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Effect of International Trade to Economic Growth in Malaysia

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Abstract

The main purpose of this study is to examine the dynamic relationship between various variables in the system of equations formed in the long-term and short-term on economic growth. This empirical study utilizing the multivariate approach which includes Johansen Juselius and Vector Error Correction Model (VECM). Through the econometric method used, this study is able to detect the existence of long-term and short-term relationship and the strength of each variable can be identified. The empirical study has proven that international trade plays an important role in generating economic growth where Gross Domestic Product (GDP) acts as an endogenous variable in the long-term system of equations for both models, Model 1 - Export and Model 2 - Import. In addition, the effect of interaction variables in both models which is X_REER ($ECT = 0.005041$) in Model 1 - Export and M_REER ($ECT = 0.011019$) in Model 2 – Import were positive and significant. Besides, the results showed bidirectional causality between interaction variables and economic growth in the long-term and also in the short-term. This means international trade is very sensitive to changes in exchange rate. However, because international trade is a major source of national income, any shocks in exchange rate still can be overcome by involving the interaction variable. Hence, the influence of interaction variables between international trade which is export and import with the exchange rate should be taken simultaneously in the implementation of policies to generate more rapid economic growth in the future.

Keywords: Interaction Variables, Multivariate Johansen Juselius, Vector Correction Vector Model (VECM), International Trade, Economic Growth.

Introduction

An analysis of economic growth is one of the key aspects of the macroeconomic theory. Basically, economic growth analysis shows the long-term economic activity of a country. For the five years preceding 1996, the growth of the Malaysian economy showed an average GDP growth of 9.5 percent per annum with a low inflation rate of 3.5 percent and an unemployment rate of only 2.5 percent in 1996 (World Bank, 2018). Therefore, Malaysia is known as one of the economies that grew rapidly

before the Asian financial crisis in July 1997, comparable to the developed economies of East Asia such as Japan, South Korea, Taiwan and Hong Kong (Ishak & Nor Aini, 2009).

However, the Asian financial crisis in July 1997 has given a big surprise to Malaysia's economic growth to a negative level. This financial crisis is not only give a big impact on Malaysia and other Asian countries but also effect on other macroeconomic variables such as investment, services, and trade between countries. This is because the economy of other world countries has a direct relationship with the economies of Asian countries. The Malaysian economy rebounded the following year with the Gross Domestic Product (GDP) rising from 6.1 percent in 1999 to 8.9 percent in 2000 after Bank Negara Malaysia (BNM) introduced a flexible fiscal and monetary policy approach. The fiscal policy taken by the government to deal with the crisis is to use the expanding fiscal policy. This policy focuses on two mechanisms involving an increase in government spending on certain sectors and tax cuts. Subsequently, through monetary policy, the government has set the Ringgit exchange rate to one US dollar of RM3.80 per dollar (Bank Negara Malaysia, 1998).

In 2009, the Malaysian economy experienced a 2.5 percent decline in the effects of the global financial crisis that took place in 2008. But in 2010, the value of Gross Domestic Product (GDP) has again risen as a result of the implementation of fiscal policy through increased government spending, especially in operating expenditure and development in line with the 2010 Budget and monetary policy provisions through the Overlapping Policy Rate Constraints (OPR) to avoid financial imbalances, unnecessary risks, preventing financial transfers from being impaired and can jeopardize long-term growth capabilities (Wijaya, Noraasiah & Liew, 2011). The Malaysian economy remains resilient in 2015 despite the challenging economic environment with a moderate growth of 5 percent as compared to 6 percent in 2014. This growth is driven by continued growth in private-driven domestic demand and rising moderate external demand in half second year of 2015. In 2016, the Malaysian economy continues to grow, but at a moderate rate of 4.2 percent (Bank Negara Malaysia, 2016).

Nowadays, economic growth is very important in determining the future development of a country. This is because growth and development are two concepts that are interconnected with each other. A country can grow without development but to develop a country requires growth. Thus, the international trade plays an important role in economic growth and development. Based on sources from the Ministry of International Trade and Industry of Malaysia (2017) Malaysia's position in world goods trade in 2017 is the 25th largest exporter, the 26th largest importer and 25th largest trading nation. Economic growth can lead to export growth as it leads to increased skills and technology, but it can also realize a scale economy (Lancaster, 1980; Krugman 1984; Helpman & Krugman, 1985). Exports play an important role in marketing products and services that generate income in the country. Volume for 2017 grew by 19.4 percent to reach RM1.774 trillion with total exports recording a high record of RM935.39 billion, an increase of 18.9 percent compared to 2016. Import also recorded an increase of 19.9 percent to RM838.14 billion. Export growth was driven by manufacturing goods which registered an increase of 18.9 percent to RM767.64 billion or 82.1 percent of the total exports (Department of Statistics Malaysia, 2017).

