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Interest Rate and Loan Supply: Islamic Versus Conventional Banking System

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ABSTRACT

This paper attempts to explore the effect of interest rate on loan supply of Islamic banking and Conventional banking system. The analysis segregated the Islamic and Conventional banking system into commercial bank, finance company and merchant bank. Overnight and 3 month Klibor are used as interest proxy. Unit root test, Granger Causality test, Akaike Information Criterion and Regression analysist are used in the study. The results of Granger Causality test indicate that the growth of overnight Klibor causes changes in the growth of Islamic and Conventional loan of Merchant Banks significantly and from the regression analysis, it is confirm that Islamic and Conventional loan growth of merchant bank are significantly positive related to overnight Klibor.

INTRODUCTION

The additional amount a borrower pays a lender, over and above the borrowed sum (principal) is commonly called interest. This interest depends on the size of the principal and the length of time the borrower takes to repay the principal and interest. For this reason, and for computational convenience, interest is usually expressed in terms of percentage per annum and is called the rate of interest. In banks there are three players. The players are the bank, the depositor and the borrower. The depositor places his fund with the bank and he demands and receives a return (interest) from the bank for parting with his capital for a time. The bank lends this capital to the borrower and demands and receives a return (interest) from the borrower for making it available to him for a time. But the interest rate bank charges on his borrower is higher than the interest rate he pays to his lenders. Calling both by the same name is misleading. Therefore in this

study, interest charged by the bank on his loan is called loan rate. The difference between loan rate and interest paid by the bank to his depositors is called spread. Basically, a financial institution seeks to earn a positive spread income or margin. As loan portfolio is one of the major sources of business activities of the financial institutions, the movement of interest rate in the economy therefore, is vital to the banks so that the spread income or margin of the banks are determined competitively. Generally, it could be said that the higher the loan rate the happier will be the bank to give more loan. On the other hand, loan rate (in the case of conventional bank) or profit (in the case of Islamic bank) charged on customer influence the customers' decision prior to seeking loan facilities. The customer of course would prefer to borrow at a lower loan rate.

The theoretical relationship between interest rate and supply of loan could be observed through reading articles regarding monetary policy and bank lending under direct credit channel of credit view. Direct credit channel of credit view argue that when Fed sells government securities to the public in exchange for checks drawn on private bank in the economy, the reserve accounts of the bank is actually being debited by the Fed. If reserves fall below the Fed's legal reserve requirements, the banking system as a whole must reduce its holdings of deposits. According to the basic equation of accounting, asset must always equals to liability plus equity. Therefore when deposits is reduce the supply of the bank loan must also reduce. This will increase the loan rates which means the cost of borrowing will be higher. Thus it will contracts the spending in the economy.

The purpose of this paper is to examine the relationship between interest and loan supply of Islamic and Conventional banking system in Malaysia.

ISLAMIC BANKING SYSTEM IN MALAYSIA

The development of Islamic banking in some countries has led to several studies in this area. The important underlying force that led to the establishment of this Islamic bank in Malaysia was the elimination of riba (or interest). All transactions in the conventional banks which are based on riba or interest is prohibited. Since most of the Islamic banking services are currently competing with conventional banking services which are more established as in the case of Malaysia, products offered under Islamic banking for example Islamic loans will become attractive to borrowers depending upon profit charged to the borrowers. Profit charged under

Islamic loans depends on rate of return on asset invested (e.g loan and securities) and cost of funds (deposits and other sources) under Islamic banking services. However, unlike loans granted under the conventional banking arrangements, whereby the interest rates charged are normally pegged to the respective bank's BLR, financing extended under the Syariah principle has a fixed profit margin, which may be advantages to borrowers in an environment of increasing interest rates. Samad & Hassan (1999) study the performance of Bank Islam Malaysia Berhad (BIMB) between two periods 1984-1980 and 1990-97 and makes comparison of Islamic bank (BIMB) and different sizes of conventional banks. The results show that BIMB makes significant progress in profitability during 1984-1997 but lower than conventional bank. These results are consistent with Bangladesh's case (Samad (1999) & Hassan(1999)). Haron and Shanmugam (1995) in their work try to link the rates of profit to Islamic bank's deposits. Using the Pearson Correlation and First Order Autoregressive model, they find a strong negative relationship between the two variables. Similarly, their finding indicates that there is a positive linear relationship between deposits of conventional and Islamic banks.

