The exchange rate exposure of stock market performance in Malaysia

BY

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DEDICATION

I would like to dedicate with my greatest appreciation to my beloved parents.

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In the name of God, the most Gracious, the most Merciful

I would like to express my sincere appreciation to my supervisor Dr. Tajul Ariffin and Co-supervisor Dr. Hooy Chee Wooi for their invaluable guidance and assistance throughout this study.

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ABSTRACT

Kajian ini ingin menyiasat kesan kemeruapan pertukaran wang ke atas prestasi keseluruhan pasaran stok (KLCI) dan juga ke atas 6 sub-sektor di dalam KLCI (daripada 8 kesemuanya). Sebagai tambahan, kajian ini mengenalpasti kesan perbezaan regim pertukaran wang dan pasaran stok US ke atas pretasi pasaran stok, dan seterusnya kesannya ke atas sub-sektor di dalam KLCI. Kajian ini menggunakan prosedur siri masa dan sampel untuk kajian ini ialah data bulanan dari tahun 1995 hingga 2007. hasil kajian menunjukkan bahawa terdapat hubungan yang negatif dan signifikan di antara kemeruapan pertukaran wang dan prestasi KLCI dan sub-sektor di dalam KLCI. Hasil kajian juga menunjukkan bahawa terdapat perhubungan yang positif dan signifkan di antara NYSE dan KLCI, serta sub-sektor di dalam KLCI. Hasil kajian juga menunjukkan bahawa terdapat perhubungan yang positif dan signifkan di antara regim pertukaran tetap dan KLCI. Walaubagaimanapun, ujian ke atas sub-sektor di dalam KLCI menunjukkan ianya hanya signifikan untuk tiga sub-sektor sahaja.

ABSTRACT

This study investigates the effect of exchange rate volatility on overall stock market performance (KLCI) and on the performance of six sub-sectors of KLCI (out of eight sub-sectors). Furthermore this study tries to investigate the effect of different exchange rate regimes and US stock market on KLCI and subsequently on KLCI sub-sectors. This research applies time series procedure and the sample of this research is monthly data from 1995 to 2007. The findings show negative significant relationship between exchange rate volatility and stock market performance of KLCI and its sub-sectors. Findings Show the positive significant relationship between NYSE and stock market performance of KLCI and sub-sectors. Finding indicates a positive significant relationship between fixed exchange rate regime and stock market performance of KLCI. However the result of relationship between fixed exchange rate regime and KLCI sub-sectors reveal that it is significant only at 3 sub-sectors.

CHAPTER 1

INTRODUCTION

1.1 Background of the present study

The stock market is one of the most important sources for firms to raise money. This allows businesses to be publicly traded, or raise additional capital for expansion by selling shares of ownership of the company in a public market. Shares price and other assets are an important part of the dynamics of economic activity. Rising share prices, for instance, tend to be associated with increased business investment and vice versa. Therefore, central banks tend to keep an eye on the control and behavior of the stock market performance.

The Malaysian government aims to achieve an industrialized economy by the year 2020. Achieving the goal requires sustained investment activities and prudent management of the country's resources. The country's strong economic growth and vibrant capital markets are attracting strong portfolio investment. The process towards industrialization will lead to an increase in the demand for capital. Therefore, the capital markets are playing a vital role in this process so controlling capital markets and controlling the factors that influence the performance of the capital markets in Malaysia are very important issues for Malaysian government, financial managers, fund managers and investors.

Exchange rate movements can affect the performance of the stock market by influencing the business activities. Movement in a currency's exchange rate affects the activities of

both domestic and international companies. For example, exchange rates influence demand for a company's products in the global marketplace. When a country's currency is weak (valued low relative to other currencies) the price of its exports on world markets declines and the price of imports increases. Lower prices make the country's exports more appealing on world markets. Furthermore, a company that is selling in a country with strong currency (one that is valued high relative to other currencies) while paying workers in a country with a weak currency improves its profits.

Exchange rates also affect the amount of profit a company earns from its international subsidiaries. The earnings of international subsidiaries are typically integrated into parent company's financial statements in the home currency. Translating subsidiary earning from a weak host country currency into strong home currency reduces the amount of these earning when stated in the home currency, Likewise, translating earning into a weak home currency increases stated earnings in the home currency.

