Topic of the session

Impact of New Foreign Exchage Rule on Malaysian Currency Post-U.S. Election: An Assesment

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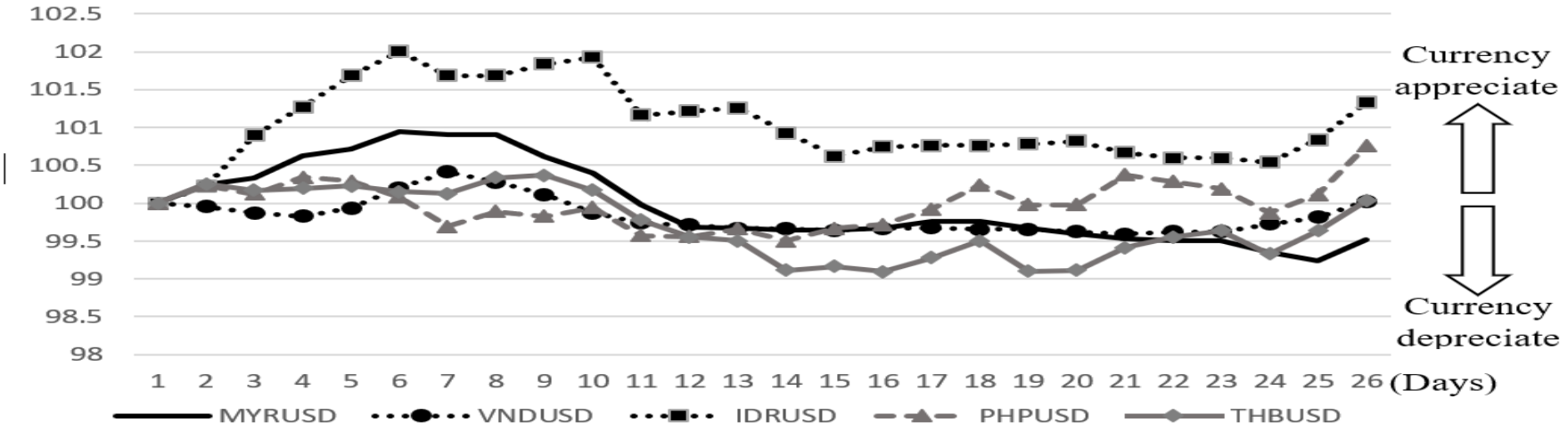
Introduction

- After the US Presidential election was announced on 8 November 2016, most of the Asian currencies witnessed unprecedented volatility and decline with respect to US dollars.
- Likewise, Malaysian currency Ringgit (MYRUSD) also suffered the similar fate to the other currencies in the Southeast Asian nations.
- This uncertainty was detrimental to the international trade as importers pay higher exchange rate while the countries face unfavorable balance of payment for the ASEAN countries.

Figure 1

- As shown in Figure 1, it can be observed most ASEAN currencies show volatile movement with a downward trend for the consecutive 26 trading days from 1 December 2017.



Notes: An Index is built with an initial value of 100 on 1 December 2017
Sample period: 1/12/2016 to 5/1/2017.
The exchange rate on 1/12/2016 served as a base rate to compute the index.
MYRUSD denotes Ringgit Malaysia to US Dollar exchange rate (RM 1 equal to USD).
VNDUSD denotes Vietnamese Dong to US Dollar exchange rate (VND 1 equal to USD).
IDRUSD denotes Indonesia Rupiah to US Dollar exchange rate (IDR 1 equal to USD).
PHPUSD denotes Philippine Peso to US Dollar exchange rate (PHP 1 equal to USD).
THDUSD denotes Thai Baht to US Dollar exchange rate (THD 1 equal to USD).
Source of exchange rate data: Thomson Reuters Data Stream.

