DOES RELATIONSHIP EXIST BETWEEN EXCHANGE RATES AND STOCK PRICES: EVIDENCE FROM MALAYSIA?

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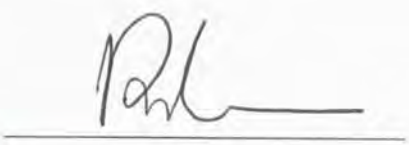

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ABSTRACT

DOES RELATIONSHIP EXIST BETWEEN EXCHANGE RATES AND STOCK PRICES: EVIDENCE FROM MALAYSIA?

This study attempts to illustrate the dynamic relationship between Bursa Malaysia Stock index and Malaysian Ringgit Exchange Rate. Although the positive co-movement between each variable can be seen, the direction of causality still remains unresolved in both theory and empirical studies. Types of investigation are to establish whether long run relationships exist and to determine the causality between exchange rates and stock prices in Malaysia. Data used are time series and range from 22nd July, 2005 to 30th March, 2011. Daily observations of RM/USD exchange rates and the Malaysian stock prices are gathered and analyze using the EViews statistical tools. The empirical evident reported that both variables have long-run relationship; and the direction is unidirectional where the causal relationship run from exchange rate to stock price during the sample period, which is consistent with Flow Oriented Model.

ABSTRAK

Objektif kajian ini adalah untuk mengenal pasti hubungan dan arah pengaruh antara Indek Bursa Saham Malaysia dengan kadar pertukaran matawang asing Ringgit Malaysia. Walaupun pergerakan positif antara kedua-dua pemboleh ubah dapat dilihat, arah pengaruh masih belum dapat di buktikan melalui teori dan kajian empirikal. Jenis kajian adalah untuk mengkaji hubungan antara pergerakan arah kadar pertukaran matawang asing dengan harga pasaran saham di Malaysia. Data siri yang dikaji adalah dari tempoh 22 Julai, 2005 sehingga 30 Mac 2011. Data yang dikumpul, dianalisa dengan menggunakan statistik EViews. Bukti empirikal yang dilaporkan dalam kertas ini menunjukkan bahawa ada hubungan integrasi antara kedua-dua siri. Keputusan empirikal menunjukkan bahawa kadar pertukaran matawang dan harga pasaran saham Malaysia mempunyai hubugan jangka masa panjang. Empirikal juga membuktikan bahawa hubungan arah pengaruh bergerak dari kadar pertukaran matawang asing mempengaruhi harga pasaran saham. Ini menunjukkan hubungan yang lebih konsisten dengan Flow Oriented model.

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ABBREBRIATION

ADF	-	Augmented Dickey Fuller
ARCH	-	Autoregressive Conditionally Heteroscedastic Model
BNM	-	Bank Negara Malaysia
EX	-	Exchange Rate
FTSE	-	Financial Times Stock Exchange
GARCH	-	Generalized ARCH Model
KLSE	-	Kuala Lumpur Stock Exchange
KLCI	-	Kuala Lumpur Composite Index
OLS	-	Ordinary Least Square Regression Model
RM	-	Ringgit Malaysia
SP	-	Stock Price
S&P	-	Standard & Poor 500 Index
U.S	-	United States of America
USD	-	United States of America Dollar

CHAPTER 1

INTRODUCTION

In the long run, exchange rates are determined by current and future economic fundamentals (e.g., real outputs, money supplies, interest rate, inflation rates, trades balance). In the short run, however, exchange rates are greatly affected by other factors such as news, change in expectations and policy changes. Cornell (1983) and Wolff (1988) observed strong relations between exchange rate and economic activity whereas other studies reports strong linkages between economic activity and asset prices (Fama, 1981; Chen *et al.* 1986). Solnik (1987) found a negative relation between real stock returns and real exchange rate for quarterly data, but weak positive relationship for monthly data. In the context of Asian study, Abdalla and Murinde (1997) reported the unidirectional causal effect from monthly exchange rates to stock prices. Pan *et al.* (2000) noted that exchange rates had significant effects on stock prices in seven Asian countries (Hong Kong, Japan, Korea, Malaysia, Singapore, Taiwan and Thailand) and exchange rates Granger-Caused stock prices during 1988-October 1998. The causal relations became more stronger after 1997, but they could not find any specific causal relations for Malaysia. Economists have tried to explain whether exchange rates and stock price are related or not. After the 1997 East Asian financial turmoil, most affected countries saw the co-movement of exchange rates and stock prices plunge. Although the positive co-movement between each variable can be seen, the direction of causality still remains unresolved in both theory and empirical studies.

