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**Commercial Banks Lending and Economic Growth in Malaysia:
An Empirical Study**

by

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Abstract

The major concern of this paper is to determinate the causal relation among commercial banks lending and economic performance in a small open economy, Malaysia. Engle-Granger (1987) cointegration and causality methodology were used in analysis. Annual data from 1959 to 1998 reveals a long run relationship among Real Gross Domestic Product (RGDP) and commercial banks lending in aggregate level. The long run elasticity of commercial banks lending on RGDP is 0.50 and 2.0 of RGDP on commercial banks lending. The causality analysis shows that the aggregate growth of commercial banks lending has no predictive content for economic growth. A reverse direction of causality was found there are economic growth do 'cause' growth of commercial banks lending. These results therefore imply a remarkable need of commercial banks credit while economic growth is well performed.

Keywords: commercial banks lending; economic growth; Engle-Granger Representative Theorem; cointegration analysis; causality analysis.

1. Introduction

Many factors may contribute to the onset and spread of the Asian Crisis, but there is a growing consensus that the main ingredient was financial fragility. It is well known that one of these aspects is that credit was often poorly allocated, contributing to increasingly visible problems at banks and other financial institutions before the crisis hit (Lane, 1999, p. 44). Trade cycle appears to be a monetary phenomenon, as credit fluctuation is mysteriously associated with economic fluctuations. Virtually in every recession, the growth rates of money and credit slow, and the demand for short-term credit rises at the beginning of recessions (Lang, and Nakamura, 1995:147). Thus, literatures has lightly pointed out that a rapid domestic credit growth or lending booms was one of the signals of a currency crisis (Bacha, 1997, p.70; Kaminsky, Lizondo and Reinhart, 1998; Sharma, 1999). As stated by Hardy (1998) that "...banking crises seem to have been preceded by a rapid buildup of loans to particular sectors. The commercial real estate sector is especially prone to cycles of rising prices, overinvestment, and heavy borrowing, followed by a slump". The problems of the banking industry has also been aggravated by the directed lending programs which it can be subjected to and the propensity of bankers to drop their guard when they lend against collateral or to projects which enjoy government-support including cases where support is only implicit (Thillainathan, 1997, p. 33; Bacha, 1997, p.76-78).

Economists frequently point out two main functions of the financial sector in growth, namely mobilization of domestic savings and efficient allocation of capital (Okuda, 1990, p.242). Financial institutions historically, have always played a pivotal role in stimulating economic growth and development (Nik Ibrahim Abdullah, 1990). In the recent development of liberalization and globalization, banking institutions should be learn fast to be more productive and certainly, more conscious of cost control in order to remain competitive (Lin, 1990). The role played by financial institutions encompasses lending-out of money, and other financial services, which include extension of credit, promotion of small and medium industries, developmental role, role in corporate

recovery, financial and investment advisor. For commercial banking system, it is basically to serve the production process by supplying loans / deposits to the public on demand (Panagopoulos and Spiliotis, 1998, p. 652). As has been stated by Vasudevan, banks play an important role in the economic growth of a country; *"Banks are not just the storehouses of the country's wealth but are the reservoirs of resources necessary for economic development"* (1979, p.521). The Central Bank exerts a strong influence on the availability and cost of funds to the banks, bank credit and money. It not only influences bank interest rates and the flow of credit, but can also direct the flow of credit to priority sectors of the economy. As the commercial banks in particular respond to changes in the availability of reserve funds or the variations in interest rates by adjusting their lending and investment portfolios, the monetary measures would also exert an impact on the supply of currency and deposits, the availability of credit, as well as the cost of money and credit in the various markets. Thus, selective control of credit extension is among the most effective measures available to the Bank in regulating the volume and direction of credit. Such credit controls are specific and targeted at only certain sectors (Bank Negara Malaysia, 1994, p. 433-4 and 133). The drastic reduction in credit growth is due to a number of factors including tight liquidity for a large number of banks, high interest rates and the reluctance as well as extremely cautious attitude of several banks in approving new loans. As such, to ensure economic activities have access to sufficient financing, the Government has taken several steps to promote lending. These included among others, reducing interest rates and the SRR to increase liquidity in the banking system, removing restrictions on lending and stipulating a minimum requirement for credit growth. These measures also accorded priority to lending for construction and purchase of medium and low-cost residential houses (Malaysia Ministry of Finance, 1998, October 23).