Policy Response by the Central Bank

- As an immediate response to slow down the decline of MYRUSD, the Central Bank (Bank Negara Malaysia) announced a new measure on 2nd December 2016 to encourage the greater use of local currency in domestic trade.
- Under the new foreign exchange rule, exporters must convert 75 percent of export proceeds to local currency. They can only retain 25 percent of the export proceeds in foreign currencies.
- The new ruling caught many exporters including foreign MNCs by surprise.
- Some critics state that the new exchange rule will crowd out the foreign direct investment in the long run

Policy shock and Research Question

- The MNCs were not given time to respond to the new ruling (JETRO, 2017).
- On one hand, BNM like to strengthen the currency. However, the is some loss of degrees of freedom for the manufacturer to keep their proceeds in USD as there is a need to pay their creditors or suppliers.
- Hence, the question is "Will the new exchange rule strengthen the Malaysian Currency?
- Another question is "Will the new exchange rule enhance or deter Foreign Direct Investment (FDI)?"

Literature Review

- In literature, imposing capital control constitutes one of the most far-reaching policy measures to control exchange rate movements. Capital control enables the government to limit the possibility of speculating on the currency.
- Although capital controls might seem too heavy a tool to use to smooth exchange rate returns, many countries do seem to use them for at least partly of this reason. (de Grauwe, 2000; von Hagen & Zhou, 2005).

Literature Review

- Furthermore, the earlier study from Chile (Herrera & Valdes, 1999) found that the effect of the Chilean capital controls on the exchange rate was limited. Similarly, De Gregorio et al (2000) support the claim by using the VAR regression to examine the effectiveness of Chilean controls on the real interest rate.
- Kim et al (2000) investigate the changing effectiveness of daily foreign exchange intervention on the US Dollar to Australian Dollar exchange rate from 1983 to 1997 and found that there exists a contemporaneous positive correlation between the direction of intervention and the condition mean and variance of exchange rate return. The paper suggests that large foreign exchange intervention in Australia have a stabilizing influence in the foreign exchange market in terms of direction and volatility.

Literature Review

- On Malaysia, Edison & Reinhart (2001) examine the capital control in Malaysia in 1998 found that such capital control promotes greater interest rate and exchange stability and more policy autonomy.
- Conversely, Tamirisa (2004) uses a simple error-correction model to examine the macroeconomic effects of Malaysia's capital account regulations from January 1991 to December 2002 and found that the capital control generally has statistically insignificant effect on the exchange rate.

Exchange rate model

- This paper deviates from the standard models of exchange rates by selecting macroeconomic indicators in which Malaysia economy heavy relies on. As such, this study uses international reserve (Reserve), inward foreign direct investment (Ifdi), crude oil prices (Crude) and inflow of portfolio investment (Portfolio) to construct an exchange rate model for Ringgit Malaysia exchange rate (MYRUSD) for the period in which pre and post-new foreign exchange rule. Accordingly, the model can be expressed as below:

$$\mathrm{MYRUSD} = \mathrm{F}(\mathrm{Reserve}, \mathrm{Ifdi}, \mathrm{Crude}, \mathrm{Portfolio})$$

Model

- First, the international reserve (Reserve) is a good predictor of local currency movement. Existing literature demonstrates that a high level of international reserve tends to reduce the likelihood of a currency crisis or a "sudden stop"- that is, a sudden unwillingness by international lenders to renew their credit lines at times or market uncertainty (see Calvo & Reinhard, 1999; Caramazza, Ricci & Salgado, 2004).
- The higher the amount of international reserve hold by the central bank, the greater the capability of the bank in stabilizing the Ringgit Malaysia on the back of currency depreciation.

Model

- Second, the inward foreign direct investment (Ifdi) is crucial to determine the performance of Ringgit Malaysia. As such, an influx of the foreign direct investment increases the demand for Ringgit Malaysia as foreign firms require local currency to pay for the operational expenditure.
- Third, crude oil price (Crude) has been used to gauge the performance of Ringgit Malaysia. It is widely perceived that the performance of Ringgit Malaysia tracks the crude oil price movement.
- Lastly, there exist strong linkages between portfolio investment and the Ringgit Malaysia. An influx of the portfolio investment improves the local stock market, leading to higher stock prices.

Hypothesis

- H1: Reserve further strengthens the MYRUSD with the presence of the new exchange rate policy.
- H2: Ifdi further strengthens the MYRUSD with the presence of the new exchange rate policy.
- H3: Crude further strengthens the MYRUSD with the presence of the new exchange rate policy.
- H4: Portfolio further strengthens the MYRUSD with the presence of the new exchange rate policy.

