The Relationship between Export and Exchange Rate Volatility: Empirical Evidence Based on the Trade between Malaysia and Its Major Trading Partners

Zukarnain Zakaria
UTM-International Business School, Universiti Teknologi, Malaysia. 
E-mail: m-zukar@utm.my

Abstract

A number of theoretical models recommended that the impact of exchange rate volatility on trade may be positive or negative. Empirically, some studies found a robust negative relationship between exchange rate volatility and trade, while others were not. This paper empirically examines this relationship based on Malaysia’s monthly data from January 2000 to August 2012, using regression analysis of standard export demand models. In line with recent development in measuring volatility, the exchange rate volatilities in this study were measured by GARCH(1,1) models. The results from regression analysis show that Malaysian exports to the US and Japan are significantly related with exchange rates volatility. The impact of exchange rate volatility on Malaysia export to US was found negative; while for Japan, it’s positive. Malaysia’s export to the UK and Singapore was found not significantly related to the volatility in the exchange rates. The findings from this study clearly indicate that the relationship between export performance and exchange rates volatility is ambiguous.

Key Words: Exchange rate, Volatility, Exports, GARCH, Malaysia

JEL Classification: F14, F41, F31
1. Introduction

Since its independence in 1957, Malaysia has implemented two different exchange rate regimes. Before the selective capital controls in 1998, the Malaysian ringgit (MYR) was traded as a free float currency, with the value of ringgit fluctuated around 2.50 to the U.S. dollar, before dipping to under 3.80 to the dollar by the end of 1997, following the year's East Asian financial crisis. In the first half of 1998, MYR fluctuated between 3.80 and 4.40 to the dollar, before the Malaysia Central Bank (Bank Negara Malaysia) pegged the ringgit to the US dollar in September 1998, maintaining its 3.80 to the dollar value for almost seven years, while remaining floated against other currencies.

On July 21, 2005, Bank Negara Malaysia (BNM) announced the end of the peg to the US dollar, and allowed the ringgit to operate in a managed float against several major currencies. This resulted in the value of the ringgit rising closer to its perceived market value. Consequently, the ringgit value has appreciated to as low as 2.95 to the U.S. dollar in July 2011. The ringgit value had also enjoyed a period of appreciation against the Great Britain Pound (GBP), from 6.49 in September 1998 to 4.98 in September 2012. However, compared to the Japanese Yen (JPY), the value of ringgit depreciated from 2.81 in September 1998 to 3.95 in September 2012 (Bank Negara Malaysia).

In the past two decades, MYR has showed different degrees of volatility in line with the economic circumstances that the country faced through time. However, until today, there is no consensus on whether exchange rate volatility influences trade volumes in Malaysia, or whether such influence is negative or positive. This question has been at the centre of the current economic policy debate in Malaysia, involving policymakers, academic researchers and business press. In general, their main concern is on the potential of negative impacts of the ‘excessive’ volatility in the exchange rates on the country’s export.

Malaysia is an open economy where its exports of goods and services (% of GDP) was last reported at 97.30 in 2010, according to a World Bank report published in 2012. As a country with a relatively small domestic market, Malaysian economic growth depends largely on international trade. As an export-led growth country, a major concern of Malaysia is that a highly open economy could make its export sector vulnerable to external shocks, especially in regards to exchange rates volatility. With the global economy in such a state of flux, and the fluctuations in the currency of its major trading partners, questions arise as to whether trade can continue to be a reliable source of economic growth for Malaysia. In this paper, we aim to empirically examine this issue by studying the impact of exchange rate volatility on exports in Malaysia, a small open and fast
growing economy that depends heavily on international trade. Most of the empirical studies on this issue were conducted in the case of developed countries. Only few studies have been carried out to investigate the relationship for developing countries mainly due to the lack of sufficient time series data. This paper intends to fill this gap by empirically examine the effect of exchange rate volatility of the major trading partners of Malaysia on Malaysia’s exports.

