

**AN INVESTIGATION ON FOREIGN EXCHANGE
EXPOSURE IN MALAYSIA LISTED COMPANIES**

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MASTER OF SCIENCE (FINANCE)

UNIVERSITI UTARA MALAYSIA

NOVEMBER 2014

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EXPOSURE IN MALAYSIA LISTED COMPANIES**

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THESIS SUBMITTED TO

**OTHMAN YEOP ABDULLAH GRADUATE SCHOOL
OF BUSINESS**

UNIVERSITI UTARA MALAYSIA

2014

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE MASTER OF FINANCE (SCIENCE)**

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Abstract

In the light of globalization and internationalization of world markets, foreign exchange risk has become one of the most difficult and persistent problems with which financial executives must cope. This risk cannot be avoided, but can be managed by hedging in currency forwards and options. The need and approach for managing it depends on the size of exposure and fluctuations in exchange rate. Malaysia has its own status in the international markets. This study construct an analysis about foreign exchange exposure Malaysia companies were listed on Kuala Lumpur Stock Exchange during period January 2000 to December 2010. This study extent the prior researches by investigating the effects of major determinants toward the foreign exchange exposure. This study reveals that company efficiency, size, asset tangibility and growth opportunity do affect the foreign exchange exposure in Malaysia companies in general. However, the result comes up differently when those companies classified into their industry sectors. For Industry Product sector, this study documents the evidence that financial leverage, efficiency, profitability and size of the companies are significantly influence the foreign exchange exposure.

Keywords: Exchange rate exposure, Foreign currency, Bursa Malaysia

Abstrak

Memandangkan globalisasi dan pengantarabangsaan pasaran dunia, risiko pertukaran mata wang asing telah menjadi salah satu masalah yang paling sukar dan berterusan. Risiko ini tidak dapat dielakkan tetapi boleh diuruskan melalui perlindungan nilai mata wang asing pada masa hadapan. Keperluan dan pendekatan untuk menguruskan matawang asing bergantung kepada saiz pendedahan dan naik turun dalam kadar pertukaran mata wang asing. Kajian ini membina analisis tentang pendedahan syarikat-syarikat pertukaran mata wang asing di Malaysia yang telah disenaraikan di Bursa Saham Kuala Lumpur dalam tempoh Januari 2000 hingga Disember 2010. Kajian ini meliputi penyelidikan terlebih dahulu dengan mengkaji kesan penentu utama terhadap pendedahan pertukaran mata wang asing. Kajian ini menunjukkan bahawa kecekapan saiz syarikat, asset tidak nyata dan peluang pertumbuhan menjejaskan pendedahan pertukaran mata wang asing dalam syarikat-syarikat di Malaysia secara amnya. Walau bagaimanapun, hasilnya adalah berbeza apabila syarikat-syarikat yang diklasifikasikan kepada sektor industri masing-masing. Bagi sektor produk industri, kajian ini membuktikan bahawa tahap kewangan, kecekapan, keuntungan dan saiz syarikat-syarikat ini secara ketara mempengaruhi pendedahan pertukaran matawang asing.

Katakunci: Pendedahan kadar pertukaran, Matawang asing, Bursa Saham Malaysia

ACKNOWLEDGEMENT

First, I would like to express my appreciation to my God, the Most Powerful and Merciful that has granted me the ability and willing to start and complete this study. I do pray to his greatness to inspire and enable me to continue the work for the benefits of humanity and my personal usefulness. My highest goes to my parents, for their financial, emotional, and moral support throughout the completion of this work. They mean a lot to my success. My most profound thankfulness goes to my supervisor Dr. Norshafizah Binti Hanafi for her professionally proven and creativity encouraging guidance on this work. Your research and teaching skills will forever be admired. I am indebted to my dearest and encouraging friends that have in one a way or the other help me on this study, thanks to you all. Last but not the least; I sincerely appreciate Malaysia government and UUM for providing a conducive environment and support for the completion of this work.

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CHAPTER ONE

INTRODUCTION

1.1 Introduction

This chapter begins with a general description of the background and the development of the field of study, followed by the actual problem. This study explained the purpose and the delimitations of the dissertation. Further, this study will present the study research questions and hypotheses. This study also measure the foreign exchange exposure based on dependent and independent variables.

1.2 Background of Study

As economic integrating and globalization have been increasing year by year, exchange rate movements have become very important source of risk of financial companies. In this context, it is very important to mention that virtually all existing empirical studies estimate currency exchange rate exposure on the basic of share prices. Exchange rate exposure can be defined generally as the extent to which changes in exchange rate affect stock returns and thereby company values (Bacha, Mohamad, Zain, and Rashid, 2013).

At the micro-level of analysis, if all other conditions are the same, then the higher the proportion of a company's international operations, the greater the effect of exchange rate movements on the company's value. Similarly, the greater the magnitude of exchange rate changes, the more obvious it is when companies are operating under this influence.

According to theoretical analysis, exchange rate movements not only affect a company's current cash flow and profit margin through changes in the prices of raw materials and products, but also change the investment and financing structures and asset prices of listed companies because of investor anticipation of the company's future cash flow and profit margin, and changes in the liquidity of the capital market.

However, there are considerable domestic and foreign empirical analysis (Bodnar and Gentry 1993; Doidge 2006; Luo Hang and Jiang Chun 2007) that indicates that the impact of exchange rate changes on the asset prices of listed companies exposure coefficient is not significant. Whether currency exposure is really important or whether it is the research methods used to study it that are responsible for the phenomena still a matter of debate. This paper attempts to extend on current empirical methods to clarify the issue. Exchange rates affect profitability through many routes. First, they affect directly those firms with financial assets and liabilities denominated in foreign currency and those firms with foreign operations. In addition, through their effect on foreign competition and domestic macroeconomic conditions, exchange rates also can impact the profitability of firms with no foreign currency revenue at all. Thus, a potentially wide range of firms could be exposed to movements in foreign exchange rate, regardless of their financial exposure.

