Nexus between Financial Development, Trade Openness, and Economic Growth: the Case of Malaysia

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ABSTRACT[1]

This study aims to examine the long-run equilibrium and short-run relationships between financial development, trade openness, and economic growth in Malaysia by using a sample for the period 1982-2014. The ARDL bounds test for cointegration approach and Granger causality test were applied to investigate the relationship. In order to test the stationarity of the series, ADF and PP tests were applied, and both of them revealed that all the series are stationary at first differences. The ARDL confirmed a long-run and short-run relationship between variables.

Finally, Granger causality test revealed that there is no evidence that supports finance-led growth hypothesis, however, it revealed that financial development indirectly effect on growth process through trade openness channel.

Keywords*: Financial Development, Economic Growth, Trade Openness, Granger Causality, ARDL.*

1. INTRODUCTION

The literature related to the relationship between financial development and the growth process has its foundation in the basic functions of the financial

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sector's effect on development technologies and accumulation of capital. The financial sector facilitates transactions for businesses that are participants in the growth process (Levin, 1997). The role of financial markets in the growth process has attracted significant attention, and it is recognised by economists to be a key factor in this process.

After the Asian financial crisis emerged in 1998, East Asian countries that were hit by the crisis including Malaysia, in the following years after this critical period struck in Asia, Malaysia attempted to overcome these problems, even when confronted with rapid fall in equity prices and the local currency value. Moreover, due to the infectious spread of the financial crisis that hit the region, Malaysia was forced to confront many challenges during that period.

Although the Malaysian banking system was in a relatively strong position at the onset of the crisis, a decline began to appear at the end of 1997. This was particularly noticeable in the inefficient distribution of liquidity within the system, which in turn threatened the smooth functioning of the borrowing and lending processes. Although the banking system remained flexible and strong, some banking institutions were confronted with liquidity problems, which led to increased competition among banking institutions in raising the interest rate (Bank Negara Malaysia, 1999), which is the Malaysian Central Bank. Furthermore, the Central Bank of Malaysia applied various procedures to rescue the financial system and has modified its monetary policy by focusing on the interest rate instead of monetary targeting, which reflects the unstable money demand during that period.

The global financial crisis in 2008 led national governments to extend their authority over the financial systems to a greater degrees, in order to prevent the occurrence of additional disasters in the financial markets; moreover, they considered all the possible scenarios that could affect their domestic economic and trading partners (Ivashina & Scharfstein, 2010). Malaysia did not suffer from external shocks, but it did experience a negative shock in the fourth quarter of 2008, when industrial output deteriorated sharply and investment also declined. Furthermore, a comparison in the rate of GDP demonstrates that it was reduced to 0.1% in the fourth quarter of 2008, while the rate in the first nine months of the same year was 5.9% (Khoon and Lim 2010).

All these previous studies used samples before global financial crisis that had a direct effect on the real economy of Malaysia. In addition, the shocks of that crisis have transmitted by trade and financial sectors, although, it has a limited effect on banking system.

As a response of 2008 global financial crisis Malaysian government has taken some new policies as response of the crisis. For instance, interest rate cuts by Bank Negara Malaysia, and Malaysian government has given the

priority to fund private sector, and funded RM19 billion focusing on building capacity of the future. In addition the government permitted companies for raising fund capital market with facilities. Furthermore, to assure that the government repealed the requirement of approval and application of Security Commission Nambiar (2009).

This study is undertaken to contribute and giving some knowledge into how financial development, trade openness and economic growth are linked with each other in the case of Malaysia. This study will further highlights whether the new policies adopted by the Malaysian government as a response to 2008 crisis have changed financial development and economic growth relationship.

2. THEORETICAL AND EMPIRICAL REVIEW

2.1. Theoretical Review

Conventional growth theory argues that the growth of an economy demands innovation in sectors that are related to that economy. However, some contemporary researchers have presented studies related to the role of financial development on the growth of the economy (Goldsmith, 1969). They are concerned with advancements in segments pertinent to finance and offer a central force for dynamic economic development. McKinnon (1973) pronounced that progression of financial markets enables financial development, which is a response to an expanding utilization of finance related intermediation by borrowers and savers. One productive method that leads to the effective flow of assets amongst establishments and individuals after a certain period of time is the monetization of the economy. This can generate funds and reduces the constraints on capital accumulation and, additionally, it improves the effectiveness of speculation through determining more profitable divisions. The proficiency of the investment rate in the economy is therefore expected to increase. The probable points of interest of advancement in financial development incorporate the decrease of capital expenses, the distribution of credit through capital markets rather than through commercial banks and public authorities, and the end of idle markets.