In the case of Malaysia, there were studies have been conducted on the relationship between exports and exchange rate variability. For instance, Wong and Tang (2008) investigated the effect of exchange rate variability on Malaysia’s disaggregated electrical exports. Using a conventional export demand function, they found that foreign income and prices are important determinants of export demand for electrical exports. The findings supported the view that exchange rate variability has an adverse effect on Malaysia’s electrical exports. In their more recent study, Wong and Tang (2011) examined the effects of exchange rate variability on export demand for semiconductors; the largest sub-sector of electronics industry in Malaysia. Similarly, they found that the variability of real exchange rate has some effect on semiconductor exports in both the long run and the short run. In both studies, the exchange rate variability was measured based on the moving-average of standard deviation of real effective exchange rate.

In many empirical studies, moving average of standard deviation is the most commonly used measures for exchange rate volatility (for example, in Fountas & Aristotelous, 1999; Bredin, et al., 2003; and de Vita & Abbott, 2004). Such measures, however, have been questioned on the ground that they lack a parametric model for the time varying variance of exchange rates. Moreover, as assessed by Pagan and Ullah (1998), the measures are likely to suffer from measurement error problem. Recently, an alternative volatility measure was used with increasing frequency, which did not suffer from this shortcoming was based on autoregressive conditional heteroscedasticity (ARCH) model introduced by Engle (1982) and its extended versions (for example, by Kroner & Lastrapes, 1993; Caporale & Doroodian, 1994; Lee, 1999; Sukar & Hassan, 2001; and Choudry, 2005). Thus, this paper also intends to add to the existing empirical studies on the relationship between exports and exchange rate volatility in Malaysia by measuring exchange rate volatility using GARCH models, and covering four major trading partners; the United States (US), the United Kingdom (UK), Japan and Singapore. The rest of the paper is organized as follows, Section 2 reviews the literature, Section 3 introduces the data and methodology, Section 4 presents the findings, and Section 5 conclusion.
2. Literature Review

Increase in the volatility of exchange rates has triggered a lot of theoretical and empirical studies in this area. Majority of the studies were focused on the channel through which increased in exchange rate volatility could affect the real economy, especially on the trade flows. However, both theoretical and empirical studies produced inconsistent results. A number of theoretical models recommended that the impact of exchange rate volatility on trade may be positive or negative depending on the assumptions made with respect to risk preferences, the availability of capital markets, and the time horizon of trade transactions (Ethier, 1973; Hooper & Kohlhagen, 1978; De Grauwe, 1988; Franke, 1991; Viaene & de Vries, 1992; and Sercu & Vanhulle, 1992).

A similar scenario took place at the empirical level, where the findings on this issue were also inconclusive. The results from empirical studies have provided a wide range of evidences. Some studies found a robust negative relationship between exchange rate volatility and trade, while others did not. For instance, a study by Chowdhury (1993), Arize (1996), Arize, et al. (2000), and de Vita & Abbot (2004) provided evidence that increased exchange rate volatility has an adverse effect on trade due to risk-adverse traders. In contrast, Asseery & Peel (1991), Holly (1995), Bredin, et al. (2003), and Klien & Shambaugh (2006) found in their studies that exchange rate volatility affects trade positively. Some of empirical studies failed to find any robust relationship between exchange rate volatility and trade. For example, Boug & Fagereng (2010) found no evidence suggesting that export performance of Norwegian firms has been significantly affected by exchange rate uncertainty. Other studies that found exchange rate volatility do not have an impact on the level of trade were Hondroyiannis, et al. (2008), and Baun & Caglayan (2010).

From the theoretical point of view, the impact of exchange rate volatility on trade volume is ambiguous. The standard theoretical argument that exchange rate volatility may hinder the flow of international trade centred on the notion that exchange rate volatility represents uncertainty and will impose costs on risk adverse commodity traders. However, Brollet, et al. (2006), who studied optimum production decisions by an international firm using portfolio theory, argued that an increase in exchange rate risk could have either negative, positive or neutral impact on trade. The impact depends upon the elasticity of risk aversion with respect to the standard deviation (or the mean) of the firm’s random profit.

