Banks, Stocks and Economic Growth: Evidence from Malaysia

Hau Ming Tang
School of Science and Technology, Universiti Malaysia Sabah, Jalan UMS, 88400, Kota Kinabalu, Sabah, Malaysia
ahminghau@hotmail.com

ABSTRACT

The issue of causal relationship between bank, stock market and economic growth has been extensively studied. The direction of causality between bank, stock market and economic growth still remains debated and it may due to the different indicators used to measure the development of bank and stock market. Therefore, this study focuses on the size and activity of both bank and stock market with economic growth in Malaysia over period 1978 – 2007. The parametric and nonparametric approaches are used to examine the dynamic causal relationships between the variables. The drawback of parametric approach is the restricted assumption of identically and independent distributed (i.i.d) residual series. Therefore, nonparametric approach is used to examine the dynamic causal relationships between the variables. The results show that there is a bidirectional causal relationship between the size of bank and economic growth also the size of stock market and economic growth. Moreover, there exist a unidirectional causal relation from economic growth to the activity of both bank and stock market. Therefore, based on these result, the policy-makers may consider to increase the size of both bank and stock market in order to enhance the economic growth in turn the expand of economy which will stimulate the size of both bank and stock market.

KEYWORDS: Banks; Stock markets; Economic growth

JEL CLASSIFICATION: G10; G21; O4

Introduction:

Bank and stock market are strongly related to the process of economy through mobilize saving, capital accumulation, risk sharing, liquidity, and produce information about the investment opportunities. The issue of causality between bank, stock market and economic growth has been extensively studied and the inconsistent result may arise from variety indicators used to measure the development of bank and stock market. Thangavelu and Ang (2004) pointed out that most empirical studies faced the major problem in selection of variables to indicate financial service produce in economy and how to measure the development of bank and stock market. However, construction of bank and stock market indicators is a very difficult task due to variety of services involved.

Therefore, this study adopts the specific indicators that introduced by Beck et al. (2000) to measure the size and activity of both bank and stock market. The size of bank is measured by two types of indicators; deposit money bank assets to the sum of deposit
money and central bank assets (DEP) and liquid liabilities to GDP (LIQ). DEP is a relative size that measure the importance of deposit money bank relative to central bank and LIQ is an absolute size which equal currency plus demand and interest-bearing liabilities of bank and other financial intermediaries divided by GDP. To measure the activity of bank, private credit by deposit money bank to GDP (PRIV) is used which measure the claims of banks to private sector. In addition, these three indicators (LIQ, DEP and PRIV) have also been used in empirical studies to investigate the relationship between bank and economic growth (Ang and McKibbin, 2007; Ketteni et al., 2007; Jalil et al., 2010). Market capitalization to GDP (MK) is used to measure the size of stock market which equals to the value of listed shares divided by GDP. The total value traded to GDP (VT) is measure the activity of stock market which equal to the total shares traded on stock market exchange divided by GDP. The indicators for stock marke (MK and VT) have also been employed in empirical studies to examine the relationship between stock market and economic growth (Demirgüc-Kunt and Maksimovic, 1996; Levine and Zervos, 1996; Cooray, 2010).

The empirical studies focused on the relationship either bank or stock market with economic growth in Malaysia is also remains unclear. Habibullah (1999) adopts the VAR framework to investigate the relationship between bank and growth and the result shows that both indicators such as Simple-sum money and Divisia money support growth leads bank hypothesis. Al-Yousif (2002) employs the panel data and time series method to investigate the relationship between bank and growth and found M1 has bidirectional causal relationship with economic growth while M2 is support the growth leads bank. Ansari (2002) consider the impact of banking development on Malaysia national income by using the VECM approach, the result shows that the M1 support the bank lead growth hypothesis. Tang (2005) adopts Granger causality test to exam the causal relationship between bank lending and economic growth and the result shows that there is no causality between the bank lending and economic growth. Choong et al. (2005) adopt bound test approach and find that both market capitalization and turnover ratio support stock market leads growth hypothesis. Ibrahim (2006) adopts the VAR framework and found that growth lead bank loans. Ang and McKibbin (2007) conduct the cointegration and causality test to measure the relationship between bank and economic growth and the empirical result support the Robinson’s view that economic growth leads to bank. Ang (2008) adopts the ARDL bound test approach and found that bank credit to private sector leads growth. However, Anwar and Sun (2011) employ the general method and moment (GMM) and found that there is no causal relationship between total credit and growth. Therefore, the causal relationship between bank, stock market and economic growth in Malaysia is still debatable. This study conducts the parametric and nonparametric approaches to investigate the causal relationship for the size and activity of both bank and stock market with economic growth.

