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Foreign Portfolio Investment and Economic Growth in Malaysia

JARITA DUASA and SALINA H. KASSIM

This study examines the relationship between foreign portfolio investment (FPI) and Malaysia's economic performance. In particular, the study analyses the relationship between FPI and real gross domestic product (GDP) using the widely adopted Granger causality test and the more recent Toda and Yamamoto's (1995) non-causality test to establish the direction of causation between the two variables. Similar method is also applied on the relationship between volatility of FPI and real GDP. Additionally, the study uses an innovation accounting by simulating variance decompositions and impulse response functions for further inferences. Using quarterly data covering the period from 1991 to 2006, the study finds evidence that economic growth causes changes in the FPI and its volatility and not vice versa.. The findings suggest that economic performance is the major pull factor in attracting FPI into the country. Thus, it must be ensured that the Malaysian economy remains on a healthy and sustainable growth path so as to maintain investor confidence in the economy.

JEL classification: G15, C32, C12
Keywords: Foreign Portfolio Investment, Economic Growth, Granger Causality, Toda-Yamamoto Non-causality, Variance Decomposition

1. INTRODUCTION

Amid several incidences of economic and financial crises in the 1990s and 2000s, there has been renewed research interest in analysing the impact of foreign portfolio investment (FPI) on the economic well-being of a host country. While it is widely accepted that investment flow has its own benefits, lessons learned from the financial crises highlighted that short-term FPI could have adverse effects on the host economy. It is therefore critical to analyse the extent to which a country could benefit from the inflow of FPI.

In general, the merits of capital market integration through liberalisation of investment regulations are well-documented in the literature. FPI contributes positively in the development of an efficient domestic capital market and brings several benefits to the host country. Increased FPI leads to greater liquidity in the capital market, resulting in a

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deeper and broader market [Levine and Zervos (1996)]. The spill-over effects of positive competitive pressure to attract foreign investment would necessitate higher industrial standards and regulations through better corporate governance and greater business transparency, resulting in stronger investor protection and thus enhanced investor confidence [Feldman and Kumar (1995); Shinn (2000)]. Increased liquidity in the capital market also means better access to financing at lower cost of capital which is crucial to support economic activity [La Porta, *et al.* (1998); Bekaert and Harvey (2003)]. In this regard, the inflow of FPI into the stock market helps to alleviate financial constraints of firms [Laeven (2003); Knill (2004); Beck, Demirguc-Kunt, and Maksimovic (2005)]. Studies relating to FPI and the domestic stock markets show favourable contribution of FPI in supporting the domestic stock market [see for example, Patro and Wald (2005); Kim and Singal (2000)]. The multiplier effect further propagates the impact of growth in the stock market through the wealth effect. In this sense, capital flows act as catalyst to economic growth and contribute towards increased wealth creation. Ultimately, better access to financing provided by the free flow of portfolio investments contributes to efficient allocation of capital [Wurgler (2000); Love (2003); Rajan and Zingales (1998)].

Despite its numerous virtues, FPI could have adverse effects on the host economy. The potentially damaging aspects of FPI are rooted in its nature which is short-term and thus also volatile. In particular, FPI volatility has often been quoted as the major reason behind financial market distress, leading to financial crisis. Lessons learned from the Asian financial crisis of 1997-1998 show that large and abrupt reversal of portfolio investment often causes panic in the financial market, since it is taken as a manifestation of impending financial crisis [Knill (2004); Sula and Willet (2006)]. More importantly, as highlighted by Henry (2003) and Demirguc-Kunt and Detragiache (1999), based on the experience of many countries which experienced financial crisis, the volatility of portfolio investment further exacerbates the impact of a financial crisis. FPI instability complicates the implementation of macroeconomic stabilisation policies by the policy-makers. Uncertainties in the flow of FPI result in unpredictable behaviour of money supply, exchange rate level and stock market volatility [Patro and Wald (2005)]. In particular, sustained periods of excessive capital inflows due to high capital mobility could result in the formation of asset price bubbles, leading to inflationary pressure, while sudden withdrawals in portfolio investment accompanied by major correction in asset prices can pose serious risk to the economy [Bank Negara Malaysia (2006)].

In view of its benefits and costs, a number of studies support the view that the benefits of FPI are long-term with some adverse effects in the initial stage of the process. The long-term gains of FPI outweigh its short-term ill effects and bring real benefits to the growth and development of the domestic financial markets and the economy in general [Kaminsky and Schmukler (2001)].

