financial markets on the balance sheets of intermediaries as well as borrowers. Debondt (1999) was the first to use disaggregated bank data to test for evidence of the lending channel across various European countries, following a similar approach to Kashyap and Stein (1995, 2000).

Debondt (1998) also tests European banks with varying characteristics (in term of balance sheet size and liquidity) respond to the changes in the stance of monetary policy (short term interest rates) during the 1990-1995 periods in order to examine whether there exists important differences. In his interactive regression models, he uses changes in money market rates (as a proxy for monetary policy stance). Overall, the evidence shows there are exists bank-lending channel in Germany, Belgium and the Netherlands, while the rest of countries under study (France, Italy and the United Kingdom) no significant effect were found. However, when the stance of monetary policy is measured by a monetary condition index, the bank-lending channel also appears to exist in Italy and France.

In 1999 he adopts a different approach by using aggregate bank data to examine the main lending channel in the same six European countries. By including security holdings in a vector error correction model as a variable used to detect loan supply effects he finds evidence that credit

constraints due to monetary policy are important in Italy, Germany and France, but not in the United Kingdom, Belgium and Netherlands.

The above findings for bank lending channel have motivated other researchers to explore the impact of bank size, liquidity and capital strength. These studies mainly use the disaggregated data. In the first impact, Kakes and Sturm (2002) find that the effect of a monetary shock on the external finance premium of small size firms is assumed to be higher than it on large ones under the assumptions that large size firms have easier access to the credit markets and have more alternative sources of finance. By using quarterly data of six different banking groups in the German and conclude that lending by the credit co-operatives, which are on average the smallest banks, declines most, whereas big banks are able to shield their loans portfolio against monetary shocks. This shows that the response of bank lending after a monetary contraction is very different across banking sectors.

Kashyap and Stein (1995, 2000) also find that large banks are better able to neutralize monetary shocks than small banks. They divide banks into size categories and look at the response of lending to monetary policy shocks, which identify as changes in the federal funds rate. They find that bank lending declines after a monetary policy contraction at all but the largest banks. They interpret this as evidence supporting existence of a bank-lending channel since one of the links in the chain of causality behind the bank-lending channel is that after a monetary contraction, bank lends less. These findings are similar with the research made by Huang (2003), which using balance sheet data for a panel of UK listed firms.

In the second and third impacts, the bank-lending channel also appears to be strengthened when these small banks are either relatively illiquid or undercapitalized. In short, the evidence strongly suggests that a bank-lending channel is present for small balance sheet constrained banks. The use of banks' size as a measure to generate cross-sectional differences does not correspond precisely to the underlying theoretical models, which stress the importance of net worth. In this

context, banks' capital may be a better proxy. Favero et al (1999) and Kishan and Opiela (2000), categorized banks by size into six asset size categories and further subdivided into three capital strength groups.

The importance of capital strength variable is due to the reason that well capitalized banks could be in better position to absorb temporary financial difficulties on the part of their borrowers. This means, if banks choose ex ante a loan portfolio with higher return and risk, so their borrowers are on average, more financially fragile and more exposed to economic downturns. These could highly debate an important issue that how bank capital influence the response of bank lending to monetary policy and GDP shocks.

RESEARCH DESIGN

The Model

In this section, we adopt an approach similar to Kashyap and Stein (1995), Kishan and Opiela (2000). Though, we try to examine evidence of the bank-lending channel in Malaysia particularly for the commercial banks in Malaysia between 1994 and 2004.

According to *bank lending channel* theory, the central point in the issue of procyclical behavior of banks is the passing through of lending into the macroeconomic sphere similar to that of Bernanke and Blinder 1992. Therefore, this section briefly discusses the extent to which lending depends on either demand or supply variables. Naturally, there is a strong correlation between demand for credit and the business cycle. The model developed below is estimated using the random effects panel data approach. This is set out as follows, with index *i* referring to bank *i* and *t* to period *t*. Our empirical model for lending is given as:

$$Lit = \alpha 1\ GDPit + \alpha 2\ UEit + \alpha 3\ M3it + \alpha 4\ 3Mit + \alpha 5\ PRit + \alpha 6\ N.DEPit + Djit + \mu t \quad (1)$$

where,

L = Loans/Total Assets

N.DEP = Non-deposit/Total Asset

PR = Growth of Profit

GDP = GDP Deflator

UE = Unemployment (%)