King and Levine (1993) emphasised that financial framework advancement in any economy facilitates portfolio enhancement for savers, which lessens the likelihood of risk and gives more alternatives to financial specialists to expand yields. The financial system has the capability to lessen investment costs for investors and individuals as well as upgrading the profitability through its capacity of collecting, processing, and analysing data. The strength of economic productivity is determined by the quantity and

quality of investment. In general, facilitating constraints of credit, particularly working capital, is anticipated to enhance the efficiency of allocation of the resources that will reduce the gap between actual and predicted productivity. It is important to mention that financial systems provide financially related functions, and the effects of such functions are specific to different countries; therefore, they cannot be generalized in terms of the success of their implementation.

2.2. Empirical review

There are many ways to test the relationship between financial development and economic performance in both developed and developing countries, as suggested by previous studies. The common understanding is that a well-developed financial system is essential for economic productivity and enhancement of growth (Zhang and Wang 2012; Gurley and Shaw, 1967). The function of the financial system is to act as a bridge, filling the information gap between deficit units (investors) and surplus units (savers), lowering the costs of transactions and promoting risk sharing (Goldsmith, 1969; Hassan et al. 2011; Mirbagheti et al. 2014). However, some studies have suggested that the development of the financial sector also have the slope to impede the growth process (King and Levine, 1993; Michael, 2012), which means that the higher level of returns earned via improved allocation of resources by banking system may be influenced by a decrease in saving rates in the case of financial sector shocks which influence the level of economic activities. Goldsmith (1969) pioneered the study on the nexus between finance and economic growth. He analysed the causal nexus between financial development and economic growth, covering the period from 1860 to 1963, he utilizing an example that included 35 unique nations. The findings showed that the value of financial intermediation assets to GDP is a positive and significant determinant of economic performance. The volume of the financial intermediary sector is based on the financial services' quality, which the financial sector offers. This study provided a foundation for further studies on the finance-growth nexus. However, the period covered lacks the dynamics of the modern financial system, implying that the findings could potentially be inconclusive. Chen (2006) conducted a study analysing the relationship between economic growth and financial development in the case of China. Using a sample covered the period from 1985-1999. The results suggested that the financial development in China positively impacts on economic growth. Moreover, Chen's paper specified two channels through which the financial sector contributes to economic performance, which are the mobilization of credit availability and savings. Cheng and Degryse (2007)

examined the impact of the development of banking and non-banking financial institutions on domestic economic growth. Using data gathered from the period 1995–2003, the findings suggested that the development of the banking system has a positive effect on economic growth. Another study conducted by Guariglia and Poncet (2008), examined the causal relationship between finance and economic growth in the case of China. This study covered sample data extracted from 1989-2003, using two indicators to measuring finance, which were market-driven finance and state intervention. The results suggest that market-driven financing positively contributed to economic growth, while state intervention indicators of financing contributed negatively to economic growth. Leitao (2010) conducted a study to investigate the causal relationship between financial development and economic growth coin BRIC countries (Brazil, Russia, India and China) and European Union countries (EU-27). It covered the period from 1980 to 2006. The findings suggest that the indicators of financial development were positively and significantly related with economic growth in the regions concerned. Anwar and Sun (2011) investigated the mutual relationship between the stock of domestic capital, the stock of foreign investment, and economic growth in the case of Malaysia. Using sample data from 1970–2007, the discoveries proposed that the level of monetary advancement significantly affected the development of the local capital stock in Malaysia, while its impact on economic growth was statistically insignificant. Furthermore, economic growth in Malaysian may be related with financial development, particularly the financial market' liberalization. However, the use of simultaneous equations for the study may not have adequately captured the dynamics of the financial sector.

3. DATA AND METHODOLOGY

This study addresses the empirical linkage between financial development and economic growth in Malaysia using secondary data collected by the World Bank and Trend Economy with macro-level time series annual data for the period 1982-2014. Two indicators are utilised to represent financial development, which are the domestic credit to the private sector to GDP, and money and quasi money as a percentage of GDP, as well as an indicator representing openness trade, which is trade to GDP (Leitao, 2010; Beck, 2002). The study also uses GDP per capita 2005 US dollar to represent the real economic sector and as a proxy of economic growth.

The measurement of the chosen variables is as follows:

The measurement used for economic growth is GDP per capita in 2005 United States dollar, which is we calculate GDP per capita to GDP by

midyear population. Gross domestic product is considered to be the sum of the total amount produced by citizen in the economy in additional to any goods or taxes, subtracting any foreign aid.

Different measurements could be used for as a proxy for financial development proxy, as referenced in the literature (Beck, 2002). It is also proposed that any upgrade or enhancements to the size of those proxies are presumed to be through the development in the financial sector.