Chit, et al. (2010) examined the real exports of five emerging East Asian economies among themselves, as well as to thirteen industrialized countries using gravity models and co-integration techniques. They found evidence that exchange rate volatility has a negative impact on the exports
of the emerging East Asian economies. They also tested the impact of exchange rate volatility of third countries to establish whether a rise in exchange rate volatility between the importing country and other exporting countries encouraged bilateral exports between two trading partners. Their findings indicated that both absolute volatility and relative volatility are important for bilateral export flows of emerging East Asian economies. Ultimately, they concluded that exchange rate volatility in East Asian economies has a significant negative impact on export flows to the world market. Ozturk and Kalyoncu (2009) applied similar techniques to another six countries, and found that exchange rate uncertainty exerted a significant negative impact on trade for the Republic of Korea, Pakistan, Poland, and South Africa, but a positive effect for Turkey and Hungary. Arize, et al. (2000), in their study, investigated the impact of exchange rate volatility on export demand for thirteen least developed countries. They found a negative relationship between volatility and exports, both in the short- and long-run. Volatility seems to be experienced by least-developed countries even more as forward markets are not accessible to many of them, limiting their ability to hedge against the main currency’s movement and increasing their traders’ risk aversion.

Caglayan and Di (2010) examined the effect of real exchange rate volatility and sectoral trade between the United States and its top thirteen trading partners. They found that exchange rate volatility does not systematically affect sectoral trade flows. Furthermore, any negative effects of exchange rate volatility often tend to be offset by opposite impacts of income volatility. Peridy (2003) showed that the impact of exchange rate volatility on export of G-7 countries varies considerably depending on the industry covered and the market. Peridy found negative effects for exchange rate volatility, but for some countries and sectors these are not statistically significant. Hondroyiannis, et al. (2008) used a sample of 123 industrialized countries, for which they failed to find a significant effect and concluded that the finding of a significant and negative impact of volatility is attributable to specification biases. Baun and Caglayan (2010) concluded that exchange rate volatility does not have an impact on the level of trade but they do find a robust positive link to the volatility of bilateral trade flows.

Some literatures on the effects of exchange rate volatility have focused on the sectoral analysis, with a view to eliminating the aggregation biases deriving from the use of total exports data. Wang, et al. (2002) demonstrated that temporal aggregation dampens exchange rate variability, which makes identifying any true trade-risk relationship more difficult. Furthermore, since trade contracts in many sectors include agreement for delivery in less than 90 days, even quarterly frequency data may be aggregating trade flows excessively to identify short-term fluctuations in response to
predicted changes in exchange rate levels of volatility. Correcting for these weaknesses, Wang and Barrett (2007) looked at the effects of exchange rate volatility on trade in eight sectors between the United States and Chinese Taipei over the period between 1989 and 1998, and found that volatility affects agricultural flows, but not those in other sectors. The hypothesis that agricultural trade is more sensitive to long-run exchange rate uncertainty than other sectors was also found in a study by Cho, et al. (2002) using a panel of ten OECD countries over the period between 1974 and 1995.

Bryne et al. (2008) considered the impact of exchange rate volatility on the volume of bilateral US trade (both exports and imports) using sectoral data. They found that separating trade into differentiated goods and homogeneous goods resulted in the most appropriate sectoral division. Exchange rate volatility was found to have a robust and significant negative effect across sectors, and it is strongest for export of differentiated goods. Bahmani-Oskooee and Hegerty (2008) looked at the impact of increased exchange rate volatility since 1973 on the US-Japan bilateral trade. They used disaggregated data for 117 Japanese industries from 1973 to 2006. They found that in the short-run, some industries are influenced by exchange rate volatility, although this effect was often ambiguous. In the long-run, trade shares of most industries are relatively unaffected by exchange rate uncertainty, while some industries experience a relative shift in their proportion of overall trade.

3. Methodology

3.1 Model Specification

The standard I export demand is a function of world income and the export price of a home country relative to the world export price. This paper extends the standard specification of the demand for exports by further incorporating exchange rate volatility. The specification is in-line with the previous studies (for example, Azrize, et al., 2000; Abbott, et al., 2001; Bredin, et al., 2003) that estimated trade equations with exchange rate volatility as one of the explanatory variables in the equation. Using a conventional export demand function with an addition of a measure of exchange rates volatility, the long-run export demand can be written in log-linear form as

\[
\log X_t = \alpha_0 + \alpha_1 \log GDP_t^f + \alpha_2 \log EXC_t + \alpha_3 \log V_t + U_t
\]  (1)

where, \(X_t\) is real export at time \(t\); \(GDP_t^f\) is a measure of real foreign economic activity at time \(t\); \(EXC_t\) represents the real exchange rate at time \(t\); and \(V_t\) is the measure of exchange rates volatility.
at time $t$. Theoretically, one would expect that increase in real GDP of trading partners results in a greater volume of exports to those partners. While, real exchange rate depreciation may lead to an increase in exports due to the relative price effect. The relationship between the volatility of the real exchange rate and the real exports is ambiguous. Thus, it is expected that $\alpha_1$ and $\alpha_2 > 0$; and $\alpha_3 < 0$.

