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THE IMPACT OF EXCHANGE RATE MISALIGNMENT ON EXPORT COMPETITIVENESS AND FOREIGN INVESTMENT IN MALAYSIA

BY

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A dissertation submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Economics

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MAY 2010

ABSTRACT

Exchange rate misalignment is a perennial issue. Defined as the deviation from the equilibrium exchange rate, persistent misalignments due to overvaluation is expected to undermine the competitiveness of a nation and also represents a form of risk. In this study, we embrace the concept of competitiveness from the perspective of exports and foreign investment which essentially divides the study into three major parts. The first part deals with the estimation of the equilibrium exchange rate and misalignments, followed by chapters that focus on the impact of misalignment on exports and foreign investment. Based on the theory of equilibrium exchange rate, this study estimates the equilibrium exchange rate and the resulting misalignments for the Malaysian ringgit (RM) between 1991Q1 to 2008Q3. Results show persistent overvaluation prior to the crisis but minimal misalignments thereafter. It is suggestive that the institution of exchange control in September 1998 has brought the real exchange rate closer towards the equilibrium, albeit with minor fluctuations. The estimated misalignments then serve as a variable in the export model. Results show that misalignments negatively affect exports at both aggregated and disaggregated levels. Our findings also suggest that the effects of misalignments tend to be asymmetric. Finally, the impact of misalignment on foreign investment is examined with results consistently suggesting that misalignments deter foreign investment inflows. The estimated threshold value shows that the negative effect is only significant when misalignment goes beyond 15 percent level. Hence, exchange rate management is still relevant in promoting competitiveness of both exports and foreign investment in Malaysia.

ملخص البحث

إنّ قضية انعدام التّوافق في مَعدلِ التبادلِ ما تزال قائمةً. وتعرّف على أنّها التحوُّل من الاتّزان.استمرار انعدام التوافق تُعزي إلى المبالغة في التقدير شيء متوقّع لإضعاف منافسة الأمة وتمثل خطوره.وفي هذه الدراسةِ عبّرنا عن مفهوم المنافسة من منظورالتصدير والاستثمارات الخارجية والتي أساساً تقسّم الدراسة إلى ثلاثةِ أجزاءٍ رئيسيةٍ: الجزء الأول يهتمُّ بتقدير معدل التبادل المُتَّزن وعدَم التَّوافق. متبوع بفصول تركّز على تأثير عدم التوافق على التصدير والاستثمارات الخارجيَّةِ.بناء على نظريّة معدل التبادل المتوازن, فإنّ هذه الدراسة تقدّر معدل التبادل المتوازن وغير المتوافق الناتج للرّنْجِت الماليزي بين 1991-2008 .وقد أوضحت النتائج مبالغه في التقدير قبل الأزمة وحد أدنى من انعدام التوافق بعدها. ومن المقترَح أنّ مؤسَّساتِ التبادلِ استطاعت في سبتمبر 1998 أن تجعل معدل التبادل الحقيقي أقرب إلى التوازن حتى مع أدنى حالات عدم الاستقرار. ويمثّل انعدام التوافق المقدَّر مقام المتغيِّر في نموذج التصدير, كما دلّت النتائج أنّ عدم التوافق يؤثّر سلباً على التصدير في المستويين الجماعيّ وغير الجماعيّ, كما أثبتتِ النتائج أنّ عدم التوافق يميل لأن يكونَ متاثِل.
وأخيراً فإنه تمّ اختبار عدم التوافق على الاستثمارات الأجنبيَّة تمشّياً مع النتائج التي تمَّ الحصول عليها علماً بأنَّ عدم التوافق لم يتأثر بالاستثماراتِ الأجنبيَّة. إن القيمة المبدئية المقدرة توضّح التأثير السلبي مهم فقط في حالة أن عدم التوافق وصل إلي ما بعد المستوى الخامس عشر. وعليه فإنَّ إدارة معدل التبادل ما زال مرتبطا بالمنافسة لكلا من : التصدير والاستثمار الأجنبيّ في ماليزيا.

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DECLARATION

I hereby declare that this thesis is the result of my own investigation, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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To my family, teachers and friends.

ACKNOWLEDGMENTS

In the name of Allah, the Most Beneficent, the Most Merciful. Praise be to Allah, the Cherisher and Sustainer of the world. May peace and blessings of Allah be upon Prophet Muhammad (SAW), his family and companions. Without the will of Allah SWT, this work would have never been completed.