In addition, as Beck (2002) also that suggested the ratio of domestic credit to the private sector as a percentage of GDP could be defined as the national credit to the private sector, which refers to financial sources that are given to the private sector; for example, by way of loans, purchasing commercial paper, trade credits and purchasing items on account, that require repayment at a later time (Burak Savrun, 2011).

The measurement of the deepening of financial in the economy is the money and quasi money to GDP, which includes traveller‘s checks from non-bank issuers, savings deposits, other deposits, deposits in a given country‘s economy at that moment, and the supply of currency. Furthermore the measurement of trade and openness of the economy is Trade divided by GDP (meaning the sum of imports and exports of goods and services as a percentage of GDP). Another variable that was included in the model is the dummy (d1) variable, as another indicator of growth, particularly during the period of the Asian financial crisis. The dummy variable is assigned a zero value (0), except in 1998 where it was given a value of (1).

$$\text{Growth} = B_0 + B_1(DCPS)_t + B_2(M2)_t + B_3(TRD)_t + \varepsilon_t \quad (1)$$

Where t denotes the time index, (ε_t) represents the error term, Growth represents the dependent variable (GDP per capita 2005 US$), and for the explanatory variables, (DCPS) represents domestic credit to the private sector to GDP, (M2) represents money and quasi money as a percentage of GDP, and finally (TRD) represents trade to GDP.

3.1. Unit root tests

This is an initial test to investigate the presence of unit root for each time series, and takes the form of a test examining the cointegration between variables; therefore, the unit root is a relatively significant test to examine the stationarity of a time series, because non-stationary variable’s results are unreliable, therefore, the test was performed using Augmented Dickey-Fuller, 1979 (ADF). Additionally, all cointegration tests must be applied after this test. Enders (1995) suggested that in the case the results of one unit root being

unreliable, it is recommended to utilize both of the Augmented Dickey-Fuller (ADF) (1981), and Phillips-Perron (1988) which should provide more reliable results. For this reason, the ADF and Phillips Perron tests are commonly used to investigate the stationarity of the variables. The data will be tested to identify whether it is consistent at level I(0), at the first difference I(1), or at the second difference I(2).

3.2. Augmented Dickey-Fuller test (ADF)

$$\Delta y_{t=}p+\Delta p_1 y_{t-1}+\Delta p_2 y_{t-1}+\Delta p_3 y_{t-1}+u_{t-1} \quad (2)$$

The above formula is a sample of ADF equation, where Δ is denoted as the difference operator, t is the time index, $p_{1,}$ $p_{2,}$ and p_3 are coefficients, and (t-1) is the first difference.

The null and alternative hypothesis is for the presence of a unit root.

$H_{0:}$ $p_2 = 0$

$H_{1:}$ $p_2 < 0$

This study follows the Akaiki information criterion (AIC 1974), because it is appropriate to the number of observations as a small sample, according to Mackinnon (1991).

3.3. Phillips Perron test (PP)

The Phillips Perron (1988) test is an alternative of the Augmented Dickey-Fuller test, and the advantage of using it instead of the ADF is that the PP tests are generally in strong forms in Heteroskedasticiy in the error term. Another feature of this test is that it supplies an alternative procedure for correcting serial correlation in unit root testing, and also it does not require specification of the lag length.

3.4. ARDL Bounds test approach co integration

The ARDL bounds test was introduced as an alternative of the Johansen cointegration as a result of debate among researchers, who considered that Johansen is not the most suitable method to apply for I(1) variables. Furthermore, the ARDL has some benefits that make it more desirable than Johansen cointegration, the first of which is that the ARDL approach does not require all of the variables to be stationary at I (1), and it can be used for I(0) variables as well (Pesaran et al, 2001). The second benefit is that the ARDL is more statistically significant than any other methods in determining the cointegration relations, particularly when using small samples (Ghatak and

Siddiki 2001). The ARDL approach is also the most suitable method when the unit root properties of the data are uncertain for empirical work. The previous procedure of any cointegration is testing of integration degree of each variable in the model, which depends on the type of unit root test used to examine the stationarity by Bahamani- Oskooee (2004:85). Ultimately, the ARDL bounds test is an approach that can be used for different variables do not have not the same number of lags. Two steps must be followed before applying the ARDL model. The first step is determining the presence of a long-run relationship between the variables, which can be conducted by F-test. The second step is to estimate the long-term relationship coefficients and to determine their values, followed by short-term estimation and error correction which representing ARDL model (Pesaran and Pesaran, (1997). In cases with more than one lagged coefficients, the joint test of significance or the Wald test, is the most appropriate method, and it determines the long-run relationship by comparing with the critical values given by Pesaran et al (2001).