In this paper, the definition of the real exchange rate is made based on the purchasing power parity. According to the purchasing power parity, the real exchange rate can be defined in the long run as the nominal exchange rate ($e$) that is adjusted by the ratio of the foreign price level ($P^f$) to the domestic price level ($P^d$). Mathematically, it can be show as

$$EXC = e \frac{P^f}{P^d}$$  \hspace{1cm} (2)

Meanwhile, with regard to volatility, this paper focuses on nominal exchange rate variability (as opposed to real exchange rate variability), which owes to the fact that the nominal rate is a priori the monetary instrument that policy makers can directly affect. In practice, however, nominal and real exchange rates move very closely; so, learning about the implications of nominal variability amounts to learning about the implications of real variability (Tenreyro, 2007).

### 3.2 The Measure of Exchange rates Volatility

In this paper, the conditional volatility in exchange rate is estimated through GARCH models. The GARCH models introduced by Bollerslev (1986) have been the most commonly used time series models in the recent literature for studying volatility. The appeal of the models is its ability to capture both volatility clustering and unconditional return distribution with heavy tails. Since the GARCH methodology is well known, this paper will only provide a brief description of the models and the application to the variables studied. In general, the GARCH model for exchange rates in this study can be presented as follow:

$$y_t = \lambda_0 + \sum_{i=1}^{k} \lambda_i y_{t-i} + \epsilon_t ; \hspace{1cm} \epsilon_t \sim N(0, \sigma_t^2)$$  \hspace{1cm} (3)

$$\sigma_t^2 = \varphi + \sum_{i=1}^{q} \alpha_i \epsilon_{t-i}^2 + \sum_{j=1}^{p} \beta_j \sigma_{t-j}^2$$  \hspace{1cm} (4)

Equation (3), the conditional mean equation, is an autoregressive process (AR) of order $k$, AR($k$). In the estimation process, the optimal lag length ($k$) is determined on the basis of minimum
SIC (Schwarz’s Bayesian Information Criterion). Parameter $\lambda_0$ is the constant; $k$ is the lag length; and $\varepsilon_t$ is the heteroskedastic error term with its conditional variance ($\sigma_t^2$). Equation (4) is the conditional variance equation specified as the GARCH($p$, $q$) model where $p$ is the number of ARCH terms, and $q$ is the number of GARCH terms. Several literature show that (for instance, study by Akgiray, 1989; Connoly, 1989; Bera and Higgins, 1993; Floros, 2009), a simple GARCH(1,1) model is parsimonious and generally gives significant results. Therefore, this paper will use AR($k$)-GARCH(1,1) models to estimate the predicted volatility of the exchange rates studied.

3.3 Data

Data for all variables are monthly observations spanning the time period from January 2000 to August 2012, making a total of 152 observations. The focus is on country based analysis, in which Malaysia’s total real export to the United States, the United Kingdom, Japan and Singapore will be examined separately. These four countries are selected based on the fact that they are Malaysia’s major trading partners. All data on trades were obtained from Malaysia Department of Statistics database. Four exchange rates namely, RM/USD (Ringgit Malaysia per unit of United States Dollar), RM/JPY (Ringgit Malaysia per unit of Japanese Yen), RM/SD (Ringgit Malaysia per unit of Singapore Dollar), and RM/GBP (Ringgit Malaysia per unit of Great Britain Pound) will be used in the respective regression. Data on exchange rates were obtained from the Malaysia Central Bank database. In this paper, Industrial Production Index (IPI) was used as proxied for foreign economy activity (GDP). The IPI data for the US, the UK and Japan were obtained from OECD’s database; while for Singapore, the data were collected from Economic Development Board of Singapore database. In calculating the real exchange rate, Consumer Price Index (CPI) was used as proxied for the respective foreign price level as well as for domestic price level. The sources of data for CPI were from OECD’s database (for the US, the UK and Japan), Economic Development Board of Singapore, and Department of Statistics, Malaysia. The base year for the IPI and CPI is 2005. In the estimation process, all data are transformed into logarithm, and estimated using statistical software eView.