Many studies have been done on developed countries. For instance, Hyde (2007) finds significant levels of exposure to exchange rate risk in industries in France, Germany, Italy, and the UK. Also studies have been done on emerging markets. For instance Kiymaz (2003) found that Turkish firms are highly exposed to exchange rate risk particularly firms in the textile, chemical, machinery and financial sectors. There is a contradiction in previous studies in Malaysia. Rangel (2002) found no foreign exchange rate exposure for Malaysian firms, but thy (2000) found positive foreign exchange rate exposure. This study tries to consider longer period to identify the existence and direction and magnitude of exchange rate exposure on stock market performance.

International monetary regimes tend toward one of two ideal types. The first is a fixed rate system, in which currencies are tied to each other at publicly announced rates. Some fixed rate systems involve a common link to a commodity such as gold or silver; others peg to a national currency such as the US dollar. The second ideal typical monetary regime is free floating, in which national currency values vary with market conditions and national macroeconomic policies. According to Bank Negara, between 1995 and 1997, the Ringgit was trading as a free float currency at around 2.50 to the U.S. dollar. Bank Negara Malaysia pegged the Ringgit to the U.S. dollar in September 1998, maintaining its 3.80 to the dollar value for almost seven years. Bank Negara announced the end of the peg to the U.S. dollar On July 21, 2005. Malaysia allows the Ringgit to operate in a managed float against several major currencies. This has resulted in the value of the Ringgit rising closer to its perceived market value, although Bank Negara has intervened in financial markets to maintain stability in the trading level of the Ringgit.

1.2 Problem statement

Emerging markets have recently been of great importance to the worldwide investment community. The market capitalization, volatility, and returns have increased dramatically in these markets. The increased volatility of stock market has caused the investors and fund managers exposed to higher market risk. The 1997-98 East Asian financial and

currency turmoil rocked Malaysia's equity markets severely. During that period, stock market volatility in the Kuala Lumpur Stock Exchange (KLSE) increased substantially, and investors' confidence was badly shaken. This was reflected in a sharp decline in the key benchmark Kuala Lumpur Composite Index (KLCI). KlSE composite index volatility and exchange rate volatility during whole period of this study is shown by graph to make the issue more tangible (Figure 1.1). This high volatility in the stock market received a great deal of attention from market participants, including investors, brokers, dealers, and regulators. Participants care about stock market volatility, not just because it is perceived as a measure of risk, but because they worry about "excessive" volatility in which observed fluctuations in stock prices do not appear to be accompanied by any important news about the firm or market fundamentals. In addition, greater volatility may increase the value of the "option to wait" by investors, thereby delaying investment and economic growth (Hook, 2006). This study aims to explore the direction and magnitude of factors that affect the volatility of stock market. The main variable of this study is exchange rate changes.

Malaysia is a small and open economy, exchange rate exposure is a major concern, since the introduction of the float exchange rate regime in 2005, after seven years experiencing fixed exchange rate regime(1998 to 2005), the exchange rate has shown itself to be volatile (Bank Negara Malaysia, 2005). There is debate whether changes in exchange rate regimes was suitable decision for solving economics and business issues of Malaysia or not. This study also aims to measure is there any improvement in the performance of

stock market during fixed exchange rate regime and also to investigate there is any difference in stock market performance across different exchange rate regimes.