**Data and Methodology**

This study adopt the annual data over the period 1978 – 2007, per capita real GDP (G) proxies for economic growth, liquid liabilities to GDP (LIQ) and deposit money bank assets to sum of deposit money bank and central bank assets for bank (DEP) as the size of
bank, private credit by deposit money bank to GDP (PRIV) as activity of bank. For stock market, the indicator use to measure the size and activity of stock market is stock market capitalization to GDP (MK) and total value traded to GDP (VT). The data for both the size and activity of bank and stock market as well as efficiency of stock market are taken from Financial Structure Dataset 2010, World Bank. For per capita real GDP the base year is 2000 which is taken from World Development Indicators (WDI), World Bank.

Parametric test for Granger causality test is conducted to investigate the causal relationship between the variables. The BDS test is used to examine the assumption of time series that the residual need to be identical and independently distributed (i.i.d). This test is suggested by Brock-Dechert-Scheinkman (Beck et al., 1987) and it is regarding on the concept of the correlation integral. If the null hypothesis of the residual series is i.i.d has been rejected, the parametric test is not suitable to use but, the nonparametric test for nonlinear Granger causality is suitable to investigate the causal relationship between the variables. The advantages of using the nonparametric Granger causality test are it applicable for small samples size and it can detect the nonlinearity of two time series based on correlation integral (Baek and Brock, 1992; Hiemstra and Jones, 1994).

Result

Table 1: The summary of the result

<table>
<thead>
<tr>
<th>Model</th>
<th>Granger causality</th>
<th>BDS test</th>
<th>Nonlinear Granger causality</th>
<th>Overall result</th>
</tr>
</thead>
<tbody>
<tr>
<td>G, LIQ</td>
<td>LIQ ↠ G</td>
<td>Do not reject ( H_0 )</td>
<td>-</td>
<td>G ↠ DEP</td>
</tr>
<tr>
<td>G, DEP</td>
<td>DEP ↠ G</td>
<td>Reject ( H_0 )</td>
<td>DEP ↠ LIQ</td>
<td>G ↔ DEP</td>
</tr>
<tr>
<td>G, PRIV</td>
<td>PRIV ↠ G</td>
<td>Do not reject ( H_0 )</td>
<td>-</td>
<td>G ↠ PRIV</td>
</tr>
<tr>
<td>G, MK</td>
<td>MK ↠ G</td>
<td>Do not reject ( H_0 )</td>
<td>-</td>
<td>G ↔ MK</td>
</tr>
<tr>
<td>G, VT</td>
<td>VT ↠ G</td>
<td>Reject ( H_0 )</td>
<td>G ↠ VT</td>
<td>G ↠ VT</td>
</tr>
</tbody>
</table>

Notes: ↠ means do not Granger cause
→ means Granger cause to
↔ means bidirectional causality

All the variables are stationary at the I(1) by using the Phillips-Perron test. The parametric result for Granger causality test shows that there is no causality effect from bank (LIQ, DEP, and PRIV) to economic growth. However, there is reverse causal flow from economic growth to PRIV and the result support the demand-following hypothesis which expansion of PRIV is stimulated by economic growth. For stock market, there is causal relationship from MK to economic growth but VT does not have causal effect to economic growth. Similarly, there is also no causal relationship from economic growth to stock market (MK and VT). Therefore, MK supports the supply-leading hypothesis which greater stock market lead to greater economic growth. In order to examine the residuals of parametric
Granger causality are i.i.d or not therefore the BDS is adopted to test the assumption of time series.

