External Debt and Macroeconomics Performance In Malaysia: Sustainable Or Not?

Nanthakumar Loganathan*, Muhammad Najit Sukemii and Nur Azura Sanusi**

This study analyses the long-run and short-run relationship between external debt and macroeconomics performance of Malaysia. The macroeconomics performance in this study refers to government’s revenue, balance of payment and government reserve. In this study we apply time-series econometric techniques with annual data series for the entire period of 1988-2008. The co-integration approach is employed to investigate the long-run relationship; and vector error correction method (VECM) to investigate the short term dynamics. Our findings suggested a significant long-run and short-run relationship between external debt and macroeconomics variables performance with 13 percent of speed of adjustment to restore equilibrium condition in the long run. Overall, the findings of this study shows that, Malaysia’s external debt is ‘sustainable’ with its macroeconomics performance, although have faces several unstable economic scenario for the last 2 decades.

1.0 Introduction

Malaysia’s leading challenge today is to lessen the inflation rate, poverty level and external debt as a part of nation’s agenda toward sustainable economic growth. As many countries in the Asian region, Malaysia has accumulated a number of external debt. Basically, external sources needed to develop the internal financial budgetary and fulfill the gap of domestic resources of financial supports to development the nations economics targets. Borrowing money from abroad can be defined as external debt and the increases in term of external debt may also burden the countries fiscal adjustment; and growth rate. In order to finance the Malaysia’s fiscal deficit, the Malaysian government has borrowed from internal or external sources or by creating money through debt monetization. Most of the time, the Malaysian government financed the deficit through borrowing rather than through money creation. After facing the optimal debt level, the government is unable to borrow from public or from abroad to finance its deficit. This condition may cause macroeconomic crisis such as debt trap and hyperinflation. Identically, developing countries are no exception, where most the countries experienced problem with external debts in the early 1980s.

The growth of outputs as an annual change clearly shows and unstable trends, where the Asian financial crisis has cause on the downtrend of the growth rate within the period of 1997 until 2000. The consumer price index (CPI) and labor force indicates an upward trend. Although the CPI has increased, but the percentages are in the

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stable mode compare to other neighboring countries in the Southeast Asian. Surprising, the trends of annual change of imports and exports in Malaysia were in the same mode. As a consequence, Malaysia’s trade balance were not so diverge although faces economics crises in middle of 1990s. In term gross domestic saving as percentage of GDP, Malaysia has reach a good standing went facing the economic downturn in 1997-1998 with special fiscal and monetary treat done by the federal government. Therefore, Malaysia able to recover smoothly from the economic crisis compare to other countries in Southeast Asian region. The remaining situation also has cause on Malaysia’s total international reserve. The amount of international reserve keep on increasing for the last 2 decades and this indicates that, the Malaysian government have look forward to stabilize the sustainability of economic growth in future without any ‘rescue packages’ from IMF or other sources of rescue funds.

This study attempts to analyze the long run and short-run relationship between external debt; and selected macroeconomics performances of Malaysia. The plan of this study is as follows. Section 3 will presents the data, model specifications and the findings. While in section 4, we briefly discussed some policy stance and conclusion remarks.

2.0 Literature Review

Previous literatures have mainly centered the discussion on the fiscal adjustment and foreign deficit sustainability with theoretical econometrics modeling (Koo, 2008; Erbaykal and Karaca, 2008). Rising in term public or external debt especially for developing countries is not a good indication; and when the debt level rises beyond the overall size of the economy, sustaining it in the longer run can become an issue (Reddy, 2006). According to Hameed et al. (2008), external borrowing is ought to accelerate economic growth especially when domestic financial resources are inadequate and need to be supplemented with funds from abroad. Economic theory also postulates that reasonable levels of borrowing promote economic growth through factor accumulation and productivity growth. Therefore, it is important to the government in sustaining the debt level. Economic sustainability has three important elements; firstly, the government needs enough resources to ensure its ability to carry out its functions; secondly, the implications for other macroeconomic variables; and thirdly, relates to the issue of affordability (Jha and Sharman, 2004).