This study seeks to analyse FPI in the Malaysian case and provides recent empirical evidence on whether it is beneficial to the Malaysian economy or otherwise. Using a battery of tests, the study hopes to provide conclusive empirical evidence on the relationship between FPI inflow and economic growth. It is hoped that the findings of the study would contribute towards enriching the relevant literature on the relationship between foreign portfolio investment and economic growth, particularly in the case of developing countries.

The rest of the paper is organised as follows: the next section provides some background information on FPI based on the Malaysian experience. In particular, this section highlights Malaysia's experience in handling FPI during the financial crisis of 1997-1998. Section 3 presents the empirical methods. Section 4 highlights the empirical findings including the data preliminaries and the results based on the causality tests. In this section, further inferences are also drawn based on the impulse response functions and the variance decomposition analysis. Finally, Section 5 provides some concluding remarks.

2. FOREIGN PORTFOLIO INVESTMENT IN MALAYSIA

FPI in Malaysia has been substantial. During the period under review, total portfolio investment, comprising both inflow and outflow, recorded a minimum of RM8.1 billion (or 22.2 percent of nominal gross domestic product GDP) in the first quarter of 1991 and reached a maximum of RM132.8 billion (or 297.3 percent of GDP) in the fourth quarter of 1993. As shown in Figure 1, FPI has been very volatile particularly in pre-1997 period. However, the flow of FPI has become less volatile in the post-1997-1998 Asian crisis period. In terms of share in total GDP, FPI accounted for an average of around 200 percent of total GDP in the period 1991-1997 and declined gradually before stabilising at around 50 to 60 percent of GDP during 2004-2006. A clear correlation between the total FPI and nominal GDP thus could only be seen in the post-crisis period.

Analysis of the decomposition of total FPI, shows a clear correlation between portfolio inflow and outflow in the Malaysian case as shown by Figure 2. During the period under review, portfolio investment inflow moved closely in tandem with portfolio investment outflow. Yet, three interesting observations can be made. First, during the record high level of portfolio investment during 1993 to1994, the total FPI inflow exceeded the FPI outflow. This reflects the positive investor sentiment due to the economic boom experienced by Malaysia during the period. The second observation, however, reflects the adverse effects of massive portfolio outflow on the Malaysian economy as there was a large gap between inflow and outflow in the second and fourth quarter of 1997. Specifically, the net portfolio investment reached a record level of minus RM16 billion in the fourth quarter of 1997. In contrast to the massive inflow due to increased investor confidence in the 1993-1994 period, this massive outflow was due to dented investor confidence following the crisis starting in mid-1997. In line with the massive outflow, the growth of the Malaysian economy turned into a negative real GDP growth of 7.5 percent in 1998 from a positive growth of 7.5 percent in 1997.

More recent trends of FPI inflow and outflow have been encouraging. In the post-2003 period, except for the fourth quarter of 2005, inflow of FPI has been consistently greater than its outflow. This reflects the return of investor confidence in the Malaysian economy. The encouraging trend in the FPI flow reflects the pro-active government policy to instil investor confidence in the Malaysian financial markets. The Malaysian central bank—Bank Negara Malaysia (BNM)—fully acknowledges the merits of FPI, while at the same time keeping an eye on its drawbacks. In particular, BNM closely monitors any potential risks that might adversely affect investor confidence in the financial market. The ability to detect such risks at an early stage helps BNM to act swiftly by undertaking appropriate and pre-emptive policy measures to address and mitigate their implications on the Malaysian economy [Bank Negara Malaysia (2006)].

Fig. 1. Malaysia's Foreign Portfolio Investment Inflow and Nominal GDP, First Quarter 1991—Fourth Quarter 2006

