International Jr. Finance and Accounting , Vol. 1 No. 1 (March , 2011)

www.ijfa.yolasite.com

Perception of the Financial Development and Economic Growth Nexus for Malaysia

Mohammad Nurul Azam[a], Abul Quasem Al-Amin[b], Syamsul Ikram Mohd Noor[a], Mahbuba Yeasmin[c] and M. A. Kabir[a1]

[a]Department of Applied Statistics, FEA, University of Malaya, Malaysia
[b]Department of Economics, FEA, University of Malaya, Malaysia
[c]EKRA Institute, Melbourne Australia

ABSTRACT

This study examines the causality between financial development and economic growth in Malaysia. Review of existing researches in the case of Malaysia produce mix results. This raises the need for this study to update available evidences using most recently available data and provide further insights on the causality between finance and growth. Utilizing annual data from period 1970 to 2007 and employing Autoregressive Distributed Lag (ARDL) bounds test approach we find that the Robinson theory holds in the Malaysian economy. In light with the findings, we recommend that Malaysia should intensify its pro-growth policies in order to bolster growth that would ultimately lead to higher financial development

Keywords: Financial development, Economic growth, ARDL, Malaysia, Finance Growth Nexus

1 Introduction

One of the debated issue concerning financial development and economic growth is the causal relationship. While it is a well known fact that financial sector is an important support factor in facilitating economic activities, nonetheless the question of whether financial development spurs economic growth or it is growth that necessitates the need of finance, hence the development of the sector; remains questionable. Interestingly, theories have been established to explain the possibility

[1] Corresponding author: E-mail: alamgirfa_juniv@yahoo.com; Tel: +603 7967 3755, Fax:+603 7956 7252

of both sides of the relationship. The findings have been mixed so far. One strands of financial development theory claim that it is finance that lead economic growth. Schumpeter (1911) highlighted the significant role of credit markets in the process of economic development and contends that entrepreneurs need credit to finance their new production techniques. Banks are expected to be the main agents in smoothing the progress of financial intermediating activities and promoting economic development. (Gurley and Shaw, 1955), Goldsmith (1969) and Hicks (1969) argue that development of a financial system is crucially important in stimulating economic growth. However, it is important to formulate policies that would develop the financial sector, so that this would lead to further economic growth.

In 1950's Robinson proposed that financial development does not lead to higher economic growth. He asserts that financial development responds inactively to economic growth as a result of higher demand for financial services. When an economy expands, households and firms demand more financial services and in response to this increased demand, more financial institutions, financial products and services emerge, thus leading to development of the financial systems. It is economic growth that supports the development in the financial sector.

Both the authors have opposite opinions about the financial development and economic growth. To justify their opinions, we examined this with the help of econometric model. For determining the existence of causality and the direction of causality between finance and growth are important given the fact that each set of causality brings different policy implications. Should finance led growth, it is crucial for the government to devote more resources for financial sector development since it would be able to contribute to further economic growth. On the contrary, if growth is the prerequisite for financial sector development, government should then focus on achieving economic growth through other sectors and this would then provide the positive spillover to the growth of the financial sector. This motivates us to undertake this study to determine whether there is any causality between financial sector development and economic growth. If there is, do finance led growth or it is growth that lead to the development of the financial sector.

The paper is organized following introduction as in first section, financial development and economic growth in Malaysia in section 2, theory and hypothesis development are in section 3, the data sources are placed in the section 4, specification of the econometric model is in section 5, empirical results, and discussions are in section 6 and 7 respectively followed by the conclusion in section 8.

2 Financial development and economic growth in Malaysia

Given the contradictory possibility of causality between financial development and economic growth, a large number of empirical works had been undertaken to ascertain the causality between financial development and economic growth. Among the empirical works that suggest it is finance that led growth are those by Seetanah (2008), (Yang and Yi, 2008), (Habibullah and Eng, 2006). There is a positive impact of finance on economic growth and level of financial development. Among others Saci et al. (2009), (Zang and Kim, 2007), (Liang and Teng, 2006) found no evidence of any positive unidirectional causal link from financial development to economic growth. A substantial indication that economic growth precedes subsequent financial development was found such as. Blanco (2009), (Handa and Khan, 2008) reports economic growth causes financial development; financial development does not cause economic growth.