Hojman (1986) investigated a basic investment equation and production function application on the external debt contribution to output, employment, productivity and consumption in Chile between 1960 and 1982. The theoretical framework derived the contribution of external indebtedness to the stock of capital and the effects of foreign capital movement as net of debt service to the capital formation. More specifically, in order to identify the external debt contribution, the author used a foreign-capital-dependent investment equation to generate a capital stock series, towards estimating a non-homogeneous variable elasticity of substitution production function. The empirical results show a significant negative relationship between net foreign capital movements and domestic savings. A low marginal product of capital is estimated that represent minimal external debt contributions to output, employment and productivity. However, factor price distortions, capacity under-utilization, preferences for current consumption, short planning horizons combined with huge debt, unrealistically rigid
assumptions of previous work and model limitations, all suggest substantial direct consumption costs of default or repudiation and through them, indirect output and income costs.

Hameed et al. (2008) analyzed the long-run and short-run relationships between external debt and economic growth of Pakistan. They have examined the dynamic effect of GDP, debt service, capital stock and labor force on the economic growth by fitting the production function using annual data for the entire period of 1970-2003. The basic model is derived from the neoclassical production function by incorporating the external debt service variable as suggested by Cunningham (1993). The results show that debt servicing has a negative effect on the productivity of labor and capital; and debt service ratio tends to affect negatively GDP and thereby the rate of economic growth in the long run, which in turn, reduces the ability of the country to service its debt. The estimated error correction term shows the existence of a significant long-run causal relationship among the specified variables. While in the short run, unidirectional causality is reported from debt service to GDP. These suggested that debt as an important factor in overall debt scenario in Pakistan.

Sahabat and Butt (2008) discussed in depth the current external debt problem and investigated the impact of trade liberalization policies and measures on external debt burden in Pakistan. In order to examine the long run relationship, they utilized the ARDL bounds testing approach and ECM, to test the short-run dynamics using data from 1972-2007. The empirical results shows, a significant long run positive association between export and trade to the external debt. Consequently, in the long run, imports and exchange rates have affected the external debt as negatively. Meanwhile, in short run, a significant positive relationship is reported between exports and the external debt. While for the imports, a negative significant relationship exists between import and external debt burden. Koo (2008) has examined the budget deficit and government debt problem and assess whether the current levels of government debt are sustainable for a several attacked country. Koo has tested the fiscal sustainability and examines whether there was any discernible change in the behavior of government debt following the Asian financial crisis. Empirical results indicate the levels of government debt are not sustainable in Korea and the crisis contributes significantly to push the government debt in excess of its sustainable level.

Önel and Utkulu (2006) has model up the long run sustainability of Turkish external debt with structural changes. To investigate the sustainability of Turkey’s external debt, the model derived from the basic solvency condition for international borrowing equation. Identically, in the long run, a country is in the solvent conditions if the future external debt equal to zero. This followed by Hakkin and Rush (1991) using co-integration approach with structural break analysis. In order to identify the effect of structural break to the empirical evidence, their used Divot and Andrew’s unit root; and Gregory and Hansen’s co-integration tests. The empirical results show that the external debt of Turkey is weakly sustainable in the long-run and thus the country is solvent without any structural breaks. This implies the Turkey’s external debt is weakly sustainable.

In Malaysia, Endut and Hua (2008) have analyzed the household debt. This study briefly discussed the current development of household finance in Malaysia, and its
implications on monetary policy, financial stability and some of the related policies raised. From the financial stability perspective, as household lending continues to play an important role in the banking system, a more comprehensive and responsive risk management system is critical in preserving the soundness of each banking institution and the resilience of the banking sector as a whole. This is to ensure that banking institutions are able to effectively manage the risks at all times and under all economic conditions. In terms of monetary policy, when setting the policy rate it is imperative to take into account the increased potency of monetary policy as a result of the increased sensitivity of household consumption and debt servicing capability to interest rate changes.