As the world's financial markets become more integrated, exchange rate become one of major variables that affects multinational companies investment and financing decisions when assessing the likelihood of a particular projects in foreign countries and when considering financing in foreign countries. Since multinational

companies generate a multitude of cash flows that are sensitive to exchange rates, firm values are greatly affected by exchange rates. As domestic currency depreciates (appreciates), domestic products become more (less) competitive in international markets, increasing (decreasing) profits of domestic firms. Thus, financial managers better understand the effect of exchange rates on their business operations (and profit) to better manage the exchange exposures. The relations between stock prices and exchange rates have been discussed in a slew of theoretical and empirical studies and financial press.

Since 1970s, many industrialized countries experienced rapid expansion in international trade. Most countries adopt free float exchange rate regimes in 1973 which lead to increase in exchange rate risk exposure. Therefore, stock markets should be influence by the increasing volatility of exchange rates. Exchange rates are also more sensitive to stock market as rapid integration and deregulation on international financial market has made the capital flows across borders easier and faster than ever before. With countries become more eager to build and widen their international trade, supported by high technology, and deregulation of strict trading rules have make globalization in business much more easily to access.

Malaysia as one of the emerging countries in Asia has been active in promoting free trade agreements with other foreign countries. For example, in 1992 Malaysia has joint as a member of the ASEAN Free Trade Area which was established in order to promote trade among ASEAN members. Most tariffs among ASEAN countries has been reduced or abolished in 2007. In 2005, Malaysia signed a Japan-Malaysia Economic Partnership Agreement (JMEPA) with Japan. In 2007, Malaysian and Pakistan signed a bilateral Free Trade Agreement which will come in force on 1 January 2008. Most tariffs and duty charges expected to be eliminated by 2012. On 26 October 2009, Malaysia and New Zealand signed a bilateral Free Trade Agreement, which an extension of the ASEAN-Australia-New Zealand Free Trade Agreement. Currently, Malaysian Government is negotiating free trade deals with Australia, Chile and India.

Other countries that show interest in establishing free-trade agreements with Malaysia are the European Union and Hong Kong.

Despite the negotiation on free trade deal with United States of America (U.S) has been stalled for the past few years, Malaysia remain as one of the important trading partner for U.S. Since 1985 the bilateral trade between the U.S and Malaysia has grown from USD3.8 billion to USD36 billion in 2009 with U.S ranking Malaysia as America's 19th largest trade partner. The U.S goods trade deficit with Malaysia was USD12 billion in 2009 and goods exports totaled USD12.0 billion, and goods imports totaled USD24 billion. U.S has consistently been one of the largest foreign investors in Malaysia, with significant presence in the oil and gas sector, manufacturing, and financial services. The U.S. foreign direct investment in Malaysia was USD13.5 billion at the end of 2009. (Source: U.S. Department of State)

Muhammad and Rasheed (2002) stated that the interaction between exchange rates and stock prices has been debated and analyzed for many years as both of the variables play important role in facilitating economic activity. The contradicting outcomes by different researchers have concluded that causal relationship between exchange rates and stock prices are either unidirectional from stock prices cause exchange rates or visa-versa, bidirectional or Asset Market approach (no link between the variables). Understanding the relationship and causality between exchange rates and stock prices are important for policy makers to control and stabilize domestic economy and investment community to hedge against risks or used it as forecasting models.

Flow oriented approach (Traditional approach) claimed that changes in the exchange rate lead to changes in stock prices. Exchange rate movements influence international competitiveness and trade balance, thereby affecting income and output of an organizations and countries. Dornbusch (1980) argued that movements in the exchange rate will affect the values of the incomes and the costs of a company especially dealing in imports and exports, which will have an impact on the company's

stock price. An appreciation of the local currency decreases the profits of a local exporter as the cost of foreign importer become greater. Whereas a depreciation of the local currency increases the profits of a local exporter as costs of an importer become cheaper. Future credits payment or receivables which are denominated in foreign currency will be exposed to exchange rate risk. Hence currency appreciation affects negatively to the domestic stock market for an export-dominant economy; and affects positively to import-dominant economy. If exchange rate leads stock prices, then a crisis in stock market can be prevented by controlling the exchange rate. In addition, countries may exploit the interaction to attract foreign portfolio investment in their countries by offering favorable exchange rate. But government should be cautious in the implementation of their exchange rate policies as it may reflect the exchange rate risk in their stock markets.