To a large extent, the empirical monetary or financial literature has provided a fertile area for this study. The basic concept of Kapur (1986) and Mathieson's (1980) aggregate production function, is that $Y = f(K)$, both assume that K, total utilized fixed and working capital is fully financing by bank loans, and this concept has also appeared in Galbis's two-sector model (1980). As stressed by Lavoie (1984) that "... part of

investment is financed through banking loans...". The firms profits become fully available in the form of cash income, only when working capital is financed by borrowing, and therefore bank lending has mainly to do with changes in the demand for loans governed by firms' working capital needs (Panagopoulos and Spiliotis, 1998, p. 654). Moreover, most economists believe that monetary fluctuations lead output fluctuations (King, 1986, p. 301). And a recurring issue in monetary economics concerns the extent to which Central bank influence on economic activity is due to a 'Credit' channel in addition to a direct monetary channel (Lang and Nakamura, 1995, p.145). A study (King, 1986) aims to examine whether bank credit aggregate have any predictive content for aggregate economic activity. The US quarterly and monthly data were for period 1950-1979 and shows that monthly data are more approximate to reject the hypothesis that GNP is not 'Granger caused' by total loans but perform poorly for quarterly data. Commercial and industrial loans found no predictive power for GNP. Other loans (real estates and consumer credit) lead output movements. Lang, and Nakamura (1995) views that, a recurring issue in monetary economics concerns the extent to which central bank influence on economic activity is due to a 'credit' channel in addition to a direct monetary channel. They study found that the proportion of relatively high quality new loans (*% safe*) more countercyclically and Granger causal GDP.¹ Samolyk (1994, p. 263 and 265) states that credit variables help to predict economic activity does not imply that also cause economic activity. A macroeconomic credit channel is complicated by the fact that it is hard to interpret whether financial flows are causing output or mirroring underlying investment opportunities. To the extent that credit flows reflect expectations about investment opportunities, local lending can help to predict expectation without causing output. With other perspective, Raynold (1995) found aggregate federal lending activity does not have a net positive impact on output, RGNP of US data.

¹ % Safe = Safe loans / Total loans

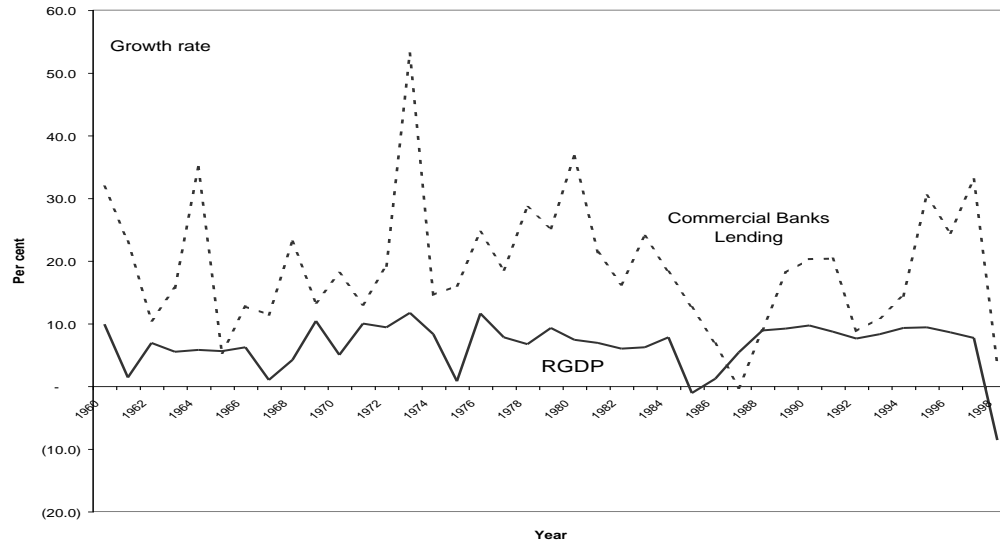


Figure 1. Plot of Growth rate of RGDP and Commercial Banks Lending for 1960-1998.