M3 = Growth of Money Supply

3M = Three month interbank rate

D1 = logarithm of the size of bank

D2 = logarithm of the capital strength

D1i = 1 if the size of bank more than median size (>RM16,781 million)

= 0 less than median size. (<RM16,781 million)

D2i = 1 if the capital ratio more than median size (> RM8.7) undercapitalized

= 0 if the capital ratio less than median size (<RM8.7) well capitalized

Dummy variables were chosen as controllable variable in this model. However specify the dummy variables into three categories which size of bank, capital ratio and ownership. The chosen of asset size is to prove small or big bank reflected by the monetary policy. Similar to the capital ratio also to reveal bank in any sizes plus with undercapitalized or well capitalized are be able to shield their portfolio against any monetary shock.

The explanation of the above variables is as follows:

a. Macroeconomic factors

(i) Real GDP growth The GDP growth figure is the most general and most direct measure of macroeconomic developments. In our context, it is first and foremost an indicator of the demand for banking services, including the extension of loans, and the supply of funds, such as deposits, and as such is a direct determinant of profits. As a growth figure, it is the single most useful indicator of the business cycle, while the costs of banks are also expected to be linked to the GDP cycle. The GDP growth figure is made real by deflating it with GDP inflation.

(ii) Unemployment (%) Unemployment does not directly influence profitability, but it is a major cyclical indicator. If short-term unemployment is primarily a reflection of the business cycle, long-term unemployment especially indicates structural disequilibrium in the economy. In addition, unemployment is a measure of the current *phase* in the business cycle, whereas a figure like GDP growth merely indicates the *degree of change* in the business cycle.

(iii) Real money supply (M3; % change) The money supply is represented by the monetary aggregate M3, defined as the sum of cash and non-cash balances held by the public, short-term deposits, foreign-exchange holdings and short-term savings. Growth of the money supply makes real growth possible, and is primarily an indicator of future growth potential (see Boeschoten *et al.*, 1994; Berk and Bikker, 1995). In the first place, it reflects the availability of money, which is strongly linked to the creation of money by banks through lending. Excessive money growth implies a risk of overheating the economy and its concomitant, rising inflation. The ECB therefore regards excessive M3 growth as a preamble to rising inflation. The impact of money supply on profits is mostly indirect, which is why this variable, too, functions mostly as a *control* variable. Like real GDP, the real money supply is deflated by GDP price increase.

(iv) Interbank rate. The three-month Klibor is determined by the supply of and demand of funds by financial institutions in the interbank market, the largest lender being Bank Negara

Malaysia. The central bank can influence the interbank rates through its open market operations by borrowing from and lending to the financial institutions. According to Affin-OUB Research, the drop in the three-month Klibor reflects a change in the central bank's open market operation and does not signal a change in monetary policy or an impending spike in the statutory reserve requirement (SRR) of banks. In a recent report, the research house said now that the three-month Klibor is more market-determined than before, the financial instrument is expected to display a greater degree of volatility. A head of research from a stockbroker said Bank Negara, by making a shift from the three-month Klibor to the shorter-end one-month Klibor, hopes to encourage banks to lend more among themselves, indirectly boosting loan growth which has stagnated because banks are unable to find good borrowers.

b. Banking sector specific factors

i) Loans (as a share of total assets) This variable represents the (relative) size of lending. Generally speaking, loans have a positive influence on profitability, because as a bank's core business, they are a major generator of interest income. But lending also entails operational costs and credit losses. If costs and risks are not expressed adequately in the price of credit (*i.e.* the mark-up rate), for instance, as a result of cross subsidization, then lending becomes a loss-making business. In any case, this variable serves to characterize a bank's balance sheet. Like the variables that follow below, the loans variable is divided by total assets in order to standardize it and allow comparisons across countries and years.

(ii) Capital and reserves (as a share of balance sheet total) this includes paid-up capital, reserved funds, retained profits and other capital funds. Generally speaking, capital and reserves constitute the "own funds" or core capital of a bank and—as an item in the balance sheet total— its solvency. The more risk investments carry; the more capital is needed, so that the coefficient may become negative. While high-risk investments bring in more returns, greater capital could go together

with high profits, so that a positive coefficient may be expected as well, depending on the degree to which risk pays off. If profits are defined as *returns on equity*, then a relatively small capital may leverage high profits, and one should expect to see a negative coefficient. If profits are defined as the margin on assets, capital and reserves become a "free" source of finance, so that from this perspective, one must expect a positive coefficient. Thus, on account of the many possible ways they may pass through to the results, the capital and reserves variable is primarily a *control* variable.