4. Findings

4.1 Exchange Rates Volatility

The analysis began with estimation of exchange rates volatility using GARCH(1,1). Table 1 presents the parameter estimates and their corresponding p-value of AR(1)-GARCH(1,1) model for the exchange rates studied. It can be seen that the exchange rates between Malaysia Ringgit and the United States Dollar (RM/USD), and Great Britain Pound (RM/GBP) follows a GARCH(1,1)
model. On the other hand, we do not have evidence that the exchange rates between Malaysia Ringgit and Japanese Yen (RM/JPY), and Singapore Dollar (RM/SD) follows a GARCH(1,1) model. This indicate that RM/JPY and RM/SD do not have a GARCH(1,1) effect. However, while experimenting with the high order GARCH model, we found a significant AR(2)-GARCH(3,2) effect for RM/JPY, while a significant AR(2)-GARCH(2,2) effect for RM/SD.

The diagnostic statistics for the respective GARCH(1,1) models are also presented in the Table 1. The Box–Ljung (Q) statistic of the residuals at 36 lags shows no evidence of autocorrelation, indicating that all mean equations are correctly specified. Results from Q² tests also showed that no autocorrelation up to order 36 for standardized residuals squared in all models indicating that all variance equation are correctly specified. Lagrange multiplier (LM) test for the presence of ARCH disturbances is also presented. The LM tests showed that the null hypothesis for no ARCH errors is accepted indicating there should be no ARCH left in the standardized residuals. Therefore, it is concluded that the fitted GARCH(1,1) model is reasonably well specified. Based on the estimated models in Table 1, we calculated the volatility of the exchange rate being studied. The volatility series are presented in Figure 1.

Table 1: Estimation results of GARCH (1,1) model for exchange rates and diagnostic statistics

<table>
<thead>
<tr>
<th>Exchange Rates</th>
<th>RM/USD</th>
<th>RM/GBP</th>
<th>RM/JPY</th>
<th>RM/SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Equation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\lambda_0$</td>
<td>1.2005</td>
<td>1.7194</td>
<td>1.2467</td>
<td>0.9076</td>
</tr>
<tr>
<td>(0.7057)</td>
<td>(0.0000)*</td>
<td>(0.0000)*</td>
<td>(0.0000)*</td>
<td></td>
</tr>
<tr>
<td>$\lambda_1$</td>
<td>0.9148</td>
<td>0.9885</td>
<td>0.9701</td>
<td>0.9913</td>
</tr>
<tr>
<td>(0.0000)*</td>
<td>(0.0000)*</td>
<td>(0.0000)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\lambda_2$</td>
<td>0.0843</td>
<td>0.0843</td>
<td>0.0843</td>
<td>0.0843</td>
</tr>
<tr>
<td>(0.5705)</td>
<td>(0.5705)</td>
<td>(0.5705)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variance Equation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\varphi$</td>
<td>1.45E-07</td>
<td>8.16E-05</td>
<td>0.0011</td>
<td>0.0001</td>
</tr>
<tr>
<td>(0.0785)</td>
<td>(0.2790)</td>
<td>(0.0001)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\alpha_1$</td>
<td>0.1348</td>
<td>0.1461</td>
<td>0.1958</td>
<td>-0.0424</td>
</tr>
<tr>
<td>(0.0007)*</td>
<td>(0.0152)*</td>
<td>(0.1229)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\beta_1$</td>
<td>0.9564</td>
<td>0.7239</td>
<td>-0.3702</td>
<td>-0.3481</td>
</tr>
<tr>
<td>(0.0000)*</td>
<td>(0.0000)*</td>
<td>(0.1283)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

