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THE ROLE OF BANK LOANS IN MONETARY POLICY TRANSMISSION IN MALAYSIA

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ABSTRACT

This study examines whether the bank lending channel holds for Malaysia based on a simultaneous-equation model consisting of the demand for and supply of bank loans. The three-stage least squares method to employed to estimate regression parameters. There is evidence of the bank lending channel for Malaysia because bank loan supply reacts negatively to the interbank rate and because monetary easing to purchase government bonds leads to more bank deposits and bank loan supply. In addition, depreciation of the Malaysian ringgit or a higher world interest rate results in a decrease in bank loan supply.

Keywords: Bank lending channel, Monetary policy, Bank deposits, Foreign interest rates, Exchange rates.

JEL Classifications: E52, E51.

Contribution/ Originality

This paper's primary contribution is to include the exchange rate and the foreign interest rate in bank loan supply, to employ a three-stage least squares method to estimate bank loan demand and supply separately, and to prove the effectiveness of monetary policy transmission.

1. INTRODUCTION

The validity of the bank lending channel remains inconclusive. Bernanke and Blinder (1988), Bernanke and Blinder (1992), Gertler and Gilchrist (1994), Bernanke and Gertler (1995), Peek and Rosengren (1995), Kashyap *et al.* (1993), Kashyap and Stein (1995; 2000), and Suzuki (2004) argue or find support for the bank lending channel. One the other hand, Romer and Romer (1989), Ramsey (1993), Oliner and Rudebusch (1995), and Morris and Sellon (1995) raised doubts about the concept.

There are several recent studies examining the bank lending channel and related subjects for Malaysia and other countries. Sukmana and Kassim (2010) emphasize the important roles of Islamic banks in linking monetary policy to output via bank financing and deposits. Abdul Karim *et al.* (2011) find evidence of the bank lending channel because monetary policy shocks reduce

bank loan supply significantly and report that bank capitalization and liquidity significantly affect bank loan supply. Zulkhibri (2013) finds support for the bank lending channel mainly through small, low-liquidity banks and reveals that finance firms respond more strongly than commercial banks to monetary policy. Olivero *et al*. (2011) indicate that competition in banking weakens monetary policy effectiveness via the bank lending channel, especially for Latin American banks or low capitalized, small size banks.

Wulandari (2012) finds that the credit-bank lending channel is effectiveness in targeting economic growth whereas the interest rate channel is effective in targeting inflation but less effective in targeting economic growth. Ibrahim and Shah (2012) show that real bank credits and real output and real stock prices are positively correlated and that heightened market uncertainty depresses real credit, output and stock prices.

This paper attempts to test the bank lending channel for Malaysia and has several major features. A simultaneous-equation model is specified so that loan supply can be identified. The foreign interest rate and the exchange rate are incorporated into the model to determine whether interest rate differentials or currency depreciation or appreciation may affect the supply of loanable funds. The three-stage least squares method is applied in estimating regression parameters.

2. THE MODEL

Extending Bernanke and Blinder (1988; 1992), Kashyap and Stein (2000), Kishan and Opiela (2000), Suzuki (2004), Vera (2012) and other studies, we can express the demand for and supply of loans in Malaysia as:

$$LD = X(LR, BR, Y),\qquad(1)$$
$$\quad\ -\ \ +\ \ +$$

$$LS = Z(LR, BR, PR, DE, WR, EX),$$
$$(2)$$
$$\quad +\ \ -\ \ -\ \ +\ \ -\ \ ?$$

where

LD = demand for loans,

LS   = supply of loans,

LR = the lending rate,

BR = the interest rate on bonds,

Y   = output,

PR = the policy rate (interbank rate),

DE = bank deposits,

WR = the world interest rate, and

EX = the MYR/USD exchange rate measured as units of the ringgit per U.S. dollar.

More bank deposits result in more excess reserves that banks can consider to increase loan supply (Bernanke and Blinder, 1988). The policy rate has been used by the Fed as a major

monetary policy instrument (Bernanke and Blinder, 1992; Kashyap and Stein, 2000; Kishan and Opiela, 2000; Vera, 2012).

The demand for bank loans is expected to have a negative relationship with the lending rate and a positive relationship with the interest rate on bonds and output. The supply of bank loans is expected to have a positive relationship with the lending rate and bank deposits and a negative relationship with the interest rate on bonds, the policy rate, and the world interest rate. When the central bank lowers the policy rate, the cost of borrowing by banks decreases, and banks would have more incentives to increase loan supply. If the world interest rate relative to the domestic interest rate rises, banks may reduce loan supply and pursue a higher foreign interest rate.

The exchange rate plays an important role in monetary policy transmission mechanism (Sims, 1992; Peersman, 2004; Suzuki, 2004; Zanforlin, 2011). As the Malaysian ringgit depreciates, international lenders may increase loan supply due to a lower cost of exchanging for the ringgit or a better financial position caused by more revenue from exports or may reduce loan supply because of reduced relative collateral values of domestic firms. Hence, the impact of depreciation of the ringgit on bank loan supply is unclear.