1.3 Background of Malaysian listed company

Malaysia is well-known for exporting oil and gas and has profited from higher world energy prices by exporting to other countries. The government is also trying to reduce its dependence on state oil producer Petronas, which supplies 40% of government revenue. The central bank maintains a healthy amount of foreign exchange reserve and its well-developed monitoring regime have limited Malaysia's exposure to riskier financial instruments and the global financial crisis.

However, decreasing worldwide demand for consumer goods hurt Malaysia's exports and economic growth in 2009, although both began showing signs of recovery late in the year. Malaysia Prime Minister Dato' Seri Mohd Najib Abdul Razak introduces the Tenth Malaysian Plan, outlining new reforms in late June 2010. The Malaysia Prime Minister also has introduced several reforms in the services sector in a bid to attract direct foreign investment, which has festered in recent years.

Malaysia has adopted a relatively open market-oriented economy. Whilst achieving the middle-income nation status, it is also among one of the most developed countries in the ASEAN region. According to World Investment Report 2010 (United Nation 2010), in 2007, the economy of Malaysia was the 3rd largest in South East Asia and 28th largest in the world in term of purchasing power parity (PPP). Between 1957 and 2005 real GDP grew by an average of 6.5 per cent per year. Like most other countries, Malaysia's economic policies were shaped by various events in the nation's history since independence. The Malaysian Government is continuing the efforts to accelerate

the growth of its economy with the goal of transforming Malaysia into a high-income, developed nation by the year 2020.

1.4 Statement of Problem

As economic integration and globalization have been increasing year by year, foreign exchange rate movements have become very important source of risk for financial firms as well as non-financial firms. Also, the internationalization of capital markets has resulted in flow of massive sums of funds between countries and in the cross listing of equities. According to Yucel and Kurt (2003), floating exchange rate appreciation reduces the competitiveness of export markets; and has a negative effect on share prices as well as the domestic stock market. On the other hand, for import dominated country, it may have positive effect on the stock market by lowering input costs. According to Chue and Cook (2008) estimated the impact of domestic exchange rate movements on stock market valuations of firms in 15 emerging markets over eight years, from 1999 to 2006. They found that depreciations tended to have a negative impact on emerging market stock returns in an earlier sub-period (1999 – 2002), a tendency that largely disappeared in a later period (2002 – 2006).

Malaysian exchange and trade system has been liberalized for many years. Malaysia now follows a floating exchange rate policy. Malaysian economy has been suffered from Asian financial crisis during 1997 until 1998 and World financial crisis in 2008. As a result volatility in foreign exchange rate and deviation from purchasing power similarity might become persistent in the economy. Most of the firms operating in

Malaysia are affected in various ways from these economic conditions. The firms have faced higher business risk and foreign exchange risk. A recent study by Bacha et al. (2013) investigates the effects of exchange rate exposure in Malaysia for the period from 1990 to 2005. They note that 71% of their 158 sample firms have significant exchange rate exposure. They also note that the exposure is time variant and dependent on the sector within which a firm operates.

However, empirical evidence on the influence of foreign exchange market volatility on stock market is largely unpredictable. These have been in the context of developed economies. Mishra (2004) has found that no theoretical consensus on the interaction between stock prices and exchange rate. However, Solnik (2000) argues that there is a negative correlation between stock market returns and exchange currency rate.

The openness of a country's economy is recognized as a cause of volatility of its market. Malaysia presents a classic example of an open economy which engages in international trade transaction. Moreover, with increasing of globalization, developing economies are becoming more integrated with developed economies as a result of increasing flow of imports and exports. Therefore, it would be significant to explore the effect of foreign exchange volatility on cash flows as well as stock prices of its non-financial companies. Furthermore, much work on the effect of the exchange rate volatility in the developing country. Dominguez and Tesar (2006) found that exchange rate movements do matter for a significant fraction of firms, though which firms are affected and the direction of exposure depends on the specific exchange rate

and varies over time, suggesting that firms dynamically adjust their behavior in response to exchange rate risk.

1.5 Research Questions

There are two research questions that have been used to conduct this research such as:

1. What is the extent of foreign exchange exposure among Malaysian listed companies?
2. How many of the companies have positive or negative foreign exchange exposure?

1.6 Research Objectives

The main objective of this research is to identify the variables that influence the foreign exchange exposure. There are two research objectives that have been used to conduct this research such as:

1. To measure the extent of foreign exchange exposure faced by Malaysian listed companies.
2. To identify how many of the companies have positive or negative foreign exchange exposures.

1.7 Significance of the Study

From a theoretical perspective, it is a generally held view that exchange rate fluctuations are an important source of economic uncertainty. Thus it should have a significant impact on company value, regardless of whether the company is domestically or internationally oriented (Levi, 1994; Marston, 2001). Numerous papers analytically focused on the foundations of currency risk exposure and enhanced understanding of the mechanism through which exchange rate shocks influence company value. Adler and Dumas (1984) define exchange rate exposure as the impact of unexpected change in currencies on firm value. Overall, the analyses highlight the importance of a large and complex set of parameters – including among others a company's cost and revenue structure, its competitive position and environment, the elasticity of its input and output markets as well as the pricing strategies adopted by the company itself and its competitors in the determination of a company's sensitivity to exchange rate fluctuations.

Academic works on foreign exchange risk management have also underlined the significance of the impact of exchange rates changes on a company's operational cash flows and competitive position (Martin and Mauer 2003). According to Glaum (1990) claimed that from theoretical perspective the researchers agree that the correct risk management of the impact of exchange rate changes on a company's operations should involve strategic approaches. In order to improve the decision-making process the issue of integration of strategic approaches to foreign exchange risk management should also be addressed by practitioners. However, the empirical research of foreign exchange risk management practice is primarily concentrated on the usage of tactical

tools. Thus, the theoretical conclusions with regards to the strategic foreign exchange risk management are not corroborated by the actual management practice to a desirable extent.

This study provides additional information about the foreign currency to determinants affecting foreign exchange exposure, in the hopes that the findings can give the information to reduce the foreign exchange rate risk, improve international competitiveness and increase profits. For academic purpose, this study might enrich the empirical evidence and support the previous study on foreign exchange exposure.