www.globalbizresearch.com
Diagnostic

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Q(36)</td>
<td>28.037</td>
<td>19.668</td>
<td>26.650</td>
<td>16.892</td>
</tr>
<tr>
<td></td>
<td>(0.754)</td>
<td>(0.983)</td>
<td>(0.844)</td>
<td>(0.966)</td>
</tr>
<tr>
<td>Q²(36)</td>
<td>4.1379</td>
<td>23.495</td>
<td>26.677</td>
<td>25.010</td>
</tr>
<tr>
<td></td>
<td>(1.000)</td>
<td>(0.931)</td>
<td>(0.843)</td>
<td>(0.894)</td>
</tr>
<tr>
<td>LM</td>
<td>5.19E-06</td>
<td>0.0156</td>
<td>0.0349</td>
<td>0.0019</td>
</tr>
<tr>
<td></td>
<td>(0.9981)</td>
<td>(0.9007)</td>
<td>(0.8519)</td>
<td>(0.9844)</td>
</tr>
</tbody>
</table>

*Significant at 5% level
a AR(2)-GARCH(1,1)

Figure 1: The conditional volatility of the exchange rates calculated from GARCH(1,1)
4.2 Estimation Results

After calculating the exchange rate volatilities, the next step is to estimate the regression model as specified in Equation 1. In the regression analysis, the export functions of Malaysia with its four major trading partners were estimated separately. Results from the regression are presented in Table 2. In general, estimation results in Table 2 show that the level of economy activity of the importing countries (GDP) and the real exchange rate are two important factors that influence Malaysia exports. In all cases, it is found that the relationship between the level of economy activity of the countries studied and Malaysia’s export to the particular country are significance at 5% level. Meanwhile for the real exchange rate, only in the case of Singapore, the variable is not statistically significant. With regard to the exchange rate volatility, the regression results were found vary from country to country.

Specifically, in the case of Malaysian export to the US, we found that it is significantly related to all variables used in the regression. As expected, both the level of the US’s economy activity and the real exchange rates are positively related to Malaysia’s total export to the US. In contrast, we find the relationship between Malaysia total trade to the US and the volatility in the exchange rates is negative. With regards to the UK, regression results show that only the level of the UK’s economy activity and the real exchange rate significantly affect Malaysia’s total export to the UK. Estimation result shows that exchange rates volatility is negatively related with Malaysia total export to the UK. However, the relationship is not statistically significant at 5% levels.

All dependent variables used in the regression of Malaysia total export to Japan are significant at 5% levels. But, in contrast with the Malaysia export to the US, the relationship between the volatility of RM/JPY and Malaysia total export to Japan is positive. Finally, in the case of Malaysia total export to Singapore, we found that only the level of Singapore’s economy activity is significant at 5% levels. The regression results show that both exchange rate variables; the real exchange rate (RM/SD) and exchange rate volatility are not statistically significant. We also found that the coefficient of exchange rate volatility is negative.

The regression results show that the impacts of exchange rate volatility on Malaysia export varies. We found that exchange rate volatility has a significant impact on the Malaysian total export to the US and Japan. However, the impacts also vary, where in the case of US, it is negative; while for Japan the impact is positive. The result indicated that increase in the volatility of the exchange rate between Malaysia Ringgit and US dollar will reduce Malaysia total export to the US. On the other hand, an increase in the volatility of exchange rate between Malaysia Ringgit and Japanese
Yen will increase Malaysia’s total export to Japan. From the size of the estimated coefficients, we can also conclude that Malaysia’s export to Japan is more sensitive to the exchange rate fluctuation in comparison to Malaysia’s export to US. Meanwhile, with respect to the Malaysian export to the UK, we did not find any evidence to support a hypothesis that exchange rate volatility can influences Malaysia’s export to the UK.

Table 2: Estimation results of Malaysia export regression models to the US, UK, Japan and Singapore