3.0 Data, Model Specifications and Findings

This study mainly used annual time series data for the entire period of 1988-2008. In this study we used 20 years of time series data because Malaysia has faced several unstable economic scenarios in the entire period 1988-2008. The data were driven from Asian Development Bank dataset. The data used in this study are the external debt (Debt), government revenue (GRev), balance of payment (BOP); and the government reserves (Reserve). Prior to the analysis, all variables are transformed into logarithm form. The findings of this study were present as follows. Section 1 presents the stationary tests; section 2 presents the Johansen-Juselius co-integration test and the long-rung normalized co-integrating coefficients results; section 3 illustrate the VECM estimates; and finally section 4 will presents the dynamic Granger causality analysis:

3.1 Stationary Tests

It is important to determine the characteristics of the individual series before conducting the co-integration analysis. Many studies have shown that majority of macroeconomics variable time series are not stationary, rather stationary with a deterministic trend (Taha and Loganathan, 2008). This creates a problem for econometricians since in the conditions of non-stationary data the normal properties t-statistics and Durbin Watson statistics and measures such as R-squares break results. To test the order of integrations, we used Augmented Dickey-Fuller test (ADF) and Phillip-Perron tests. It is widely acknowledged that ADF and PP tests are command stationary tests applied in macroeconomics variable studies recently. The regression equation for the ADF test can be written as follows:

\[ \Delta Y_t = \alpha_t + \beta_t t + \rho Y_{t-1} + \sum_{i=1}^{q} \delta_i \Delta Y_{t-i} + \epsilon_t \]  

\[ \text{.........(1)} \]

Where, the t symbol denotes time trend, \( Y \) is the variable in estimation procedure, \( \epsilon \) represent the distributed random error term with zero value of mean and constant variance. In this study Akaike Information Criteria (AIC) has been used to select the optimal lag length. The Phillips-Perron (PP) statistic may be computed for the same function forms as been discussed earlier to overcome the weakness of the DF and ADF stationary test modeling:

\[ Y_t = \delta_t + \gamma_0 Y_{t-1} + \gamma_1 \Delta Y_{t-1} + \ldots + \rho \Delta Y_{t-p} + \epsilon_t \]  

\[ \text{.........(2)} \]
In this study, we used ADF and PP tests principles. Eventually, by combining the ADF and PP procedure, it is likely to provide more clear-cut conclusion with regard to the order of integration for all of the series. Table 1 summarizes the outcome of the ADF and PP tests on all four variables in this study. The null hypothesis tested is that the variable under investigation has a unit root against the alternative that it does not. In the first half of Table 1, the null hypothesis that each variable has a unit root cannot be rejected by both ADF and PP tests. However, after applying the first difference, both ADF and PP tests reject the null hypothesis. Since the data appear to be stationary by applying the ADF and PP tests in first differences, no further tests are performed. We, therefore, maintain the null hypothesis that each variable is integrated of order in the same order, which is in $I(1)$:

**Table 1** Results for stationary tests with trend

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF Test ($\tau$)</th>
<th>PP Test ($Z_\tau$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$l(0)$</td>
<td>$l(1)$</td>
</tr>
<tr>
<td>Debt</td>
<td>-1.35(0)</td>
<td>-3.72(0)**</td>
</tr>
<tr>
<td>GRev</td>
<td>-2.29(0)</td>
<td>-4.14(0)**</td>
</tr>
<tr>
<td>BOP</td>
<td>-3.13(3)</td>
<td>-4.32(2)**</td>
</tr>
<tr>
<td>Reserve</td>
<td>-2.25(0)</td>
<td>-4.90(0)*</td>
</tr>
</tbody>
</table>

Note: Figures in ( ) and [ ] indicate the lag length based on the AIC and Newey-West using Kernel Bandwidth value. Asterisks (*) denote statistically significant at 1% significance levels. $l(d)$ refer to the level of integration.

Given the fact that all series under ADF stationary test are at $l(1)$, therefore we proceed with integration identification between the variables to identify the level of co-integration using the Johansen-Juselius technique which is a part of VECM approach.