I would like to express my utmost gratitude to my main supervisor, Professor Dr Mohammed Yusoff for his guidance, invaluable ideas, criticisms, patience, support and encouragement to me throughout my study. I am extremely grateful to my co-supervisors, Dr Gairuzazmi Ghani and Dr Jarita Duasa who have been intently supportive of my dissertation all the way from the start until this day.

And last but not least, to my beloved husband, children and parents who have been extremely compassionate about me pursing a higher degree. And to my 'phd' friends, thank you so much for your prayers, assistance and the wonderful time together.

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LIST OF ABBREVIATIONS

ADF	Augmented Dickey Fuller test
ARDL	Autoregressive Distributed Lag
BEER	Behavioural Equilibrium Exchange Rate
B-S	Balassa-Samuelson effect
DEM	Deutchmark
DOS	Department of Statistics
DOTS	Direction of Trade Statistics
ect	Error Correction Term
ecm	Error Correction Model
ERER	Equilibrium Real Exchange Rate
FEER	Fundamental Equilibrium Exchange Rate
FIML	Full Information Maximum Likelihood
FM-OLS	Fully Modified Ordinary Lease Squares
FTZ	Free Trade Zone
GBP	Great Britian Pound
GM FM-OLS	Group Mean Fully Modified OLS
IFS	International Financial Statistics
IMP	Industrial Master Plan
i.i.d.	Identically and Independently Distributed
JJ	Johansen Juselius
JPY	Japanese Yen
KPSS	Kwaitkowski, Phillips, Schmidt and Shin test
LM	Lagrange Multiplier
LR	Likelihood Ratio
ML	Maximum likelihood
MOA	Ministry of Agriculture
MULTIMOD	Multi country macroeconometric model
NAP	National Agriculture Policy
NEER	Nominal Effective Exchange Rate
PMG	Pool Mean Group
PP	Phillips and Perron test
REER	Real Effective Exchange Rate
RER	Real Exchange Rate
SITC	Standard International Trade Classification
TAR	Threshold Autoregressive
ULC	Unit Labour Cost
USD	U.S. Dollar
VAR	Variance Decomposition
VEC	Vector Cointegration
VECM	Vector Error Correction Model

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

Real exchange rate misalignment has now become a standard concept in the international macroeconomic theory and policy (Razin & Collins, 1997). Whether the exchange rate is overvalued, undervalued or just right is another standalone issue. However, in general, economists tend to agree that exchange rates need to be consistent with the monetary and fiscal policies and other fundamental variables. This sparks a strand of literature devoted to examine a set of fundamental variables such as productivity, degree of openness, fiscal balance and interest rate differentials, that drive the exchange rates and to ascertain to what extent the exchange rate departs from its fundamentals. These studies delve into time-varying sources of exchange rate fluctuations in the equilibrium real exchange rate (ERER) and view the ERER as a path of the real exchange rate that varies with certain fundamental variables. Any deviation from this equilibrium path is termed as misalignment. In this sense, misalignment is used to assess the need for devaluation or revaluation.

In recent years, attention has been given to the occurrence of exchange rate misalignment and its impact on the economy. Exchange rate misalignment is generally a useful tool to assess competitiveness of a nation (Rogoff, 2005; Cashin et al., 2002), an indicator of an incoming crisis (Kaminsky et al., 1999), a measure of risk (Darby et al., 1999; Goldberg, 1993; Froot and Stein, 1991; Barell and Pain, 1996; Sekkat and Varoudakis, 2000; Serven, 2003) and signals macroeconomic instability in an economy (Husted and MacDonald, 1999). Measures of misalignment can also be used to predict future depreciation if rates are fluctuating (Masters and

Ianchovichina, 1998) and to assess the links between exchange rate and economic performance in a wide range of settings. For example, Kandil et al. (2007) and Kandil (2006) probe into the relationship between exchange rates and economic activities; Balvers and Bergstrand (2002) look into the relationship between equilibrium exchange rate and government expenditure; Alexius (2005) examines the interaction between real exchange rates and productivity shocks.