Based on previous studies, the country's economic growth is influenced by various factors, including investment, exports, imports, services, finance, government spending, and inflation. However, only a few factors have led to economic growth, in other words having a positive impact with economic growth which is export (Goh, Sam & McNown, 2017; Sunde, 2017; Ee, 2016), import (Jawaid, 2014; Mazumdar, 2001), investment (Anwar & Nguyen, 2010; Antwi et al, 2013; Omri, Nguyen & Rault, 2014), services (Seetanah, 2011; Salmani, Panahi & Razzaghi, 2014), and finance (Goldsmith, 1969; Beck & Levine, 2004; Beck, Levine & Loayza, 2000). In this study, export and import factors are only taken into account as both factors have a strong influence in economic growth where export earnings and import spending are relatively large in Gross National Product (GNP) and this indicates Malaysia is country that depends on international trade.

Generally, previous studies only examine the direct effects of international trade on economic growth. However, studies examining the influence of interaction between international trade and exchange rate on economic growth in Malaysia are also important because in international economic studies, if a country relies on international trade like exports and imports as a result of the country it will be exposed to external influences, such as exchange rate fluctuations. This is because exports and imports have strong relationships with exchange rate. According to Ummi and Tamat (2012) stable exchange rates can ensure stable economic development and growth. Furthermore, a stable exchange rate is important for developing countries as it affects the influx of foreign direct investment to countries, especially through international trade. Hence, this study includes interaction variables between export and import with exchange rate. The study involving the formation of interaction variables has been carried out by previous researchers such as Norimah et al. (2017), Antonakakis, Dragouni and Filis (2015), Moradbeigi and Law (2017), Ductor and Grechyna (2015), and Choong et al. (2010). However, in contrast to previous studies, the purpose of the interaction variables included is to study the effect of simultaneous linkages to economic growth. This is because this relationship is expected to help economic growth to be more competitive. In addition, this study also aims to identify the dynamic relationship between various variables in the system of equations formed in the long-term and short-term over economic growth in Malaysia.

Literature Review

This study is particularly relevant to see the relationship between international trade which is export and import with economic growth through the formation of interaction variables in Malaysia. Selected recent studies have been reviewed to look at the similarities and differences in comparing the studies that will be conducted with previous studies that have been produced.

The role of export in boosting economic growth has attracted the attention of many researchers (Ismail & Harjito, 2003; Shihab, Soufan & Abdul Khaliq, 2014; Sahoo et al., 2014) as they regard exports as an engine for economic growth (Singh & Saeed, 2010; Saleem & Sial, 2015). Exports contribute to the economy in three ways. First, it is an exchange rate source that helps to increase the balance of payments. Second, it acts as the source of employment creation and the third, it helps the state to enjoy scale economies and also accelerate technological advances in production (Ismail & Harjito, 2003; Ray, 2011).

Syed and Mohd Zaini (2017) in his study to study the influence of the banking crisis, the currency crisis and the global financial crisis on the correlation between export and economic growth in China have shown a positive and significant impact between export of goods and services on the economic growth in the short-term and long-term, while the banking crisis and currency crisis negatively impact on economic growth. This means the positive impact of the export of goods and services on growth is not significant during the banking crisis and currency crisis. The currency crisis has a higher impact on export than the banking crisis. However, during the global financial crisis export had a positive and significant impact on economic growth in China, this suggests that the global financial crisis did not significantly affect export growth drastically.

Besides, Goh, Sam, and McNown (2017) have conducted a study to determine whether there is a long-term relationship between foreign direct investment, export and economic growth in selected ASEAN countries. This study uses annual data from 1970 to 2012 and analyses data using the newly developed co-integration test and Bootstrap Autoregressive Distributed Lag (ARDL). The findings suggest that there is a short-term relationship between export and economic growth in China, Hong Kong, Indonesia, Japan, Malaysia, Philippines, Taiwan, and Thailand. This is in line with the analysis of the study conducted by Sunde (2017) to study economic growth as a function of foreign direct investment and export in South Africa. This study uses Autoregressive Distributed Lag (ARDL) and the results show that there is bi-directional causality between economic growth and export in the short-term.