Data

- This study uses monthly data from September 2015 to February 2018.
- Next, by using a dummy variable approach, the sample period can be further divided into pre-new exchange rule (September 2015 to November 2016) and post-new exchange rule (December 2016 to February 2018).
- All series are transformed into natural logarithm prior to the estimation. Variables used are shown in Table 1.

List of variables

Table 1: List of variables

Variables	Descriptions	Unit of measurement	Sources
MYRUSD	Malaysia Ringgit to US Dollar Exchange rate	Exchange rate	MSCI
Reserve	International reserve	Million USD	BNM
Ifdi	Inward foreign direct investment	Million USD	Data Stream
Crude	Tapis crude oil price	USD per barrel	Data Stream
Portfolio	An inflow of portfolio investment	Million USD	Data Stream

Notes: Sample period: September 2015 to February 2018.
MSCI denotes Morgan Stanley Capital Investment. BNM denotes Bank Negara Malaysia.
Data Stream denotes Thomson Reuters Data Stream.
Tapis crude oil price is a Malaysian crude oil used as a pricing benchmark in Singapore and it is often used as an oil market for Asia and Australia.

Correlation Matrix

Table 2: Correlation matrix

	LnReserve	LnIfdi	LnCrude	LnPortfolio
LnReserve	1.00			
LnIfdi	-0.11	1.00		
LnCrude	0.56	-0.50	1.00	
LnPortfolio	-0.55	-0.11	-0.22	1.00

Notes: Sample period: September 2015 to February 2018.
Ln denotes all series have been transformed into the natural logarithm,
Reserve denotes international reserve (Million USD),
Ifdi denotes inward foreign direct investment (Million USD),
Crude denotes crude oil price (USD per barrel),
Portfolio denotes the inflow of portfolio investment (Million USD).

Model specification

Model 1: $LnMYRUSD_t = B_0 + B_1 LnReserve_t + B_2 LnIfdi_t + B_3 LnCrude_t + B_4 LnPortfolio_t + \varepsilon_t$

Model 2: $LnMYRUSD_t = B_0 + B_1 LnReserve_t + B_2 LnIfdi_t + B_3 LnCrude_t + B_4 LnPortfoli_t + B_5 Rule + B_6 Rule * LnReserve_t + \varepsilon_t$

Model 3: $LnMYRUSD_t = B_0 + B_1 LnReserve_t + B_2 LnIfdi_t + B_3 LnCrude_t + B_4 LnPortfolio_t + B_5 Rule + B_6 Rule * LnIfdi_t + \varepsilon_t$

Model 4: $LnMYRUSD_t = B_0 + B_1 LnReserve_t + B_2 LnIfdi_t + B_3 LnCrude_t + B_4 LnPortfolio_t + B_5 Rule + B_6 Rule * LnCrude_t + \varepsilon_t$

Model 5: $LnMYRUSD_t = B_0 + B_1 LnReserve_t + B_2 LnIfdi_t + B_3 LnCrude_t + B_4 LnPortfolio_t + B_5 Rule + B_6 Rule * LnPortfolio_t + \varepsilon_t$

Model 6: $LnMYRUSD_t = B_0 + B_1 LnReserve_t + B_2 LnIfdi_t + B_3 LnCrude_t + B_4 LnPortfolio_t + B_5 Rule + B_6 Rule * LnReserve_t + B_7 Rule * LnIfdi_t + B_8 Rule * LnCrude_t + B_9 Rule * LnPortfolio_t + \varepsilon_t$

Model

Model 7: $$LnMYRUSD_t = B_0 + B_1 LnReserve_t + B_2 LnIfdi_t + B_3 LnCrude_t + B_4 Rule + B_5 Rule * LnReserve_t + B_6 Rule * LnIfdi_t + B_7 Rule * LnCrude +_t \varepsilon_t$$