Review of previous studies raises few issues where Malaysia is concerned. Results on the relationship between financial development and growth in the case of Malaysia are mixed. (Handa and Khan, 2008), (Ang and Mckibbin, 2007) found that there is uni-directional causality from economic growth to financial development. Another study by (Habibullah and Eng, 2006) finds that financial development will cause growth. Aside from that, both studies by Ang employ data only up to 2001. Therefore, it is important to update research on this issue to ascertain the exact causality of the finance-growth nexus by employing the latest data available.

3. Theory and hypothesis development

ARDL and co integration

We use Autoregressive Distributed Lag (ARDL) approach to co integration to solve the problems associated with omitted variables and autocorrelation and it can distinguish dependent and explanatory variables. The model we consider

$$\Delta \ln DOM_t = \alpha_0 + \sum_{i=1-2}^{n} b\Delta \ln DOM_{t-i} + \sum_{i=1-2}^{n} c\Delta \ln GDP_{t-i} + \sum_{i=1-2}^{n} d\Delta RI_{t-i} + \sum_{i=1-2}^{n} e\Delta \ln NV_{t-i} + \sum_{i=1-2}^{n} f\Delta \ln OPEN_{t-i} \quad (1)$$

$$+ \lambda_1 \ln DOM_{t-1} + \lambda_2 \ln GDP_{t-1} + \lambda_3 RI_{t-1} + \lambda_4 \ln INV_{t-1} + \lambda_5 \ln OPEN_{t-1} + \varepsilon t$$

Where DOM = Domestic credit (as a proxy for financial development), GDP = Real GDP per capita at constant price, RI = Real interest rate, INV = Investment, OPEN = Trade openness, Δ = first difference operator and εt = white noise error term.

Bounds Testing Approach to Co integration

When long-run relationships exist, the F-test indicates which variable should be normalized. The null hypothesis of no co integration is

$$H_0 : \lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$$

Against the alternative hypothesis

$$H_1 : \text{at least one of the } \lambda_i\text{'s} \neq 0,\ i = 1, \cdots, 5$$

The long run model can be estimated as:

$$\ln DOM_t = \beta 0 + \sum_{i=1}^{p_1} \delta 1 \ln dom_{t-i} + \sum_{i=0}^{q_2} \delta 2 \ln GDP_{t-i} + \sum_{i=0}^{q_3} \delta 3 \ln RI_{t-i} + \sum_{i=0}^{q_3} \delta 4 \ln INV_{t-i} + \sum_{i=0}^{q_4} \ln OPEN_{t-i} + \varepsilon_t \quad (2)$$

In the second step the conditional ARDL (p_1, q_1, q_2, q_3, q_4) can be estimated as:

$$\ln DOM_t = \beta 0 + \sum_{i=1}^{p_1} \delta 1 \ln dom_{t-i} + \sum_{i=0}^{q_2} \delta 2 \ln GDP_{t-i} + \sum_{i=0}^{q_2} \delta 3 \ln RI_{t-i} + \sum_{i=0}^{q_3} \delta 4 \ln INV_{t-i} + \sum_{i=0}^{q_4} \ln OPEN_{t-i} + \varepsilon_t \quad (3)$$

The elasticity's can be derived by constructing an error correction model of the form:

$$\Delta \ln DOM_t = \beta 0 + \sum_{p=1}^{n} \beta 1 \Delta \ln DOM_{t-p} + \sum_{p=0}^{n} \beta 2 \Delta \ln GDP_{t-p} + \sum_{p=0}^{n} \beta 3 \Delta RI_{t-p} + \sum_{p=0}^{n} \beta 4 \Delta linv_{t-p} + \sum_{p=0}^{n} \beta 5 \Delta lopen_{t-p} + \psi ECM_{t-1} + \varepsilon_t \quad (4)$$

Here $\Delta$is the first difference operator; βs are the coefficients relating to the short run dynamics of the model's convergence to equilibrium, and ψ measures the speed of adjustment. Therefore, error correction term (ECM) is the defined as:

$$ECM_t = \ln DOM_t - \alpha 0 - \sum_{p=1}^{m} \alpha 1 \ln DOM_{t-p} - \sum_{p=0}^{n} \alpha 2 \ln GDP_{t-p} - \sum_{p=0}^{p} \alpha 3 RI_{t-p} - \sum_{p=0}^{q} \alpha 4 LINV_{t-p} - \sum_{p=0}^{r} \alpha 5 Lopen_{t-p} \quad (5)$$