(iii) Non-bank deposits (as a share of balance sheet total) Non-bank deposits include all deposit liabilities of banks, such as checkable deposits and nontransaction deposits except interbank deposits or deposits and placements of banks and other financial institution. This variable characterizes the funding structure of the banking system. We only concentrated on the deposit from customers as sources of funds because banks make their profits primarily by issuing loans using the funds. This can show the liquidity of the bank to meet the depositor withdrawal and offering a loan. Monetary tight reduces the ability of bank to offer a bulk of loans to customers, therefore, increasing of cost of capital can force a bank to increase their loans and to change the shape of deposits.

iv) Profit Profit proxies by net income before tax and interest. We verify the variable as growth of profit in order to show whether monetary shock on bank lending channel affects a positive growth on profit.

Estimation Methods

To verify whether the sample data is normally distributed, the data will be tested using several techniques such as the skewness test, kurtosis, the Jarque bera as well as the value of mean and median. If a sample is normally distributed, then the value of skewness will be equal to zero, the value of kurtosis should be three and the value of mean should be the same as the value of its median while the value of Jarque Bera should not be significant or with high value of probability. A sample data that is normally distributed should be an efficient estimator, unbiased and consistent. If the

sample data is not normally distributed, i.e., the value of mean and median for all the variables are not the same while their skewness is not equal to zero. The values of kurtosis are not equal to three and the values of Jarque-Bera are significant. Therefore it can be concluded that based on the above, the Ordinary Least Squares estimation method is not a better estimation method to be used. Hence, the Generalize Least Square method is more appropriate and expected to yield a much better result.

The standard unit root test has to be performed first to check the stationarity of the data. However, it is often argued that the commonly used unit root tests such as the augmented Dickey-Fuller test and the Phillips-Perron test are not very powerful. As a response, panel unit root tests are developed. These tests are in essence motivated to increase the power through pooling information across units. The benefit for estimating the stationary of data to ensure that its mean and variance are constant over time and the value of covariance between two time periods depends only on the distance or lag between the two time periods and not on the actual time at which the covariance is computed.

In order to adopt the appropriate panel estimator we used Hausman (1978) test statistics to compare the random effects with the fixed effects model. Since we are using too many cross-sectional units of observations and too many dummy variables for the specification, thus, fixed effects model is the right model. The main advantage of the fixed effects model is that the error terms may be correlated with the individual effects. If group effects are uncorrelated with the group means of the regressors, it would probably be better to employ a more parsimonious parameterization of the panel model.

Data

To estimate equation (1), we use an unbalanced bank-level panel data set for 25 commercial banks. The data are annual and span the period from 1994 to 2004. The total number of observations in the sample is 275 samples. Before we can estimate the equation, the number of degrees of freedom

(df) should be taking into account. In this manner a full cycle of the Malaysia economy is included, a point of particular importance given that the aim of this paper is, as mentioned, to analyze whether there is a relationship between the business cycle, lending, monetary policy and regulatory framework.

EMPIRICAL RESULTS

Firstly, unit root test has been tested for all variables. Table 1 shows a result for the stationary test. Individual process and common process have been tested, in which common test indicates that all the estimated variables are assumed a common AR structure for all the series. Besides, individual test is used to allow for different AR coefficients in each series.

Table 1 Stationary Test (Level)