### 3.2 Co-integration Analysis

Basic Granger approach proposes the concept of co-integration and, Engel and Granger (1987) make further discussion in depth. The components of the vector $X_t$ are said to be co-integrated of order $d$, $b$, and denoted by $X_t \sim CI(d,b)$ if (i) $X_t$ is $l(d)$ and (ii) there exists a non-zero vector $\alpha$ such that $\alpha' X_t \sim I(d-b)$, $d \geq b \geq 0$. The vector $\alpha$ is called the co-integrating vector. Co-integration suggests that there exists the long-run equilibrium relationship linking these variables, or they tend to move together over time. Therefore, co-integration reveals long-run effects between time series variables. The Johansen-Juselius co-integration approach suggested an alternative method to perform the co-integration test as presented through the following equation:

$$\Delta Y_t = \prod \gamma_{i-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta Y_{t-1} + BX_t + \varepsilon_t \quad \text{.........(3)}$$

Where, $\prod = \sum_{i=1}^{p} A_i - I$, $\Gamma_i = \sum_{j=i+1}^{p} A_j$, $Y_t$ is a k-vector of non-stationary $l(1)$ variables, $X_t$ is a d-vector of deterministic variables, and $\varepsilon_t$ is vector of white noises with zero mean and finite variance. The number of co-integrating vectors is represented by the rank of the coefficient matrix $\Pi$. Johansen’s method is to estimate the $\Pi$ matrix in an unrestricted form, then test whether one can reject the restrictions implied by the
reduced rank of \( \Pi \). The likelihood ratio test for the hypothesis that there are at most ‘\( r \)’ co-integration vectors is called the trace test statistic. It is to be noted that the variables under consideration should have identical orders, and in particular are integrated of order one (Engle and Granger, 1987). Testing for co-integration of the type \( Cl(d,b) \) for \( b<d \) are not of primary interest, since for \( b<d \) the co-integrating vector is not stationary and does not have a straightforward economic interpretation (Charemza and Deadman, 1997). In testing co-integration relationships, we applied the maximum likelihood estimation (MLE) methods of Johansen and Juselius (1990). The model can be express by using the VECM as follows:

\[
\Delta Y_t = \mu + \Gamma_1 \Delta Y_{t-1} + \ldots + \Gamma_{k-1} \Delta Y_{t-k+1} - \Pi \Delta Y_{t-1} + \varepsilon_t \quad \ldots \ldots (4)
\]

Where \( \Delta Y \) contains the external debt (Debt) series; and \( \Gamma \)'s estimable parameters, \( \Delta \) is a difference operator, \( \varepsilon \) is a vector of impulses which represent the unanticipated movements in \( Z \). Table 2 reports the results of Johansen (1988) maximum likelihood tests for \( \lambda_{\max} \) and the Trace rest statistics. Both statistics shows robustness to both skewness and excess kurtosis in the residual. Therefore, both statistic tests suggest that there exists more than one co-integration vector among all cases. The results of testing for the number of co-integrating vectors are reported in Table 2, which presents both the maximum eigen-value (\( \lambda_{\text{Max-Eigen}} \)) and the trace statistics (\( \lambda_{\text{Trace}} \)). The co-integration results are obtained using lag length selection using the minimum value of AIC indication, where the co-integration space contain linear trends and the results indicates 4 co-integrating vectors; with a lag length equals to 1. Therefore, the results are now completely identified a long-run equilibrium relationship and indicating long-run elasticity of each macroeconomics variable to the equilibrium states:

<table>
<thead>
<tr>
<th>( H_0 )</th>
<th>( H_1 )</th>
<th>( \lambda_{\text{Max-Eigen}} ) ( [k=2,r=4] )</th>
<th>Critical Value (1%) ( \lambda_{\text{Trace}} ) ( [k=2,r=1] )</th>
<th>Critical Value (1%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( r=0 )</td>
<td>( r&gt;0 )</td>
<td>88.26*</td>
<td>61.26</td>
<td>42.02*</td>
</tr>
<tr>
<td>( r\leq1 )</td>
<td>( r&gt;2 )</td>
<td>46.24*</td>
<td>41.19</td>
<td>20.35</td>
</tr>
<tr>
<td>( r\leq2 )</td>
<td>( r&gt;3 )</td>
<td>25.89*</td>
<td>25.07</td>
<td>13.11</td>
</tr>
<tr>
<td>( r\leq3 )</td>
<td>( r&gt;4 )</td>
<td>12.77*</td>
<td>12.76</td>
<td>12.77</td>
</tr>
</tbody>
</table>

Note: Asterisks (*) and (**) denote statistically significant at 1%, 5% and 10% significance levels respectively.

