DOI: 10.7763/IPEDR. 2014. V74. 7

Trade Liberalisation, Financial Development and Growth in Malaysia

Noor Hasvenda Abd Rahim and Nur Fadhlina Zainal Abedin[+]

Faculty of Business Management, Universiti Teknologi MARA

Abstract. Most developing countries have started liberalizing trade and financial sectors to increase economic growth. Both trade and financial liberalization policies are believed able to lead a reduction in cost and inefficiency in the production process, and influence economic growth positively. However, the effect of trade liberalization and financial development on growth is uncertain. Therefore, the purpose of this paper is to examine the impacts of trade liberalization and financial development on economic growth in Malaysia by using time series data for the period of 1970-2011. Gross domestic product is a proxy for growth while TOP and M2 are proxies for trade liberalisation and financial development respectively. The results from trace statistic indicate one cointegration vector exists. The result showed the existence of unidirectional causality between economic growth and financial development. For the case of trade liberalization and financial development, the causality is unidirectional or it can be said that the trade liberalization Granger cause financial development, but financial development does not Granger cause trade liberalization.

Keywords: Trade Liberalization, Financial Development, Economic Growth, Broad Money.

1. Introduction

Most developing countries have embarked on liberalization policies and systems of both trade and financial sectors with the aim of increasing their economic growth despite implementing restrictive economic policies beforehand. While financial sector liberalizations are view as an operational reform and policy measures strategized to deregulate and transform the financial system, trade sectors on the other hands are focusing on reduction of barriers on the exchange goods between countries. The interchanges in both activities were structured to attain liberalized market-oriented system that operates within an appropriate regulatory frameworks.

The policy changes within the scope of financial and trade liberalization system claimed to reduce cost and inefficiency in the production processes and capable to influence the economic growth. However, due to uncertainty of these changes to the economic growth, some contradict argument have risen. These contradictions revolve around the concerned towards the risk of unemployment and lower income in view of infant industries and domestic uncompetitive activities.

In Malaysia, the prospects of economic growth from varieties of benefits through trade liberalization are embraced by the implementation of long term economic plans and policies since the independence from the British rule in 1957.International trade in this country had blossom, attributed by the Straits of Malacca, which was an important sea route to traders. Taking advantage of the country's political stabilization and its decent economic environments, the government of Malaysia had offered many lucrative incentives which attracted inflows of foreign direct investments in many industries including textiles, chemicals, pharmaceuticals, electrical and electronics as well as semiconductors. To this extend, Malaysia now has become the largest supplier of semiconductors and electronics goods and devices. According to data in 2010, the country's electrical and electronic products accounted for RM21.1 billion or 37% of their export value where China was the major importer. These progressive activities within industries have generated large opportunities for employments and growth for the residents, thus it is believed that trade liberalizations contributes to Malaysian economic growth.

Therefore, this paper will empirically examine the impacts of trade liberalization and financial development on economic growth in Malaysia by using time series data for the period 1970-2011. The organisation of the paper is as the following. The next section reviews the past literature and studies on trade and economic growth. Based on the literature, we set out the methodology and the explanations of each data

[+] *Email*: nurfadhlina@ns.uitm.edu.my

used in the analysis. The analysis was started by examining time series properties and continues with cointegration and causality test. The last section comprises the conclusions.

2. Literature Review

Several empirical studies were conducted in examining the effectiveness trade liberalisation and financial development on economic growth. Among the major approaches applied included the time series analysis and cross sectional analysis.

The time series analysis was used in the studies conducted by Baltagi, Demetriades & Law (2008), Mansor Ibrahim (2007), Corrado Andini (2009) and Abdul Jalil & Ying Ma (2008). Mansor Ibrahim (2007) applied the time series approach to examine the finance-economic development relationship in Malaysia case and later proved that there were unfavorable real effects of financial volatility and financial market development that are positively related to real output in the long run. Meanwhile, Massimiliano Pisani (2010) concluded that financial liberalization did not assure a lessening of macroeconomic instability because of financial irregularities, imperfect access to global liquidity and exogenous shocks.