Individual unit root process				Common unit root process	
Variables	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Levin, Lin & Chu t*	Breitung t-stat
Loan	-1.97513(0.0241)**	64.5421 (0.0083)*	87.0600 (0.0001)*	-5.00655 (0.0000)*	-1.90186 (0.0286)**
N-Deposit	-5.49800 (0.0000)*	107.174 (0.0000)*	129.863 (0.0000)*	-14.2134 (0.0000)*	-1.65181 (0.0493)**
Capital Ratio	-1.97494 (0.0241)**	79.9550 (0.0007)*	105.633 (0.0000)*	-5.12379 (0.0000)*	-2.40566 (0.0081)*
Total Asset	4.25099 (1.0000)	25.0637 (0.9903)	32.2254 (0.9382)	2.15624 (0.9845)	-2.83980 (0.0023)*
Growth of Profit	-827.530 (0.0000)*	88.1318 (0.0000)*	149.526 (0.0000)*	-7987.58 (0.0000)*	-4.23888 (0.0000)*
GDP Deflator	4.99619 (1.0000)	6.29316 (1.0000)	4.46266 (1.0000)	0.79399 (0.7864)	-7.85488 (0.0000)*
Unemployment	1.25186 (0.8947)	24.3269 (0.9992)	13.7927 (1.0000)	-4.79836 (0.0000)*	-2.43709 (0.0074)*
Growth of Money Supply	-3.42908 (0.0003)*	90.1551 (0.0004)*	100.418 (0.0000)*	-6.86257 (0.0000)*	1.61016 (0.9463)
Three month Inter bank rate	1.92419 (0.9728)	19.3914 (1.0000)	53.8597 (0.3290)	7.63931 (1.0000)	-3.28571 (0.0005)*

Note: *,** and *** indicate significance at the 1%, 5% and 10% levels, respectively.
The probability values are in the parenthesis, while others are t statistics.
Probabilities for Fisher tests are computed using an asympotic Chi-square distribution. All other tests assume asymptotic normality.

According to table 1, our results show that all variables are significant at level for unit root test. These estimations have been done in order to prove the variables are significant at same level to avoid a misspecification. All the variables should be in the same level of stationary in order to exemplify the problem of spurious regression.

Table 2 Descriptive Analysis

Non-deposit	Loan	Deposit	Asset	Capital Ratio	Profit	Three month inter bank rate	GDP Deflator	Une
Mean	0.050396	0.705519 €	24258684	15.17578	544.7237	4.781879	97.37251	3
Median	0.030419	0.602122	16781577	8.719703	6.085271	3.190000	97.12380	3
Maximum	0.906998	23.93228	1.44E+08	283.5029	71945.55	9.430000	110.6930	3
Minimum	2.71E-05	0.000000	306525.0	0.000000	-1282.866	2.820000	84.92490	2
Std. Dev.	0.085392	1.923294	27378016	29.11095	5909.312	2.394424	7.431557	0
Skewness	7.169592	11.93696	2.018515	6.377430	11.96198	0.838155	-0.038050	-0
Kurtosis	69.68897	144.6898	7.160416	52.38198	144.9900	2.028258	2.418460	2
Jarque-Bera	28887.57	128177.1	208.6414	16149.53	128720.5	23.30793	2.135544	2
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000009	0.343774	0

Table 2 shows the results of the descriptive analysis. This analysis is important to prove the distribution of the sample. The results show that mean and median are not equal for each variable tested. Furthermore, mostly skewness value is not equal to zero, for example; non-bank deposit and loan are 7.169592 and 11.93696 respectively. Instead of that, the analysis finds that the kurtosis value is also not equal to three. Most of the values are more or less than three. All the probability values are significant except for GDP deflator. Thus, the data are not normally distributed. Therefore, we indicate that next estimation is more appropriate by using Generalize Least Squares method instead of Ordinary Least Squares.

Table 3 The Responsive of Total Loan to Changes in Monetary Policy.

Generalize Least Squares (Fixed Effects)

Dependent variables/Independent variables	Loan
N-Deposit	21.42695 (20.30854)*
Growth of Profit	1.85E-06 (0.128948)
GDP Deflator (2)	-0.009669 (-0.391148)**
Unemployment (2)	-0.227608 (-0.657450)
Growth of Money Supply	0.023240 (1.094323)
Three month Interbank rate (2)	-0.088232 (-1.751654)***
Dummy 1 (Asset size)	-0.028082 (-0.090551)
Dummy 2 (Capital Strength)	0.105023 (0.430361)
Durbin Watson	1.670384
Adjusted R-squared	0.793837
F-statistic	18.26103

Note: *,** and *** indicate significance at the 1%, 5% and 10% levels, respectively.
The t-statistics are in the parenthesis, while others are coefficient value.