where

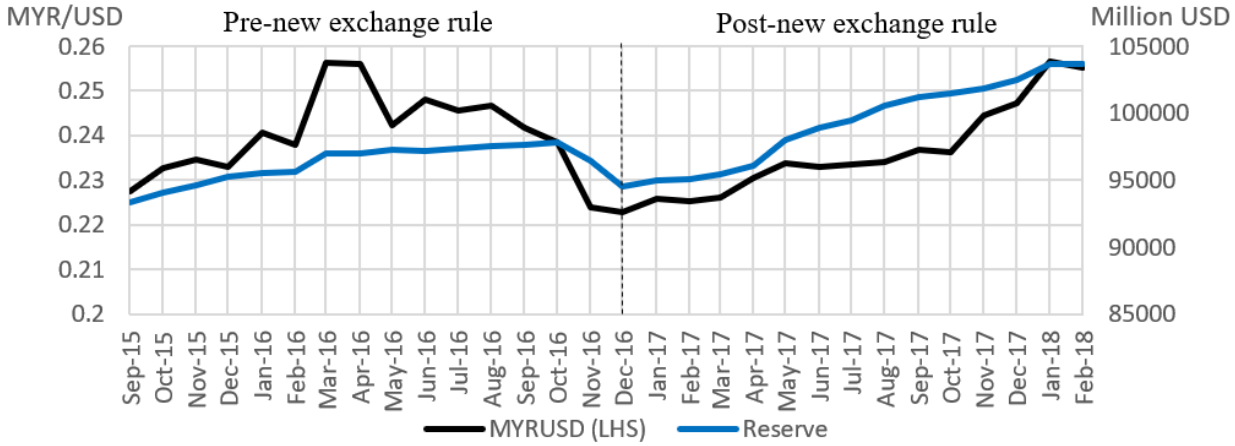
Ln	Natural logarithm
MYRUSD	Ringgit Malaysia to US Dollar exchange rate (RM 1 equal to USD)
Reserve	International reserve (Million USD)
Ifdi	Inward foreign direct investment (Million USD)
Crude	Crude oil price (USD per barrel)
Portfolio	Inflow of portfolio investment (Million USD)
Rule=1	Sample period from December 2016 to February 2018, (After the implementation of the new exchange rate policy).
Rule=0	Sample period from September 2015 to November 2016. (Before the implementation of the new exchange rate policy).

Table 4: Ordinary Least Square (OLS)results.

Independent Variables	$LnMYRUSD_t$ (1)	(2)	(3)	(4)	(5)	(6)	(7)
$LnReserve_t$	0.98***	2.14***	1.10***	0.76***	1.66***	2.26***	2.97***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
$LnIfdi_t$	-0.02	-0.04*	-0.01	-0.02	-0.02	-0.06**	-0.07***
	(0.19)	(0.09)	(0.75)	(0.23)	(0.21)	(0.02)	(0.00)
$LnCrude_t$	-0.15***	-0.07	-0.06	-0.18***	-0.07	-0.21***	-0.18***
	(0.00)	(0.19)	(0.22)	(0.00)	(019)	(0.00)	(0.00)
$LnPortfolio_t$	-0.12**	-0.01	-0.01	-0.02**	-0.01	-0.01*	
	(0.03)	(0.50)	(0.26)	(0.03)	(0.25)	(0.07)	
Rule		11.47	0.20	-1.16***	-0.26**	4.74	21.46**
		(0.15)	(0.48)	(0.00)	(0.06)	(0.67)	(0.01)
Rule * $LnReserve_t$		-1.00				-0.62	-2.02***
		(0.15)				(0.51)	(0.00)
Rule * $LnIfdi_t$			-0.03			0.08*	0.07*
			(0.40)			(0.05)	(0.06)
Rule * $LnCrude_t$				0.29***		0.34***	0.31***
				(0.00)		(0.00)	(0.00)
Rule * $LnPortfolio_t$					0.03	0.04	
					(0.10)	(0.13)	
Constant	-11.73***	-25.38***	-13.73***	-9.17***	-19.98***	-25.99***	-34.23***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Adjusted R^2	0.53	0.64	0.62	0.75	0.64	0.80	0.78
DW-statistics	0.90	1.18	1.29	2.00	1.26	2.25	1.84
Breusch-Pagan test	4.30***	1.98	1.54	0.03	1.65	1.60	1.41
F-statistics	9.06***	9.57***	8.77***	15.16***	9.89***	14.14***	15.33***
Observations	30	30	30	30	30	30	30

Notes: The asterisk ***, ** and * denotes statistical significant at 1%, 5% and 10 % level respectively. Values in parenthesis are p-value.