Granger Causality

Engle and Granger (1987) form an equation with the combination of autoregressive distributed lag (ARDL) and error correction model (ECM) and take a new form as:

$$\Delta \ln DOMt = \beta 0 + \sum_{p=1}^{n} \beta_1 \Delta \ln DOM_{t-p} + \sum_{p=0}^{n} \beta_2 \Delta \ln GDP_{t-p} + \sum_{p=0}^{n} \beta_3 \Delta RI_{t-p} + \sum_{p=0}^{n} \beta_4 \Delta linv_{t-p} + \sum_{p=0}^{n} \beta_5 \Delta lopen_{t-p} + \psi ECM_{t-1} + \varepsilon_t \quad (6)$$

Where ECM_{t-1} is the error correction term obtained from the co integration equation, $\psi, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ are estimated parameters. Granger (1988), notes that the ECM provides two channels through which Granger causality can be detected. Granger causality between financial development and economic growth can be shown using the following model:

$$\Delta \ln DOM_t = \beta 0 + \sum_{p=1}^{n} \beta_1 \Delta \ln DOM_{t-p} + \sum_{p=0}^{n} \beta_2 \Delta \ln GDP_{t-p} + \sum_{p=0}^{n} \beta_3 \Delta RI_{t-p} + \sum_{p=0}^{n} \beta_4 \Delta linv_{t-p} + \sum_{p=0}^{n} \beta_5 \Delta lopen_{t-p} + \psi ECM_{t-1} + \varepsilon_t \quad (7)$$

$$\Delta \ln GDPt = \beta 0 + \sum_{p=1}^{n} \beta 1 \Delta \ln GDP_{t-p} + \sum_{p=0}^{n} \beta 2 \Delta \ln DOM_{t-p} + \sum_{p=0}^{n} \beta 3 \Delta RI_{t-p} + \sum_{p=0}^{n} \beta 4 \Delta linv_{t-p} + \sum_{p=0}^{n} \beta 5 lopen_{t-p} + \psi ECM_{t-1} + \varepsilon_t \quad (8)$$

Data Sources

In order to meet the objectives of the study we utilized the time series data (1970-2007) from the secondary sources such as, International Monetary Fund (IMF), International Financial Statistics (IFS), and Penn World Table Index (PWTI). We used the methodology and sampling techniques of the respective organizations from their official reports. The Data on domestic credit, a proxy for financial development, real interest rate, and investment were acquired from IFS. Besides, the Real GDP per capita at constant price and trade openness were extracted from PWTI and others from IMF.

4 Specification of the econometric model

To examine the causality of financial development and growth, this study follows Ang and McKibbin (2005). The model takes the form of:

$$\ln DOM_t = \alpha_0 + \alpha_1 \ln GDP_t + \alpha_2 RI_t + \alpha_3 LINV_t + \alpha_4 LOPEN_t + \varepsilon_t \quad (9)$$

All in logarithms except for real interest rate.

5 Empirical results

Table 1 shows the empirical results of unit root test that indicate a mixture of I (0) and I (1). Based on results estimate the variables other than GDP after taking first difference become stationary. The calculated F-statistics (presented in **Table 2**) when each variable is considered as dependent variable (normalized) in the ARDL-OLS regression. The findings of F-statistics (F_{LDOM} = 9.302) is higher than the upper bound critical value 5.06 at the 1% level. In addition, F_{RI} = 5.108 is also higher than the upper-bound critical value of same level of significance. The computed F-statistics for F_{LDOM} is also greater than upper bound critical value. The result indicates the existence of co integration relationship among the variables. **Table 3** presents long run coefficients using the ARDL (1, 0, 0, 2, and 0) specification equation 4. It reveals that the coefficient of GDP is positive and statistically significant showing GDP has a strong influence on financial development. This findings support the work by (Ang and McKibbin, 2007) who indicates output and finance has positive relationship.

The estimated coefficient of real interest rate (RI) has negative sign and found to be statistically significant at 10 percent. This result confirmed the findings by (Ang and Mckibbin, 2007), which shows that the real interest rate and financial development has a negative relationship. The result is also consistent with the findings by Arestis et al. (2002). Our estimated of long-run elasticity coefficient for Investment (LINV) implies that a one per cent rise in Investment will increase financial development by 1.31 percent. The coefficient for trade openness (LOPEN) is negative and insignificant.