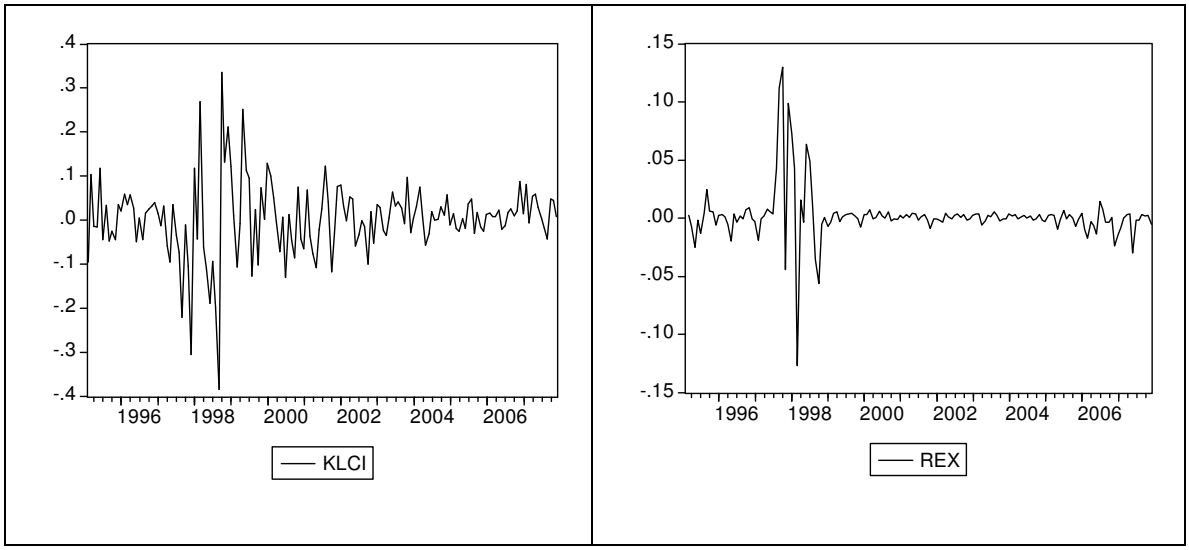

Figure 1.1: *Volatility of KLCI and* Δ*REX*

1.3 Research objectives

Our main objective is to analyze empirically the impact of exchange rate changes on stock market performance in Malaysia. Subsequently, we have the following specific objectives:

1. To investigate the impact of exchange rate changes on stock return of KLCI.
2. To investigate the impact of exchange rate changes on KLCI sub-sectors.
3. To investigate whether the stock market return of KLCI and its sub-sectors differ across different exchange rate regimes.

1.4 Research questions

Generally, we want to investigate the exchange rate exposure on stock market performance in Malaysia. In searching for the answer, we proceed with the following sub-questions to be answer:

1. What is the impact of exchange rate changes on KLCI?

2. What is the impact of exchange rate changes on sub-sectors of KLCI?

3. What are the impacts of different exchange rate regimes on stock market performance?

1.5 Significant of present study

Many scholars and financial institutions in foreign countries have carried out studies on exchange rate exposure of different countries. This study of Malaysian case seeks to extend research on this area and also expand literature review about this concept .Exchange rate exposure is very important issue it contributes to these parties: Regulators, the fund managers, financial managers of domestic and international companies, Consumers, Competitors, Suppliers.

One of the major goals of government is to develop Malaysian's economy. To achieve this goal Malaysia need to provide infrastructure and an enabling environment for businesses to compete globally. Malaysia should maintain its international

competitiveness, since there is growing competition from other emerging markets for FDIs and for the transfer of modern technologies. Hence exchange rate movements can affect the prices of services sector. As services sector is a prerequisite for attaining economic growth and improving country's Productive capacity by reducing production cost.

The fund managers may want to be aware of the exchange rate risk of their portfolio because most of their portfolios comprised of equity and shares that are listed on the KLSE and directly expose to the market risk. The Asian financial crisis has led global investors to realize that ignoring currency risk in Asian stock markets can have important effects on their portfolio performances.

Exchange rate exposure is very important issue for financial managers of domestic and international companies because Exchange rate exposure significantly affects corporate earnings, profitability and equity prices because of dramatic increases in the world trade and capital movements. It has a great effect on export and import prices and also fluctuation of exchange rate affect labor cost .Consumers also are affected by exchange rate changes especially through the affect in their purchasing power. This will impact the firm's cash flows and the elasticity of demand of the firms' products. The exchange rate change may have an impact on the competitors' costs and thus impact reaction. Suppliers will pass the impact of the real change on the prices that it charges the firm. This is important because of the denomination of the costs. This study provides better understanding of exchange rate exposure in Malaysia on stock market performance for these parties, to be aware of this risk.

1.6 Definition of key terms

1.6.1 Exchange rate exposure

Exchange rate exposure means, the extent to, which the stock-market value of a firm varies with, changes in exchange rates or the relationship between excess returns and the change in the exchange rate (Adler and Dumas, 1984).

1.6.2 Kuala Lumpur Composite Index (KLCI)

This is a stock market index of Malaysia, generally accepted as the local stock market barometer. It is used to be the main index. It contains 100 companies from the Main Board with approximately 500 to 650 listed companies in the Main Board which comprise of multi-sectors companies across the year 2000 to 2006 and is a capitalization-weighted index.