In Malaysia, exports and foreign investment were the important catalyst of growth since this country embarked on an export-oriented policy in the 1970s. The authorities have frequently subscribed to policies that improve export competitiveness so as to boost export performance which subsequently leads to higher growth. Furthermore, several policies were designed to make Malaysia an attractive avenue for foreign investment which includes tax exemptions, free trade zones, pioneer status and many more. Although short term capital inflows are sometimes viewed as a treat (Edison and Reinhart, 2001), it has been empirically proven that foreign investment has in many ways supported industrial expansion in Malaysia (Lim and Pang, 1991; Ito, 1999). Therefore, this study intends to embrace important issues pertaining to the competitiveness of the Malaysian exports and the competitiveness of Malaysia as a destination for foreign direct investment.

One of the ways to assess export competitiveness is to examine exchange rate misalignment (Candelon et. al., 2007; Rogoff, 2005; Cashin et al, 2002; Guerguil and Kaufman, 1998) and to some extent, its volatility. Many studies in developing countries (for example Sekkat & Varoudakis, 2000; Nabli and Varoudakis, 2004; Elbadawi, 1998; Fang et al., 2007; Lu, 2007) have shown that exchange rate variables, such as exchange rate misalignment and exchange rate volatility, have direct negative effects on exports. There are, however, studies that found mixed evidences (see for

example Bailey et al., 1987; Klein, 1990; Bini-Smaghi, 1991) and studies that find insignificant relationship between exchange rate volatility and trade (see Aristotelous, 2001). Generally, results tend to suggest that exchange rate volatility and misalignment have adverse effects on exports. Therefore, countries should avoid exchange rate overvaluation because it makes exported products relatively more expensive vis-à-vis competitors.

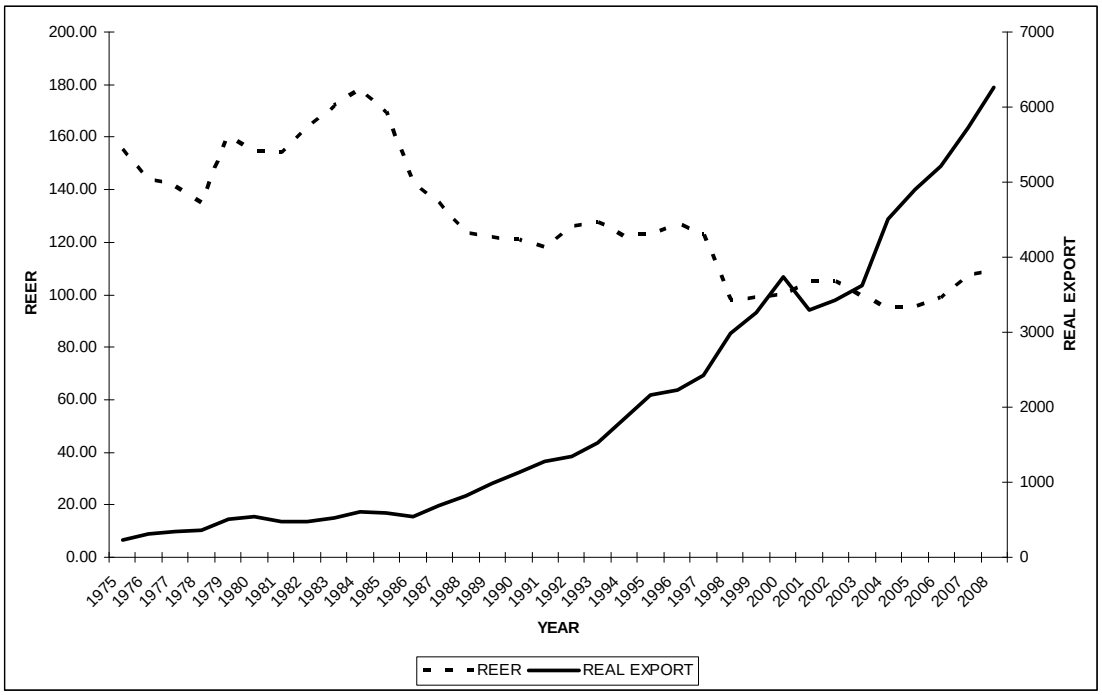

Figure 1.1 Real Exports and Real Effective Exchange Rate (1975-2008)
Source: IFS (2009)(CD-ROM).
Notes: REER: 2000=100. The REER index is expressed in terms of the ratio of trade weighted foreign currencies to the ringgit, hence, a rise (fall) in REER denotes appreciation (depreciation).