Considering the case of Turki, Japan, Pakistan and China, studies had been conducted by Fatih Yucel (2009), Babak (2007) and Abdul Jalil & Ying Ma (2008) respectively. Fatih Yucel (2009), concluded that the financial development has a negative impact on growth in Turkish economy, While on the other hand, trade openness has a positive impact on growth in the same country. Besides, Babak (2007) investigated that long run equilibrium association prevailed among trade, financial development and economic growth with reference to Japan. In view of Pakistan and China, Abdul Jalil & Ying Ma (2008) examined the association between economic growth and financial development for China and Pakistan in period from 1960-2005 by using ARDL cointegration Approach. Subsequently, they verified a positive and significant relationship between financial development and economic growth in case of Pakistan. Studying the impacts of both policies is mostly important in the case of Pakistan, which followed restrictive policies till early 1990s. The costs impacts of these restrictive policies have been substantial due to reflection in a low level of financial savings, investment and economic growth to the country.

To draw a clearer picture, several researchers adopted cross sectional analysis in their studies. For instance, Nicholas Apergis et al (2007) examine the association between financial development and economic growth by using co-integration Approach for 15 OECD and 50 non-OECD countries over the period 1975–2000 and concluded that long-run equilibrium association existed between financial development and economic growth. Meanwhile, Corrado Andini (2008) estimates causality between financial intermediation and growth by employing the Cross Sectional Analysis and which later concluded that financial development has positive average impact on long-run economic growth. In addition to the previous variants, panel data were used by Andrea & Roberto (2008) and Jess Benhabib & Mark Spiegel (2000) in their studies. They investigated the association between financial development and economic growth and exposed that financial development were associated with both total factor productivity growth and investment. Another study by Baltagi, Demetriades & Law (2008) concluded that the financial openness was statistically important factors in banking sector development. In this study, they analyzed the international trade in developing countries such are Pakistan, Bangladesh, Venezuela, India, Niger, Guatemala, and Zimbabwe as a factor for the development of such sector.

3. Methodology

The model specification in this study is estimated by using annual time series data and the data ranged from 1970 to 2011. The data for all variables were gathered from Malaysia Statistical Book by Department of Statistics Malaysia. All variables have been deflated by using GDP deflators with 2000 as the base year. The basic model is represented below:

$$lnGDP_t = \beta_0 + \beta_1 lnTOPt + \beta_2 M2_t + u_t \quad (1)$$

where *GDP*, *TOP* and *M2* represents gross domestic product, trade openness (summation of export and import as a share of GDP) and broad money respectively. GDP is a proxy for growth, meanwhile TOP and M2 are proxies for trade liberalisation and financial development. The expected signs of the parameters are

positive. The error-term u is assumed to be independently and identically distributed. The subscript (t) indexes time.

Analysis was started by examining the time series properties of the data. In order to avoid spurious regression, the stationary of the series need to be discerned. By doing so, the validity of the usual test statistics was ensured. Stationary could be achieved by appropriate differencing and this appropriate number of differencing is called order of integration. Stationarity tests used for this purpose were Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP). Consider the equation below for ADF Test:

$$\Delta y_t = \beta_1 + \beta_2 t + \delta y_{t-1} + \alpha_i \Sigma \Delta y_{t-I} + \varepsilon_t \quad (2)$$

Based on the above formula, y_t is the variable of interest *(GDP, TOP* and *M2), Δ* is the differencing operator, *t* is the time trend and ε is the white noise residual of zero mean and constant variance. β_1, β_2, δ, and α_i are the set of parameters to be estimated. The unit root hypothesis of the Dickey-Fuller can be rejected if the t-test statistic from these tests is negatively less than the critical value tabulated. In other words, by the Augmented Dickey-Fuller (ADF) test, a unit root exists in the series y_t (implies non-stationary) if the null hypothesis of δ equals zero that is not rejected.

To explore possible long run equilibrium among the variables, the cointegration technique was used. The cointegration analysis was conducted by using Johansen's Cointegration test. In this procedure, two tests namely Trace Statistic and Maximum Eigen value test is used. However in some cases, the two tests may show different results. If that case happens, the trace statistics is preferred.