$$\Delta InGDP_t = \beta_0 + \sum_{i=1}^{n1} \beta_{1i}\, \Delta InGDP_{t-1} + \sum_{i=1}^{n2} \beta_{2i}\, \Delta InDC_{t-i} + \sum_{i=1}^{n3} \beta_{3i}\, \Delta InM2_{t-i} + \sum_{i=1}^{n3} \beta_{3i}\, \Delta InTRADE_{t-1} + \sum_{i=1}^{n2} \beta_{4i}\, \Delta InD1_{t-i} + \lambda_1 InGDP_{t-1} + \lambda_2 InDC_{t-1} + \lambda_3 InM2_{t-1} + \lambda_4 InTRADE_{t-1} + \lambda_5 InD1_{t-1} + Ut \quad (3)$$

Where Δ is denoted as the first difference, U is an error term, and B is the coefficient. LGDP is the log of the gross domestic product per capita (GDP), LDC is the log of the domestic credit to the private sector, LM2 is the log of the money and quasi money as a percentage of GDP, and LDCB is log of the domestic credit to the private sector provided by banks to the GDP. The Wald test calculates the F-statistic value and compares the value of the upper and lower bound critical values provided by Pesaran et al (2001), at 1%, 2.5%, 5%, and 10% significance level. Furthermore, if the value of the F-statistic is greater than both upper and lower bound values I(0), I(1) critical values, this leads to a rejection of the null hypothesis and implies the absence of the cointegration. Rejecting the null hypothesis implies the presence of the cointegration, and the lower value of F-statistic implies that there is no cointegration among the variables.

After detecting a long-run relationship from the first step, a second step must be followed, which is the ARDL approach and it enables the estimation of each of the long-run and short-run simultaneously in order to estimate the effect of one variable on the others.

$$ln(GDP)_t = \propto_1 + \sum_{i=1}^{p} \emptyset 1_i \, ln(GDP)_{t-i} + \sum_{i=1}^{p} \beta 1_i \, ln(DC)_{t-i} + \sum_{i=1}^{p} \gamma 1_i \, ln(DC)_{t-i} + \sum_{i=1}^{p} \beta 2_i \ln(M2)_{t-i} + \sum_{i=1}^{p} \gamma 2_i \, ln(M2)_{t-i} + \sum_{i=1}^{p} \beta 3_i \ln(TRADE)_{t-i} + \sum_{i=1}^{p} \gamma 3_i \, ln(TRADE)_{t-i} + \sum_{i=1}^{p} \beta 4_i \ln(D1)_{t-i} + \sum_{i=1}^{p} \gamma 4_i \, ln(D1)_{t-i} + \mu_t \quad (4)$$

The existence of the error correction term implies the confirmation of the long-run relationship, and the value of the coefficient must be between zero and one, and the sign of the error correction should be negative and significant.

$$\Delta lnGDP_t = \gamma_0 + \sum_{i=1}^{p1} \gamma_{1i} \, \Delta lnGDP_{t-i} + \sum_{i=1}^{p2} \gamma_{2i} \, \Delta ln DC_{t-i} + \sum_{i=1}^{p3} \gamma_{3i} \, \Delta ln M2_{t-i} + \sum_{i=1}^{p4} \gamma_{4i} \, \Delta lnTRADE_{t-i} + \sum_{i=1}^{p5} \gamma_{5i} \, \Delta lnD1_{t-i} + \varphi EC_{t-1} + \vartheta t, \quad (5)$$

indicates the error correction term.

$$ECM_t = \ln(GDP)_t - \propto_1 - \sum_{i=1}^{p} \emptyset 1_i \, ln(GDP)_{t-i} - \sum_{i=1}^{p} \beta 1_i \, ln(DC)_{t-i} - \sum_{i=1}^{p} \gamma 1_i \, ln(M2)_{t-i} - \sum_{i=1}^{p} \gamma 2_i \, ln(TRADE)_{t-i} - \sum_{i=1}^{p} \gamma 3_i \, ln(D)_{t-i} \quad (6)$$

Where ϑ is an error term, and φ represents the speed of adjustment.

3.5. Granger Pairwise causality test

The Granger causality test is a test performed to investigate the causality between time series variables, and this test has been widely employed in economic literature to examine the direction of the relationship between two variables. Granger causality tests whether the lag of one variable has predictive power for another variable (Engle and Granger, 1988).