1.6.3 Sub-sectors of KLCI

This study includes six sub-sectors indices of KLCI that this section explains the abbreviation of each sector: KlSECON stand for The Kuala Lumpur Stock Exchange construction price index, KLSECOP stand for The Kuala Lumpur Stock Exchange consumer production price index, KLSEFIN stand for The Kuala Lumpur Stock Exchange Finance price index, KLSEIND stand for The Kuala Lumpur Stock Exchange Industrial price index, KLSEPLN stand for The Kuala Lumpur Stock Exchange Plantations price index and KLSEPRP stand for The Kuala Lumpur Stock Exchange Properties price index.

1.6.4 New York Stock Exchange (NYSE)

The Oldest US stock exchange and largest in the world in terms of dollar volume and second largest in number of companies listed, founded in 1792 and located on the Wall Street in New York City. Although its daily share volume (now over $3 billion) is less than that of NASDAQ since the 1990's, its total market capitalization is 5 times that of NASDAQ. About 2300 firms listed on NYSE include the largest US and non-US corporations with total market capitalization of about 21 trillion.

1.6.5 Fixed exchange rate regime

Fixed exchange rate regime exists when the exchange rate of the home currency is fixed to another currency. This is the case with economies having currency boards or with no separate national currency of their own (Fischer, 2001).

1.7 Organization of the study

The study is organized with an introduction in chapter one. Chapter two of this study presents the relevant literature review on this area of research. Chapter 3 explains the methodology together with some statistical tools that are used to carry out this research. Chapter 4 deals with the analysis of the findings and finally chapter 5 presents the concluding remarks to this study.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The present study explores the exchange rate exposure on stock market performance. Definition of all variables are provided in chapter one .Therefore this chapter will provide a review of the literatures on existence of exchange rate exposure in different country and companies and direction of exchange rate exposure (a negative exchange rate exposure and a positive exchange rate exposure). At the next section different exchange rate regimes will be explained and followed by theoretical framework and hypotheses for the present study. The literature review shows there is a lack of such studies in the local market of Malaysia. At the end of this chapter, this study tabulates the literature review to help better understanding of exchange rate exposure in different country and different firms. This table shows the existence and direction of exchange rate exposure in different countries and firms (Table 2.1).

2.3 Existence of exchange rate exposure

There are many articles that clarify the existence of exchange rate exposures on different companies. For instance, Hyde (2007) finds significant levels of exposure to exchange rate risk in industries in France, Germany, Italy, and the UK. He investigates the sensitivity of stock returns at the industry level to market, exchange rate and interest rate shocks in the four major European economies. In another research Vygodina (2006) finds changes in exchange rate being significant in determining changes in large-cap stock

prices for the periods 1995–2000 and 2003–2005 and changes in large-cap stock prices leading changes in exchange rates for the period 2000–2003. To prove this he investigates relationship between US stock prices and exchange rates controlling for the firm size over a period 1987–2005 using Granger causality methodology. He finds Grainger causality from large cap stocks to the exchange rate, but no causality for the small-cap stocks. Findings show that the nature of the relationship between stock prices and exchange rate is changing over time because they depend on the same set of macroeconomic variables, including interest rates, inflation level and federal monetary policy.

De Jong and Ligterink, and Macrae, (2006) also discover that over 50 per cent of the firms are significantly exposed to exchange rate risk. They Investigate the relationship between exchange rate changes and stock returns for a sample of Dutch firms over 1994-1998. They find all firms with significant exchange rate exposure benefit from a depreciation of the Dutch guilder relative to a trade-weighted currency index. This result confirms that firms in open economies, such as the Netherlands, exhibit significant exchange rate exposure. According to El-Masry (2006) the significant exposure exists to both contemporaneous and lagged exchange rate changes in UK non-financial companies over the period January 1981 to December 2001. He employs OLS model to estimate foreign exchange rate exposure. He finds that, Exchange rate exposure is most prevalent in the periods before and after Sterling entered the European Exchange Rate Mechanism in the early 1990s.In another research, Rees and Unni (2005) find Conflicting exposures and the high incidence of significant exposure that, is discovered by the use of multiple

exchange rates rather than the conventional composite index. They investigate the pre-Euro exposure to exchange rate changes of large firms in the U.K., France and Germany. They find a complex pattern of exposure and widespread exposure of exchange rate among European firms. The majorities of U.K. firms gain when the sterling depreciates against the dollar, but lose when it depreciates against the ECU. Several German firms have similarly conflicting exposures to the yen and the dollar. They find that the reliability of exposure estimates is improved by the use of overlapping measurement intervals.