In contrast, portfolio balance approach or 'stock oriented' models argues that movements in stock prices can cause changes in exchange rates via portfolio adjustment (capital account transactions) which was developed by Branson (1983). In other words, portfolio adjustments such as inflows and outflows of foreign capital will affect exchange rates movement. A persistent increase in stock prices may attracts capital inflows from foreign investors and also leads local investors to sell their less attractive foreign assets to move the cash back to home country. This will result in an appreciation of the local currency. Another scenario is when an increase in wealth due to rise in stock prices may increase the demand for local money, resulting in an increase in domestic interest rates which in turn contributes to appreciation of the local currency. Similarly, a decrease in stock prices results in depreciation of the local currency and thus changes in the stock prices lead to changes in the exchange rate of the local currency. If stock prices lead exchange rate, then policy makers can focus on domestic economic policies to stabilize the stock market.

Bidirectional causality implies that exchange rates and stock prices are inter-dependent with each other. Both variables can be considered trading in informational inefficiency market, where investors make decisions on belief and rumors rather than analyzed information. Another reason is information is not known simultaneously among investors and fund managers. Granger (1969) study on causal relations by using econometric models have open up a path on further bidirectional causality between two variables among other researchers. If the causality is bidirectional, then investors may predict the movement of one market using information on the other market. Since each economic variable can affect each other or bidirectional, investors can minimize their risk by hedging their portfolios exposure by taking position in the other market. Any policy intervention on one variable becomes more effective in determining the direction of other variable(s).

Reddy and Sebastin (2008) mentioned that Asset Market approach implicate that a weak or no association between stock prices and exchange rate. The exchange rate is treated as an asset and determined by the expected future exchange rates. Changes of exchange rate movements are determined by information of future value of exchange rate and not related to stock prices. No relationship between the exchange rates and the stock markets may be expected to exist under such scenario; in other words the two variables are independent and both the markets are informational efficient. If the markets are not related, investors may reduce risk exposure by diversifying their portfolios across the markets as hedging is not applicable between these two markets.

1.1 Problem Statement

The interaction between exchange rate and stock price has been debated and analyzed for many years as both of the variables play important role in facilitating economic activity. The contradicting outcomes by different researchers have concluded that causal relationship between exchange rates and stock prices are either unidirectional, bidirectional or asset market approach (no link between the variables).

If these two variables are related then investors can use the information from one market to predict or use as hedge mechanism on the other market for favorable gain (Brooks *et al.* 2002). However there is still no definite answer on the relationship between these two variables. Controversy still exist among research findings, economist, and policy makers. Economists have tried to explain whether exchange rates and stock price are related or not. After the 1997 East Asian financial turmoil, most affected countries saw the co-movement of exchange rates and stock prices plunge. Although the positive co-movement between each variable can be seen, the direction of causality still remains unresolved in both theory and empirical studies. Some studies found the relations and causality, where stock prices lead/cause exchange rate (Tabak, 2006; Kutty, 2010; Ibrahim, 2000). But other researchers found that the relations and causality are from exchange rates lead/cause stock prices (Hong and Mohidin, 2005; Dimitrova, 2005; Hussain and Khim, 2004; Aggarwal, 1981). Some researchers conclude that there is bidirectional causal relationship between both variables (Granger *et al.* 2000; Aydemir and Demirhan, 2009; Baharom *et al.* 2008); whereas others found no relationship and causality between these two variables (Lean *et al.* 2003; Rahman and Uddin, 2009).

Therefore this study explores the interaction of Malaysian currency exchange and stock market. This paper attempted to answer the following research problem; whether exchange market and stock market related? Is exchange market lead stock market or vice-versa?

1.2 Research Objectives

The objective of this study is to investigate the relationship and the causality between the exchange rate and stock prices in Malaysia. Therefore the objectives are as follow:

1.2.1 To identify the relationship between the exchange rate and stock prices in Malaysia

1.2.2 If the two variables is related, then investigate the causal relationship between the exchange rate and stock prices in Malaysia

Investigating the relationship between the exchange rate and stock prices is an essential for policy makers to implement effective policies in regulating exchanges rates and stock prices.

1.3 Significance of Study

It is important to understand the relationship between exchange rate and stock prices as these two variables play important roles in Malaysian economy. Knowing the causal relationship will assist policymakers to decide which effective policies need to be implemented and portfolio investors in managing their funds (Reddy and Sebastin, 2008).

If exchange rate leads stock prices (Flow Oriented model); then a crisis in stock market can be prevented by controlling the exchange rate. In addition, policymakers may exploit the interaction to attract foreign portfolio investment to invest in Malaysian local stock market by offering favorable exchange rate. For example, regulate exchange rates policies to control capital inflow and outflow on foreign portfolios investors.