4. EMPIRICAL RESULTS

4.1. Unit root test

The ADF tests are implicated at level and first difference with intercept and intercept and trend terms. The selected maximum lag is (8) and the Schwarz Criterion is used in accordance with Pesaran and Shin (1997). Table 1 represents a summary of the Augmented Dickey-Fuller unit root test and

it clearly reveals that the variables are all non-stationary at level at 5% level of significance. However, each of LGDP and LTRADE became stationary when converted to the first difference I(1) with intercept and intercept and trend, while LDC and LM2 became stationary when converted to the second difference I(2) with intercept and intercept and trend.

Table 2 represents the findings of the Phillips Perron unit root test and it is implicated at level and first difference terms, with intercept and intercept and trend term, which clearly shows different results to the ADF test. All variables appear to be non-stationary at level I(0), while they became all stationary at the first difference I(1)Furthermore, the Phillips Perron test was ultimately conducted as an alternative to ADF to obtain more accurate and precise results.

Table 1

Augmented Dickey-Fuller unit root test				
Country sample period	ADF		ADF	
Malaysia (1982-2014)	level		First difference	
variables	intercept	İntercept and trend	İntercept	İntercept and trend
LGDP	0.453629(0)	1.688079 (0)	4.670151(0) ***	4.590870(0) ***
LDC	2.270771 (1)	2.106615(1)	4.505526(1) ***	4.592033(1) ***
LM2	2.9279223(1) *	3.570627(1) **	5.358239 (1) ***	5.260360(1) ***
LTRADE	1.834197(1)	0.277543(0)	3.331747(0) **	4.344919 (2) ***

Note: *, **, and *** indicate 10%, 5%, and 1% respectively and represent the significance probability value. The value in parenthesis represents the lags.

Table 2

Phillips Peron unit root test				
Country sample period	Phillips Peron		Phillips Peron	
Malaysia (1982-2014)	level		First difference	
variables	intercept	Intercept and trend	Intercept	Intercept and trend
LGDP	-0.465970 (1)	-1.878791(2)	-4.670151(0)***	-4.590870(0) ***
LDC	-2.431363(3)	-2.187824(3)	-5.132004 (3) ***	-5.152286 (2) ***
LM2	-2.781075(0)*	-3.251688(2)*	-6.969219(7) ***	-6.753663(7) ***
LTRADE	-1.477360(2)	0.229738(5)	-3.382766(5) ***	-5.733252(28) ***

Note: *, **, and *** indicate 10%, 5%, and 1% respectively and represent the significance probability value. The value in parenthesis represents the lags.

4.2. Bounds test

Decision: The null hypothesis is rejected at 1%significance level, which indicates that there is a long-run relationship between financial development and economic growth. Therefore, we can conclude that the equation is cointegrated. Furthermore, the F-statistic "Wald test" is a joint test for coefficients of LDC (-1), LM2 (-1), LTRADE (-1) and LGDP (-1).

Table 3

Bound test results		
Null hypothesis		
İmport equation	Eq7	
Computed F statistics	5.553071 ***	
Bounds critical values	I(0)	I(1)
1% significance values	4.3	5.23
2.5% significance values	3.8	4.68
5% significance values	3.38	4.23
10% significance values	2.97	3.74

Note:*, **, *** indicate 10%, 5%, 1% respectively and represent of significance probability value.

4.3. ARDL long-run

Table 4

ARDL Long-run results			
Dependent Variable : LGDP		ARDL (2,3,2,0)	
Variable	Coefficient	Standard Error	t-statistics
Trend	0.033994	0.000676	50.271550***
D1	-0.148110	0.042533	-3.482222 ***
LDC	0.102678	0.055692	1.843662 *
LM2	-0.045779	0.060705	-0.754124
LTRADE	0.261645	0.047735	5.481140 ***
Diagnostic tests			
J-B normality test		2.637836(0.267425)	
Breusch-Godfrey serial correlation LM test		4.040197 (0.1326)	
Heteroscedasticity ARCH test		0.964448(0.6174)	
Ramsey Reset test		0.125735(0.7275)	

Note: ARDL (2, 3, 2, 0) selected model, Breusch-Godfrey serial correlation Lm test with lag 2, ARCH lag 2, Ramsey Reset with lag 1. And the values in the parenthesis represent P.value and corresponding values represent obs*R-squares for each Breusch and ARCH tests. While J-B represents the value of Jarque-Bera, and the value corresponding Ramsey Reset is F-statistic value.