Let us reviews briefly about the trend among the both variables concern in this paper, commercial banks lending and Malaysian economy performance. The recent data show that as a group, commercial banks provided the largest proportion, approximately 69 per cent to 72 per cent of total loan in banking institutions, compare to finance companies (22 per cent to 25 per cent), and merchant banks (5 per cent). Meanwhile, these proportion is consistent with Philippines sample that commercial banks accounted for more than half of outstanding loans by the official market over period 1975-1988 (Okuda, 1990). The annual growth rate of commercial bank's loans measured at 28 per cent (1961-70), 69 per cent (1971-80), 22 per cent (1981-90), and 26 per cent (1991-98). The highest annual growth rate of commercial banks lending is 53.1 per cent in 1973, while economic growth, therefore records 11.7 per cent (the highest) over the observed period 1959-1998. This is due to the commercial banks and finance companies to accelerate their lending to finance the growth of private sector capacity in the wake of rising expectations of a better export performance towards the end of the year 1970 (Bank Negara Malaysia, 1994, p. 452). A negative sign of 0.3 per cent in commercial banks lending growth on 1987 as the year marked the initial recovery period after the recession on 1985-86 (real GDP are -1.1 and 1.2 for the respective years. The Asian Financial Crisis 1997/98, has strongly deteriorated commercial bank loan's performance

with only 3.5 per cent on 1998 since 33 per cent on 1997 (all figures were calculated from Monthly Statistical Bulletin, various issues, Bank Negara Malaysia).

The share of commercial bank credit to GNP shows a significant increasing over the period 1970 - 1998, there are increasing from 20.26% (1970) to 110.97% and 114.46% in 1997 and 1998 respectively. This variable is to be sufficient to capture the extent to which financial liberalization has been progressed (see Table 1). Pill and Pradhan (1995) find that ratio of credit to the private sector to GDP is best capture of financial liberalization progress.

Table 1: Proportion of Commercial banks lendings on GNP 1970 - 1998
(per cent)

| Year | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 1997 | 1998 |
|-------------|-------|-------|-------|-------|-------|-------|--------|--------|
| CBL per GNP | 20.26 | 29.94 | 40.92 | 67.99 | 72.99 | 84.02 | 110.97 | 114.46 |

CBL = Commercial Banks Lending, and GNP = Gross National Product
(Calculated from Monthly Statistical Bulletin, various issues, Bank Negara Malaysia at current price)

The objective of this paper is to testing a hypothesis of determinate the causal effects between aggregate commercial banks lending and economic performance has been investigated using Malaysian sample. The rationales are that a given credit will increase aggregate economic activity if it 'productively' used or allocated for working capital financing. In contrast, sufficient credits are needed for sustaining growth when the economy was booming. For instance financing of infrastructure projects, service sectors, education, and ect.

In addition, the paper has also justified the problems of spurious regression results that arise of using non-stationary data if there are no exist a long run relationship (cointegrated) among the regressed series (Engle and Granger, 1987). Hence we can overcome this non-stationary tendency by employing the recent development of econometric technique, Engle-Granger Representation Theorem (1987). The ideas are involved cointegration analysis and estimated of Error Correction Modelling (ECM) for

long-run and short-run analysis (see Perman, 1991; Charemza, and Deadman, 1992; Enders1995).

The flows of this paper are as below. Section 2 will discuss the data and models specification in analysis. Than the empirical findings in section 3 will reports of causality between aggregate commercial banks lending and economic performance, and conclusion in Section 4.

