

Financial Growth and Economic Development: Evidence from Malaysia

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Abstract

The purpose of this study is to test the validity of Robinson's growth argument that supports economic growth affecting finance using a series of annual data from Malaysia. The key to this debate is whether there is a growth response led by finance or financial response led by the growth between the two variables. As a result, it can provide different fundamental implications. Therefore, it is very important to determine the reasons for these financial growth relationships for every economy. The previous survey in research in the Malaysian case produces mixed results. Therefore, this study is expected to update existing evidence using the latest data and provide further insights on the relationship between finance and growth in Malaysia. This study uses domestic credit as a proxy for financial development as opposed to real per capita GDP (a proxy for economic growth). Using the Bounds ARDL test, revealed that the Economic Development granger cause financial Development and not the other way around. This is consistent with previous studies. The development of the financial sector is a product inspired by economic growth. In accordance with this development, we recommend that appropriate policies be implemented to promote economic development.

Keywords: Financial Growth, Autoregressive Distributed Lag, Economic development, Malaysia, Domestic credit

1.0 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. Interestingly, theories have been established

to explain the possibility of both sides of the relationship. Empirical studies too do not lend any definite solution to this chicken and egg question. The findings have been mixed so far.

It is finance that leads economic growth and the significant role of credit markets in the process of economic development and entrepreneurs need credit to finance their new production techniques (Schumpeter 1911). Banks are expected to be the main agents in smoothing the progress of financial intermediating activities and promoting economic development. A well-organized financial system can bring financial resources to the most productive use. Development of a financial system is crucially important in stimulating economic growth (Gurley et al., 1955), Goldsmith (1969) and Hicks (1969). According to this strand of argument, weak financial systems will slow down economic growth. Therefore, it is important to formulate policies that would develop the financial sector, so that this would lead to further economic growth.

Financial development does not lead to higher economic growth states by the other theory. Instead, financial development responds inactively to economic growth as a result of higher demand for financial services (Robinson 1952). 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 the development of the financial systems. Hence, as opposed to the first school of thought, this hypothesis argues that it is economic growth that supports the development in the financial sector.

Determining the existence of causality and the direction of causality between finance and growth is 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, the 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 leads to the development of the financial sector.

2.0 Literature Review

Given the contradictory possibility of causality between financial development and economic growth and the crucial policy implications that follow, it is natural that a lot of empirical works had been undertaken to ascertain the causality between financial development and economic growth. As posited by the theoretical accounts, the results are mixed; some suggest that finance led growth while the others claim that it is growth that develops the financial sector.

Several empirical works suggest it is finance that led growth (Jalil et al., 2010) for China, (Thangavelu et al., 2004) for Australia, (Christopoulos et al., 2004) for 10 developing countries, (Beck et al., 2004); (McCaig et al., 2005); (Habibullah et al., 2006) for 10 Asian developing economies; (Abu-Bader et al., 2008) for six Middle Eastern and North African countries like Algeria, Egypt, Israel, Morocco, Syria, and Tunisia; (Seetanah 2008) for the case of the developing small island state of Mauritius and (Yang et al., 2008) for Korea. Another group of studies also support the positive impact of finance on economic growth with one important caveat, the level of financial development. Positive finance-economic growth relationship may differ according to the stage of financial development (Rioja et al., 2004). Their study encompasses 74 countries, find for the countries with a low level of financial

development, additional improvements in financial markets create an uncertain effect on growth. As for the intermediate region, financial development will give a large, positive effect on growth. Finance has a strong positive impact on economic growth mainly in countries with more developed financial systems. The study focusing on transitions economies build, on the same hypothesis but conclude from their findings that there is a robust positive link between financial development and economic growth (Akimov et al., 2009).

Findings from other studies dismissed this hypothesis (Seetanah 2008) for the case of the developing small island state of Mauritius; (Habibullah et al., 2006) for 10 Asian developing economies and (Saci et al., 2008) for 30 developing countries. Those studies document evidence of positive impact of finance on development even for developing countries. Among those studies, report a relatively more comprehensive analysis with the inclusion of 30 countries, 10 measures of financial development and employing principal component analysis (Saci et al., 2008).

On the other hand, studies indicate that economic growth precedes financial development (Liang et al., 2006) in the case of China (2007); (Ang et al., 2005, 2007) for the case of Malaysia; and (Odhiambo 2008) for the case of Kenya;. A large panel data set utilize find no evidence of any positive unidirectional causal link from financial development to economic growth (Zang et al., 2007). In contrast, a substantial indication that economic growth precedes subsequent financial development was found. Similarly, the efforts to evaluate the plausibility of financial development as a tool to boost economic growth find that causality runs from economic growth to financial development for Bangladesh, Sri Lanka, Brazil, Malaysia, Thailand and Turkey (Handa et al., 2008). There does not exist one-way Granger-causality from financial development to economic growth for any of the countries examined. The study on Latin American countries presents while economic growth causes financial development, financial development does not cause economic growth (Blanco 2009). 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. On one hand, there is uni-directional causality from economic growth to financial development (Ang et al., 2005, 2007) and (Handa et al., 2008). Another study finds that financial development will cause growth (Habibullah et al., 2006). 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.