An empirical study by Kroon and Veen (2004) also examine 1,691 stocks from 24 countries over the period 1996-2002. Their results show that ‘‘general’’ stock market indices tend to be relatively currency sensitive, with the largest effects for euro-based investors. And by looking beyond general market factors, it found that only 16 per cent of the individual Companies had one or more statistically significant ‘‘stock-specific’’ currency exposures. The results suggest that most companies are currency insensitive, once one adjusts their returns for general market factors. At the same time, however, companies are in general currency sensitive, in the sense that their co-movements with general factors tend to be relatively currency sensitive.

Kasman (2003) concludes that a long-run stable relationship between stock indices and exchange rate exist. He investigates the relationship between stock prices and exchange rates by using high-frequency data of exchange rates and aggregate stock indices of Turkey. Sample data consist of daily closing prices of four aggregate indices: National

100, Financial Sector Index, Production Sector Index, and Service Sector Index. The sample has been determined and start by the data availability around 1990 and the last day for all indices is November 29, 2002. In another research Turkish firms was evaluated by Kiymaz (2003),He found that Turkish firms are highly exposed to exchange rate risk particularly firms in the textile, chemical, machinery and financial sectors. He investigates the foreign exchange exposure of firms in a highly inflationary environment. He reports that 47 per cent of all firms face significant exchange rate risks although, for example, this rises to 82 per cent of textile firms and 65 per cent of financial firms.

Morley (2002) shows there is a stable short-run relationship between stock prices and exchange rates for the U.K. and to a lesser extent for The Netherlands. There is less evidence of a relationship in France or Italy, at the same time as in Germany it appears to be unstable. To prove this he investigate whether stock prices and exchange rates are related and whether there is evidence of convergence in the structure of this relationship across members of the European Union (EU).They examine if this relationship differs, depending on whether the system of finance prevalent in a particular country is financial market based or dominated by the banking system. This study finds the different financial systems across these countries: as in the UK the financial system is dominated by financial markets, whereas in France and Germany, the banking system is dominant.

In another research Nieha and Leeb (2001) find two major findings from their time-series estimations. First, there is no long-run significant relationship between stock prices and exchange rates in the G-7 countries. Second the short-run significant relationship has

only been found for one day in certain G-7 countries. To get this result they explore the dynamic relationships between the stock prices and the exchange rates from October 1, 1993 to February 15, 1996, of daily closing stock market indices and foreign exchange rates for the G-7 countries: Canada, France, Germany, Italy, Japan, UK and the US.

An empirical study by Chiao (2001) also defines the impact of market liberalization programs on firms' exchange-rate exposure. To examine the existence of exchange-rate exposure of individual exporting firms, he divide entire available time periods into four sub-periods from January 1981 to December 1997.The results are rather vague in all four sub-periods divided by the three liberalization events. In general, he does not find obvious exchange-rate exposure of individual firms. He cannot, however, reject that the exporting firms are jointly exposed to exchange-rate risk in all sub-periods. To examine individual exporting firms are affected by the returns of lagged exchange rates, he find that the effect of lagged exchange-rate returns on the exporters' stock returns are significant cross-sectionally. To examine the exchange-rate exposure is affected by the timing of the three liberalization events. Considering explicitly the timing of the three liberalization events, he shows that the timing greatly affects the exchange-rate exposure of firms.

Krishnamoorthy (2001) indicates that industries that are classified as being globally competitive and those that primarily serve the consumer sector of the economy have significant levels of exposure. He investigates whether or not the industrial structure is an

Important determinant of the exchange rate exposure of US industry portfolio returns Over a three-year period (1995-1997).A time series regression is conducted on the sample of industries by regressing the rate of change of a trade-weighted US dollar index on the industry portfolio return while controlling for the US market. The study also provides some evidence on market efficiency as it pertains to changes in the value of the dollar.