2. Data and Model Specification

The variables used for first hypothesis are real Gross Domestic Product (RGDP) and aggregate level commercial banks lending (CBL) over the annual period from 1959 to 1998. The data are collected from the Monthly Statistical Bulletin, various issues, Bank Negara Malaysia. All data are in real term (deflated by CPI) and in natural logarithm form (ln).

The Engle-Granger two steps procedure are presented as below. The first step is to check whether the series common integrational properties and then testing for possible cointegration relationships. There is a necessary condition for cointegration that both variables should have the same order of integration, I(d). For this purpose, we can use Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF) (Dickey and Fuller, 1979 and 1981) and Phillips-Perron (PP) (Phillips and Perron 1988) unit root test methods. PP unit root test is adopted as it to be robust for the presence of autocorrelation and heteroscedasticiy. The Unit root equation for the PP [AR(1) process] (also applicable for DF and ADF - with augmented term) is given as:

$$\Delta Y_t = a + bt + cY_{t-1} + \sum_{i=1}^k d_i \Delta Y_{t-i} + e_t \quad (1)$$

where Δ is first difference operator, t is time trend, ε_t is the regression error assumed to be stationary with zero mean and constant variance.

The tests are carried out in order to reject the null of a Unit root ($b = 1$). Table 3 reports the integrated level of involved series. Philip-Perron statistic reveals that all series are I(1), that are non-stationary in level, but achieve stationary after first differencing.

Table 3: Phillip-Perron Unit Root Tests Statistic

1. Aggregate Level for the period 1959-1998

| Variables | Level | First Difference |
|-----------|--------|------------------|
| ln RGDP | -2.871 | -6.703* |
| ln CBL | -2.344 | -6.614* |

Note: Newey-West suggests truncation lag of 3 in testing. The Unit root equation (1) include constant and trend in level and only constant in first difference. * denote as 1% significant level based MacKinnon's critical value.

For investigating cointegration relationships among aggregate commercial banks lending and RGDP, The cointegrating equations were constructed as

$$\ln \text{RGDP}_t = a + b \ln \text{CBL}_t + e_t \quad (2)$$

$$\ln \text{CBL}_t = \delta + \delta_1 \ln \text{RGDP}_t + u_t \quad (3)$$

where $\ln \text{RGDP}_t$ is natural logarithm of real gross domestic product, and $\ln \text{CBL}_t$ is natural logarithm of real commercial banks lending.

According to Engle-Granger residual based cointegration analysis, unit root equation (DF, ADF and PP - without constant and trend) can be performed on the residual series (e_t or u_t) which derived from cointegrating equation (2) and (3). The series said to be cointegrated if the residual series is found level stationary, I(0). The estimated regression models on I(1) series are to be valid if these found cointegrated (*non-spurious*).

Second step of Engle-Granger method is that if the series are found to be cointegrated then a relevant error correction-term (EC_{t-1}) from cointegrating equations might be included a Granger-type causality procedure. The ECM of equation (2) and (3) can be represented as

$$\Delta \ln RGDP_t = b_0 + \sum_{i=1}^n b_{1i} \Delta \ln RGDP_{t-i} + \sum_{i=1}^n b_{2i} \Delta \ln CBL_{t-i} - b_3 EC_{t-1} + e_t$$

(4)

$$\Delta \ln CBL_t = \delta_0 + \sum_{i=1}^n \delta_{1i} \Delta \ln CBL_{t-i} + \sum_{i=1}^n \delta_{2i} \Delta \ln RGDP_{t-i} - \delta_3 EC_{t-1} + u_t$$

(5)

where ' Δ ' refers to difference operator.

In occurring valid estimated results, the causality test should be applied to the stationary series. Each I(1) series to be difference one level to lead stationary, I(0) (Ansari, Gordon and Akuamoah, 1997, p.547). The independent variable is said to be Granger 'cause' the dependent variable if the coefficient of the error correction term, EC_{t-1} is found to be significant despite the fact that the sum of the coefficients of the lagged differences of Xs or Ys are not significant (Granger, 1988). However, if the series are found no cointegrated than Granger-type causality analysis can be carried out without the error correction term.