The BDS test shows that the residual of causality from bank and stock market to economic growth (LIQ, PRIV, MK, and VT) have accepted the null hypothesis that the residuals are i.i.d except for DEP. This shows that the causality result from bank and stock market development to economic growth is stable except for DEP. However, under different dimension (m= 2, 3, and 4), the null hypothesis of economic growth Granger cause to bank and stock market all are rejected (LIQ, DEP, PRIV, MK, and VT). This suggests that the parametric for Granger causality test is inappropriate to investigate the causal relationship between the variables. Therefore, the nonparametric for nonlinear Granger causality test is adopted to investigate the causal relationship between the bank, stock market, and economic growth.

The nonparametric test for nonlinear Granger causality shows that DEP is Granger cause to economic growth while economic growth also Granger cause to DEP. This means that the size of bank has bidirectional causal relationship with economic growth. However, LIQ, PRIV, MK and VT have unidirectional causal relationship from economic growth to bank and stock market.

**Discussion and Conclusion**

The result shows that the DEP is consistent with Ang and McKibbin (2007) which the causal relationship from economic growth to DEP in Malaysia experience. However, this study has found another significant causal relationship from DEP to economic growth. These findings may be due to the execution of Financial Sector Master Plan (FSMC) by Bank Negara Malaysia over the period 2001 – 2010 which aims to create a diversified and efficient banking sector that is able to spur the Malaysia economic development. The result for LIQ and PRIV have unidirectional causal relationship from economic growth to LIQ and PRIV which support the Robinson’s view that economic growth leads bank (Thangavelu and Ang, 2004; Ang and McKibbin, 2007; Blanco, 2009).

For stock market, the result shows that MK Granger cause to economic growth which is consistent with Choong et al. (2005). However, this study shows that there is another significant causal relationship from economic growth to MK. Therefore, the stock market size has bidirectional causal relationship with economic growth and the result is consistent with Enisan and Olufisayo (2009). In addition, Cooray (2010) pointed out that Malaysia’s stock market is relatively large in term of stock market capitalization. Thus, larger size of stock market would be less volatile to macroeconomic changes. Moreover, these finding may be due to the implementation of Capita Market Master Plan (CMP) by Securities Commission Malaysia over the period 2001 – 2010 which has enhanced the economic growth. However, there is unidirectional causal relationship from economic growth to VT while these finding is consistent with Rousseau and Xiao (2007).
This study has found that there is bidirectional causal relationship between the size of bank and stock market with economic growth by taking more recent period from 1978 – 2007. However, previous studies have accounted different of control variables in their analysis to examine the relationship between bank, stock market and economic growth but this study only consider the causal relationship between bank, stock market and economic growth. The parametric and nonparametric approaches are adopted to examine the causal relationship between the variables. In addition, the advantages of nonparametric approach are the nonparametric is suitable for small size sample and it can detect the nonlinearities.

In short, this study examines the causal relationship for the size and activity of both bank and stock market with economic growth in Malaysia over period 1978 – 2007. Both parametric and nonparametric approaches are used to investigate the relationship between bank, stock market and economic growth. The result shows that there is bidirectional causal relationship between size of bank and stock market to the economic growth. These findings may be due to the implementation of Financial Sector Master Plan (FSMP) by Bank Negara Malaysia and Capital Market Master Plan (CMP) by Securities Commission Malaysia over the period 2001 – 2010 which enhance the role of bank and stock market in Malaysia economic development. Therefore, through these result the policy-makers may consider to increase the size of bank and stock market in order to enhance the economic growth in turn, the expansion of economy will lead to size of bank and stock market to increase.

Reference