1.8 Limitation of Study

This study examines the foreign exchange exposure on the Malaysia listed company during the period between January 2004 and December 2014. This study is limited in terms of sample data and use of secondary data provided by DataStream, data provided software. Financial companies are not included in the sample. The study used monthly and yearly data, and the result could be different if a different data frequency was used and if a shorter or longer time horizon is used. It is assumed that the longer time horizon, the more accurate the result will be. The time horizontal give an inadequate time space in order to gather the information and data. Meanwhile the time space allows expanding the amount of respondent involved and also the location.

1.9 Operational Term

1.9.1 Exchange Exposure

Jorion (1991) has defined exchange rate exposure as the sensitivity of the value of the companies' to exchange rate randomness. Exchange exposure is hypothesized to have a negative relationship to the relative importance of foreign debt. The more direct and the shorter term the exposure, the more likely it is that firms will use forward contracts as opposed to more long term foreign debt arrangements. According to Allayannis and Ofek (2001), find that exporters refer currency derivatives over foreign debt. However, our measure is not a direct measure of exports but rather of foreign sales thus not differentiating between direct exports and sales from foreign subsidiaries. As such, we do not expect a strong relationship (if any) between the exposure to exchange rates and the relative importance of foreign debt.

1.9.2 Debt

Countries will engage in large scale deficit financing to pay for public sector projects and governmental funding. A large debt encourages inflation and if inflation is high change in exchange rate. The analysis demonstrates that the insignificance of foreign exchange rate exposure of comprehensive performance measures each as total cash flow can be explained by hedging at the companies' level. Thus, the outstanding net exposure is economically and statistically small, even if the operating cash flow of the companies is significantly exposed to exchange rate risk.

1.9.3 Asset Tangibility

Assets having a physical existence, such as cash, equipment, machinery, plant, property anything that has long-term physical existence or is acquired for use in the operations of the business and not for sale to customers. In the balance sheet of the business, such assets are listed under the heading Plant and equipment or Plant, property, and equipment. Tangible assets, unlike intangible assets, can be destroyed by fire, hurricane, or other disasters or accidents. However, they can be used as collateral to raise loans, and can be more readily sold to raise cash in emergencies. Lower level of current assets relative to total assets (high asset tangibility) insulates the company from changing input costs as current asset, especially inventory and raw materials are replaced in the company's operations. As an affects, changes in foreign exchange rates will have a minimal impact on the company's cost structure or balance sheet. So, high asset tangibility should indicate reduced exposure to foreign exchange (Aggarwal and Harper, 2010).

1.9.4 Size

Some theories predict positive effect of corporate size on the debt ratio. The main concern are economies of scale in issuing long-term debt, stronger negotiating power vis-à-vis lenders, market confidence reflecting the smaller possibility of bankruptcy, more diversified business. According to Fama and Jensen (1983) argue that larger companies' reveal more information than smaller companies' so that the agency cost of debt is lower. In general, corporate size is positively related to the debt ratio in

developing economies where default information is comparatively less available than in developed economies, in bank based financial systems than market-based systems.

1.9.5 Assets

Asset can be defined as any item of economic value owned by an individual or corporation, especially that which could be converted to cash. Examples are cash, securities, accounts receivable, inventory, office equipment, real estate, a car, and other property. If a company has more foreign assets, the company can use those assets to conduct more foreign direct investment (FDI) activities and be more flexible to allocate operation projects, helping it to decrease the level of foreign exchange exposure. Williamson (2001) indicated that the export oriented company's level of foreign exchange can be measured by its foreign operation costs. Based on Choi and Prasad (1995) has reported that a company's foreign exchange exposure had a positive relationship with the company's percentage of foreign assets and foreign net operation profit.

1.10 Organization of the Dissertation

This chapter provides an instruction to the study. It contains background of foreign exchange exposure, overview of the Malaysian economy, statement of problem, research objectives and research questions, significant of the study and lastly the scope of the study. This study was aimed at determining the relationship between exchange exposure and the performance of Malaysian companies by distributing questionnaire to selected sectors. Questionnaire has been used to establish the concrete reason on foreign exchange exposure rate in Malaysia. The research in hand is organized as follows such as in section 2 provides a theoretical background and explain the concept of operating exposure and the possible ways of its management. Section 3 comments on previous empirical research on the topic of foreign exchange exposures and result on respondent response on close-ended questionnaire distributed to selected sector. The remainder of this paper is organized as follows. Chapter 2 gives an overview of the empirical literature review on exchange rate exposure management. Chapter 3 lists the methodology of these studies. Chapter 4 is devoted to the results of the study. Chapter 5 is concludes.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Foreign exchange exposure studies can be traced back to the late of 1970's. The impact of exchange rate changes on firm value is defined by Shapiro (1974) and Dumas (1984) as a company's "foreign exchange exposure". In theory, this means that exchange rate changes directly affect a company's profitability by changing the prices of raw materials and the products of multinational enterprises in local currency, thus affecting the company's stock market value. According to Adler and Dumas (1984) claimed that further distinguish between currency risk and currency risk exposure, positing that currency risk refers to changes in monetary value, whereas currency risk exposure is the volatility caused by exchange rate fluctuations in the value of a company. The identification of the concept of currency risk exposure strengthened concerns over the impact of exchange rate changes, but also generated the basic ideas on the issue of currency exposure. The maintenance of currency pegs by fast-growing emerging markets has become the focus of widespread concerns over the stability of the global economic and financial system (Eichengreen and Rose 2011).

2.1 Foreign exchange exposure types

According to Eiteman et al. (2001) that in general, firms are exposed to three types of foreign exchange risk such transaction exposure, economic exposure and translation exposure. The categorization of foreign exchange exposure is roughly based on sequentially differentiation of cash flows and much variance exists between interpretations by different authors. Transaction exposure deals with actual foreign currency transaction. Translation exposure deals with the accounting representation and economic exposure deals with little macro level exposure which may be true for the whole industry rather than just the firm under concern. The only exposure that authors extensively agree upon is the definition of transaction exposure.