Reserve

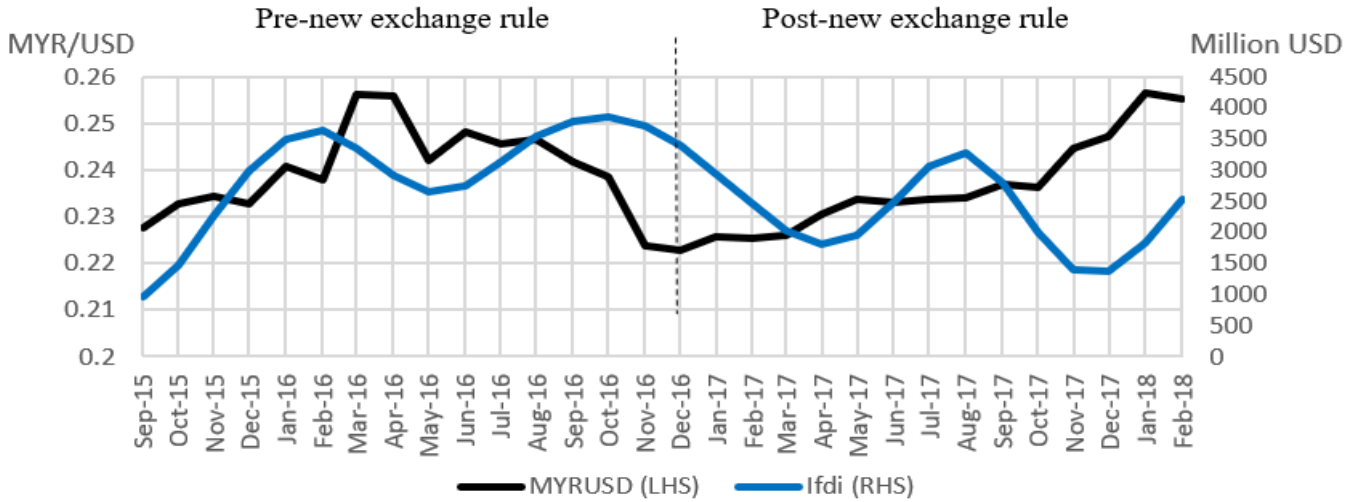


Notes: Pre-new exchange rate policy period: September 2015 to November 2016.
Post-new exchange rate policy period: December 2016 to February 2018.
Source of MYRUSD: MSCI. Source of Reserve: BNM.

Figure 2: the Monthly trend of MYRUSD and International reserve

Chart Are

FDI

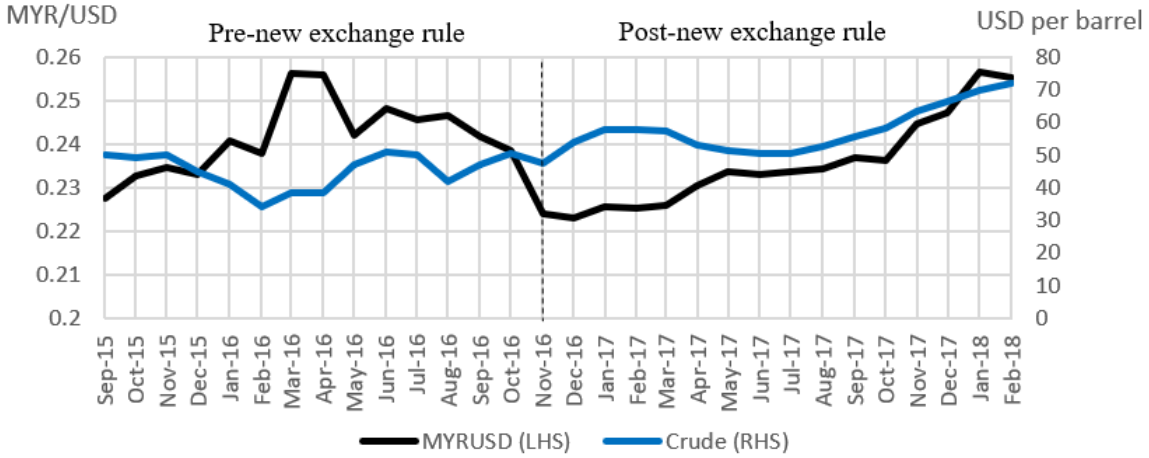


Notes: Pre-new exchange rate policy period: September 2015 to November 2016.
Post-new exchange rate policy period: December 2016 to February 2018.
Source of MYRUSD: MSCI. Source of Ifdi: Data Stream.