The empirical results of Merikas (1999) study show that the stock returns of the Greek banks are affected differently from the variation of the three major currencies USD, DEM and YEN against the GRD, these differences are subject to as set and liability structure of each individual bank as well as its management team. He investigates the structural relationship between the exchange rate exposure and the stock value of the main Greek banking institutions. His study has a unique feature of performing direct analysis at the individual level, and not at the aggregate level. He restricted the sample to the eight large local banks, which have substantial international activities, and their shares are actively traded in the Athens Stock Ex change. The data set contains 860 daily observations from August 1995 till November 1998. He examined the foreign exchange exposure of a sample of Greek banks using daily data.

A study to find out the foreign exchange exposure of mining firms in Australia was done. The estimation is conducted at several levels: single equation estimation for individual stocks and for portfolios of stocks from the same industry group, and multivariate regression. He finds that the sensitivity of stock returns to movements in exchange rates is small (Khoo, 1994).

Regarding finding existence of exchange rate exposure Bartov and Bodnar (1994) fail to find a significant relationship between the abnormal returns of firms with international activities and contemporaneous changes in the value of the US dollar. They investigate the relationship between exchange rate changes and abnormal returns of 208 US companies during the period from 1978 to 1989. In another study Walsh (1994) demonstrates that operating income will only exhibit a lagged relationship to exchange rate movements in the presence of a competitive foreign exchange rate exposure. His results show that more than 10 per cent of firms are significantly exposed to contemporaneous exchange rate changes. He investigates the relationship between exchange rate and operating income, and contemporaneous and lagged relationships between exchange rate and stock returns of 391 firms for the period April 1982 to January 1993. A study carried out by Bodnar and Gentry (1993) revealed that some industries in all Canada, Japan, and the USA display significant exposures, reporting that only 11 out 39 US industries face significant exposure with only 4 out of 19 industries in Canada, although there are 7 out of 20 in Japan. They Measure exposure by adding the changes in the exchange rate to the domestic market model of industry portfolio returns.

The dominant effects of exchange rate levels and their volatility on sectoral investment in U.S. industry, by using quarterly data for thirty-one sectors of U.S. industry, from 1970 through 1990 investigated. The results show that the strongest effects of exchange rates on U.S. investment appear in the manufacturing durables sectors and in non-manufacturing sectors (Goldberg, 1993).

2.4 Positive exchange rate exposure

A study carried out by Grambovas and McLeay (2006) reveal that an appreciation of the exchange rate had greater positive effects on the value of Euro zone companies in the pre-euro period than post-euro. It is also shown that an appreciation of the exchange rate had negative effects on the value of multinational Euro zone companies, like their counterparts in the US. He finds this result by investigating the impact of the introduction of the common currency on the value of European firms. They use an adapted residual earnings model and observe equity prices in the period both before and after currency convergence. Dekle (2005) also found that as substitutability with foreign producers increases, exposure increases. He examines the impact of foreign competition on exposure, or the responsiveness of profits to fluctuations in exchange rates. Also the competitive structure of foreign markets and the firm-level characteristics that determine this exchange rate exposure. He also shows that, when substitutability is high, colluding exporters tend to have higher exposure than competing exporters. He evaluate the substitutability between foreign and export products and the type of competition among exporters.

In another study Wu (2002) uses a monetary approach to analyze the asymmetric asset-price movements (exchange rates and stock prices) in Singapore, a small open economy with managed exchange rate targeting. The Singapore dollar exchange rates vis-a`-vis the developed countries' currencies are negatively related to stock prices whereas the

relationship between the Singapore dollar-Malaysian Ringgit exchange rate and stock prices is positive instead. Positive and significant relationship between the movement of the USD-MYR and the movement of the stock prices also has shown in Thye (2000) investigation between the movement of the USD-MYR and the movement of the stock prices. He tries to determine if the movement of the currency exchange rate had any significant effect on the stock prices of Malaysian firms. He applies correlation and regression test for the period covered from 1 January 1996 to 31 December 1998. Rangel (2002) results did not indicate that foreign exchange risk is a significant factor in determining firm value in Malaysia. To find these result monthly closing prices of the stocks on the KLSE from January 1990 to December 1996 were used.

Dimitrova (2005) also finds that a depreciation of the currency may depress the stock market the stock market will react with a less than one percent decline to a one percent depreciation of the exchange rate. This also implies that an appreciating exchange rate boosts the stock market. He investigates a link between the stock market and exchange rates that might explain fluctuations in either market, over the period January 1990 through August 2004 for United States and the United Kingdom.