2.1.1 Transaction Exposure

According to Pramborg (2002), transaction exposure measures the quantity of future cash flows which anticipated exposed to potential currency exchange rate changes. He also added that it embraces of cash flows which require actual translation of currencies and arises whenever there is a time gap between a company committing to a cash flow and the time of its settlement. The transaction exposure has the greatest impact on profitability at least in the short and possibly in the medium term.

2.1.2 Economic Exposure

There is much argument around the concept of economic exposure in literature. As a generalization it is concerned with long term future cash flows that are currently unidentifiable. Glaum (1990) defines economic exposure as the future operating cash flows of the company that are exposed to potential currency exchange rate changes. However, Pramborg (2002) has defines economic exposure to be a combination of transaction exposure and competitive exposure. Competitive exposure consists of unidentifiable anticipated transactions. Yet other authors coin the term economic exposure with operational exposure. According to Daniels (2004) the two terms operational and competitive shed light on the dual nature of economic exposure in modern literature. On the one hand it has to do with future cash flows originating from the company's foreign subsidiaries, foreign direct investments or day-to-day international trade which as Pramborg (2002) puts it as unidentifiable anticipated transactions. On the other hand in a more sophisticated manner economic exposure has to do with the international competitive environment of each company. To illustrate the significance of foreign exchange rate changes on the competitive environment consider a company with a foreign subsidiary. In the case that the exchange rate of the local currency of the subsidiary changes it will affect the costs of its production factors and thus the margins on its outputs. Should the subsidiary have a foreign competitor whose production factors and thus margins were not affected by the equality shift then the competitive position between the two competitors has changed. The effects, however, continue as the net profits of the subsidiary are transferred to its parent company. Economic exposure varies from transaction

exposure in a number of significant ways. The economic exposure is the concept of tends to be very company and industry specific. Its effects reach further than when to convert a given amount to or from a foreign currency and at what exchange rate. But it will actually have effect on size of the amount being transformed and it is also not worthy that essentially every company regardless of whether it is involved in foreign trade or not has economic exposure. According to Laitinen (1996), as a simplification, however, economic exposure can be thought of as future cash flows that are exposed to potential currency exchange rate changes that will eventually, when they are detectable, change into transaction exposures.

2.1.3 Translation Exposure

According to Pramborg (2002) stated that translation exposure is a financial accounting technicality and arises when financial accounting statements of foreign affiliates are translated into the home currency of the parent company. It does not reflect realized profits or losses and it is subject to the translation methods used i.e. local accounting standards. However, survey results have specified that it is often being hedged. Hakkarainen et al (1996) explained translation exposure hedging by the presence of management reimbursement schemes which are often tied to financial statements and are thus affected by translation gains and losses.

2.2 Interest Rates and Exchange Rates in Malaysia

In the years of 1997 leading up to the crisis in Asia, high-profile public investment projects and strong consumption growth had led to widening of the current account

deficit and sharply ascending stock and real estate prices. Following the float of the Thai baht in July 1997, Malaysia experienced considerable pressures in its foreign exchange market. The initial response of the authorities was to support the ringgit through foreign exchange interventions and a sharp hike in interest rates. Subsequently, however, the authorities quickly allowed the exchange rate to complain, tightening fiscal policy, but lowering interest rates to almost pre-crisis levels by late October 1997. Interest rates lower than short-term capital outflows from Malaysia to enhance toward the end of 1997, weakening the ringgit, and reducing foreign exchange reserves from \$28 billion from end-1996 to \$22 billion at end-1997. However, because of its relatively healthier (compared to its neighbors) reserve position than its neighbor, Malaysia could refuse assistance from the IMF, and therefore did not have to adopt a committed interest rate defense of its currency. In light of the continued weakness of the ringgit, which depreciated by over 44% in 1997, the authorities decided to raise interest rates again in stages starting in early December 1997. The high interest rates and the tight fiscal policy stance severely depressed the domestic economy, as private consumption and aggregate private investment contracted sharply. Real GDP in the first half of 1998 contracted by about 5%. By early March 1998, the authorities came to believe that tight money was deleterious to Malaysia's short-term and long-term economic prospects, and that movements in exchange rates, rather than reflecting movements in interest rates, reflected external developments and irrational market behavior. Consequently, the authorities started lowering interest rates again in early March 1998. This lack of a committed interest rate defense, coupled with rhetoric against speculators and

measures to restrict trading in the domestic stock and currency markets, possibly led to a sustained decline of the ringgit. The ringgit remained depreciated from February to June 1998. Finally, in an attempt to regain control of monetary policy, and at the same time to stabilize the ringgit, the Malaysian authorities imposed capital controls in early September 1998 and fixed the ringgit at 3.8 to the US dollar, which represented about a 10% appreciation from the market exchange rate prevailing at the time. For Bank Negara Malaysia (BNM), the main monetary control variable is the three month intervention rate. BNM, fearing contagion from the Thai crisis, sharply raised the intervention rate in the middle of July 1997. However, the ringgit continued to deteriorate. Around late October 1997, because of the perceived lack of success of the interest rate defense, the authorities decided to rely less on interest rate instruments to tackle exchange rate volatility. Subsequently, however, the intervention rate was raised again, from 9% to 11%, but not nearly to the extent that rates were raised in Korea and Thailand.

Like other countries, Malaysian financial developments went rapidly including the liberalization of interest rates, financial innovations and rapid growth of capital and derivatives markets. The financial liberalization began with the deregulation of interest rates on October 1978 by allowing banks to determine their own deposit rates. This deregulation was suspended from October 1985 to January 1987 due to tight liquidity in the market and world economic recession. During this period, commercial banks were required to peg their deposit rates of up to one-year maturity to the deposit rates of the two leading domestic banks. The deregulation was resumed on February

1987. The deregulation of the interest rates created more competitive environment in the Malaysian banking industry.

The capital markets in Malaysia comprise of the conventional and Islamic markets for medium and long-term financial assets. The conventional markets consist of two main markets that are the equity market dealing with corporate stocks and shares, and the bond markets dealing with public and private debt securities with maturity exceeding one year. Complementing the banking system in its function as a financial intermediary, these markets have increased in importance during the period 1988 to 1999.