Whereas if stock prices lead exchange rate (Portfolio Balance Model), then consistence economic policies should be implemented to stabilize domestic economy and stock prices (Reddy and Sebastin, 2008). Policies that can be imposed are tax charges on foreign portfolio investment profit, restriction on period of redemption for foreign portfolio investors and controlling the foreign ownership in Malaysian public listed companies. For example to control the outflow of Malaysian Ringgit, local policy maker can imposed higher tax on foreign portfolio investment profit gain in order to discourage sell of local stocks; thus reduce the exchange rates exposure when Malaysian Ringgit is converted to other foreign currencies.

If the causal relationship is bidirectional, then investors may predict the movement of one market by using information on the other market. Since the changes between the two variables are correlated, hedging of exposure to one market by taking position in the other market will be effective (Reddy and Sebastin, 2008). For example, if the exchange rates and stock prices are negatively related, depreciation in exchange rates may imply that stock prices to rise. Therefore investors can take the opportunity to buy shares in order to earn profits. In an uncertain market movement, investors who hold existing shares can hedge by holding buy position in foreign exchange market in order to reduce risk. The drop in share prices will be compensated with the appreciation of the exchange rate because of the negative relationship.

If exchange rates and stock prices have no link, then the two variables are consider independent and both the markets are informational efficient. If the markets are not related, investors may reduce risk exposure by diversifying their portfolios across the markets as hedging is not applicable between unrelated variables.

1.4 Scope of Study

This research is based on time series data for the period 22nd July, 2005 to 30th March, 2011. This study only includes two Malaysian economic factors which are exchange rate and Stock Prices. Exchange rates of RM/USD in use to represent exchange rate market and FTSE Bursa Malaysia Index as to represent the stock prices movement.

1.5 Structure of Research

The content of this research is divided into six chapters. Chapter 1 serves as the introduction of this research, and on Chapter 2 present the overview of Malaysian currency exchange markets and stock market. The past literature reviews by academic researchers concerning the relationship and causality between exchange markets and stock market is presented in Chapter 3. Elaborating on the methodology used to conduct this research is discussed in Chapter 4, while the analysis and results is documented in Chapter 5. The conclusion and implication on Malaysian currency exchange markets and stock market of are discussed in Chapter 6.

CHAPTER 2

OVERVIEW OF MALAYSIAN MARKET

Initially Malaysia was a major producer of tin and rubber in the 19th century which led nearly half of the world's tin output. The early 20th century saw the booming of the country's agricultural sector, with rubber replacing tin as Malaysia's main export product. The country has long since overthrown its dependence on these commodities and has diversified into an industrialized nation, with a gross domestic product (GDP) that has grown from RM54.3 billion in 1980 to RM558.4 billion in 2010.

Currently, Malaysia is one of the biggest exporters of semiconductors and electronic goods which contribute about 30 percent of total manufacturing output. After the transformation from agricultural to industrial economy, Malaysia now is interested embracing into "knowledge economy'. Malaysia government is taking steps and keen to establish itself as centre of excellence in information technology, tourism, health and education, and insurance. In 1996, a Multimedia Super Corridor (MSC) was launched as a global information technology hub for the global and communication technology industry in order to boost the knowledge economy transformation. As at 2010, Malaysian GDP (Gross Domestic Products) growth was about 7.2 percent to RM558.4 billion compare to the previous year. Contribution can be divided into 5 main sectors which consist of agriculture (7%), mining (7%), manufacturing (27%), construction (3%), and services (56%). (Source: Department of Statistic Malaysia, GDP). In the same year, Malaysian total exports are estimated to be RM639.4 billion which electronic equipment, petroleum and natural gas, wood products, palm oil, rubber textiles and chemicals. As at first quarter 2011, the country main export partners are Singapore (12.8%), China (12.7%), Japan (11.5%), European Union (10.6%), United States of America (8.3%), Thailand (5.4%), Hong Kong (5.2%) and other countries (38.8%). (Source: Department of Statistic Malaysia, External Trade)

2.1 Asian Financial Crisis in 1998

There are two ways the price of a currency can be determined and which are call fixed and floating exchange rate. A fixed or pegged rate is a rate the central bank sets and maintains as the official exchange rate. A set price will be determined against a major world currency in order to maintain the local exchange rate. Kenen (2000) concluded that pegged or adjustable exchange rates are not viable as it is regulated by rigidly fixed rates and impose tight constraints on monetary policy. Fixed exchange rate will neutralize monetary shocks, thus keep a monetary shock from affecting the real economy. For example, an excess supply of money will cause a capital outflow and an excess demand for money will produce a capital inflow but there are no impacts on the domestic economy. Supported by Murray (2000) stated that under fixed rate economy might experience difficulty to re-equilibrate if macroeconomic disturbance happen. For example, if one economy experience serious and frequent microeconomic shock, the pressures might shift onto other variables as nominal exchange rate is not adjustable. In addition Fane (2005) stated that in 2005 Malaysia were absorbing large capital inflows as widespread expectation that the fixed rate will be revalued upwards against USD.