The impact of interest rate and FX rate changes on the stock returns of a set of US banks at both a firm and portfolio level were investigated. Three important aspects were considered in the study: the use of daily data to measure bank stock return sensitivity; joint modeling of interest rate and FX rate sensitivity; and, the reliability of statistical inferences based on both OLS and EGARCH estimation methods. The study find that the

sensitivity measures for the OLS and EGARCH estimates are generally similar and the FX rate sensitivity coefficients are typically positive for both estimation Methods (Joseph and Vezos, 2006).

According to Choi and Kim (2003) that, investigate the Asian currency exposure of US firms with regard to their international operational and risk management strategies. The study shows that contemporaneous and lagged changes in real exchange rates have significant impacts on firm value for 29 per cent of the US firms with Asian operations at the 10 per cent level of significance. About half of them have significant positive exposures. In study that carried out by Luehrman (1991) revealed that, a depreciation of the home currency leads to a decline in the value of the world automobile and steel industries .to investigate this he conduct a study to find out foreign exchange exposure of this two industries . He investigates the impacts of the real exchange rate changes on the industries' cash flows, by using daily and weekly data during the period 1978-87. By Jorion (1990) investigation exposure was found to be positively and reliably correlated with the degree of foreign involvement. He found the co-movement between stock returns and the value of the dollar is found to be positively related to the percentage of foreign operations of U.S. multinationals. He analyzes the foreign exchange exposure of the U.S. Multinationals. He identified significant cross-sectional differences in the relationship between the value of U.S. multinationals and the exchange rate .Exposure represents the sensitivity of the value of the firm to exchange rate randomness and measured by the regression coefficient of the change in the value of the firm on the change in the exchange rate.

The sensitivity of interest rate and exchange rate risk (betas) of 59 large U.S. commercial banks for the period of 1975–1992 is investigated. The estimation procedure uses a modified seemingly unrelated simultaneous method that recognizes cross-equation dependencies and adjusts for serial correlation and heteroskedasticity. The market risk beta is significantly positive for all banks, the interest rate risk beta is significant for 23 out of 59 banks and the exchange rate risk beta significant for nearly all the banks (49 out of 59). Overall, the exchange rate risk betas are more significant than the interest rate risk betas. Moreover, they find that all the significant interest rate betas are negative while the exchange rate response is mixed. (Choi and Elyasiani, 1997)

The evidence for Sweden is slightly weaker reports that 40 per cent of the firms face significant exposure. After studying the determinants of exposure they find a positive, and statistically significant, relation between the estimated exposure and the ratio of foreign sales to total sales. Also the use of currency derivatives appears to reduce the exchange rate exposure of firms. Using weekly data they find that about 26 percent of the 47 firms in the sample are significantly exposed to exchange rate changes, a significantly larger percentage than what they would expect by random. This is a substantially higher percentage than earlier results for U.S. companies (Nydahl, 1999).

2.5 Negative exchange rate exposure

Kim (2003) finds that the S&P 500 stock price is positively related to the industrial production but negatively to the real exchange rate, interest rate, and inflation. He investigates existence of long-run equilibrium relationships among the aggregate stock

price, industrial production, real exchange rate, interest rate, and inflation in the United States. The data used are monthly series covering January 1974 to December 1998.

In another research by El-Masry and Abdel-Salam, and Alatraby (2007), the exchange rate exposure of the U.K. non-financial companies from January 1981 to December 2001 investigated. They find a little (no impact) contemporaneous relationship between firms' stock returns and trade-weighted nominal exchange rate and trade-weighted real exchange rate. They find significant correlations between firms' stock returns and changes in the trade-weighted real exchange rate are relatively higher than the movements in trade-weighted nominal exchange rates. A higher proportion of positive exposure coefficients among firms with significant exchange rate exposure are found that indicate a higher proportion of firms benefiting from an appreciation of the pound. They find that the level of foreign sales, as well as foreign assets and foreign income, are all significantly negatively related to exchange rate exposure. They provide evidence that exchange rate movements do affect firm value and this effect has an economically large effect on differences in average stock returns. The impact of hedging variables on the exchange rate exposure is explored. The results indicate evidence that hedging variables affect firms' sensitivity to exchange rate exposure.