3.0 Methodology and data sources

Data Sources

This study utilizes time series data from 1960-2010. Data is taken from the secondary sources which are World Development Indicators.

Model Specification

To examine the causality between financial development and growth, this study follows model proposed by Odhiambo(2008) as follows;

$$\text{LnDOM} = \alpha_0 + \alpha_1 \text{LnGDP} + \varepsilon \quad (1)$$

Where,

DOM = Net Domestic credit (as a proxy for financial development)

GDP = GDP per capita at constant price

Ln	= Natural Logarithm
α_0	= Constant
α_1	= Slope coefficient
ε_t	= Error term
t	= yearly time series data

Methodology

In this study, we use Autoregressive Distributed Lag (ARDL) approach to cointegration. In time series analysis, we often can see that the independent variables in the regression with the inclusion of lags of the independent variables. In the case of ARDL, the dependent variable may be correlated with its own lags. This suggests that we should include the lag of dependent variable in our equation.

The model is also efficient to run or obtain a long run relationship and also to look the dynamic interactions among the variables of interest. Thus, this method allows for the combination of a variable which is integrated in the order I(0) or I(1).

This ARDL approach can solve the problems associated with omitted variables and autocorrelation and it can distinguish dependent and explanatory variables. The ARDL approach to cointegration involves the estimation of the following model:

$$\Delta \ln DOM_t = \alpha_0 + \sum_{i=1}^n b \Delta \ln DOM_{t-i} + \sum_{i=1}^n c \Delta \ln GDP_{t-i} + \lambda_1 \ln DOM_{t-1} + \lambda_2 \ln GDP_{t-1} + \varepsilon_t$$

(2) Where: Δ = first difference operator and ε_t = white noise error term.

Bounds Testing Approach To Cointegration

When long-run relationships exist, the F-test indicates which variable should be normalized. The null hypothesis for no cointegration amongst the variables in equation 2 is:

$$(H_0: \lambda_1 = \lambda_2 = 0)$$

On the other hand, the alternative hypothesis is:

(at least one of the λ_1 's $\neq 0$)

Once cointegration is established the conditional ARDL (p_1, q_1) long run model for DOM_t can be estimated as:

$$\ln DOM_t = \beta_0 + \sum_{i=1}^{p_1} \delta_1 \ln dom_{t-i} + \sum_{i=0}^{q_1} \delta_2 \ln GDP_{t-i} + \varepsilon_t \quad (3)$$

In the second step, once cointegration is established the conditional ARDL (p_1, q_1) long run model for DOM_t can be estimated as:

$$\ln DOM_t = \beta_0 + \sum_{i=1}^{p_1} \delta_1 \ln dom_{t-i} + \sum_{i=0}^{q_1} \delta_2 \ln GDP_{t-i} + \varepsilon_t$$

(4)

In the presence of cointegration, short run elasticities can also be derived by constructing an error correction model of the following form:

$$\Delta \ln DOM_t = \beta_0 + \sum_{p=1}^n \beta_1 \Delta \ln DOM_{t-p} + \sum_{p=0}^n \beta_2 \Delta \ln GDP_{t-p} + \psi ECM_{t-1} + \mathcal{I}_t \quad (5)$$

Here Δ is the first difference operator; β_s are the coefficients relating to the short run dynamics of the model's convergence to equilibrium, and ψ measures the speed of adjustment.

ECM is the error correction term defined as:

$$ECM_t = \ln DOM_t - \alpha_0 - \sum_{p=1}^m \alpha_1 \ln DOM_{t-p} - \sum_{p=0}^n \alpha_2 \ln GDP_{t-p} \quad (6)$$

Granger Causality

Once variables are found to be cointegrated, there always exists a corresponding error correction representation in which the short run dynamics of the variables in the system are influenced by the deviation from equilibrium (Engle et al., 1987). Accordingly, it is implied that changes in the dependent variables are a function of the level of disequilibrium in the cointegrating relationship (captured by the error-correction term), as well as changes in other explanatory variables.

In the case of ARDL, the equation with ECM takes the form of:

$$\Delta \ln DOM_t = \beta_0 + \sum_{p=1}^n \beta_1 \Delta \ln DOM_{t-p} + \sum_{p=0}^n \beta_2 \Delta \ln GDP_{t-p} + \psi ECM_{t-1} + \mathcal{I}_t$$

(7)

Where ECM_{t-1} is the error correction term obtained from the cointegration equation, ψ, β_1, β_2 are estimated parameters, and \mathcal{I}_t is stationary random processes with zero mean and constant variance. ECM provides two channels through which Granger causality can be detected (Granger 1988).