Many studies have used normalized co-integrating coefficients to interpret the long-run elasticity of dependent and its independent variables. Table 3 provides details of the estimated normalized co-integrating coefficients of this study. GRev and BOP exhibit our expected sign and both of the variables are highly significant. The long-run elasticity's of Debt with respect to GRev and BOP are -1.59 and -1.10 respectively.
### Table 3 Normalized co-integrating coefficients
(Long-run dynamics)

<table>
<thead>
<tr>
<th></th>
<th>Debt</th>
<th>Constant</th>
<th>GRev</th>
<th>BOP</th>
<th>Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.0000</td>
<td>-1.79(1.85)</td>
<td>-1.59(0.45)</td>
<td>-1.10(0.32)</td>
<td>1.51(0.52)</td>
</tr>
<tr>
<td></td>
<td>[-0.97]</td>
<td>[-3.46]*</td>
<td>[-3.39]*</td>
<td>[2.61]**</td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in ( ) and [ ] indicates standard error and t-statistics respectively. Asterisks (*) and (**) denote statistically significant at 1%, 5% and 10% significance levels respectively.

Surprisingly, the Reserve variable has unexpected sign and accept the H_0. This indicates that, although the Malaysian government reserves increased, it does not cause directly to the external debt. This happens because of the unstable Malaysian Ringgit since the Asian financial crisis. Although the Malaysian government does not receive external financial supports when facing the economic crisis, but the real value of debt were decreased because the value of currency exchange in the financial market were volatile compare to US dollar; secondly because of the unstable inflation rate lately in Malaysia. Since this scenario happens, therefore the reserves indicator will not cause on the external debt directly in the long-run.

### 3.3 Short-run dynamics: Vector Error Correction Method (VECM)

Once the null hypothesis of the co-integration test has been rejected, the coefficients of the long-run relationship can be estimated using VECM approaches. Basically the VECM estimation is usually used to estimate the short-run dynamic relation between variables. In this study we determine the lag length of the VECM using lag length structure, where the lag length was selected according to the minimum value of AIC. Secondly, we apply VECM approach because all of variable used in this study are stationary at same level of integration, which is in \( I(1) \). In general, the VECM equation with consideration of lag 1 can be written as follows:

\[
\Delta \text{Debt}_t = \alpha_0 + \alpha_{\text{ect}} \Delta \text{t}_1 + \alpha_2 \Delta \text{Debt}_{t-1} + \sum_{i=0}^{n} \alpha_3 \Delta \text{GRev}_{t-1} + \sum_{i=0}^{n} \alpha_4 \Delta \text{BOP}_{t-1} + \sum_{i=0}^{n} \alpha_5 \Delta \text{Reserve}_{t-1} + \epsilon_t
\]

Where, \( \text{ect} \) refers to the residual error derived from the co-integrating vector. In this study, the lag 1 was selected on basis of minimum value AIC, which equals to -2.79. The ect coefficient shows that the speed of adjustment of variables return to equilibrium and it should have statistically significant coefficient with negative sign (Sahabat and Butt, 2008). The VECM estimation result of this study indicates \( \text{ect}_{t-1} \) term with a negative sign of -0.13; and significant at 10%. Interestingly, the estimated result from this study has fulfilled the basic requirements of VECM estimation procedure. The \( \text{ect}_{t-1} \) coefficient value indicates 13% of speed of adjustment to restore equilibrium condition in the long-run. This result also implies the lag selection and model specification for this study is correctly specified without any errors and bias.