The findings of Error Correction Model (ECM) in **Table 4** show at least one condition of direction of causality. The lagged of ECM term refer as ECM_{t-1} in our result is highly significant at 1%. The coefficient for ECM also indicates high rate of convergence to equilibrium. The coefficient of ECM is around -0.52 and this implies that a deviation from the long run equilibrium following a short run shock is corrected by about 52% after each year. The ECM model also provides evidence of trade openness is significant and negatively related to finance in the long run consistent with (Ang and Mckibbin, 2007). **Table 5** shows that the proposed technique also overcomes the ARDL-ECM model diagnostic tests though it is not significant but well fitted for test of serial correlation (LMsc), heteroscedasticity test, normality test, and the functional form. Grange causality tests in **Table 6** shows the coefficient on the error correction term with lag is highly significant with 1% significance level and possesses correct negative sign. This confirms with the results of bounds test for cointegration. The t-test from ECM which is negative and indicate that all independent variables granger cause financial development in the long run.

6. Discussions

In our findings, there is causality between financial development and economic growth, running from economic growth to financial development. This is consistent with previous findings for the case of Malaysia by (Ang and McKibbin, 2007) which indicate that the direction of causality between financial development and economic growth are from economic growth to financial development. However, it differs from findings of multi-country study by (Habibullah and Eng, 2006) that include Malaysia which claim that financial development precedes growth. Yet, we believe that for cases such as financial development and economic growth, single country studies offer a better insights since various factors like policies, regulations and institutional do indeed have a merit on the intricate finance-growth nexus.

In case of Malaysia, financial development per sector does not bring about the intended positive effect on economic growth. Despite all the aggressive measures being adopted by the government to further liberalize and develop the financial sectors, there is no evidence on the capability of the sector to lead growth. Hence, government should concentrate on development of economic growth foremost rather than to aggressively develop the financial sector. This is divergent to the findings by (Yang and Yi, 2008) in their research on Korean perspective. They point out that the finding of unidirectional causality from financial development to economic growth suggests the government of Korea should undertake financial sector reform rather than concentrating on economic growth.

Aside from identifying the finance-growth nexus, we also found evidences on determinants of financial development. Among others, financial development in Malaysia depends positively on private investment. Interest rate is found to be negatively related to financial development signifying that government should remove interest rate control. Lastly, contrary to conventional wisdom where trade openness is envisaged as one of the catalyst for financial development, our finding shows negative relationship between trade openness and financial development in the long run.

6 Conclusion

The economic growth and financial development are closely related to each other. The previous studies on those issues in Malaysia produce mix results. This opposition raises the need for this study to update existing evidences using most recently available data and provide further insights on the causality between finance and growth. Using Autoregressive Distributed Lag (ARDL) bounds test approach on time series data (1970 to 2007) we find that the Robinson theory holds in the

Malaysian economy. Our findings suggest in Malaysia, economic growth leads to financial development. This finding has further reinforced previous findings that, developing the financial sector is not a channel to achieve greater economic growth. So our findings in support with other previous results, we proposed to Malaysian policy maker to exaggerate its pro-growth policies. These policies would intensify the economic growth and ultimately increase the financial development.

References

Ang JB, McKibbin WJ (2007). Financial liberalization, financial sector development and growth: Evidence from Malaysia. Journal of Development Economics. 84: 215-233.

Arestis P, Demetriades PO, Fattouh B, Mouratidis K (2002). The impact of financial liberalization policies on financial development: Evidence from developing economies. International Journal of Finance and Economics. 7: 109-121.

Blanco L (2009). The Finance-Growth Link in Latin America. *Southern Economic Journal*. 76(1): 224-248.

Granger CWJ (1988). Some recent developments in the concept of causality. *Journal of econometrics*. 39: 199-211.

Goldsmith RW (1969). Financial Structure and Development. New Haven. CT: Yale University Press.

Gurley JG, Shaw ES (1955). Financial aspects of economic development. American Economic Review. 45: 515-538.

Hicks JR (1969). A Theory of Economic History. Oxford: Oxford University Press.

Handa J, Khan SR (2008). Financial development and economic growth: A symbiotic relationship. Applied Financial Economics. 18(13): 1033-1049.

Habibullah MS, Eng YK (2006). Does financial development cause economic growth? A panel data dynamic analysis for the Asian developing countries. Journal of the Asia Pacific Economy. 11(4): 377-393.

IMF (2007). International Financial Statistics 2007. Washington: IMF and World Bank.

Liang Q, Teng JZ (2006). Financial development and economic growth: Evidence from China. China Economic Review. 17(4): 395-411.

Narayan PK (2005). The saving and investment nexus for China: Evidence from cointegration tests. Applied Economics. 37: 1979-1990.