2.3 Theoretical Development

In assessing the exchange rate exposure of Malaysian public listed companies, the following hypotheses are tested.

Choi and Prasad (1995) suggested that a companies' level study is essential to understand the factors contributing to the exposure. Jorion (1990) states that the level of foreign involvement contributes towards varying degrees of exchange rate exposure among companies. According to Chow, Lee and Solt (1997) founded that there was a reverse relationship between company size and the exchange rate sensitivity. This is credited to the hedging activities of large firms. In other words, the larger the firm, the lesser the exposure because of large firms tend to engage in hedging activities and thus reducing their exposure.

H1: The Debt of Malaysian companies exhibit significant exposure to foreign exchange variability.

Measure of operational proficiency in order to shows how much revenue is produced of assets available to the business or firms. Firms with higher gross margin have more flexibility in pricing goods and services and can therefore absorb shocks more easily than firms with lower asset turnover and should therefore unveil less exposure to exchange rates.

H2: The level of Asset Turnover is significantly related to the degree of foreign exchange exposure.

Brown (2001) finds hedging is related to earnings management. However, Bartram, Brown, and Fehle (2009) find a negative relationship between gross profit margin and derivatives use. Based on these results, I include a firm profitability and hypothesize a negative relationship with the degree to its hedging activity.

H3: The level of Profit Margin is significantly related to the degree of foreign exchange exposure.

Lower level of current assets relative in total assets (high asset tangibility) insulates the company from changing input costs as current assets, especially inventory and raw materials are traded in the company's operations. As an effect, changing in foreign exchange rates will have a minimal impact on the company's cost structure or balance sheet. So, high asset tangibility should specify reduced exposure to foreign exchange (Aggarwal and Harper, 2010).

H4: The level of Asset Tangibility is significantly related to the degree of foreign exchange exposure.

Some theories forecast positive effect of corporate size on the debt ratio. The reasons behind are economies of scale in distributing long term debt, stronger negotiating power vis-à-vis lenders, market confidence reflecting the smaller possibility of bankruptcy, more diversified business, etc. Fama and Jensen (1983) argue that larger firms unveil more information than smaller firms so that the agency cost of debt is lower. Occasionally, corporate size is positively related to the debt ratio in developing economies where default information is relatively less available than in developed economies, in bank based financial systems than market-based systems.

H5: Firm size is significantly related to the degree of foreign exchange exposure.

Froot et al. (1993) found that hedging reduced underinvestment problems that were due to a company's dependence on costly external financing because companies with more valuable development opportunities are more likely to be affected by the underinvestment problems, these companies may be more likely to hedge. Higher value of this proxy variable suggests more hedging and less foreign exchange exposure.

H6: Market to Book is significantly related to the degree of foreign exchange exposure.

2.5 Summary

This chapter had discussed in debt on the relationship between foreign exchange rate exposures with the firms based on the preview research. A gap has an influence on earnings because a gap means that there is an excess of assets or liabilities which is not being reprised with offsetting liabilities or assets. A gap will have an impact on earnings not just in the period during which it occurs, but during subsequent periods until that excess has been offset by an appropriate excess of assets. It also discuss on what have been revealed in the previous literature review regarding foreign exchange rate exposure.