4.4. ARDL short-run

Table 5

ARDL Short-run results			
Variables	Coefficient	Standard Error	t-statistic
D(LDGP(-1))	0.314606	0.109980	2.860570 **
D(LDC(-1))	0.244155	0.067854	3.597965 ***
D(LM2(-1))	-0.080028	0.044022	-1.817906 *
D(LTRADE)	0.227950	0.060601	3.761497 ***
D(D1)	-0.121861	0.014565	-8.366719 ***
CointEq(-1)	-0.897132	0.128316	-6.991607 ***
Estimated method : least squares			
Adjusted R squares		0.996551	
S.E of regression		0.018709	
F-statistics		699.3410	
Prob(F-statistics)		0.000000	

Note: *, **, and *** indicate 10%, 5%, and 1% respectively.

The ARDL cointegration methodology was conducted to gauge the parameters of the condition at the most extreme request lag set to 3; furthermore, 3 lag was set for the independent variables, which was chosen on the premise of the AIC. The dummy variable was added to the model denoted by D1, and was applied for the year 1998. The diagnostic tests results confirm the validity of the estimated equations.

Furthermore, the J-B normality test results confirmed the normality behaviour of the estimated residual series, as the value of Jarque-Bera is 2.637836 and it is observed that is greater than 0.05Additionally, the probability

value is 0.267425, and these results confirm the normality behaviour of the estimated residual series; therefore, the null hypothesis is rejected. The Breusch-Godfrey serial correlation LM test examines whether the model suffers from a serial correlation problem. The null hypothesis represents the absence of serial correlation and the value of the P.value corresponding obs*R-squares is (0.1326), which is greater than 0.05. Therefore the null hypothesis cannot be rejected.

The ARCH test examines whether the model suffers from a Heteroscedasticity problem, and, according to the results obtained from the ARCH test with 2 lag, the probability value Chi-square (2) is 0.6174 and is greater than 0.05, which verifies the absence of Heteroscedasticity and the null hypothesis cannot be rejected, which represents that the distribution of error residuals are Homoscedastic. The Ramsey RESET test of stability it is conducted with one fitted term, and the value of probability is 0.7275 and is greater than 0.05, which confirms the stability. All these obtained results listed above are strongly desirable and are considered reliable for the purposes of the study.

Table 5 illustrates the ARDL short-run results, and it reveals that there is short-run cointegration between financial development and economic growth. The coefficient of the error correction term is -0.897132 as it is significant at 1%, which is the basic condition that must be present to assert the existence of a short-run cointegration. Thus, the null hypothesis must be rejected, which indicates there is no cointegration. Additionally, all the variables appear to be significant at different significance levels; for example, TRADE, and DC are significant at 1%, GDP is significant at 5%, and M2 is significant at 10%.

The results of the long-run based on ARDL demonstrate the relationship between financial development and economic growth. The hypothesis maintains that the presence of the financial sector enables the smooth functioning of financial intermediaries in channelling the less available resources from surplus to deficit unit and provides the resources for efficient allocation. Schumpeter (1912) provided evidence of a significant boost of financial development on economic growth. Furthermore, strong economic growth has the ability to generate high demand for certain financial instruments, in which the financial markets must change to respond the demand effectively. Robinson (1952) provided evidence of the impact of economic growth and financial development.

The empirical findings of the short-run relationship between financial development and economic growth in the case of Malaysia are explained below. A positive relationship between economic growth and domestic credit to the private sector (DCPS) was found, due to the greater impact of the development

of alternative sources of funds, such as bonds and shares and other external sources of finance on domestic credit to the private sector. A negative relation between (money and quasi money to GDP) and economic growth was found, and that can be explained by the monetarist theory dominated by the works of Friedman (1960) the increase in money supply is more than the real increase in production. Thus, inflation is motivated by an expansionary monetary policy. Moreover inflation may affect saving and investment decisions, reducing the proportion of GDP devoted to investment. Therefore,this causing the economy to accumulate less human or physical capital. For example, when inflation is high, it often is more variable, thus harder to forecast. This may make it more difficult to deduce the real returns on investments from available market information and may cause savers and investors to be less willing to make long-term nominal contracts or to invest in long-term projects. The resulting reduced stocks of productive capital may, in turn, imply lower levels of future GDP (Motley, 1994), Cozier and Selody (1992). A positive relationship was discovered between economic growth and trade, which supports the theory that trade leads to growth, which can be explained by the fact that trade openness impacts economic growth by embracing new technology that boosts total factor productivity. Furthermore another reason is the decline of government intervention and the openness to foreign bank entry as, according to the Negara Banks of Malaysia, there are twenty-seven commercial banks in Malaysia and only eight of them are domestic. This demonstrates the country's openness to international banks. This positive relation also can be explained by the authorities adopting liberalised investment and openness policies (Choong, 2005).