A study carried out by Mullera and verschoor (2007) investigate whether the equity value of individual Asian internationally active firms are affected by exchange rate changes, whether the explored Asian foreign exchange risk exposure patterns are industry-specific, and whether the firm's exchange exposure is more evident across increasing time horizons. Using a sample of 3634 Asian internationally active firms, they find that for the

period from January 1993 to December 2003, about 25 percent of these firms experienced economically significant exposure effects to the US dollar, and 22.5 percent to the Japanese yen. . they also study the exposure of individual firms within different Asian industries, as opposed to average industry exposure. Importantly, individual firms in these industry groups show high positive as well as negative exposure, suggesting that exposure is not necessarily economically significant in the aggregate. Asian firms with insignificant exposure effects are concentrated only in a small number of industries. Furthermore, they investigate the nature of exchange exposure across increasing return measurement intervals. The findings suggest that the extent to which Asian firms are exposed to foreign currency fluctuations varies with return horizons. Short-term exposure seems to be relatively well hedged, where considerable evidence of long-term exposure is found. They find, indeed, that more than 70 percent of Asian firms are significantly affected by US dollar exchange rate fluctuations in the long-term. They find that Asian internationally active firms with a low dividend payout ratio (strong short-term liquidity positions) have less incentive to hedge and hence have larger exchange rate exposures. Correspondingly, more profitable firms are systematically more exposed to exchange rate fluctuations than less profitable firms. Contrary to the US finding, they find that highly leveraged firms or firms with a lower quick ratio tend to have higher exposure to exchange rate risk. Firms with weak liquidity positions tend to have smaller exposures.

The most important outcome of Chan, and Seow, and Tam, (2002) research is that the proprietary drug producers display exchange rate sensitivities that reversed from negative during 1990-1994 to positive during 1995-1999. They reveal that the proprietary drug producers' stock returns were adversely affected by an appreciating US dollar, in the

period 1990-1994. He investigates the effect of foreign exchange risk on the valuation of the two main groups of US pharmaceutical firms: generic drug firms and proprietary drugs during the period 1990 to 1999.

Chang (2002) examines industry-level currency risk of Taiwan's stock market around the Asian financial crisis using a two-factor model. The results show that most export-oriented industries, except for the electronics industry, are positively affected by the depreciation of the new Taiwan dollar (NTD) against the US dollar (USD). The study also finds that the magnitude of currency risk is less for banking and electronics industries in the Taiwan stock exchange (TSE) than for those in the over-the-counter (OTC) security exchange. Jorion (1991) evaluates the pricing of exchange rate risk in the U.S. stock market, across industries such as Chemicals, Mining and Retail. Retail industry reacts negatively to a change in exchange rate because they suffer from depreciation in the exchange rate. Mining and chemicals industries react positively to a change in the exchange rate and they benefit from depreciation in the exchange rate.

Based on Choi and Prasad (1995) exchange rate fluctuations do affect firm value. They found that approximately sixty percent of firms with significant exchange risk exposure gain from a depreciation of the dollar. They measure the exchange rate sensitivity of a firm and industry of the US multinationals. They develop a model of firm valuation to examine the exchange risk sensitivity of 409 U.S. multinational firms during the 1978-89 periods.

A study carried out by Donnelly and Sheehy (1996) Revealed that a negative contemporaneous relationship between the abnormal returns of large UK exporters and the foreign exchange changes. They also find a weak lagged relationship, which suggests that the stock market takes time to incorporate all of the implications of foreign exchange rate changes into share prices. To prove this they investigate the relationship between changes in trade weighted nominal exchange rate and the monthly abnormal returns of portfolio of 39 UK largest exporting firms with foreign sales at least 40 per cent during the period from 1978 to 1992. In order to elaborate exchange rate exposure we mention different classification of exchange rate regimes to identify which exchange regimes is used in Malaysia in different periods and, is there any difference in exposure when regimes change.

Hussain and Liew (2004) find a feedback causal relationship between exchange rate and stock price in Malaysia, whereas a unidirectional causal relationship running from exchange rate to stock price in Thailand. The stock markets of these countries are also found to be closely linked, with a feedback causal relationship between them. To discover the causal relationship between exchange rates and stock prices in the two neighboring countries in Malaysia and Thailand during the turmoil of the 1997 Currency Crisis (sample period covering 2 July 1997 to 31 August 1998) they used Granger causality tests.

2.6 New York Stock Exchange and KLCI

Yang and Kolariz and Min (2003) examine the long-run relationship and short run dynamics among the US, Japanese, and ten Asian stock markets, with the particular