CHAPTER THREE

METHODOLOGY

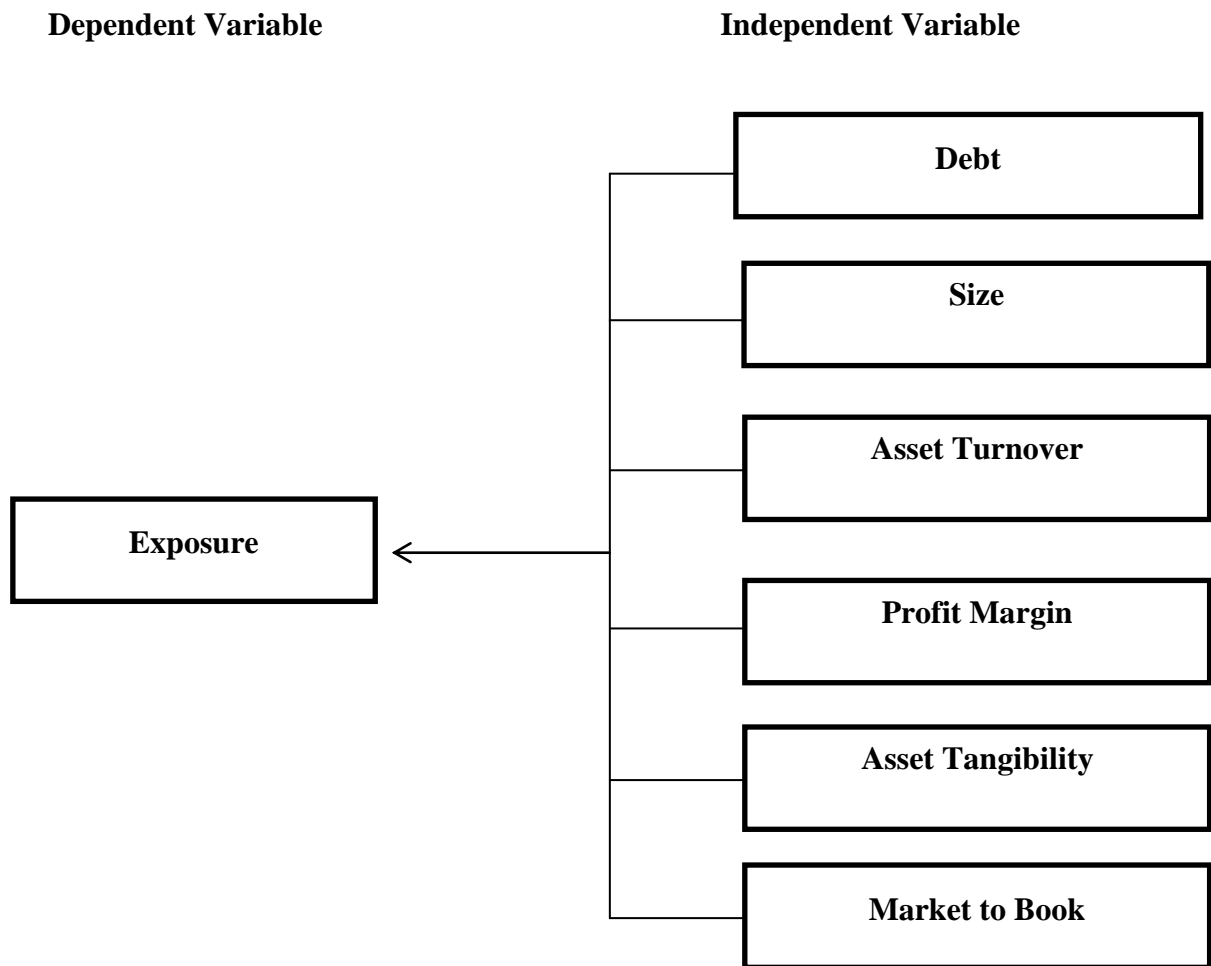
3.0 Introduction

The previous chapter has already discussed the earlier studies on the foreign exchange exposure. In this chapter, the methodology used explained the method used to measure the company foreign exchange exposures and the influence of selected factors (variable) on the foreign exchange exposure. It includes data description, data analyses, measurement of dependent and independent variable, regression model used in this study.

3.1 Theoretical Framework

This study uses a framework for independent variables while includes Debt, Asset Turnover, Size, Profit Margin, Asset Tangibility and Market to Book estimates their influences on the exposures.

Figure 3.1: Theoretical Framework



3.2 Research Design

The design of this study based on observation in Bursa Malaysia (BM) and on questionnaires sent to Malaysia selected companies. Overall, this section aims to explain how the data collected through questionnaires and how the necessary data is analyzed. Creswell (2003) describe this research design method as one in which the researcher collects, analyzes, and integrates both forms of data into a single or in multiple studies through a sustained program of inquiry.

On consideration a large number of companies were involved in this study. These companies have done selected from the Bursa Malaysia. The sector chosen to conduct this questionnaire survey is manufacturing sector. The survey method was used as a means of collecting the needed data and was considered to be the most appropriate design. Researchers made observations on the annual report for ten years starting 2004 until 2014.

In this research design, one dependent and three independents variable have been used. The independent variable is Debt, Asset Turnover, Size, Profit Margin, Asset Tangibility and Market to Book whereas dependent variable is the foreign exchange exposure. It is one of the main methods that can be used to gather information in order to meet the objectives of this study (Neumann, 2003).

3.3 Sample Selection and Data Sources

Sampling techniques are used in this study for the purpose of sample selection. The size of respondent and the level of personal involvement determine the method of data collection. For example the higher the level of personal involvement of the researchers, the better data is gathered by participant observation. The lower the involvement, the more likely it will be better to gather data by survey (questionnaires), (Riley et al., 2000). Therefore, in order to collect the data, questionnaire was developed and delivered to the target population of companies. The structure of the questionnaire was inspired by the empirical studies conducted by Joseph (2000), Bradley and Moles (2002), Aabo and Simkins (2005), Kuhn (2007).

The primary data which used for this study is questionnaire meanwhile the secondary data is annual report from Bursa Malaysia. The survey was conducted by distributing the questionnaire by sending email personally to the authorize person of the selected Malaysia listed companies. Apart from that, telephone conversation has used to those companies which not response to the questionnaire.

In order to examine Malaysian companies' economic exposure, this study investigates the foreign exchange exposure of 200 companies listed on Bursa Malaysia (BM, or Malaysian Exchange) during the period of January 2004 through December 2014. At the end of 2014, there were 965 companies actively traded in BM.

The sample data used in this study were filtered to meet the following criteria:

- 1.) Companies must have been listed in BM during the years of 2004-2014.
- 2.) Companies must have not been delisted or suspended during the study period.
- 3.) Companies must have complete data for all the dependent and independent variable.

The companies are classified by BM into 11 industry sectors, namely, (1) Construction; (2) Consumer Products; (3) Finance; (4) Hotel; (5) IPC (Independent Power Companies); (6) Industrial Products, (7) Mining; (8) Plantation; (9) Properties; (10) Technology, and (11) Trading & Services. Based on the above criteria, the study eliminated 765 companies with incomplete data during the study period and excluded the Finance sector, which then resulted in a net sample of 200 companies. In addition, some other sectors were also dropped as there were not too many companies in those sectors. These were Hotel, IPC, Mining, Plantation, and Technology. Therefore, study dealt with companies from only there few sectors considered only these few sectors: (1) Construction, (2) Consumer Products, (3) Industrial Products, (4) Properties, and (5) Trading & Services sectors.

Table 3.1 Sampling

Industry Sectors	Number of Companies
Construction	20
Consumer Products	22
Industrial Products	80
Properties	29
Trading & Services	49
Total	200

In order to address the first research question on the measurement of company foreign exchange exposures, the study used monthly data covering the period from January 2004 to December 2014. This study used secondary data provided by DataStream. This study did not employ higher frequency data such as daily or weekly data, due to lack of some information. Another reason for not using the daily or weekly data is that such high frequency data typically contain too much noise and are subject to the problem of non-synchronous and infrequent trading. Conceivably, the value of the company would not fluctuate according to day-to-day or week ups and downs of the market or exchange rate. Therefore, the use of monthly data is sensible. Moreover, the data for exchange rate used in this study is the nominal effective exchange rate, which only available on a monthly basic from DataStream. Therefore, to ensure that all study analysis to measure the data are all consistent in term of data frequency, the data for company share price and FBM KLCI indices were also taken on a monthly basis.