Vector Error Correction Model (VECM) is applied if the long run equilibrium relationships exist. Through this model, a proportion of the disequilibrium in one period is corrected in the next period. Thus, the Autoregressive (VAR) in Equation 3 needs to be converted into VECM in Equation 4 as follows:

$$Z_t = \beta_1 Z_{t-1} + \beta_2 Z_{t-2} + K +_{t-k} + \upsilon_t \quad (3)$$

$$\Delta Z_t = \prod Z_{t-k} + \Gamma_1 \Delta Z_{t-1} + \Gamma_2 \Delta Z_{t-2} + \ldots + \Gamma_{k-1} \Delta Z_{(k-1)} + \upsilon_t \quad (4)$$

Cointegration test between Z is calculated by looking at the eigenvalues that are different from zero. $\prod$ represents how many linear combinations of Z_t are stationary and vector Z_t included of *Y, EXP* and *IMP*. Lastly, causality test is employed to determine the direction of the causality, whether x led y or vice versa. For this purpose, Granger causality test is considered as a useful technique for determining whether one time series is good for forecasting the other.

4. Results

When dealing with time series data, most of them have trends. The data is said to be non-stationary if it has different mean at different points in time and its variance increases with the sample size. Thus, it will no longer provide valid interpretations in OLS regression. A result from Augmented Dickey-Fuller and Phillips-Perron test (constant with trend) indicate the t-statistics for all level series are statistically insignificant to reject the null hypothesis of non-stationary at 5 percent significance level. This indicates that these series are non-stationary at their level form. Therefore, these variables contain a unit root process or they share a common stochastic movement. To solve this problem, the variables are differentiated at first difference. The results from ADF and PP test for level and first difference are shown below:

Table 1: Stationarity Test at Level and First Difference

	Test for I(0) At Level			Test for I(1) First Difference		
	GDP	TOP	M2	GDP	TOP	M2
ADF Test	-0.941329	-1.644839	-2.875362	-5.275218*	-6.356119*	-5.290767*
PP Test	-1.407020	-1.211979	-2.518269	-5.341490*	-7.791440*	-5.201457*

Note: The values are t-statistics

* Indicates the rejection of the null hypothesis of non-stationary at 5 percent significance level.

Johansen's cointegration procedure was conducted to define the number of cointegration vectors. The lag was set at two based on selection made by several criterions. The results from trace statistic indicate that the

null hypothesis of zero is rejected at 95% critical value, which means that one cointegration vector exists. However, maximum eigenvalue statistics showed that no cointegrating vector exists. In this case, the trace statistic result was preferred. The outputs for lag VAR selection and Johansen cointegration test are shown in Table 2 and 3 below:

Table 2: Results of Information Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-174.5023	NA	2.290189	9.342229	9.471512	9.388227
1	-35.22178	249.2389	0.002415	2.485357	3.002489*	2.669348
2	-22.05656	21.48008*	0.001960*	2.266135*	3.171117	2.588121*
3	-19.96350	3.084514	0.002892	2.629658	3.922489	3.089637
4	-10.94946	11.86058	0.003032	2.628919	4.309599	3.226892

* Indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Table 3: Results of Johansen's Cointegration Test

Hypothesised No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.	Max-Eigen Statistic	0.05 Critical Value	Prob.
None	0.418107	33.75055	29.79707	0.0166 *	21.11730	21.13162	0.0502
At most 1	0.211413	12.63325	15.49471	0.1290	9.262993	14.26460	0.2649
At most 2	0.082788	3.370254	3.841466	0.0664	3.370254	3.841466	0.0664

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
Max-eigenvalue test indicates 0 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

VECM was applied since there was a co-integration vector among the time series. The short run equation under the error correction framework was computed to include an adjustment mechanism from short run to long run equilibrium. In other words, it corrects for disequilibrium. Statistically, the ECM term was significant at 5 percent level, suggesting that 9.5 percent of the discrepancy between long term and short term is corrected in the next years.

In order to determine which variable causes the other, pair-wise granger causality test is used. Table 4 summarizes empirical results of Granger causality tests between three variables used in this study. The result shows the existence of unidirectional causality between trade liberalization and financial development or it can be said that the trade liberalization Granger cause financial development, but financial development does not Granger cause trade liberalization. Growth also causes financial development, but not vice versa. However the null hypothesis of the causality between financial liberalization and financial development on growth are not supported.