Table 3 illustrates the responsiveness of total loans (LOAN) to the changes in the monetary policy across 25 commercial banks in Malaysia between 1994 and 2004. It can be seen that bank lending does appear to be statistically significantly related to the changes in the stance of the monetary policy. Illustrations show that the changes in the monetary policy proxy by three-month inter-bank rate significantly show the effect of changes in total loans. This could be revealed that, an increase of 1 percent in inter-bank rate (monetary contraction), would decrease the total loans by -0.088232 percent. This suggests how the changes in monetary stance would affect the supply of loans, which is consistent with bank lending channel. Besides that, the results also reveal that there is a significance positive relationship between total lending and deposits at coefficient value 21.42695. This suggests that banks adjust their deposits in the monetary changes. An increase in deposits will more likely inculcate the supply of loans to customers. Specifically, deposit is an obligation of the banks and it has been used as one of the sources of funds to offer more loans to customers. Therefore, it seems to be that all the banks have a buffer of liquid asset to offset the monetary shock.

Nevertheless, the other variables are not significant including the dummy variables. This finds that the asset size at any size and capital strength at any level cannot be differentiated to the changes of monetary policy. In other words, all banks have a same magnitude to reflect monetary shock. Therefore, we cannot prove whether small banks tend to respond more on the monetary shock or otherwise.

Similarly, capital ratio also is not significant, meaning that undercapitalized and well capitalized banks are not different in reflecting monetary shock. No matter how high capital ratio of banks they always have the same magnitude affecting from the monetary shock on bank lending channel. Therefore, it is not true that only well capitalized banks can survive with any changes in monetary policy in Malaysian banks.

This concluded that any changes in monetary policy only affect the supply of loan, meanwhile, banks from all sizes of asset and all sizes of capital ratio can shield their portfolios without affecting

by how large size of asset and how high capital ratio are. Ultimately, we conclude that both factors do not play an important role or are not reliable to be proven in Malaysian banks.

CONCLUSIONS

Following the approach suggested by Kashyap and Stein (1995), Kishan and Opiela (2000) we use banks' balance sheet to estimate the response of bank lending to changes in monetary policy stance between 1994 and 2004. From our estimations we found there is evidence on the bank-lending channel in the case of Malaysia. This means that any changes in monetary policy for example; a changing in inter-bank rate would affect supply of loans. However, we do fail to prove the size of bank and capital strength as component that may take into account in order to prove whether small or big banks reflect more; bank with well capitalized or under capitalized reflect more to the monetary policy shock. Therefore we could conclude that all sizes of asset and capital ratio have the same magnitude to respond from the changes of monetary policy.

Finally, we could bear in mind that small banks are not the only one in the risky position since sizes of banks are not the important role in influencing the monetary policy. Besides, undercapitalized banks are also in the same condition. This scenario shows that policy makers have made a good policy to ensure all banks reflect at the same magnitude and benefit the monetary shock. In addition, we agree that central bank has taken a good policy to ensure the soundness of banking system in Malaysia. This proof has shown that all banks can benefit from the monetary shock. This means that bank lending channel in Malaysia has been proven effective in influencing the banks' portfolios without differentiating the size of banks and capital ratio. Thus, as policy makers, bank lending channel can be chosen as one of the ways to overcome recession and inflation in the economy.

REFERENCES

Agung J. (1998), "Financial Deregulation and the Bank Lending Channel in Developing Countries: The case of Indonesia", *Asian Economic Journal*, Vol. 12 No. 3, pp. 273-294.

Altunbas T., Fazylov O. And Molyneux P. (2002), " Evidence on the bank lending channel in Europe", *Journal of Banking and Finance*, Vol. 26, pp. 2093-2110.

Bernanke, B and A.S. Blinder. (1992) "The Federal Funds Rate and the Channel of Monetary Transmission", *American Economic Review*, Vol 82, pp. 901-921.

---------- and A.S. Blinder (1988) "Credit, Money and Aggregate Demand", *American Economic Review*, Vol 78, pp. 257-276.

---------- and M. Gertler (1989) "Agency Costs, Collateral and Business Cycle Fluctuations", *American Economic Review*, Vol 79, pp. 14-31.

Brainard, William C. and Tobin, James, "Pitfalls in Financial Model Building", *American Economic Review*, May 1968, 58, pp. 99-122.

De Bondt, G., 1999. Banks and monetary transmission in Europe: Empirical evidence. BNL Quarterly Review 52 (209), 149-168.

Favero, C.A., Flabbi, L., Giavazzi, F., 1999. The transmission mechanism of monetary policy in Europe: Evidence from banks' balance sheets. CEPR Discussion Paper, No. 2303.