This study used the FBM KLCI (Kuala Lumpur Composite Index) to represent the market portfolio. The exchange rate measure is represented by the nominal effective exchange rate (NEER) of Malaysian ringgit. Although the dominance of the US Dollar (USD) for Malaysian Companies international transactions and its wide use in previous studies are noted, the nominal spot exchange rate vis-à-vis the USD for most of the sample period (from 2004 to 2014). Moreover, the effective exchange rate would better reflect the international competitiveness of Malaysian companies since it captures better the relative price of traded goods against major trading partners. Therefore, while the bilateral USD exchange rate tends to move only gradually due to

the dominant weight given to the USD, or due to ringgit later being fixed against the USD in Malaysia's exchange rate policy, it needs not be so far the effective exchange rate. Note that the nominal exchange rate is measured such that an increase in the rate suggests currency appreciation. Jorion (1990) states that the level of foreign involvement contributes towards varying degrees of exchange rate exposure among firms.

3.4 Measurement of Variable / Instrument

The objective of this section is to measure the variables and identify the differences between dependent variable and independent variables.

3.4.1 Justification of Variable

The first model in this study uses the historical individual company's stock return rate in Bursa Malaysia as the dependent variable, the return rate of Kuala Lumpur Composite Index (FBM KLCI) and nominal effective exchange rate index to determine each company's exchange rate exposure for each year, for the 11 years, from 2004 to 2014.

Debt ratio is proxy for financial leverage of a company, asset turnover is proxy of efficiency, and net profit margin is the proxy for profitability, whereas size is measured by the natural log of the market value of company equity. Asset tangibility is the proxy of the asset structure used by a company, which growth opportunity is measured using the market to book ratio of equity (at fiscal year – end).

3.4.1.1 Dependent Variable

Y_i = statistically significant foreign exchange exposure company-year.

A company's value will be affected not only by the fluctuation of foreign exchange rates. It can also be influenced by other macro-economic indication. Jarion (1990) started by using the market stock return index in the regression model, leading several other researchers to follow this design. This study will too employ the same method. The absolute value of exposure was employed to indicate its magnitude (Choi and Prasad, 1995).

3.4.1.2 Independent Variable

The independent variables are the market return and the exchange rate variable. Independent variable comprise of variable such as debt, Asset Turn, Profit Margin, Size, Asset Tangibility and Market to Book value. These variables are interrelated to each other and depending on foreign exchange exposure.

3.5 Instrument

The instrument employed in this study is questionnaires which aid in collecting the data for analysis. All the questions in the survey were designed as closed-end questions therefore all of them contained the set of predetermined answers. The structure of the questionnaire was inspired by the empirical studies conducted by Joseph (2000), Bradley and Moles (2002), Aabo and Simkins (2005), Kuhn (2007).

The questionnaire included 23 closed-end questions. Therefore the most general questions were asked first, followed by more specific questions. The questionnaire

was divided into five sections. Section A is Foreign Exchange Exposure management policy which designed as an introductory section where questions concerning the international activities of the company were asked. The research in hand is targeting only companies with international operations. However, the population of the 200 companies included both companies with and without international activities since the information about the companies' international involvement was not presented in Bursa Saham. In the Section B is Foreign Exchange Exposure position calculation which direct questions about the company's calculation position on foreign exchange rate implication on these companies were asked. Section C is forecasting future exchange rates which measure the future exchange exposure on companies. Section D is hedging which comprise bonds with external parties that are often in the form of financial instruments. Final Section E is performance evaluation which measures the quality of current Foreign Exchange exposure management practices.

3.6 Technique of Data Analyses

The statistical package for statistical analysis which is the Statistical Package for Social Sciences (SPSS), are used as the statistical tool to analyze the data gathered. All items and variables are processed in their own measurement, which is enumerated in Excel format before being entered in SPSS, Eviews, and Gretl to control the output in this study. The analysis of data begins with reliability test for the scales using Cronbach's Alpha. The Cronbach's Alpha was used as it is the most well accepted reliability test tools.

This study also carries out the analysis and interpretation to understand companies' foreign exchange exposure and its determinants. Further to this study, Multiple Regression Analysis is done to examine the effect of independent variable on the dependent variable.

a) **Validity / Normality**

Content validity also known as logical validity is based on the extent to which a measurement reflects the specific intended domain of content (Carmines & Zeller, 1979). This type of validation is detecting the mistakes in the instrument and to be corrected before going for the main data collection. Normality test will be used to determine if a data set is well-modeled by a normal distribution and a compute how likely it is for a random variable underlying the data set to be normally distributed.

b) Descriptive Statistics

Descriptive Statistics is the analysis that consists of mean, medium standard deviation, minimum and maximum value of the variables. It is used to describe the characteristics of each variable.

c) Statistical Analysis

- Multiple Regression

Multiple regressions are used to identify how much variable in the dependent variable can be explained when several independent variable influence it concurrently. Indeed, this analysis shows how dominant factors among the companies foreign exchange exposures.

3.7 Chapter Summary

This chapter had discussed the methods used in this study which is to measure the extent of foreign exchange exposure for Malaysian companies and also to identify the possible companies' factors that influence the exposure. That foreign exchange exposure is determined by the level of foreign activity to a large level can be confirmed by this study as our results are significant to the required level. Further, there is a significant reason to believe that firm size contribute positively to the absolute magnitude of the exposure. This chapter provides an explanation for the research framework and reliability of measurement for the methods of study. The procedures for collecting, measuring and analyzing data of this study also discussed. Next chapter will discuss the analysis of the findings of this study.

CHAPTER FOUR

RESULT AND DISCUSSION

4.0 Introduction

This study examines monthly data regarding the historical individual stock return rate of the KLSE, and return rate of KLCI index in order to determine each company's exchange rate exposure. The study used prior research method to determine the factors to be used in multifactor regression for the effect on foreign exchange exposure. The regression formula may be useful for Malaysian companies' to be determining the factor of company's exchange rate exposure. Other than that a survey were conducted to determine the foreign exchange exposure among the Malaysian selected listed companies'. The questionnaires were distributed to selected companies' to identify the international trade response towards foreign exchange exposure. ANOVA and correlation formula was chosen to do the questionnaire survey.