Next, endogenous growth models show that imports can serve as a channel for long-term economic growth as it provides domestic firms with the necessary access to intermediate factor and foreign technology (Coe and Helpman, 1995). Growth in imports can be a medium for the transfer of foreign Research and Development (R & D) knowledge that increases growth from developed countries to developing countries (Lawrence & Weinstein, 1999; Mazumdar, 2001).

The analysis of the studies conducted by Makun (2017) in Fiji Islands using time series quantitative technique and annual data from 1980 to 2015 to determine the impact of external factors such as imports, foreign direct investment, and remittances on economic growth found that all external factors had an impact on economic growth in the short-term. However, in the long run, imports show a negative impact on economic growth. In contrast to Saaed and Hussain (2015) which is a study conducted in Tunis using the Johansen Co-integration approach suggests that imports have long-term relationships with economic growth.

Furthermore, Khan et al. (2012) have conducted studies on export, import and economic growth in Pakistan. This study used the Granger Causality and Co-integration test to determine the long-term relationship between economic growth, export, and import for the period 1972 to 2009. The results of the study showed export and import are part of an important factor in economic growth in Pakistan. Similarly, the results of the Pistoreshi and Rinaldi (2012) which examined the relationship between real export, real import and real GDP in Italy also show that during the period

1863 to 1913 there was strong evidence for Import Led Growth (ILG) and Growth Led Export (GLE), which is the growth of imports led to GDP growth and subsequently led to export growth.

Economic stability in a country has a dependence on the stability of the exchange rate. Stability of exchange rate plays an important role as it affects the export and capital flows of a country. Increase in the exchange rate (lowering domestic currency) for example will cause local goods to be cheaper than foreign goods, hence the demand for high-quality goods will also increase exports (Abdul Aziz, 2012).

According to Kutan and Dibooglu (1998), one of the methods to stabilize the local economy and reduce the inflation rate is through the exchange rate. This is because the exact exchange rate setting will have a good impact on the economic growth of a country. This can be seen during the financial crisis, the 1997/1998 Asian financial crisis and the 2008 global financial crisis that hit many countries including Malaysia until the economic recession where unemployment rates rose and bankruptcy was due to instability in exchange rates. Consequently, exchange rate stability is important as it drastically affects the economy of a country.

Habib, Mileva, and Stracca (2017) studied the effect of movements in real foreign exchange rates on economic growth from 150 countries in Bretton Woods. This study uses annual data from 1970 to 2010 by analyzing data using the Ordinary Least Square (OLS) regression method. The results showed positive and significant effects of an actual decline in real per capita growth in the average of five years. In conclusion, foreign exchange rates are important for the economic growth of developing countries, but not for developed countries. This conclusion is confirmed and reinforced by Rodrik (2008).

Methodology

Sources of data

The economic growth in this study is proxy by real Gross Domestic Product (GDP) per capita while for export (X) and import (M) respectively represented by the real export and import of goods and services. Subsequently, for exchange rate is represented by real effective exchange rate (REER). Data for GDP, X, and M are derived from the World Bank while data for REER variables is collected from the International Monetary Fund (IMF). This study used high frequency data which is monthly time series data for a period of 39 years from January, 1979 to December, 2017, which included some significant events such as the pre-crisis period of the Asian financial crisis (1979 to June 1997), during the crisis (July 1997 to September 1998), and the period of recovery or after the crisis (October 1998 to December 2017). Therefore, the dummy variable (DUM) is included in the analysis to capture for the effects of a particular economic crisis like the 1997/998 Asian financial crisis which is before and after the crisis represented by zero (0) value and during the crisis represented by one (1) value. All data are transformed into logs for analysis purposes.

Model Specification

The model in this study was based on the demand model and aggregate supply by Keynes (1936) and from other studies such as Norimah, Dayang and Emilda (2016), Hsiao and Hsiao (2006) and Goh, Sam and McNown (2017). Therefore, the basic functions used by Keynesian are as follows:

$$GDP_t = f(I_t, X_t, M_t) \quad (3.1)$$

From function (3.1), only X and M variables are taken into account for representing international trade while variable I will be removed from function (3.1). In addition, based on Umami and Tamat (2012) as well as Norimah and Podivinsky (2013) states that the exchange rate (REER) also affects international trade. As such, exchange rate variables are included in the measurement model. Hence, the function (3.1) can be written as follows:

$$GDP_t = f(X_t, M_t, REER_t) \quad (3.2)$$

However, the function (3.2) shows that economic growth in terms of real GDP is likely to be affected by interruptions or surprises (Choong, Zulkornain & Liew, 2005). Hence the function (3.2) is modified to represent a certain economic crisis by incorporating dummy variables (DUM) which is zero (0) values represents before and after the Asian financial crisis period and one (1) value represents during the crisis. Functions (3.2) can be written as follows:

$$GDP_t = f(X_t, M_t, REER_t, DUM_t) \quad (3.3)$$

and the log-linear equations are as follows:

$$\ln GDP_t = \alpha_0 + \alpha_1 \ln X_t + \alpha_2 \ln M_t + \alpha_3 \ln REER_t + \alpha_4 \ln DUM_t + \varepsilon_t \quad (3.4)$$

which is a GDP_t Gross Domestic Product, X_t is an export, M_t is an import, $REER_t$ is a real effective exchange rate, DUM_t is the dummy variable of Asian financial crisis, α_0 is a constant, $\alpha_1 \alpha_2 \alpha_3 \alpha_4$ is a parameter, \ln is a natural log, ε_t is error term and t is a time stream.

The empirical model for estimation after entering interaction variables is as follows:

Model 1 (Export)

$$GDP_t = f(X_t, REER_t, (X - REER)_t, DUM_t) \quad (3.3.1)$$

and the log-linear equations are as follows:

$$\ln GDP_t = \beta_0 + \beta_1 \ln X_t + \beta_2 \ln REER_t + \beta_3 \ln (X - REER)_t + \beta_4 \ln DUM_t + \varepsilon_{t1} \quad (3.4.1)$$

which is a GDP_t Gross Domestic Product, X_t is an export, $REER_t$ is a real effective exchange rate, $(X - REER)_t$ is an interaction variable between export and real effective exchange rate, DUM_t is a dummy 1997/1998 Asian Financial crisis, t monthly period from January, 1979 to December, 2017, β_0 is a constant, $\beta_1 \beta_2 \beta_3 \beta_4$ is a parameter, \ln is a *natural log* and ε_t is error term.

Model 2 (Import)

$$GDP_t = f(M_t, REER_t, (M - REER)_t, DUM_t) \quad (3.3.1)$$

and the log-linear equations are as follows:

$$\ln GDP_t = \beta_0 + \beta_1 \ln M_t + \beta_2 \ln REER_t + \beta_3 \ln(M_REER)_t + \beta_4 DUM_t + \varepsilon_{1t} \quad (3.4.1)$$

which is a GDP_t Gross Domestic Product, M_t is an import, $REER_t$ is a real effective exchange rate, $(M_REER)_t$ is an interaction variable between import and real effective exchange rate, DUM_t is a dummy 1997/1998 Asian Financial crisis, t monthly period from January, 1979 to December, 2017, β_0 is a constant, $\beta_1\beta_2\beta_3\beta_4$ is a parameter, \ln is a *natural log* and ε_t is error term.

Empirical Results

In this study, the unit root test using the ADF and PP test was conducted to test the accuracy of the data of the six variables studied. Based on Table 1, the findings show that the six variables are gross domestic product (GDP), exports (X), real effective exchange rate (REER), interaction between export and real effective exchange rate (X_REER), imports (M) and interaction between import and real effective exchange rate (M_REER) are non-stationary at level. So the first difference test should be done to make sure all the variables are stationary. The result of the test with the first difference in Table 2, found that all the independent variables at the first difference were stationary either according to the ADF method or the PP method. The result is a key to the implementation of subsequent tests.

After knowing the characteristics of the data are stationary, the co-integration test is done to determine the long-term relationship between the variables. Thus, the Johansen co-integration test introduced by Johansen and Juselius (1990) was conducted to determine whether there was a co-integration between the variables or not. Johansen's co-integration test showed that there is a co-integration equation at 5 percent and 1 percent levels for both test which is λ_{trace} and λ_{max} test in both model, Model 1 – Export (Table 3) and Model 2 – Import (Table 4).

Finally, VECM were conducted to test the short run relationship after the long run relationship has been established by the co-integration tests. Following the Baak (2008) approach, each explanatory variables were regressed at different lag and each lag variable that is found not significant will be omitted from the regression as shown on Table 5 and Table 6. The results suggest for the long-run equilibrium relationship among the variables and are further supported with the negative sign of the each of error terms coefficient (ECTijt-1) in each model. Also, all systems passed the diagnostic tests that was performed. Besides, the result suggests a positive relationship in the short run between GDP and all the independent variables in both model. The table also shows significant effects from the crisis dummy to GDP. Therefore, to take into account the crisis dummy in the systems is vital in order to capture for the structure break that occurred during the 1997/1998 Asian Financial crisis.