<table>
<thead>
<tr>
<th>Export Variables</th>
<th>Constant (X)</th>
<th>Economy Activity (GDP)</th>
<th>Real Exchange rates (EXC)</th>
<th>Exchange Rates Volatility (V)</th>
<th>R-Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia Total Export to the United States</td>
<td>-22.0098 (0.0000)*</td>
<td>4.8817 (0.0000)*</td>
<td>2.9717 (0.0000)*</td>
<td>-1.5642 (0.0268)*</td>
<td>0.7952</td>
</tr>
<tr>
<td>Malaysia Total Export to the United Kingdom</td>
<td>-11.4250 (0.0000)*</td>
<td>2.7119 (0.0000)*</td>
<td>0.5431 (0.0000)*</td>
<td>-0.0836 (0.8126)</td>
<td>0.7849</td>
</tr>
<tr>
<td>Malaysia Total Export to Japan</td>
<td>-4.5291 (0.0000)*</td>
<td>1.4014 (0.0000)*</td>
<td>1.4899 (0.0000)*</td>
<td>103.6237 (0.0304)*</td>
<td>0.4907</td>
</tr>
<tr>
<td>Malaysia Total Export to Singapore</td>
<td>2.3043 (0.0000)*</td>
<td>0.4115 (0.0000)*</td>
<td>0.1009 (0.7888)</td>
<td>0.9965 (0.3572)</td>
<td>0.4267</td>
</tr>
</tbody>
</table>

*Significant at 5% level

5. Discussion and Conclusion

This paper empirically examines the impacts of exchange rates volatility on export in case of Malaysia, a small open, developing economy that heavily depends on export sector. We investigate the effects of volatility of exchange rates between Ringgit and four major currencies (USD, GBP, JPY and SD) on the total export of Malaysia to the respective countries, the United States, the United Kingdom, Japan and Singapore. The relationship between exchange rates volatility and export was estimated using standard export demand regression consists of exchange rates volatility as one of the independent variable together with two other variables; the level of economy activity of importing countries, and the real exchange rate.

The results from regression analysis showed that only in the case of Malaysian export to the US and Japan, is the exchange rates volatility significant. The impact of exchange rate volatility, however, varies between these two countries where the impact is negative in case of the US, while
for Japan, it’s positive. The negative relationship in the case of US may be due to the lack of hedging facilities in Malaysia financial market. As a result, a rise in the exchange rate volatility that increases firms’ cost of risk bearing will reduce trade since firms do not have a sufficient means of hedging opportunities in a future market. The existence of well-developed financial markets should allow agents to hedge exchange-rate risk, thus dampening or eliminating its negative effects on trade. On the other hand, if the exchange rate volatility lowers future profitability, the firm may attempt to compensate by increasing production and sales, resulting in a larger quantity of trade. This may explain why there is a positive relationship between exchange rate volatility and export in the case of bilateral trade between Malaysia and Japan.

With regard to the Malaysia’s export to UK and Singapore, this paper did not find evidence to support the argument that exchange rates volatility is an important factor in influencing Malaysia export to the UK and Singapore. There are few reasons that could explain why Malaysia’s export to the UK and Singapore is not significantly related with the volatility of the exchange rate. Historically, trade relations between Malaysia, the UK and Singapore were established a very long time ago, long before Malaysia gained its independency. Therefore, the relationship of firms in these countries could be considered as unique that goes beyond the factor of exchange rate alone. On top of this, the geographical location of Malaysia, which is very close to Singapore, may also contribute to the uniqueness in trade relationship between these two countries. Singapore and the UK are also among the largest source of foreign direct investment to Malaysia. Therefore, high percentage of Malaysia exports to these two countries could actually occur from their own firms that based in Malaysia. The findings from the regression analysis indicate that the impact of exchange rates volatility on Malaysia export is ambiguous and vary from country to country.

In conclusion, the effects of exchange rate volatility on trade depend on the interactions among many different variables such that the final result is indeterminate. Thus, there are a wide and conflicting variety of empirical results on top of no consensus at all on the theoretical relationship between exchange rate volatility and trade. The mixed findings from regression analysis of this study clearly indicate that the nexus between export performance and exchange rate volatility is far from conclusive. In case of Malaysia’s export to the US and Japan, we found that it is an important factor, but in other cases (Malaysia export to UK and Singapore), it is not. There is a case where the impact is negative (Malaysia export to US), but in other case (Malaysia export to Japan) it is positive. Due to this, more detailed studies are critically needed, especially in order to explain the differences in the impacts of exchange rates volatility between countries. However, from the policy
implications point of view, it’s is very important for Malaysia to make sure the stability of its exchange rate. This is to ensure a steady growth of its export sector which is vital for the long run economic growth of the country. In addition, Malaysia also needs to develop its hedging facilities in order to reduce the exchange-rate risk.

References