Pesaran MH, Shin Y, Smith R (2001). Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics. 16: 289-326.

Robinson J (1952). The Rate of Interest and Other Essays. Macmillan, London.

Saci K, Giorgioni G, Holden K (2009). Does financial development affect growth? Applied Economics. 41(13): 1701-1707.

Schumpeter JA (1911). The Theory of Economic Development. Reprinted 1969: Oxford University Press. Oxford.

Seetanah B (2008). Financial development and economic growth: An ARDL approach for the case of the small island state of Mauritius. Applied Economics Letters. 15(10): 809-813.

Yang YY, Yi MH (2008). Does financial development cause economic growth? Implication for policy in Korea. Journal of Policy Modeling. 30: 827-840.

Zang H, Kim YC (2007). Does Financial Development Precede Growth? Robinson and Lucas might be right. Applied Economics Letters. 14: 15-19.

APPENDIX:

Table 1 Unit root test

Variables	Level	Lag	Variable type
LDOM	-1.793	5	I(1)
LGDP	-3.527***	3	I(0)
RI	-3.162	5	I(1)
LINV	-1.937	0	I(1)
LOPEN	-2.096	1	I(1)
Variables	First-difference	Lag	Variable type
LDOM	-5.421*	2	I(0)
LGDP	-6.073*	2	I(0)
RI	-10.054**	35	I(0)
LINV	-3.983*	3	I(0)
LOPEN	-5.606*	3	I(0)

Notes: *, **and *** indicate the rejection of null hypothesis of non stationary at 1%, 5% and 10% significance level respectively.

Table 2 Bounds F - test for co integration

Dependent variable	SIC Lags	F-statistics	Prob.	Results
FLDOM(DOM|GDP,RI,INV,OPEN)	2	9.302	0.000*	Yes
FLGDP (GDP|DOM,RI,INV,OPEN)	2	0.93	0.484	No
FRI (RI|(DOM,GDP,INV,OPEN)	2	5.108	0.004*	Yes
FINV (INV|DOM,GDP,RI,OPEN)	2	2.674	0.054	No
FOPEN (OPEN|DOM,GDP,RI,INV)	2	1.138	0.375	No

Notes: * represent significance at the 1% level. Critical values are cited from pesaran et al.(2001) (table CI (iii), Case III: Unrestricted intercept and no trend , p. 300). Lower bound I(0) = 3.74 and upper bound I(1) = 5.06. Other critical values also

obtained from Narayan (2005) (table case III: unrestricted from Narayan (2005) (table case III: Unrestricted intercept and no trend, p.1988). Lower bound I(0) = 4.428 and upper bound I(1) = 6.250

Table 3 Estimated long run coefficients using the ARDL approach

Regressor	Coefficient	T-ratio
LGDP	2.207*	2.828
RI	-0.059***	-1.789
LINV	1.307*	3.954
LOPEN	-1.516	-0.902
Intercept	-2.211	-0.516

Dependent Variable: LDOM; Notes: * and *** denote significant at 1% and 10%

Table 4 ARDL (1, 0, 0, 2, 0) model ECM results

Dependent Variable ΔLDOM	Coefficient	T-ratio
Regressor		
INPT	-0.025	-0.633
$\Delta LDOM_{t-1}$	0.05	-0.39
ΔLGDP	1.640**	2.144
ΔRI	-0.022*	-3.168
$\Delta LINV_{t-1}$	-0.366**	-2.018
$\Delta LINV_{t-2}$	-0.565*	-3.119
ΔLOPEN	-1.053**	-2.209
ECM_{t-1}	-0.519*	-6.191

Note: *, ** denote significance at 1%, and 5%

Table 5 ARDL-ECM model diagnostics tests

LMsc	F(1,26)=1.536 (0.226)
Functional form	F(1,26)=0.318 (0.578)
Normality	$\chi 2(2)$=3.504 (0.173)
Heteroscedasticity	F(1,33)=0.068 (0.796)

Table 6 Granger causality tests based on ECM, Wald tests χ^2

Wald tests						t-statistics
Dependent Variable	$\Delta lnDOM_t$	$\Delta lnGDP_t$	ΔRI_t	$\Delta lnINV_t$	$\Delta lnOPEN_t$	ECM_{t-1}
ΔlnDOM		4.597**	10.035	4.074	4.879	-6.191*
ΔlnGDP	0.002		1.50E-05	5.45E-04	15.572	

Note: *, ** denote significance at 1%, and 5%