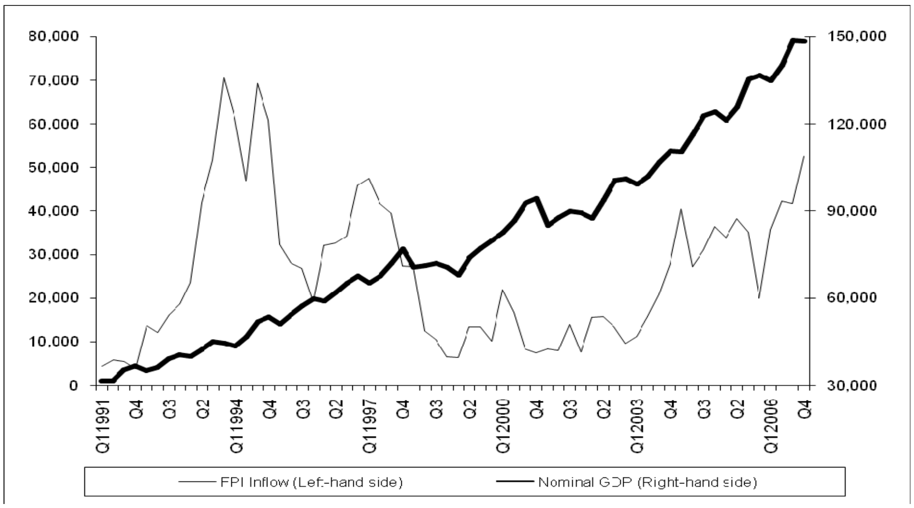
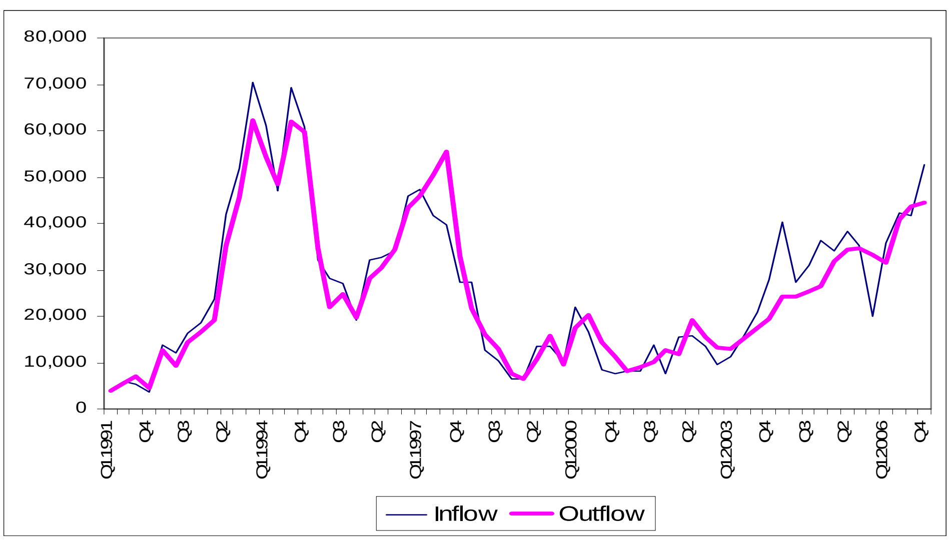


Fig. 2. Inflow and Outflow of Foreign Portfolio Investment in Malaysia, First Quarter 1991—Fourth Quarter 2006



The Malaysian government's decision to impose capital outflow controls on September 1998, after the failure of adopting the IMF proposals for one-year, has sparked a revival of interest in the use of capital controls as there is positive evidence of their implementation. Most literature, though not all, specifically registers evidence of the positive consequences of Malaysian capital outflow controls even if the actual efficiency of the measures is difficult to assess. Doraisami (2004), Athukorala (2001) and Cooper (1999) found that the Malaysian measures did lower the interest rates, which enabled monetary expansion. The controls also reduce the volatility of interest rates [Edison and Reinhart (2000)], contain capital outflow by eliminating the offshore market [Ariyoshi, *et al.* (2000); Athukorala (2001)], reduce stock market volatility [Doraisami (2004); Kaplan and Rodrik (2000); Cooper (1999)], insulate the domestic markets from international markets [Kaminsky and Schmukler (2001)], and bring faster economic recovery, smaller decline in employment and real wages and increase in foreign exchange reserves [Rodrik (1998); Cooper (1999)].

On the other hand, such controls are found to discourage capital inflows more than limiting capital outflows [Fane (2000)] and, in particular, they contribute to a weak flow of FDI to the country [Hartwell (2001)]. Furthermore, the controls are criticised on grounds of efficiency as they tend to safeguard government cronyism [Johnson and Mitton (2001)], suppress market discipline and reduce efficiency of stock market prices [Li, *et al.* (2004)]. Mixed results, however, were found by Tamirisa (2001) who shows that regulation of bank operations and foreign exchange rate transactions plus tightening controls on equity market reduce portfolio (short-term) investment, but regulation of international transaction in Ringgit increases portfolio investment.