DATA AND METHODOLOGY

Monthly data of loan supply for both Islamic and Conventional bank and interest rates published in Monthly statistical bulletin by Bank Negara Malaysia are used in this study. The period of study is from May 1999 to August 2001. Bank Islam exists in Malaysia since 1st July 1983 while the Interest free Banking System (IFBS) exists since 4th March 1993. The period of study could not be extended to the date before May 1999 since the data of Bank Islam is not segregated according to the banking sector prior to the date. Overnight and 3 month Klibor are used as a proxy for loan rates in this study.

Correlation does not necessarily imply causation in any meaningful sense of that word. The econometric graveyard is full of magnificent correlations, which are simply spurious or meaningless. Granger Causality test is used to analyze the direction of the relationship between loan supply and loan rates. The Granger (1969) approach to the question of whether x causes y is to see how much of the current y can be explained by past values of y and then to see whether adding lagged values of x can improve the explanation. y is said to be Granger-caused by x if x helps in the prediction of y, or equivalently if the coefficients on the lagged x's are

statistically significant. From the result of Granger Causaulity test, the independent and dependent variable for the regression analysis will be identified.

To quantify the effect of independent variable on dependent variable, the following linear regression equation is used:

$$Y_t = \alpha_{t-k} + \beta X_{t-k} + \mu_{t-k}$$

K is identified as the best lag by using Akaike Information Criterion (AIC). The information criterion has been widely used in time series analysis to determine the appropriate length of the distributed lag.

FINDINGS

DESCRIPTIVE SUMMARY

Table 1 presents the summary statistic on the growth of loan and Klibor. The high level of the growth of loan and Klibor is demonstrated by the high level of mean value from Table 1 while the variability of the growth is demonstrated by the high level of standard deviation. It is clearly shown that Islamic loan of finance company has the highest growth but Islamic loan of merchant bank has the widest variability in growth. Conventional loan of merchant bank has a negative mean growth. From the same table, it could be observed that overnight and 3 month Klibor has a negative growth but the former has a wider variability.

TABLE 1. Summary statistics for loan and Klibor growth

Subject	Mean	Standard Deviation
Islamic Loan of Commercial Bank	0.027878	0.033326
Islamic Loan of Finance Company	0.039826	0.021630
Islamic Loan of Merchant Bank	0.037985	0.240520
Conventional Loan of Commercial Bank	0.004035	0.004352
Conventional Loan of Finance Company	0.002487	0.006137
Conventional Loan of Merchant Bank	–0.008290	0.017074
Klibor – Overnight Rates	–0.003195	0.034836
Klibor – 3 Month Rates	–0.002202	0.011948

RESULT OF UNIT ROOT TEST

The empirical analysis begins by first investigating the time series properties that is the amount of loan supply by Islamic and conventional banks and interest rates. Data generated in financial market are often non-stationary. If the data are non-stationary the standard statistical procedures including the usual t and F test will give misleading results. Therefore, the amount of loan supply and interest rates are tested for stationary by using ADF unit root test. The results of the unit root at first difference test are displayed in Table 2. It is found that all the subjects except for Islamic and Conventional loan of finance company indicate a clear rejection of the null hypothesis that the amount loan supply and interest rates contain a unit root at 10% significant level. Therefore, Islamic and Conventional loan of finance company are omitted from further statistical analysis.

TABLE 2. Unit root test results

Subject	Growth
Islamic Loan of Commercial Bank	–3.172723**
Islamic Loan of Finance Company	–2.033769
Islamic Loan of Merchant Bank	–3.586208**
Conventional Loan of Commercial Bank	–2.833363***
Conventional Loan of Finance Company	–1.259476
Conventional Loan of Merchant Bank	–5.178839*
Klibor – Overnight Rates	–4.438872*
Klibor – 3 Month Rates	–3.764648*

Note: * 1% significant level
** 5% significant level
*** 10% significant level

RESULT OF GRANGER CAUSALITY TEST

The overall results of Granger Causility Test from lag 1 to lag 8 lead this study to an astonishing findings since changes in growth of interest rate causes changes in growth loan supply. This findings is contradicted to the direct channel of credit view which states that loan supply that causes changes in interest rate.