Table 4: Granger Causality Test

Null Hypothesis:	F-Stat	Prob.
LNTOP does not Granger Cause LNGDP	2.06466	0.1420
LNGDP does not Granger Cause LNTOP	2.54473	0.0929
M2 does not Granger Cause LNGDP	2.43954	0.1019
LNGDP does not Granger Cause M2	4.89850	0.0133
M2 does not Granger Cause LNTOP	2.31519	0.1137
LNTOP does not Granger Cause M2	8.71545	0.0008

Lastly, the stability test was conducted to ensure all the analyzed results as discussed above are meaningful. VAR and VECM are said to be stable if the variables are less than 1 and lie inside the unit circle. In this analysis, there is no root lies outside the unit circle which means that VAR satisfies the stability condition.

5. Conclusion

The paper intended to investigate the long run relationship and causality between trade liberalization and financial development on growth in Malaysia from 1970 to 2011. The analysis started with stationarity property examination of the underlying time series data. The estimated results confirmed that *GDP, TOP* and *M2* are non-stationary at the level data but stationary at the first differences. Hence, they are integrated of order one.

The existence of co-integration among the stationary variables is tested using Johansen co-integration test. The estimated results declared that there is co-integration of order one and hence, showed the existence of long run equilibrium relationship between the variables. The result shows the existence of unidirectional causality between economic growth and financial development. For the case of trade liberalization and financial development, the causality is unidirectional or it can be said that the trade liberalization Granger cause financial development, but financial development does not Granger cause trade liberalization.

6. Acknowledgements

This paper is the end result of a research under Excellent Fund sponsored by Universiti Teknologi MARA. We would like to thank Research Management Institute (RMI) and Research, Industrial Linkages & Alumni Universiti Teknologi MARA Negeri Sembilan especially Dr. Khairul Anwar Rasmani.

7. References

[1] Abdul Jalil & Ying Ma. Financial Development, Economic Growth and Adaptive Efficiency: A Comparison between China and Pakistan. *China & World Economy*. 2008,Vol 16(6), pp. 97-111.

[2] Andrea Vaona & Roberto Patuelli. New Empirical Evidence on Local Financial Development and Growth. *Letters in Spatial and Resource Sciences*. 2008, Vol. 1, No. 2-3.

[3] Baltagi B. H., Demetriades P. O. & Law S. H. Financial Development and Openness: Evidence from Panel Data. *Center for Policy Research.*2008, Paper 60.

[4] Corrado Andini. Financial Intermediation and Growth: Causality and Causes without Outliers. *Portuguese Economic Journal*, Springer. 2009,Vol. 8(1), pp. 15-22.

[5] Fatih Yucel. Causal Relationships between Financial Development, Trade Openness and Economic Growth: The Case of Turkey. *Journal of Social Sciences*. 2009, Vol. 5(1) pp. 33-42.

[6] Jess Benhabib & Mark M. Spiegel.The Role of Financial Development in Growth and Investment**.** *Journal of Economic Growth*.2000,Vol. 5(4), pp. 341-360.

[7] Mansor Ibrahim. The Role of The Financial Sector in Economic Development: The Malaysian Case. *International Review of Economics*, Springer.2007, Vol. 54(4), pp. 463-483.

[8] Muhammad Sulaiman. The Effectiveness of Financial Development and Openness on Economic Growth: Case Study of Pakistan. *European Journal of Social Sciences*. 2010, Vol. 13(3).

[9] Nicholas Apergis, Loannis Filippidis & Claire Economidou**.** Financial Deepening and Economic Growth Linkages: A Panel Data Analysis. *Review of World Economics*. 2007, Vol. 143(1) pp. 179-198.

[10] Pesaran, M.H. Ship, Y & Smith. Bound Testing Approaches to the Analysis of level Relationship. *Journal of Applied Econometrics.* 2001,Vol.16, pp.289-326.

[11] Thirlwall, A.P. Trade Agreements. Trade Liberalization and Economic Growth: A Selective Survey. *African Development Review*.2000, 12(2).

[12] Turner, P. Response Surface For an F-test for Co-integration. *Applied Economics Letter*.2006,Vol.13. pp.479-482.

[13] Unalmıs, D., The Causality Between Financial Development and Economic Growth: The Case of Turkey. *The Bank of The Republic of Turkey Research Department Paper.* 2002,No.3, pp. 1-11.