At this point, it should be made clear that the different economic and fundamental background of Malaysia from other crisis-hit countries in the region required it to take a different path. Instead of going on with the IMF policy prescription, on September 1998, the authorities imposed sweeping controls on capital-account transactions, adopted fixed exchange rate, cut interest rates, and embarked on a policy of reflation. The steps were taken in the belief that Malaysia was facing a different type of crisis compared to other countries in the region. As substantial capital controls had already been imposed, with reserves at a lower level, the measures aimed specifically at containing Ringgit speculation and the outflow of capital by eliminating the offshore Ringgit market and at stabilising short-term capital flows. The measures also sought to increase monetary independence and insulate the economy from prospects of further deterioration in the world financial environment. Furthermore, accommodative monetary and fiscal policies were implemented to support economic activity. The financial and corporate sector reforms, which had commenced in early 1998, were accelerated to deal with the weak financial institutions and strengthen the banking system. In the 1997 Asian financial crisis, the emergency controls on outflows might have been the least bad choice for Malaysia whose currency was under severe attack from domestic and foreign speculators. Krugman (1998), for example, has argued that perhaps capital controls are sometimes the best alternative to the remedy the IMF has often prescribed in the past on a country that puts tremendous pressure on its economy and banking system through sharp rises in interest rates.

3. THE EMPIRICAL METHODS

In terms of methodology, this paper implements the widely used Granger causality test and the more recent Toda and Yamamoto's (1995) non-causality test to establish the direction of causation between the two variables.

Generally, the Granger causality models are as following:

$$\Delta GDP_t = \alpha_1 + \sum_{i=1}^{k} \beta_i \Delta GDP_{i-i} + \sum_{i=1}^{k} \phi_i \Delta FPI_{t-i} + Dcrisis + \upsilon_t \quad \ldots \quad \ldots \quad (1)$$

$$\Delta FPI_t = \alpha_2 + \sum_{i=1}^{k} \theta_i \Delta GDP_{i-i} + \sum_{i=1}^{k} \varphi_i \Delta FPI_{t-i} + Dcrisis + \upsilon_t \quad \ldots \quad \ldots \quad (2)$$

where GDP and FPI are real gross domestic product growth and Foreign Portfolio Investment inflow, respectively, *Dcrisis* is dummy variable for the 1997 financial crisis (0 = before 1997 and 1=1997 and after 1997), Δ is first-difference operator and *k* is the optimal lag length. The focus of analysis is basically on FPI inflow as it is perceived to be the one factor that contributes to the growth of the economy as compared to FPI outflow which is highly volatile. The test amounts to testing the significance of null hypotheses $\phi_i = 0$ and $\theta_i = 0$. To account for the effects of the 1997 Asian financial crisis on the relationship between FPI and GDP, we include the crisis dummy into the model.

Besides the Granger causality test, we also employ the augmented level VAR approach suggested by Toda and Yamamoto (1995) to determine the causal nexus between the variables. Unlike the Granger test, the Toda-Yamamoto (T&Y) approach to causality does not require *a priori* knowledge of the variables' cointegration properties. Econometrically, it circumvents the problem of pre-testing bias associated with the Granger test. So long as the order of integration of the process does not exceed the true lag length of the model, the approach is applicable in the absence of cointegration and/or of the stability and rank conditions [Toda and Yamamoto (1995)]. As for Toda and Yamamoto's (1995) non-causality test, the following specifications are estimated:

$$GDP_t = \alpha_1 + \sum_{i=1}^{k+d\,\max} \beta_i GDP_{i-i} + \sum_{i=1}^{k+d-\max} \phi_i^* FPI_{t-i} + Dcrisis + \upsilon_t \quad \ldots \quad \ldots \quad (3)$$

$$FPI_t = \alpha_2 + \sum_{i=1}^{k+d-\max} \theta_i^* GDP_{i-i} + \sum_{i=1}^{k+d-\max} \varphi_i FPI_{t-i} + Dcrisis + \upsilon_t \quad \ldots \quad \ldots \quad (4)$$

where *d-max* is the maximal order of integration suspected in the system. The null hypotheses that $\phi_i = 0$ and $\theta_i = 0$ are tested based on a modified Wald test statistic for parameter restrictions, which is shown to be asymptomatically chi-square distributed. The null hypothesis set for Equation (3) is $\phi_i^* = 0 \forall_i \leq k$ and for Equation (4) is $\theta_i^* = 0 \forall_i \leq k$. From Equation (3), FPI "Granger-causes" GDP if its null hypothesis is rejected and from Equation (4), GDP "Granger-causes" FPI if its null hypothesis is rejected. Unidirectional causality will occur between two variables if either null hypothesis of Equations (3) or (4) is rejected. Bidirectional causality existed if both null hypotheses are rejected and no causality existed if neither null hypothesis of Equation (3) nor Equation (4) is rejected.