4.5. Pairwise Granger Causality tests

Table 5.8 reports the results of the Granger causality test. The Granger test was applied to measure the causality among the variables, and the results suggest that there is no evidence in this study that the finance-growth hypothesis is consistent with Gries et al (2011). There is evidence of the existence of positive causality running from trade to economic growth, which supports the trade leads to growth hypothesis and is consistent with Leitao (2010). Furthermore, this is consistent with the ARDL findings that revealed a positive causality between trade and economic growth, while there is no causality running from economic growth to trade. Additionally, there is evidence that there is a causality running from financial development to trade, while there is no causality running from trade to financial development. Finally, the Granger Pairwise test also reveals that the development of financial sectors and trade activities cause the growth process through channels of trade, and financial development indirectly affects economic growth.

Table 6

Granger Pairwise Causality results		
Null Hypothesis	Obs	F-Statistics
D(LDC) does not cause D(LGDP) D(LGDP) does not cause D(LDC)	30	0.21756 1.48098
D(LM2) does not cause D(LGDP) D(LGDP) does not cause D(LM2)	30	0.05898 0.03289
D(LTRADE) does not cause D(LGDP) D(LGDP) does not cause D(TRADE)	30	2.75015* 0.01124
D(LM2) does not cause D(LDC) D(LDC) does not cause D(LM2)	30	4.88795** 0.61100
D(LTRADE) does not cause D(LDC) D(LDC) does not cause D(LTRADE)	30	0.01504 5.04122**
D(LTRADE) does not cause D(LM2) D(LM2) does not cause D(LTRADE)	30	0.76357 3.48106**

Note: *, **, and *** indicate 10%,5%, and 1% significance level

5. CONCLUSION

The fundamental aim of this study is to investigate the relationship between financial development, trade openness and economic growth in Malaysia. The study examines the long-run equilibrium relationship and short-run relationship between GDP and the growth rate. Two regressors represent financial development indicators, which are DCPS, and M2, and one more indicator represents trade openness, which is TRDE. The study utilised annual time series data covering the period 1982-2014.

The implication of ADF and Phillips Perron unit root tests revealed that the series are stationary at I(1). The ARDL and Bounds test revealed that there is a long-run and short-run relationship between financial development and economic growth in Malaysia.

Finally, the Granger test revealed that there is no evidence in this study for the finance led growth hypothesis, there is a unidirectional causality running from trade to financial development, and financial development indirectly causes economic growth through trade openness channels. The findings show that the development of the financial sector and trade activities in Malaysia are catalysts for GDP growth. Through application, financial development and trade are crucial sources of growth.

Based on the findings obtained this study recommends boosting trade activities by importing quality materials and increasing the export of goods and that would lead to growth of the economy. The development of financial sector tends to be more likely to promote economic growth, particularly when monetary policy maker embrace opening policy, liberalized investment, and enhance the volume of the rules of stock market. As recommend also Malaysia government to reduce its interventions to increase discount rate, which it leads to consequences, disrupt growth process.

References

1. **Akaike, H.**, 1974, *A new look at the statistical model identification*. IEEE Trans. Aut. Control 19:716–723
2. **Anwar, S., & Sun, S.**, 2011,. *Financial development, foreign investment and economic growth in Malaysia*. Journal of Asian Economics, 22(4), 335–342. ***http://doi.org/10.1016/j.asieco.2011.04.001***
3. **Bahmani-Oskooee, M., & Nasir, A,** ,2004,. *ARDL approach to test the productivity Bias Hypothesis*. Review of Development Economics, 8(3), 483–488.
4. **Beck, T.**, 2002,, "*Stock markets, banks and growth: panel evidence"*, World Bank Working Paper.
5. **Chen, T.**, 2006, *"Financial Development and Economic Growth in Mainland China: A Note on Testing Demand-Following or Supply-Leading Hypothesis"*, Applied Economic Letters, 9: pp. 869-873.
6. **Cheng, Y.** and **Degryse, K.**, 2007, *"A Fractional Cointegration Analysis of Purchasing Power Parity"*, Journal of Business and Economic Statistics, 10: pp. 102-112.
7. **Choong, C. K., Yusop, Z., Law, S. H.**, & **Liew, V. K. S.**, 2005, *Financial Development and Economic Growth in Malaysia: The Perspective of Stock Market*. Investment Management and Financial Innovations, 2(4), 105-115.
8. **Cozier, B.**, and **Jack S.**, 1992, *Inflation and Macroeconomic Performance: Some Cross-Country Eviden*
9. **Dickey, D.A**. and **W.A. Fuller**, 1981, *Likelihood ratio statistics for autoregressive time series with a unit root*, Econometrica 49, 1057-1072.
10. **Enders, W.**, 1995, *Applied Econometric Time Series.* New York: John Wiley & Sons Inc.
11. **Friedman, M.**, 1960, *A program for monetary stability*. [Online], available: New York: Fordham University Press ***http://www.questia.com/PM.qst?a=o&d=22831717***
12. **Ghatak, S.**, & **Siddiki, J.**, 2001, *The use of ARDL approach in estimating virtual exchange rates in India*. Journal of Applied Statistics, 11, 573–583.
13. **Goldsmith, R. W.**, 1969, *Financial structure and development*. New Haven, CT: Yale University Press.
14. **Gries, T.**, **Kraft, M.**, & **Meierrieks, D.**, 2011, *Financial deepening, trade openness and economic growth in Latin America and the Caribbean*. Applied Economics, 43(30), 4729–4739. ***http://doi.org/10.1080/00036846.2010.498352***
15. **Guariglia, A.**, & **Poncet, S.**, 2008, *Could financial distortions be no impediment to economic growth after all? Evidence from China*. Journal of Comparative Economics, 36(4), 633–657. ***http://doi.org/10.1016/j.jce.2007.12.003***
16. **Gurley, J. G.**, & **Shaw, E. S.**, 1967, *Financial Structure and Economic Development*. Economic Development and Cultural Change, 15(3), 257–268. ***http://doi.org/10.1086/450226***
17. **MHassan, M.K.**, **B. Sanchez**, and **J. Yu**, 2011, *"Financial Development and Economic Growth: New Evidence from Panel Data"* The Quarterly Review of Economics and Finance, 51: pp. 88-104.