The period following the devaluation of the Thai baht on 2nd July, 1997 had widespread its effect in East Asian markets to drastic economy slowdown. The region's stock markets once among the largest in the world saw their market capitalization shrink by as much as 85% in US dollar terms. This event also caused East Asian currencies to depreciate sharply with some currencies fell by 50 percent – 80 percent against the US dollar by end-July 1998. By early 1997, panic over the country's foreign debt and property deflation have lead both the Thai stock market and the Thai baht experienced increasing selling pressure. As Thailand economic conditions deteriorated, Malaysian markets began to feel the selling pressure.

When Bank of Thailand failed in their bids to discourage speculation on Thai Bath, the Philippine Peso, then the Malaysian Ringgit and finally the Indonesian Rupiah succumbed to speculative pressure. In 1997, Kuala Lumpur Composite Index (KLCI) had dropped more than 70% from above 1,200 to under 300 points, and the Ringgit Malaysia (RM) had depreciated by almost 50% of its value, falling from above RM2.40 to around RM4.70. This lead to Malaysia imposed strict capital controls where Bank Negara Malaysia (BNM) imposed Malaysian Ringgit to be fixed at RM3.80 pegged against the U.S dollar.

In 1998, the output of the real economy declined plunging the country into its first recession for many years. Overall, the country's gross domestic product plunged by 6.2% lead by construction sector contracted by 23.5%, manufacturing dropped by 9% and the agriculture sector shrunk by 5.9 in 1998. In the third quarter of 1998, various defensive measures were announced to overcome the financial crisis. The Corporate Debt Restructuring Committee set up Danaharta in order to manage discounted and bought bad loans from banks and Danamodal to recapitalized banks. Growth then became more stable at a slower but sustainable pace. Banks were better capitalized and non-performing loans continue to decrease. Merger of banks and other financial institutions ware been implemented where small banks were bought over by strong ones. Large numbers of public listed companies that were unable to regulate their financial situation were delisted from Kuala Lumpur Stock Exchange.

After pegging the Malaysian Ringgit for almost 7 years, BNM had un-pegged the Ringgit under manage float in 22, July 2005. In this aspect, Malaysian currency is managed by BNM to intervene in order to influence the value of Ringgits Malaysian. BNM will monitor the exchange rate against a currency basket and other economic fundamentals to ensure that the exchange rate remains close to its fair value. From 22 July 2005 to 23 March 2007, Ringgit appreciated smoothly, from 3.7799 to 3.4565 against the USD or 8.56 percent. The Kuala Lumpur Composite Index (KLCI), on the other hand, increased drastically from 939.69, rose two percent or 17.75 points, its highest close since May 2000 to 1235.65 in 23 March 2007 or 31.50 percent. This

effect on the domestic stock index is very different with exchange rates. Therefore, the Malaysian case provides an interesting arena to study the relationships between stock prices and exchange rates. Furthermore, the Kuala Lumpur Stock Exchange (KLSE) is one of the fastest growing emerging stock markets as market capitalisation and the numbers of listed companies have increased in recent years. Since the un-pegged, currently Malaysian Ringgit has appreciated by 21% from RM3.80 to RM3.00 in April, 2011.

2.2 Exchange Rate Market

Exchange rate will appreciate or depreciate whenever the values of either of the two component currencies change. A currency will become more valuable when demand for the respective currency is greater than the supply. It will become less valuable if demand is less than the supply. The increased demand for a currency may cause either an increased in transaction demand for money or an increased speculative demand for money. The transaction demand for money involved the country's business activity, gross domestic product (GDP), balance of payment, imports and exports, money supply, and employment. High demand on home country's goods and services will lead the demand for the home currency to increase. In contrast, low demand on home country's goods and services tend to lead the demand for the home currency to decrease. Central banks can adjust the available money supply to accommodate changes in the demand for money due to business transactions. In term of speculative demand for currencies trading, it is much harder for a central bank to manage. But the central bank can apply another economic factor such as interest rates in order to manage the demand and supply of money. High interest rate will motivate local speculator to save and foreigners to buy local currency if the return on investment is high enough to cover the cost. Therefore, this will lead to an increase in local currency demand.

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