Secondly, similar methods of Granger causality and Toda and Yamamoto's non-causality tests are applied on variables of growth and volatility of FPI to observe the relationship between the two variables as it is hypothesised that volatility/instability of FPI might impact the economic growth of the country. The variable of FPI volatility is developed by inspecting first the possibility of the existence of Autoregressive Conditional Heteroskedasticity (ARCH) effect on residuals of the Autoregressive Moving Average (ARMA) model of FPI. If there is ARCH effect on the residuals, the volatility of FPI is developed from residuals of the Generalised Autoregressive Conditional Heteroskedasticity (GARCH) model. Otherwise, the volatility of FPI is developed from residuals of the ARMA model itself.

Furthermore, we adopt an innovation accounting by simulating variance decompositions (VDC) and impulse response functions (IRF) for further inferences. VDC and IRF serve as tools for evaluating the dynamic interactions and strength of causal relations among variables in the system. The VDC indicate the percentages of a variable's forecast error variance attributable to its own innovations and innovations in other variables. Thus, from the VDC, we can measure the relative importance of FPI fluctuation in accounting for the variations in real GDP. Moreover, the IRF trace the directional responses of a variable to a one standard deviation shock of another variable. This means that we can observe the direction, magnitude and persistence of economic growth to variation in the FPI, not vice versa.

4. EMPIRICAL FINDINGS

4.1. Data Preliminary

Both the series examined in this study, namely real GDP and Foreign Portfolio Investment inflow, are gathered from Bank Negara Malaysia's *Quarterly Bulletin* and International Monetary Fund's *IMF Financial Statistics* of various issues. The sample range is from 1991 to 2006 of quarterly data. The raw data obtained for both variables are in RM billion and the base year for real GDP is 1987. All variables are expressed in natural logarithm.

4.2. Results

As a preliminary step, we first subject each variable to Augmented Dickey Fuller (ADF) and Phillip-Perron (P-P) unit root tests. The results of the tests are displayed on Table 1. The results generally suggest that both real GDP (ln GDP) and Foreign Portfolio Investment (ln FPI) are integrated of order one as the null hypothesis that the series are not stationary is accepted at level but rejected at first difference. In other words, the variables are stationary at first difference or I(1).

Table 1

Unit Root Test

Variable	ADF Test Statistic (with Trend and Intercept) Level	ADF Test Statistic (with Trend and Intercept) First Difference	P-P Test Statistic (with Trend and Intercept) Level	P-P Test Statistic (with Trend and Intercept) First Difference
L FPI (Foreign Portfolio Investment Inflow)	–2.46	–8.84***	–2.50	–8.81***
L GDP (Real GDP)	–2.39	–3.66**	–3.19*	–9.42***
Vol_L FPI (Volatility of FPI)	–8.65***		–9.38***	

Note: *** , ** and * denote significance at 1 percent, 5 percent and 10 percent level, respectively.

The next step is to select the optimum lag length (*k*) which will be used in the Granger causality model (Equation 1) for real GDP and FPI. By saving residuals of VAR model (repeatedly starting from VAR with lag 2) and checking the correlogram of its residuals (to avoid the problem of autocorrelation), the optimum lag length is selected. Using this method, the results suggest that lag 5 is the optimum lag for both real GDP and FPI.

The Granger causality test is then conducted on the two variables using the optimum lag 5, without and with crisis dummy included in the model. The significance of using crisis dummy in the model is that it might smooth out the short-term effect of volatility and reinforce the long-term effects of GDP. Both tests, with and without crisis dummy, provide almost similar inferences. (Results with crisis dummy are shown in Table 2). The results indicate the existence of causality running from GDP to FPI but not from FPI to GDP. This implies that the change in the Malaysian economic growth causes the change in FPI. The results are highly supported by Toda and Yamamoto non-causality test using lag 6 (i.e. *k +d-max)*. As displayed in Table 2, Toda and Yamamoto's null-hypothesis of GDP not causing FPI is rejected at the 1 percent significance level which also implies that the causality of two variables is running from GDP to FPI instead of FPI to GDP.