According to comparative static analysis, the impact of a change in one of the exogenous variables on the equilibrium loan can be expressed as:

$$\partial \overline{L}/\partial Y > 0, \ \partial \overline{L}/\partial PR < 0, \ \partial \overline{L}/\partial DE > 0, \ \partial \overline{L}/\partial WR < 0 , \tag{3}$$

$$\partial \overline{L}/\partial BR = (- X_{BR}Z_{MR} + X_{MR}Z_{BR})/|J| > or < 0, \tag{4}$$

$$\partial \overline{L}/\partial EX = X_{LR}Z_{EX}/|J| > or < 0, \tag{5}$$

where $|J|$ is the Jacobian for the endogenous variables and has a negative sign.

3. EMPIRICAL RESULTS

The data were collected from the *International Financial Statistics* published by the International Monetary Fund. Bank loans and bank deposits are measured in billions of ringgits. To reduce multicollinearity, industrial production index is selected to represent output and has a base year in 2005. The interest rate on bonds, the policy rate and the world interest rate are represented by the government bond yield, the interbank rate, and the 10-year U.S. government bond yield, respectively. The lending rate, the government bond yield, the interbank rate, and the 10-year U.S. Treasury yield are expressed as a percent. A log-log form is chosen so that the estimated coefficient is the elasticity. The sample ranges from 1999.Q3 to 2013.Q1 and has a total of 64 observations.

The cointegration test on the residuals is applied to determine whether the variables in equation (1) or (2) have a lon-term stable relationship. Because the value of the test statistic is greater than the critical value in absolute values, these variables in equation (1) or (2) are cointegrated.

The three-stage least squares method is employed to estimate regression parameters. Table 1 presents estimated parameters, z values and other statistics. As shown, in the regression of the demand for loans, 84.11% of the variation in loan demand can be explained by the three right-hand side variables. The estimated coefficients are significant at the 1% level. Loan demand is negatively affected by the lending rate and positively associated with the government bond yield and industrial production. Specifically, a 1% increase in the lending rate leads to a 1.0911% decline in loan demand. If industrial production rises 1%, loan demand will increase by 1.5435%.

Table-1. 3SLS Estimation of the Demand for and Supply of Loans in Malaysia

Log(demand for loans):	**Coefficient**	**z value**
Log(lending rate)	–1.0911	–4.11
Log(government bond yield)	0.7254	3.69
Log(industrial production)	1.5435	6.81
Intercept	7.1853	5.38
R-squared	0.8411	
χ^2	340.03	
Log(supply of loans):	Coefficient	z value
Log(lending rate)	0.6247	3.43
Log(government bond yield)	–0.0881	–1.87
Log(bank deposits)	0.9647	27.76
Log(interbank rate)	–0.1570	–2.48
Log(10-year U.S. government bond yield)	–0.1734	–5.58
Log(MYR/USD exchange rate)	–0.1873	–2.55
Intercept	–0.1054	–0.17
R-squared	0.9944	
χ^2	12710.63	
Sample period	1997.Q2-2013.Q1	

Notes: Except that the coefficient of the government bond yield in loan supply is significant at the 10% level, other estimated coefficients are significant at the 1% level.

In the regression of the supply of loans, the right-hand side variables can explain approximately 99.44% of the change in loan supply. Loan supply is positively influenced by the lending rate, bank deposits and negatively impacted by the government bond yield, the interbank rate, the world interest rate, and the MYR/USD exchange rate. The estimated coefficient of 0.6247 for the lending rate is less than the coefficient of –1.0911 for the lending rate in absolute

values in the loan demand regression. It suggests that loan supply is less sensitive to a change in the lending rate than loan demand. A 1 percent increase (decrease) in the interbank rate is expected to reduce (increase) loan supply by 0.1570%. As the ringgit depreciates 1%, loan supply would decrease by 0.1873%.

To test the robustness of the results, the nominal effective exchange rate is chosen to replace the MYR/USD exchange rate in the loan supply equation. Its positive coefficient of 0.2518 is significant at the 1% level, and the estimated R-squared of 0.9950 is similar to that of 0.9944 when the MYR/USD exchange rate is used in Table 1.

4. SUMMARY

This paper has examined the demand for and supply of loans and tested the bank lending channel for Malaysia. A simultaneous-equation model is estimated by the three-stage least squares method. A lower lending rate, a higher government bond yield or a higher output would increase the demand for loans. A higher lending rate, a lower government bond yield, more bank deposits, a lower interbank rate, a lower world interest rate, or appreciation of the ringgit would increase the supply of loans. There is support for the bank lending channel for loans mainly because the coefficient of the interbank rate has the expected sign and is significant at the 1% level. Monetary easing through open market purchases of government bonds by the central bank is expected to increase bank deposits/reserves and lead to more bank loan supply.

There are several policy implications. If the central bank raises the interbank rate in response to a stronger economy, bank loan supply will respond in the opposite direction. If the ringgit appreciates, the positive impact dominates the negative impacts, and bank loan supply is expected to rise. In response to monetary tightening, banks may have other options to raise funds and maintain desired loan supply.

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