3. Empirical Findings

Table 4 reports the estimated cointegrating models. The long run elasticity of commercial banks lending on RGDP is to be inelastic, 0.5. It is extremely lower than the elasticity of RGDP on commercial banks lending (2.0). In addition the residual based cointegration statistics reveal that both variables are cointegrated.

Table 4. Estimated Cointegrating Equations

| Dependent Variable: | ln RGDP Model (2) | ln CBL Model (3) |
|-----------------------------|------------------------|-----------------------|
| Constant | 5.811 | -11.370 |
| ln CBL _t | 0.500 (57.190) | |
| ln RGDP _t | | 1.975 (57.190) |
| ----- | | |
| () denote t-value | | |
| R-squared | 0.989 | 0.989 |
| Durbin Waston-d | 0.499 | 0.496 |
| ----- | | |
| <i>Cointegration tests:</i> | | |
| DF | -2.517** | -2.596** |
| ADF (1) | -2.721* | -2.879* |
| PP (3) | -2.670* | -2.711* |

Note: *, ** denote significant at 1 per cent and 5 per cent based MacKinnon's critical value, -1.9495 (5%) for DF, -2.6243 (1%) for ADF and -2.6227 (1%) for PP.

The estimated ECMs are reported in model 6 and 7. The number of the lags included was determined using Akaike info criterion (AIC) and the residuals are to be white noise and normal distribution. The significance of error correction term shows that the direction of causality is from economic growth to growth of commercial banks credit (ln RGDP → ln CBL). However, model 6 has reported that growth of commercial banks credit fail to provide predictive content for economic growth. It's short run elasticity is -0.39.

Error Corretion Models:

1. ln CBL → ln RGDP (2 lags)

$$\Delta \ln \text{RGDP}_t = 0.118 + 0.04 \Delta \ln \text{RGDP}_{t-1} - 0.118 \Delta \ln \text{RGDP}_{t-2} + 0.0514 \Delta \ln \text{CBL}_{t-1} - 0.388 \Delta \ln \text{CBL}_{t-2} + 0.02 \text{EC}_{t-1} \quad (6)$$

(t-value) (4.088) (0.216) (-0.674) (0.399) (-2.946)* (0.135)

R-squared: 0.30 Adjusted R-squared: 0.187
 DW-d: 1.857 F-statistic: 2.651 (Prob: 0.042)**

2. $\ln \text{RGDP} \rightarrow \ln \text{CBL}$ (1 lag)

$$\Delta \ln \text{CBL}_t = 0.159 - 0.172 \Delta \ln \text{CBL}_{t-1} + 0.001 \Delta \ln \text{RGDP}_{t-1} - 0.189 \text{EC}_{t-1}$$

(t-value) (5.579) (-0.981) (0.028) (-2.146)** (7)

R-squared: 0.147 Adjusted R-squared: 0.071
DW-d: 1.989 F-statistic: 1.947 (Prob: 0.141)

Note: * and ** denote significant at 1% and 5% respectively.

4. Conclusion

The objectives of this paper were to investigate the causality between commercial banks lending and Real Gross Domestic Product as primary objective. Engle-Granger Representation Theorem was used in analysis. The aggregate of commercial banks lending and RGDP are cointegrated over the annual period 1959-1998. Evidence that commercial banks credit causing economic growth is not supported by Malaysian data. A opposite causality direction is found. The elasticity of long run and short run commercial banks lending on economy are 0.5 and -0.39. These results indicate that commercial banks lending is insufficient used as an instrument of monetary policy to adjust the economic condition after deteriorating by crisis, of a developing sample, Malaysia. The causal direction from growth of RGDP to growth of commercial banks credit reveals that a need of fund financing while economy is well performed. Thus, the policy implication is that to ensure that a country's banking system is capable of channeling capital into productive investment and more productive uses. Commercial banks should act as efficient financial intermediaries devoted to allocating resources to the most productive uses, instead of as instruments for industrial promotion in certain extent.

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