18. **Ivashina, V.**, & **Scharfstein, D**., 2010, *Bank Lending During the Financial Crisis Of 2008*.
19. *Journal of Financial Economics*, 97(3), 319-338.
20. **Khoon, G. S.**, & **Lim, M.-H**., 2010, *The impact of the global financial crisis: the case of Malaysia*. Third World Network. ***http://doi.org/10.1016/j.gfj.2015.02.002***
21. **King, R. G.**, & **Levine, R**., 1993, *Finance, entrepreneurship and growth*. Journal of Monetary Economics, 32(3), 513–542. ***http://doi.org/10.1016/0304-3932(93)90028-E***
22. **Leitao, N. C**., 2010, *"Financial Development and Economic Growth: A Panel Data Approach"*, Theoretical and Applied Economics Volume XVII, 10(551): pp. 15-24.
23. **Michael A.**, 2012, *"Financial Development and Economic Growth: Is Schumpeter Right?"*, British Journal of Economics, Management and Trade 2(3): pp. 265-278.
24. **Mirbagheri M. H., Rahimzadeh F** and **Aran A.**, 2014, *"The Relationship between Financial Sector, Financial Development and Economic Growth: The Case of ECO Countries"*, Reef Resources Assessment and Management Technical Paper 40(1): pp. 496-503.
25. **Motley, B.**, 1994, *Growth and inflation: a cross country study*, CEPR, Federal Reserve Bank of San Francisco, Stanford, CA, [online], available: ***http://ideas.repec.org/a/fip/fedfer/y1998p15-28n1.html***
26. **Nambiar, S.**, 2009, *Malaysia and the Global Crisis: Impact, Response, and Rebalancing Strategies*. ADBI Working Paper Series. ADBI, Tokyo
27. **Pesaran, M. H., Shin, Y.** and **Smith, R.J.**, 2001, *"Bounds testing approaches to the analysis of level relationships"*. Journal of Applied Econometrics, Vol. 16, pp. 289-326.
28. **Pesaran, M. H.**, & **Shin, Y.**, 1997, January, *An autoregressive distributed lag modelling approach to cointegration analysis*. England: University of Cambridge
29. **Pesaran, M. H.**, & **Pesaran, B.**, 1997, *Microfit 4.0.* Oxford University Press.
30. **Phillips, H**. and **Perron, P**., 1988, *"Testing for a Unit Root in a Time Series with a Changing Mean",* Journal of Business and Economic Statistics, 8: pp. 153-162.
31. **Robinson, J.**, 1952, *The rate of interest and other essays*, MacMillan, London.
32. **Savrun, B.**, 2011, *"Financial Development, International Trade and Economic Growth: The Case of Turkey"*, Unpublished Master of Science in Banking and Finance, Institute of Graduate Studies and Research, Eastern Mediterranean University, Gazimagusa, North Cyprus, September.
33. **Schumpeter, J. A.**, 1912, *The Theory of Economic Development*. Harvard University Press.
34. **Zhang, T.** and **Wang, U.**, 2012, *"Finance, Entrepreneurship, and Growth: Theory and Evidence"* Journal of Monetary Economics, 32 513-542.