Table 2

Results for Causality Tests

Granger Causality Test, with Optimum Lag (k)= 5		
Null Hypothesis	Test Statistic (χ^2)	p-value
FPI not Causes GDP	6.055	0.300
GDP not Causes FPI	15.573	0.008
Toda and Yamamoto Non-causality Test, with k + d-max= 6		
FPI not Causes GDP	3.552	0.615
GDP not Causes FPI	16.463	0.006

In considering that the volatility of FPI could probably impact economic performance of the country, the variable of volatility of FPI is developed from residuals of suitable ARIMA or GARCH model for FPI. By inspecting correlogram of change in log FPI (d(ln FPI)), the ARIMA(2,1,2) model is selected and it is also found that this model does not have problem of ARCH effect in residuals. Thus, we treat the model as a suitable model of FPI rather than using the GARCH model. By saving the residuals of ARIMA(2,1,2) model of FPI, the volatility FPI is developed and it is used for further test of unit root and causality test. The results of unit root ADF and P-P tests are shown in the last row of Table 1. As expected, the variable is stationary at level or I(0).

Since the order of integration of FPI volatility and real GDP is not similar, i.e. volatility of FPI is I(0) and real GDP is I(1), the only suitable causality test to both variables is Toda and Yamamoto non-causality test as this approach does not impose restriction on order of integration and cointegration. Results of Toda and Yamamoto non-causality test of both variables are displayed in Table 3. Obviously, null hypothesis of FPI volatility not causing GDP is accepted and the null hypothesis that GDP causes volatility of FPI is rejected at only 10 percent level of significance. The results firmly indicate that neither economic performance of the country is affected by the volatility of FPI and nor economic growth affects volatility of FPI.

In general, the study found that FPI of the country is neither a curse nor a blessing for the economy since we found very weak evidence that FPI flows or its volatility cause economic growth. Rather, the study finds strong evidence that the economic performance is vital in attracting FPI inflow as the causality is running from GDP to FPI inflow.

Table 3

Results Causality Test, GDP and Volatility FPI

Toda and Yamamoto Non-causality Test, with k + d-max= 6		
Null Hypothesis	Test Statistic (χ^2)	p-value
Volatility FPI not Causes GDP	3.832	0.699
GDP not Causes Volatility FPI	11.279	0.080

For further inferences, we compute variance decompositions and impulse response functions from estimated VAR. The results of impulse response functions (IRF) and variance decomposition (VDC) of variables GDP and FPI are displayed on Figure 3 and Table 4, respectively. From Figure 3, the IRF shows that FPI does react significantly to real GDP innovation for the first 2 quarters before it subsides to zero. Obviously, the positive response of FPI to GDP in the first 2 quarters implies that economic growth is important in attracting high flow of FPI to the country. On the other hand, response of real GDP to FPI seems insignificant.