RESULT OF REGRESSION ANALYSIS

By using Akaike Information Criterion (AIC), lag 1 is identified as the best lag for the regression analysis. Table 3 and 4 report the estimated parameter and hypothesis testing results for the regression model i.e. the effect of growth of interest rates on loan supply. From Table 3A, it is found that only Islamic and Conventional loan growth of merchant bank are significantly positive related to overnight Klibor. However, the growth of overnight Klibor does not appear to have a great deal of explanatory power in the regression since the R^2 explains only 12.815% at the most of the variation in loan growth supply. From Table 4, only the growth of Conventional loan of merchant bank is significantly positive related to 3 month Klibor at 10 percent level of significance.

TABLE 3. Regression result: Growth of $loans_t = \alpha_{t-1} + \beta$ (growth of overnight klibor) + μ_{t-1}

	β	t_β[1]	R-squared[2]
Islamic Loan of Commercial Bank	0.123763	0.660007	0.017827
Islamic Loan of Merchant Bank	2.401023	1.816109*	0.120823
Conventional Loan of Commercial Bank	0.025098	1.004719	0.040363
Conventional Loan of Merchant Bank	0.175479	1.878213*	0.128150

Note: * 10% significant level.

1. The t-statistic, which is computed as the ratio of an estimated coefficient to its standard error, is used to test the hypothesis that a coefficient is equal to zero.
2. The R-squared statistic measures the success of the regression in predicting the values of the growth of loan supply within the sample. It is the fraction of the variance of the growth of loan supply explained by the growth of interest rates.

TABLE 4. Regression result: Growth of loans$_t$ = α_{t-1} + β (growth of 3 month klibor) + μ_{t-1}

	β	t_β [1]	R-squared[2]
Islamic Loan of Commercial Bank	–0.808397	–1.519587	0.087770
Islamic Loan of Merchant Bank	1.527637	0.369091	0.005644
Conventional Loan of Commercial Bank	0.069877	0.948148	0.036105
Conventional Loan of Merchant Bank	0.478445	1.721715*	0.109934

Note: * 10% significant level.

1. The t-statistic, which is computed as the ratio of an estimated coefficient to its standard error, is used to test the hypothesis that a coefficient is equal to zero.
2. The R-squared statistic measures the success of the regression in predicting the values of the growth of loan supply within the sample. It is the fraction of the variance of the growth of loan supply explained by the growth of interest rates.

CONCLUSION

This study provides evidence regarding the relationship between interest rate and amount of loan supplied in Islamic and Conventional banking system. The findings confirmed that Islamic and Conventional loan growth of merchant banks are significantly positive related to the growth of overnight Klibor but Islamic loan growth of merchant bank is more sensitive to the changes in the growth of overnight Klibor. The result of this study suggests that the effect of direct channel of credit view is quite vague since the Granger causality test shows that changes in loan rates causes changes in loan supply.

REFERENCE

Dickey, D.A. & W.A. Fuller. 1979. Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association* 74: 427-431.

Granger, C.W.J. 1969. Investigating Causal Relations by Econometric Models and Cross-Spectral Methods. *Econometrica* 37: 424-438.

Hassan, M. Kabir. 1999. Islamic Banking Theory and Practise: The Experience of Bangladesh. *Managerial Finance* 25(5): 60-113.

Keeton, Willam R. 1993. The Impact of Monetary Policy on Bank Lending: The Role of Securities and Large CDs. *Federal Reserve Bank of Kansas City*. 35-45.

MacKinnon, J.G. 1991. *Critical Values for Cointegration Tests*. Chapter 13 in Long-run Economic Relationships: Readings in Cointegration, edited by R.F. Engle and C.W.J. Granger. Oxford University Press.

Morgan, Donald P. 1992. Are Bank Loans a Force in Monetary Policy?. *Federal Reserve Bank of Kansas City*, 31-41.

Samad, Abdus. 1999. Comparative Efficency of the Islamic Bank Malaysia vis-à-vis conventional banks. *Journal of Economics and Management* 17(1).

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