In the last three decades, the real effective exchange rate (REER) in Malaysia has exhibited minor fluctuations with noticeable depreciation in the late 1970s up to 1985. The subsequent years, however, exhibit an upward trend, indicating some appreciation of the ringgit except in 1997 following the outburst of the Asian financial

crisis. The REER depreciated after the imposition of exchange rate controls in 1998 (see figure 1.1) but appreciated again in 2002. To assess competitiveness, it would be beneficial to examine whether these minor fluctuations are an equilibrium phenomenon which is consistent with the movement of economic fundamentals or whether they reflect misalignment which would then require relevant policies to correct the deviations from the 'true' equilibrium.

In this study, we have narrowed the definition of export competitiveness and focuses on the study of exchange rate misalignment only. In particular, we view export competitiveness in terms of export price/cost competitiveness. In our case, the exchange rate presents price/cost competitiveness. From the cost competitiveness point of view, an overvaluation is associated with deterioration in export competitiveness and vice versa. On a similar note, this study also presents an endeavor that specifically focuses on how misalignment affects foreign investment. In particular, we examine whether misalignment which represent some form of risk, deter the influx of foreign investment. Foreign investment in this study encompasses equity investment by non-residents, loans from non-residents and purchase of real estates by non-residents but excludes retained earnings. The difference between foreign investment data as collected by BNM and the FDI data published by UNCTAD is that the former excludes retained earnings. The rest of the components are generally similar.

Thus, the central questions of our study are:

i. what is the impact of exchange rates misalignment on the performance of exports and the influx of foreign investment;

ii. does exchange rate misalignment has a self-correcting mechanism and what is the speed of adjustment and, hence,

iii. is there a role for exchange rate management in promoting Malaysian exports in the short and long run?

1.2 STATEMENT OF PROBLEM

This study embraces three inter-connected issues – exchange rate misalignment, exports and foreign investments. First, is exchange rate misalignment a problem in Malaysia? Overvaluation of the exchange rate has arguably contributed to the 1997 crisis as shown in studies by Kaminsky et al. (1999), Yusoff and Abdul Majid (2000) and Lee et al. (2008). Husted and MacDonald (1999) advocate that the real exchange rate was not in line with its underlying macroeconomic fundamental, hence, introducing vulnerability into the system. As misalignment persisted, the currency was attacked in July 1997 and the situation morphed into a full fledged economic crisis in Malaysia. Following the crisis, the government undertook a radical exchange rate policy measure which was to peg the currency to the USD. One of the impending reasons was to minimize fluctuation of the ringgit against the USD. The peg was abandoned in July 2005. Hence, this study investigates whether the institution of the pegged exchange rate has suppressed exchange rate misalignment or otherwise. This study however, focuses on the real effective exchange rate instead of bilateral rates so as to provide a clearer picture of the actual position of the real exchange rates.

Prior to that, the extent of exchange rate misalignment depends on the estimated equilibrium exchange rate. Exchange rate misalignment can only be estimated given that certain fundamental economic variables determine the movement of the real exchange rate. Horne (2004) questions on whether there exists a systematic linkage between economic fundamentals and exchange rates. Based on her analysis, both the theoretical construct and empirical evidences on the relationship between the

exchange rate and the economic fundamentals are ambiguous and inconclusive; hence, warrant the greatest challenge to research. Therefore, the first step is to establish whether there is a systematic link between the real exchange rate and the fundamental macroeconomic variables.

Apart from being an indicator for an incoming crisis and macroeconomic instability, misalignment also depicts the competitiveness of a nation as well as indicating the level of risk emanating from the country. To reiterate, if a country is undervalued, the exports from this country is relatively cheaper vis-à-vis her competitors and an overvaluation is expected to exert an opposite effect. Furthermore, persistent overvaluation imposes added risks on exports and to some extent, foreign direct investment. Empirical literature reveals two contrasting arguments on this issue. The first view relates that exchange rate movements are important since they have significant impact on trade performance. Depreciation or devaluation makes exports cheaper and subsequently more competitive in comparison with other countries exporting similar products. Several studies which provide empirical support for this contention include Sekkat and Varoudakis (2000), Ghura and Grennes (1993), Cottani et al. (1990), Nabli and Varaodakis (2004). In the case of Malaysia, Yusoff and Baharumshah (1993) find that an increase in export earnings of primary commodities due depreciation is not large enough to improve the trade balance. Studies by Yusoff (1991, 2007) provide evidences that the exchange rate has significant effects on the trade balance. On similar grounds, Fang et al. (2007) find that depreciation has no significant impact on Malaysia's manufactured export revenue.