Chart

Figure 3: the Monthly trend of MYRUSD and Inward FDI

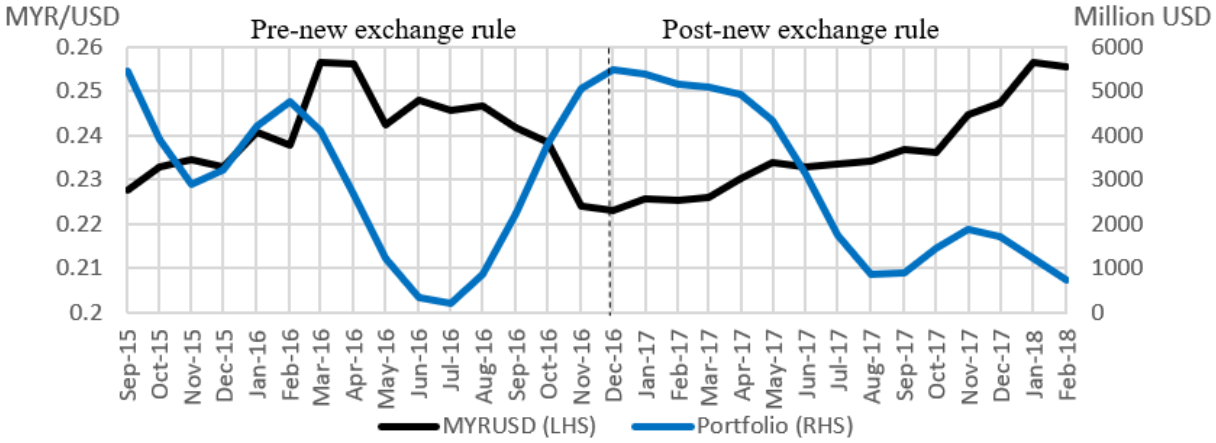
Crude Oil



Notes: Pre-new exchange rate policy period: September 2015 to November 2016,
Post-new exchange rate policy period: December 2016 to February 2018,
Source of MYRUSD: MSCI. Source of Crude: Data Stream.

Figure 4: the Monthly trend of MYRUSD and Crude oil price

Portfolio investment



Notes: Pre-new exchange rate policy period: September 2015 to November 2016.
Post-new exchange rate policy period: December 2016 to February 2018.
Source of MYRUSD: MSCI. Source of Portfolio: Data Stream.

Figure 5: the Monthly trend of MYRUSD and Inflow of portfolio investment

Findings

- Firstly, the new exchange rule strengthens the Ringgit Malaysia by 21.46 percent after 15 months of implementation;
- Secondly, both FDI and crude oil prices are found to exert upward pressure on Ringgit Malaysia in post-new exchange rule. Specifically, FDI and crude oil prices strengthen the Ringgit by 0.07 and 0.31 percent more as relative to pre-new exchange rule period;

Reasons

- Moreover, stability in the exchange rate has improved foreign firms confident in the domestic economy, leading to an inflow of foreign direct investment and further strengthens the Ringgit Malaysia.
- On the domestic front, the increase in the crude oil prices facilitates the sales revenue of local exporters and subsequently, more foreign currencies are required to convert into Ringgit Malaysia, thereby strengthening the Ringgit Malaysia.

Conclusion

- Despite there are critics of the new exchange rule would reduce the profit margin of foreign firms and subsequently crowd out the foreign direct investment, leading to greater depreciation in the Ringgit Malaysia.
- However, it is evidently clear from this empirical study that the 75/25 has strengthened the Ringgit Malaysia. Moreover, FDI and crude oil prices are found to contribute greater appreciation to the Ringgit Malaysia in post-new exchange rule period.

Thank you

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