The final step is to look at the short run and long run Granger causality between financial development and economic growth using the following model:

$$\Delta \ln DOM_t = \beta_0 + \sum_{p=1}^n \beta_1 \Delta \ln DOM_{t-p} + \sum_{p=0}^n \beta_2 \Delta \ln GDP_{t-p} + \psi ECM_{t-1} + \mathcal{I}_t \quad (8)$$

$$\Delta \ln GDP_t = \beta_0 + \sum_{p=1}^n \beta_1 \Delta \ln GDP_{t-p} + \sum_{p=0}^n \beta_2 \Delta \ln DOM_{t-p} + \psi ECM_{t-1} + \mathcal{I}_t$$

(9)

Empirical Results

Bounds Testing

Table 1. Bounds F - test for cointegration

Dependent variable	SIC Lags	F-statistics	Prob.	Results
FLDOM (DOM GDP)	2	2.8580	0.069***	Cointegration
FLGDP (GDP DOM)	2	1.1803	0.317	No cointegration

Notes: *** represent significance at the 10% level.

The table above reports the results of calculated F-statistics when each variable is considered as the dependent variable (normalized) in the ARDL-OLS regression. The calculated F-statistics $F_{L\text{DOM}} = 2.8580$ is significance indicate cointegration exist. Consistent with our study, the right model will be used is $F_{L\text{DOM}}$ which will be a dependent variable. The result indicates the existence of cointegration relationship among the variables. Once we established a long run cointegration relationship existed, equation 4 was estimated using the following ARDL (1,0) specification. The results obtained by normalizing on DOM as dependent variable are reported in table 2.

Findings for Long Run Coefficient

Table 2 below is output result for estimated ARDL (1, 0,) model long run result from long run coefficient.

Table 2. Estimated long run coefficients using the ARDL approach

Regressor	Coefficient	T-ratio
LGDP	1.832*	3.336
INTERCEPT	-20.430	-1.339

Dependent Variable: LDOM

Notes:* denote significant at 1%,

The total number of regression follow the ARDL procedure is $(2+1)^2=81$. After selecting SBC with maximum lags chosen which is two, therefore the ARDL model selected by SBC is (1, 0).

Our estimated long run model in table 2 reveals that the coefficient of Gross Domestic Product is positive and statistically significant indicating that GDP has a strong influence on financial development. There is a positive relationship between output and finance (Ang et al., 2005)

ECM Results and Interpretation

The significant of an Error Correction Model (ECM) in table 3 shows at least one condition of the direction of causality. The lagged of ECM term refer as ECM_{t-1} in our result is significant at 5%.

Table 3. ARDL (1, 0) model ECM results

Dependent Variable: $\Delta L\text{DOM}$	Coefficient	T-ratio
Regressor		
INPT	-0.004	-0.078
$\Delta L\text{DOM}_{t-1}$	0.132	0.962
$\Delta LGDP$	1.064***	1.707
ECM_{t-1}	-0.057**	-1.963

Note: **,*** denote significance at 5% and 10%

Results for Granger causality analysis

The result from Wald test will show how the granger causality can be established. Granger causality is conducted under the null hypothesis of no causality. Having found that there is a long run relationship between the variables, the next step is to test for the causality between financial development and economic growth. The causality, in this case, is examined through the significance of the coefficient of the lagged error-correction term and the joint significance of the coefficient of the lagged differences of the explanatory variables using the Wald test. The result of the causality test is reported in table 4. Turning to the short run causal effects which obtained by the Wald χ^2 test, the empirical results reported in the table shows growth granger cause financial development in the domestic credit equation.

For long run causality, as presented in table 3, the coefficient on the error correction term with lag is highly significant which is 5% significance level and possess correct negative sign. This confirms the results from the bounds test for cointegration. The t-test from ECM which is negative indicates that growth granger cause financial development in the long run. Thus, as far as this research paper objective is concerned, growth granger cause financial development in the short run as well as in the long run.

Table 4. Granger causality tests based on error correction model, Wald tests χ^2

Wald tests		t-statistics	
Dependent Variable	$\Delta \ln \text{DOM}_t$	$\Delta \ln \text{GDP}_t$	ECM_{t-1}
$\Delta \ln \text{DOM}$		2.915***	3.854**
$\Delta \ln \text{GDP}$	1.632		

Note: **,*** denote significance at 5% and 10%

Policy Implications

Our findings suggest that there is causality between financial development and economic growth, running from economic growth to financial development. The case for Malaysia indicates economic growth to financial development (Ang et al., 2005, 2007). However, it differs from findings of the multi-country study, which claim It is financial development precede growth (Habibullah et al., 2006). Yet, we believe that for cases such as financial development and economic growth, single country studies offer better insights since various factors like policies, regulations and institutional do indeed have a merit on the intricate finance-growth nexus.

This piece of finding offers important policy implication. In the case of Malaysia, financial development per se do 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 our financial sector, there is no evidence of the capability of the sector to lead growth.

Hence, the government should concentrate on the development of economic growth foremost rather than to aggressively develop the financial sector. This is contrary to the comment in the research study for Korea. The unidirectional causality from financial development to economic growth suggests the government of Korea should undertake financial sector reform rather than concentrating on economic growth (Yang et al., 2008). In

the case of Malaysia, we have to focus on the development of economic growth before total liberalization of financial sectors commences.

Conclusion

The paper investigates the relationship between financial development and economic growth. The empirical findings suggest that financial development does not promote economic growth. The Granger Causality test results for the case in Malaysia support Robinson theory. We are inclined to conclude that Schumpeter may not be right in theorizing that finance promotes economic growth.

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