Fisher J.D.M. (1999), "Credit Market Imperfections and the Heterogenous Response of Firms to Monetary Shocks", *Journal of Money, Credit and Banking*, Vol. 31 No. 2, pp. 187-211.

Ford J.L, Agung J., Ahmed S.S. and Santoso B. (2003), "Bank Behaviour and the Channel of Monetary Policy in Japan 1965-1999", *The Japenese Economic Review*, Vol. 54 No. 3, pp. 275-299.

Gambacorta L. and Mistrulli P.E. (2004) "Does bank capital affect lending behaviour?", *Journal of Financial Intermediation*, Vol 13, pp. 436-457.

---------- (2002) "Assymetric Bank lending channels and ECB monetary policy", *Economic Modelling*, Vol 20, pp. 25-46.

Guender A.V., (1998), "Is There a Bank-Lending Channel of Monetary Policy in New Zealand?", *The Economic Record*, Vol. 74 No. 226, pp. 243-265.

Gurley, John and Shaw, Edward, "Financial Aspects of Economic Development", *American Economic Review*, Sept.1955, 45, pp. 515-38.

Hausman, Jerry A. (1978), "Specification Tests in Econometrics" *Econometrica*, Vol 46, pp. 1251-1272.

Huang Z. (2003) "Evidence of a bank lending in the UK", *Journal of Banking and Finance*, Vol 27, pp. 491-510.

Hubbard R.G., Kuttner K.N. and Palia D.N. (2002), "Are there bank effects in borrowers' costs of funds? Evidence from a matched sample of borrowers and banks" *Journal of Business*, Vol. 75, pp. 559-581.

Kakes J., Sturm J.E., (2002), "Monetary Policy and Bank Lending Evidence from German Banking Groups", *Journal of Banking and Finance*, Vol 26, pp. 2077-2092.

---------- (2000), "Identifying the mechanism: is there a bank lending cahnnel of monetary transmission in the Netherlands?", *Applied Economics Letters*, Vol. 7, pp. 63-67.

Kashyap, A.K. and J.C. Stein (1995), "Impact of Monetary Policy On Bank Balance Sheets", *Cornegie-Rochester Series on Public Policy*, June, pp. 151-195.

---------- and Stein J.C. (2000), "What Do a Million Observations on Banks Say About the Transmission of Monetary Policy?", *The American Economic Review*, pp. 407-428.

Keynes, J.M. (1936) The General Theory of Employment, Interest and Money. New York: Harcourt, Brace and Company.

Kindleberger, C., *Manias, Panics and Crashes*. New York: Basic Books, 1978.

Kishen R.P. and Opiela T.P (2000), "Bank Size, Bank Capital and the Bank Lending Channel", *Journal of Money, Credit and Banking*, Vol. 32 No.1, pp. 121-141.

Kuh, Edwin and Meyer, John, "Investment, Liquidity and Monetary Policy", in *Commission on Money and Credit: Impacts of Monetary Policy*, 1963, pp. 339-474.

Nilsen J.H., (2002) "Trade Credit and the bank lending channel", Journal of Money, Credit and Banking, Vol. 34, pp. 226-253.

McMillin W.D. (1996) "Monetary Policy and Bank Portfolios", *Journal of Economics and Business*, Vol 48, pp. 315-335.

Meltzer A.H., (1995) "Monetary, Credit and (Other) Transmission Processes: A Monetarist Perspective", *Journal of Economic Perspectives*, Vol 4, pp. 49-72.

Minsky, Hyman, *John Maynard Keynes*. New York: Columbia University Press, 1975.

Money and Banking in Malaysia, published by Bank Negara Malaysia and Bank Negara Malaysia Annual Reports of 1980-2000

Suzuki T. (2004), "Is the Lending Channel of Monetary Policy Dominant in Australia?", *The Economic Record*, Vol. 80 No. 249, pp. 145-156.

Tobin, James, "Keynesian Models of Recession and Depression", *American Economic Review*, May 1975, 65, pp. 195-202.

---------- and Dolde, William, "Wealth, Liquidity and Consumption", in *Consumer Spending and Monetary Policy: The Linkages*, Monetary Conference Series 5, pp. 99-146. Boston: Federal Reserve Bank of Boston, 1963.