Conclusion

This study offers some new results for the GDP in Malaysia over the monthly period from January, 1979 to December, 2017. In order to capture for the short-run and long-run relationship between

the variables, this study performed the Johansen Juselius (1990) tests and Granger causality in the vector error correction framework. From these findings, we can conclude that the influence of interaction between international trade which is export and import with exchange rate should be taken simultaneously into implementation policy to generate more rapid economic growth in the future. In addition, the effect of interaction variables in both models which is X_REER in Model 1 - Export and M_REER in Model 2 – Import were positive and significant. Besides, the results showed bidirectional causality between interaction variables and economic growth in the long-term and also in the short-term. This means international trade is very sensitive to changes in exchange rate. However, because international trade is a major source of national income, any shocks in exchange rate still can be overcome by involving the interaction variable.

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APPENDIX

Table 1: Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) methods at level

Variables	ADF		PP	
	τ_u	τ_t	$Z\tau_u$	$Z\tau_t$
GDP	-0.594310	-2.392770	-0.951167	-1.770468
X	-2.044964	-0.474850	-2.885519	0.253518
REER	-1.353221	-2.088380	-1.274522	-2.124228
X_REER	-1.373750	-1.474618	-1.917254	-0.982762
M	-1.216623	-1.595866	-2.054721	-1.097293
M_REER	-1.188817	-2.752056	-1.636236	-1.895868

Note: 1. GDP = Gross Domestic Product; X = Export; REER = Real Effective Exchange Rate; X_REER = Interaction between export and real effective exchange rate; M = Import; M_REER = Interaction between import and real effective exchange rate.

2. Augmented Dickey-Fuller (ADF), τ_u is intercept; τ_t is trend and intercept. Phillips Perron (PP), $Z\tau_u$ is intercept; $Z\tau_t$ is trend and intercept.

Table 2: Augmented Dickey Fuller (ADF) and Phillips Perron (PP) methods at first difference

Variables	ADF		PP	
	τ_u	τ_t	$Z\tau_u$	$Z\tau_t$
GDP	-3.708423 (12)**	-3.708220 (12)**	-4.485775 (6)*	-4.484777 (6)*
X	-3.149722 (12)**	-3.734375 (12)**	-4.100701 (5)*	-4.443910 (6)*
REER	-20.18833 (1)*	-20.17477 (1)*	-20.20997 (6)*	-20.19556 (6)*
X_REER	-5.430472 (8)*	-5.515477 (8)*	-16.43631 (6)*	-16.45344 (5)*
M	-3.574966 (12)*	-3.653043 (12)**	-4.137875 (5)*	-4.268951 (6)*
M_REER	-4.399527 (8)*	-4.400824 (8)*	-16.25956 (10)*	-16.31322 (10)*

Note: 1. GDP = Gross Domestic Product; X = Export; REER = Real Effective Exchange Rate; X_REER = Interaction between export and real effective exchange rate; M = Import; M_REER = Interaction between import and real effective exchange rate.

2. Augmented Dickey-Fuller (ADF), τ_u is intercept; τ_t is trend and intercept. Phillips Perron (PP), $Z\tau_u$ is intercept; $Z\tau_t$ is trend and intercept. * and ** show a significant level at 1% and 5%.

3. The number in parentheses () is the number of lag according to the Akaike Information Criterion (AIC).

Table 3: Co-integration test for Model 1 – Export

Hypothesis		Trace Statistic	Critical value		Trace Statistic	Critical value	
H_0	Alternative	(λ_{trace})	5%	1%	(λ_{max})	5%	1%
$r = 0$	$r = 0$	83.48716	68.52*	76.07**	48.91574	33.46*	38.77**
$r = 1$	$r = 1$	34.57142	47.21	54.46	16.48574	27.07	32.24
$r = 2$	$r = 2$	18.08568	29.68	35.65	11.91261	20.97	25.52
$r = 3$	$r = 3$	6.173073	15.41	20.04	5.847651	14.07	18.63
$r = 4$	$r = 4$	0.325422	3.76	6.65	0.325422	3.76	6.65

Note:

Trace test (λ_{trace}) indicates 1 co-integrating

equation(s) at both 5% and 1% levels

Trace test (λ_{max}) indicates 1 co-integrating equation(s) at both 5% and 1% levels

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Table 4: Co-integration test for Model 2 – Import

Hypothesis		Trace Statistic	Critical value		Trace Statistic	Critical value	
H_0	Alternative	(λ_{trace})	5%	1%	(λ_{max})	5%	1%
$r = 0$	$r = 0$	90.69869	68.52*	76.07**	51.44365	33.46*	38.77**
$r = 1$	$r = 1$	39.25503	47.21	54.46	21.15306	27.07	32.24
$r = 2$	$r = 2$	18.10197	29.68	35.65	11.47927	20.97	25.52
$r = 3$	$r = 3$	6.622705	15.41	20.04	6.622544	14.07	18.63
$r = 4$	$r = 4$	0.000161	3.76	6.65	0.000161	3.76	6.65

Note:

Trace test (λ_{trace}) indicates 1 co-integrating

equation(s) at both 5% and 1% levels

Trace test (λ_{max}) indicates 1 co-integrating equation(s) at both 5% and 1% levels

*(**) denotes rejection of the hypothesis at the 5%(1%) level

Table 5: Granger Causality in VECM (Model 1 – Export)

Dependent variables	T test	F test (Wald Test)				
	$ECT_{(d-1)}$	ΔGDP	ΔX	$\Delta REER$	ΔX_REER	ΔDUM
ΔGDP	{-5.374111}* **		[3.269590]* * (0.0390)	[7.309235]* ** (0.0000)	[3.389511]* * (0.0346)	[45.66556]* ** (0.0000)
ΔX	{-0.000111}* **	[24.11867]* ** (0.0000)		[4.855518]* ** (0.0082)	[1.523087] (0.2078)	[17.78362]* ** (0.0000)
$\Delta REER$	{-0.013041}* **	[5.257591]* ** (0.0004)	[2.094326] (0.1244)		[3.258952]* ** (0.0001)	[19.66678]* ** (0.0000)
ΔX_REER	{0.005041}* **	[5.227283]* ** (0.0000)	[2.437145]* * (0.0340)	[5.080253]* * (0.0247)		[3.359281]* ** (0.0030)
ΔDUM	{0.004590}	[12.72821]* ** (0.0000)	[4.054901]* ** (0.0074)	[6.478547]* ** (0.0000)	[9.455129]* ** (0.0001)	

Note: 1. GDP = Gross Domestic Product; X = Export; REER = Real Effective Exchange Rate; X_REER = Interaction between export and real effective exchange rate; M = Import; M_REER = Interaction between import and real effective exchange rate.

2. All the variables in the first difference are represented by Δ . Values in { }, [], and () are respectively t-stat, Wald-test and Wald-test probabilities respectively. Signs *, **, *** are significant at the 10%, 5% and 1% level.

Table 6: Granger Causality in VECM (Model 2 – Import)

Dependent variables	T test	F test (Wald Test)				
	$ECT_{(d-1)}$	ΔGDP	ΔM	$\Delta REER$	ΔM_REER	ΔDUM
ΔGDP	{-0.000112}* **		[0.780029] (0.4590)	[6.378154]*** (0.0000)	[2.616555]** (0.0240)	[42.80391]*** (0.0000)
ΔM	{-0.000512}*** **	[2.188150] (0.1134)		[6.515762]*** (0.0000)	[4.514820]*** (0.0001)	[17.42506]*** (0.0000)
$\Delta REER$	{-0.018177}*** **	[5.057994]*** (0.0005)	[1.879350] (0.1540)		[5.874967]*** (0.0000)	[18.44214]*** (0.0000)
ΔM_REER	{0.011019}*** **	[3.988175]*** (0.0007)	[3.887245]*** (0.0019)	[4.094572]** (0.0173)		[2.553304]** (0.0139)
ΔDUM	{-0.011318}	[8.929090]*** (0.0000)	[6.745592]*** (0.0013)	[8.757770]*** (0.0000)	[4.625275]*** (0.0011)	

Note: 1. GDP = Gross Domestic Product; X = Export; REER = Real Effective Exchange Rate; X_REER = Interaction between export and real effective exchange rate; M = Import; M_REER = Interaction between import and real effective exchange rate.

*2. All the variables in the first difference are represented by Δ . Values in { }, [], and () are respectively t-stat, Wald-test and Wald-test probabilities respectively. Signs *, **, *** are significant at the 10%, 5% and 1% level.*