Fig. 3. Impulse Response Functions of GDP and FPI

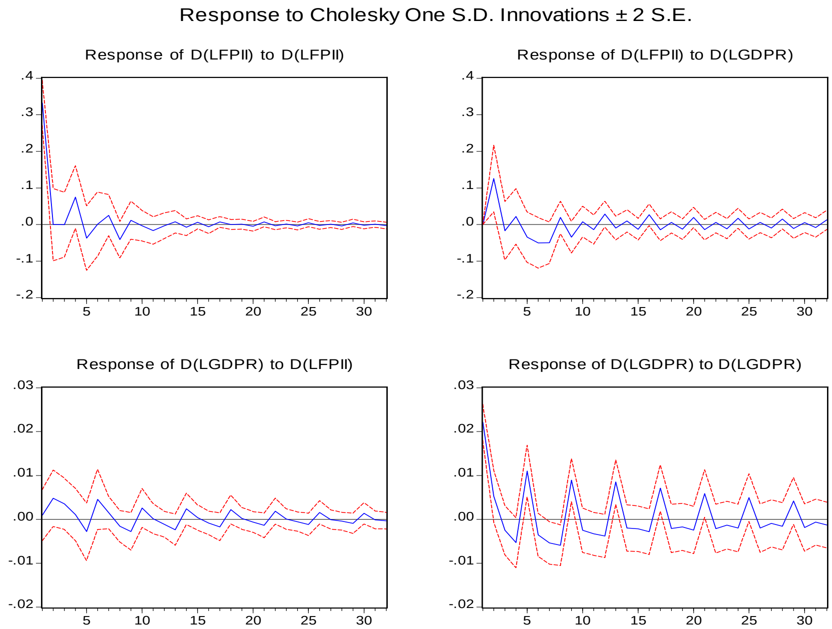


Table 4

Variance Decompositions of GDP and FPI

Period (QTR)	S.E.	D(LFPII)	D(LGDPR)
	Variance Decomposition of D(LFPII)		
3	0.356	87.309	12.691
6	0.371	85.294	14.706
9	0.380	83.170	16.830
12	0.381	82.601	17.399
15	0.382	82.417	17.583
18	0.384	81.895	18.105
21	0.385	81.505	18.495
24	0.385	81.259	18.741
27	0.386	81.120	18.880
30	0.386	80.928	19.072
	Variance Decomposition of D(LGDPR)		
3	0.024	6.495	93.505
6	0.027	8.792	91.208
9	0.030	8.653	91.347
12	0.031	9.139	90.861
15	0.032	9.439	90.561
18	0.033	9.605	90.395
21	0.034	9.426	90.574
24	0.034	9.633	90.367
27	0.035	9.685	90.315
30	0.035	9.709	90.290

As discussed earlier, the variance decomposition is an alternative method to IRF for examining the effects of shocks on the dependent variables. It determines how much of the forecast error variance for any variable in a system is explained by innovations to each explanatory variable, over a series of time horizons. Usually, it is the shocks that explain most of the error variance, although they will also affect other variables in the system. From Table 4, the VDC substantiate the significant role played by real GDP in accounting for fluctuations in Malaysian FPI. At one year horizon, the fraction of Malaysian FPI forecast error variance attributable to variation in real GDP is only about 12 percent. But then it further increases to almost 20 percent in 8 years (32 quarters). On the other hand, the percentage of real GDP forecast variance explained by innovation in FPI is very small which is less than 10 percent though at a longer time horizon. Thus, the VDC results also highly support the importance of growth to FPI in Malaysia rather than the other way around.

Further investigation is done using IRF and VDC on variables of real GDP and volatility of FPI. Figure 4 and Table 5 displayed both results, respectively. From Figure 4, it shows that volatility of FPI also reacts significantly to real GDP innovation for the first 2 quarters before it subsides to zero. Positive response of volatility of FPI to GDP in the first 2 quarters indicates the importance of economic growth in affecting volatility of FPI in the country. However, similar to previous results, the response of real GDP to volatility of FPI seems insignificant. The output of investigation is further strengthened by results from VDC. In Table 5, VDC confirms the significant role played by real GDP in accounting for fluctuations in volatility of FPI. The fraction of Malaysian volatility of FPI forecast error variance attributable to variation in real GDP is increasing from almost 13 percent in first quarter to almost 19 percent in 32 quarters. But the percentage of real GDP forecast variance explained by innovation in volatility of FPI is very small with only around 11 percent at a longer time horizon. Therefore, the VDC results highly support the importance of growth not only to FPI but also the volatility of FPI. Again, the impact of FPI volatility on growth is found to be insignificant.