In contrast, Diaz-Alenjaro (1963), Krugman and Taylor (1978) and Lizondo & Montiel (1989) suggest that devaluations or depreciation have contractionary rather

than expansionary effect on the economy. According to this view, the expansion of exports as a result of currency depreciation or devaluation is offset by higher import expenditure on imported capital, intermediate and consumption goods. In an export-oriented economy, like Malaysia, which heavily depends on imported intermediate goods to fuel manufacturing export activities, this view must be seriously taken into consideration. The empirical examination conducted in this study would provide evidence as to whether undervaluation improves export performance or otherwise. Based on this two contrasting views, the relationship between the exchange rate and export performance remains an empirical issue. Both undervaluation and overvaluation or deprecation and appreciation can be considered as misalignments if the actual exchange rate deviates from the hypothetical equilibrium level. Hence, whether misalignment affects export competitiveness is examined in this study.

Finally, the effect of exchange rate on foreign investment is ambiguous. Benassy-Quere et al. (2001) argue that depreciation can either promote or hinder foreign investment. If foreign investment is meant to capture the local market, a depreciated currency would imply a fall in the purchasing power of the local consumers, hence undermining their sales. There has been several empirical support that depreciation of the exchange rate leads to a reduction in foreign investment (Klein and Rosengren, 1994). On contrary, depreciation may be viewed as an added advantage to the host country if depreciation enhances investors' wealth when they acquire more local assets in the event of depreciation (Blonigen, 1997). However, the effect of exchange rate misalignment (deviations from the equilibrium exchange rate) has been relatively under-explored with only one anthology by Hasnat (1999). Hence, this provides a major incentive to pursue this issue. A more important question is at what point the exchange rate misalignment begins to adversely affect foreign

investment inflows. This threshold point could assist policymakers to formulate more effective policy actions.

1.3 OBJECTIVES OF STUDY

The main aim of this study is to examine the impact of exchange rate misalignment on exports and foreign investment in Malaysia. The specific objectives of this study are as follows:

i. To identify the fundamental variables that affect the real exchange rate.
ii. To examine the impact of exchange rate misalignment on exports at aggregated and disaggregated levels.
iii. To investigate the impact of exchange rate misalignment on foreign investment.
iv. To propose policy recommendations to promote exports and foreign investment.

1.4 CONTRIBUTION OF THE STUDY

This study contributes to the literature in the following manner. First, this study improve the theoretical and empirical work of Tan (1995) and Mohamed (2003) in the estimation of the equilibrium RER and RER misalignment. The fundamental variables are derived from the theoretical model developed by Edwards (1994) and Elbadawi (1994, 1998) and integrated into a common and well established estimation framework, the behavioural equilibrium exchange rate (henceforth, BEER) proposed by Clark and MacDonald (1998). The combination of these three theoretical model-cum-estimation procedure blends perfectly with the cointegration technique and VECM model that are used to estimate the equilibrium real exchange rate. Egert

(2003) and Roudet et al. (2007) caution that uncertainties do arise when estimating the exchange rate misalignment. Inevitably, we are aware that different theoretical approach, time frame and the econometric techniques used can potentially yield starkly different results. In this study, we argue that our choices of fundamental variables are almost consistent with other similar studies. In terms of the econometric techniques used, we focus on the vector error correction model (VECM). This is made possible since our choice of data span is on a quarterly basis. In addition, we apply rigorous statistical treatments when calculating the exchange rate misalignment. A time series country specific study is conducted based on the findings of Dufrenot and Yehoue (2005) and Egert et al. (2006) who conclude that homogenous equilibrium is unlikely to exist in panels for developing countries and that different approaches in the measurement of the equilibrium exchange rate yields different results. As such, modeling equilibrium for a specific country would yield better and more accurate estimates.

Second, we perform both aggregated and disaggregated analysis on how misalignment affects exports. Then, misalignment is divided into events of overvaluation and undervaluation to enable individual observations as to how they affect exports. At the aggregate level, this study also tests for asymmetric effect of exchange rate misalignment on exports which connotes the novelty of the study. Unlike previous literature which concentrates on the manufacturing sector, this study adopts a more comprehensive approach by incorporating almost all industries including the agriculture sector. In particular, we use the SITC classifications that are in accordance to international standards rather than arbitrary aggregation. Two benefits arise from such aggregation. First, disaggregated data captures the heterogeneous effect of the sub-sectors which is pertinent at industry level. Second,