Furthermore, we employed some of important diagnostic tests to prove the stability of the model used in this study. This study has passed the Breusch-Godfred serial correlation LM test, White Heteroskedasticity test and Autoregressive conditional hereroskedasticity (ARCH) tests. There is no evidence of serial correlation or
heteroskedasticity problems appeared in this study. Unfortunately, the Jarque-Bera
normality test has rejected the null hypothesis; and this confirms that the estimated
residual is not normally distributed. Although the series are not normal distribute, this
not a big deal because most of the $(1)$ stationary data will appeared unstable
distribute over time. Finally, recursive estimation using CUSUM and CUSUM square
tests found that the parameters of specific VECM model remain stable over the entire
study period because both of the recursive line is in the bound. Besides that, the
recursive results also do not indicate any structural breaks for the entire period of this
study. Table 4 reports the estimates VECM equation with the diagnostic tests:

Table 4 Vector error correction estimates
(Short-run dynamics)

<table>
<thead>
<tr>
<th>Panel 1: Short-run dynamics</th>
<th>$\Delta$Debt</th>
<th>Constant</th>
<th>$\Delta$Debt$_{t-1}$</th>
<th>$\Delta$GRev$_{t-1}$</th>
<th>$\Delta$BOP$_{t-1}$</th>
<th>$\Delta$Reserve$_{t-1}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>$(\text{SE})$</td>
<td>(0.06)</td>
<td>(0.08)</td>
<td>(0.23)</td>
<td>(0.67)</td>
<td>(0.08)</td>
<td>(0.17)</td>
</tr>
<tr>
<td>$(\text{t-value})$</td>
<td>(0.50)</td>
<td>(-1.70)**</td>
<td>(-0.16)</td>
<td>(1.11)</td>
<td>(-1.64)</td>
<td>(0.61)</td>
</tr>
</tbody>
</table>

Panel 2: Diagnostic Tests

| Breusch-Godfrey Serial Correlation LM test (2) | 0.07[0.92] |
| White Heteroskedasticity test                  | 2.17[0.36] |
| ARCH test (1)                                  | 0.14[0.70] |
| Jarque-Bera Normality test                     | 36.87[0.00]* |

3.4 Granger-Causality Analysis

Recent studies on time-series econometrics have highlighted several cruxes
pertaining to Granger causality test. Firstly, the direction of causality depends
critically on the number of the lagged term included. For instance, if we choose
smaller lag length than the true lag length, the omission of relevant lags may cause
bias (Shahbaz and Aamir, 2008). Basically, Co-integration implies the existence of
Granger causality, however, it does not point out the direction of the causality
relationship. Therefore, this study employed the VECM to detect the direction of the causality. Granger causality analysis can identify whether two variables move one after the other or contemporaneously. When they move contemporaneously, one provides no information for characterizing the other. If “X causes Y”, then changes in X should precede changes in Y. Consider the VECM specification of equation (5), which can be written as follows:

\[
\Delta X_t = \beta_0 + \sum_{i=1}^{p-1} \beta_{xi} \Delta X_{t-i} + \sum_{i=1}^{p-1} \beta_{yi} \Delta Y_{t-i} + \beta_x e_{ct-1} + \mu_t
\]

\[
\Delta Y_t = \gamma_0 + \sum_{i=1}^{p-1} \gamma_{yi} \Delta X_{t-i} + \sum_{i=1}^{p-1} \gamma_{xi} \Delta Y_{t-i} + \gamma_y e_{ct-1} + \epsilon_t
\]

\[
\text{.........(6)}
\]

Where \(\beta_{xi}\) and \(\gamma_{yi}\) are the short-run coefficients, \(e_{ct-1}\) is the error correction term. Unidirectional causality from Debt requires some of the \(\beta_{xi}\) and \(\gamma_{yi}\) coefficients, \(i = 1, 2, \ldots, p-1\). These hypotheses can be tested by applying Wald tests on the joint-F test of the lagged estimated coefficients of \(\Delta X_{t-i}\) and \(\Delta Y_{t-i}\) (Kavussanos and Visvikis, 2002). The Granger-causality test in this study is conducted using a joint F-statistics for the exclusion of variable from one equation as illustrated above in a simple matrix form. Relationship between Debt and three variables are as shown in Table 5:

**Table 5 Dynamic Granger causality results (Joint F-Statistics)**

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>(\Delta) Debt</th>
<th>(\Delta) GRev</th>
<th>(\Delta) BOP</th>
<th>(\Delta) Reserve</th>
<th>ECT(_{t})-statistics</th>
<th>Direction of Causality</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\Delta) Debt</td>
<td>-</td>
<td>0.37</td>
<td>2.69</td>
<td>1.24</td>
<td>-1.70**</td>
<td>(\leftarrow/\rightarrow)</td>
</tr>
<tr>
<td></td>
<td>[0.55]</td>
<td>[0.12]</td>
<td>[0.28]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\Delta) GRev</td>
<td>0.12</td>
<td>-</td>
<td>0.03</td>
<td>0.14</td>
<td>-2.48*</td>
<td>(\leftarrow/\rightarrow)</td>
</tr>
<tr>
<td></td>
<td>[0.72]</td>
<td>[0.85]</td>
<td>[0.71]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\Delta) BOP</td>
<td>0.12</td>
<td>0.03</td>
<td>-</td>
<td>0.14</td>
<td>1.51</td>
<td>(\leftarrow/\rightarrow)</td>
</tr>
<tr>
<td></td>
<td>[0.72]</td>
<td>[0.85]</td>
<td>[0.71]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\Delta) Reserve</td>
<td>8.70</td>
<td>0.49</td>
<td>0.56</td>
<td>-</td>
<td>0.22</td>
<td>(\rightarrow)</td>
</tr>
<tr>
<td></td>
<td>[0.01]**</td>
<td>[0.49]</td>
<td>[0.46]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Figures in [ ] indicates probability value. Asterisks (*), (**), and (**) denote statistically significant at 1%, 5% and 10% significance levels. Number of lag used in the VECM estimation based on the minimum level of Akaike Information Criteria (AIC), which equal to lag 1. \(\leftarrow/\rightarrow\) and \(\rightarrow\) indicates without causality direction and unidirectional causality effects respectively.

Generally, we find a similar absence of long run relationship between GRev, BOP and Reserve using the normalized co-integrating coefficients results. However, we note in the short-run dynamics, the causality runs only from Reserve to Debt. There are no such short-run causality linkages running from either GRev or BOP, to Debt. This implies that, there is only unidirectional causality between Reserve and Debt appeared in short-run dynamics in this study.
4.0 Summary and Policy Implications

The finding of our study has indicates some useful results for policymakers. Firstly, all of the macroeconomics performance variable used in this study have an expected sign and have fulfilled our assumptions, accept the government reserves in the long-run. This indicates that, the macroeconomics performance on the burden of external debt in Malaysia is ‘sustainable’. This is quite opposite results compare to previous studies; because the real value of current external debt is burden by the unstable value of currency market; and the domestic inflation rate which volatile during the study period. The \( \text{ect}_{t-1} \) coefficient value are also indicates 13% of speed of adjustment to restore equilibrium condition in the long-run. From the policy perspectives, since the external debt are found to have close relationship with macroeconomic variables performance such as the GRev, BOP and Reserve, the government may enhance some fiscal and monetary policies to overcome the external debt repayment. Secondly, export performance and stability of Malaysia’s fiscal adjustment can be used to hamper out the external debt problem for the upcoming years.

Government strategies to give priority to increase the number local investors and entrepreneur are able to overcome the gap of domestic resources of financial supports to develop the nation’s economic performance in future. Secondly, domestic inflation needs to overcome as soon as possible with fiscal and monetary policies because it may increase the volume of external debt. Thirdly, global economic reforms carried out by developed countries should be highlight seriously by the Malaysian government whenever domestic economic reformation launched. The government also must attempt to audit and monitor its development and operating expenditures with good government practices continuously; and this may harm the external debt level in up-coming years. As a conclusion, this study is a pioneer study for future studies. Future direction of empirical studies should concentrate on the patterns and structural break of external debt; and the fiscal adjustment in Malaysia.

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References


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