Fig. 4. Impulse Response Functions, GDP and Volatility FPI

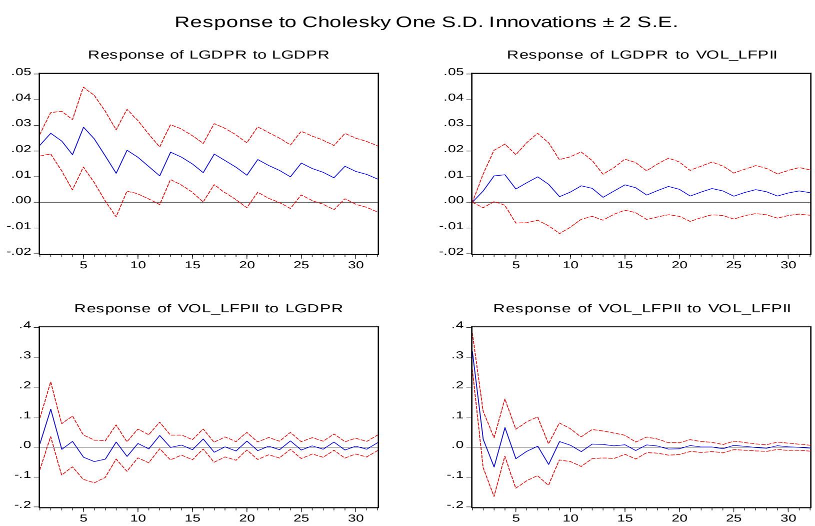


Table 5

Variance Decompositions of GDP and Volatility of FPI

Period (Quarter)	S.E.	LGDPR	VOL_LFPII
	Variance Decomposition of LGDPR		
3	0.044	92.027	7.973
6	0.063	90.000	9.999
9	0.070	88.527	11.473
12	0.075	88.109	11.891
15	0.081	88.571	11.428
18	0.086	88.800	11.200
21	0.090	88.661	11.339
24	0.093	88.450	11.549
27	0.096	88.588	11.412
30	0.098	88.681	11.319
	Variance Decomposition of VOL_LFPII		
3	0.352	12.709	87.291
6	0.366	14.477	85.523
9	0.374	15.939	84.061
12	0.377	16.874	83.125
15	0.378	16.931	83.069
18	0.379	17.516	82.484
21	0.380	17.913	82.087
24	0.381	18.205	81.795
27	0.381	18.300	81.703
30	0.382	18.513	81.487

5. POLICY IMPLICATIONS AND CONCLUSIONS

This study analyses the relationship between FPI inflow and economic growth in the Malaysian case. In particular, it attempts to determine the direction of causality between FPI inflow and economic growth and explores empirical evidence as to whether FPI inflow or its volatility has an impact on Malaysia's economic performance or otherwise.

The study finds that economic growth causes the FPI inflow but not its volatility. However, neither the FPI nor its volatility causes economic growth. Thus, the findings of this study suggest that FPI or its volatility is not a crucial factor in determining the economic performance of Malaysia. Rather, the study finds that economic growth is highly significant in determining the flows of FPI. Interestingly, the 1997 government policy of regulating FPI outflows does not appear to have dampened the "causality" relationship between GDP and FPI inflow. Theoretically, these inferences indicate that regulation of outflows should be a disincentive for inflows; but if regulation sustains GDP then the growth effect would outweigh the disincentive effect. The results are consistent and robust based on the battery of tests undertaken in this study.

It is an important caveat that the findings of this study are confined by the empirical restrictions resulting from the nature of the data. In particular, the selection of the optimum lag length of 5 quarters is necessitated by the statistical need to avoid the serial correlation in the residuals, as mentioned in the methodology section. However, it is important to note that such a relatively long lag of 15 months could result in the dominance of the GDP variable in causing the FPI as suggested by the Granger causality test. In other words, the long lag dictated by the optimum lag selection procedure might smooth out the short-run effects of FPI on the GDP.

As such, it can be anticipated that when the lag is reduced to shorter lags, the results could change in such a way that causality might exist from FPI to GDP, a finding which is consistent with the expectation that the effects of FPI volatility on GDP are likely to be felt relatively quick, in a time span of shorter than 5 quarters. However, the shorter lag used in the VAR model suffers from the problem of serial correlation in residuals and the number of lags used is also not supported by the lag length criteria such as LR (sequential modified LR test) statistic, FPE (Final prediction error), AIC (Akaike information criterion), SC (Schwarz information criterion) and HQ (Hannan-Quinn information criterion). When all this taken into consideration, it is difficult to capture the short-run effects of FPI volatility on GDP.

The results of the study imply that economic performance is the major pull factor in attracting FPI into the country. This was basically due to the 1997 pro-active government policy which was successful in mitigating the possible adverse effects in the post-1997 crisis period. The evidence to show that either FPI inflow is a blessing or a curse is rather very weak. Therefore, it is necessary to ensure that the Malaysian economy remains on a healthy and sustainable growth path in order to maintain investor confidence in the economy. Indeed, the experience during the 1997 financial crisis has clearly shown that the lower FPI inflow and the massive FPI outflow resulted from the anticipation of weaker economic performance due to the crisis. Regardless of the directions of causation, it is crucial for the policy-makers to provide a conducive environment to attract FPI inflow due to its numerous advantages for the economy.

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