4.1 Measurement of Companies' Exchange Rate Exposure

As discussed in Chapter 3, this study considered only three broad sectors for the analysis. These are Construction, Property, Consumer Product and Trading and Services and Industrial Product sectors. This study applied OLS to estimate the foreign exchange exposures for 200 Malaysian listed companies, for each year (for 11 years) and for each company. The dependent variable was the monthly company stock

return. The independent variable was return rate of KLCI's index and return rate of the nominal effective exchange rate index. The foreign exchange exposure index Y_i , was the coefficient of foreign exchange rate variable introduced in the market model. Therefore, a negative or positive sign for Y_i indicates that, if the Malaysian Ringgit appreciates or depreciates, the companies' stock return will decrease or increase, and vice versa.

Table 4.1 Number of Malaysian Companies Exposed to Foreign Exchange Rate Risk by Year.

$$R_{i,t} = \alpha + \beta_i R_{m,t} + Y_i X R_{j,t} + \varepsilon_i$$

Year	Number of company		Number significant		of % of company significant	Means	Std. Dev
	$Y_i > 0$	$Y_i < 0$	$Y_i > 0$	$Y_i < 0$			
2004	140	60	5	7	6.00	1.5835	4.4017
2005	133	67	4	5	4.50	1.0258	3.5620
2006	103	97	2	5	3.50	0.0547	2.7464
2007	141	59	23	2	12.50	1.9563	3.6657
2008	62	138	5	39	22.00	-1.5590	3.1541
2009	72	128	4	9	6.50	-1.2580	3.7122
2010	102	98	14	7	10.50	0.0232	4.0236
2011	151	49	1	27	14.00	-2.7300	3.8804
2012	69	131	5	24	14.50	-1.6142	3.6167
2013	113	87	8	9	8.50	0.6230	4.5090
2014	92	108	5	13	9.00	-0.4352	2.3651
Total company-years observation		2,200	223				

Note: this table shows the number of companies with significant non-zero exchange rate exposure at least at the 10% level over the period. % of significant = no companies significant divided with n (n=200)

Table 4.1 above shows some descriptive statistics of the companies' yearly foreign exchange exposure. These exposures are categorized yearly, ignoring the sector, into positive and negative exposures. Table 4.1 shows the sample Malaysian companies' yearly exposure Y_i were almost equally divided into positive and negative exposures, although there were more incidences of positive exposures. For example, the highest

and lowest numbers of companies with positive exposure were, respectively, 151 in year 2009, and 62 in year 2008. These were clearly higher than the highest and lowest numbers of companies with negative exposure, which were respectively, 138 in year 2008 and 49 in year 2011. Based on the mean, 6 years showed positive exposure while 5 years (years 2008, 2009, 2011, 2012 and 2014) showed negative exposure. The mean measurement for the year 2004 is 1.5835; it means that 1% increase in value of ringgit increased the companies' stock return by 1.5835% on average during the year 2004. Based on the mean exposures, in year 2010 the companies had the least foreign exchange exposure, and the year 2011 (the following year) had the most foreign exchange exposure.

From another perspective, year 2006 had lowest percentage (3.5%), whereas year 2008 had the highest percentage (22%), of companies with significant foreign exchange exposure. From yet another angle, there were more companies with significant negative exposures than companies with significant positive exposures. For example, the highest number of companies with significant positive exposure was only 23 (in year 2007), whereas in highest number of companies with significant negative exposure was 39 (in year 2008).

4.2 Identifying the Major Determinants of Foreign Exchange Exposure

The major determinants of foreign exchange exposure consist of numerous operational factors; company leverage (Debt), company asset turnover (Asset Turnover), and company net profit margin (PrMargin), company size (Size), company

asset tangibility (Asset Tangibility), and company market to book ratio (MkBk). These six factors were derived from yearly data. This study tested the relationship between Malaysian companies sectors with each of those six factors and companies foreign exchange exposure, this study eliminated the company-year observation that had no significant foreign exchange exposure. Further, the analyses were carried out in three phases; (1) all companies, (2) companies in sector other than industrial products, and (3) companies in the industrial product sector. Analyses based on each sector could not be carried out as the number of (significant exposure) observations for each sector (except for industrial products) was limited. From the 200 companies, 133 companies with 223 company-year observations with significant foreign exchange exposure rate.

Table 4.2 Descriptive Statistics for All Companies

	Exposure	Debt	Asset Turnover	PrMargin	Size	Asset Tangibility	MkBk
Mean	-1.6201	0.4817	0.7934	-4.6300	2.7629	0.4023	1.6941
Maximun	10.0000	0.9400	2.0000	1.5400	3.7000	0.9700	5.7600
Minimum	-0.9700	0.0200	0.1400	-1.7336	1.6600	0.0200	0.0100
Std.Dev	2.5145	0.17293	0.2941	0.9972	0.4196	0.1971	1.7969
Skewness	0.4920	-0.3570	0.5950	0.2130	0.250	0.3800	1.1470
Kurtosis	-0.9510	-0.2800	0.9820	0.9820	-0.8680	-0.1170	-0.2770
Observations	223	223	223	223	223	223	223

As it can be seen from the table, the mean for exposure is -1.6201. It means that on average, the companies' share price decrease by 1.6201% to an increase of 1% in the value of ringgit during the period 2004 to 2014. The mean for company debt is

48.17% which means that on average, debt level for Malaysian companies was very high. The efficiency of the companies efficiency at the point 0.7934 in every 1% of revenue. Company net profit margin is -4.63% which indicates that Malaysian companies were not really profitable. It shows on that Malaysian company size on average is RM.1.66 million.

Since assets tangibility is part of the total assets owned by a company, the portion of tangible assets can influence the overall companies' total assets. Based on Table 4.2, the mean for asset tangibility of Malaysian companies is 40.23%. It implies the assets tangibility is quite high. Market to book value is the measurement of growth opportunity and could be market confidence in the future of a company. From the Table 4.2 shows that the mean of market to book is 1.6941, means that Malaysian companies seem have quite low in growth opportunity and as market confidence to attract the investors domestically or globally.

4.3 Extend of Firm's Foreign Exchange Exposure Transactions

International activity means the degree that the companies' is involved in international transactions with foreign currency exchange rate expose. This was measured using variables as shown below.

4.3.1 Percentage of Foreign Exchange Exposure to Asset Turnover

Parameters of this variable begin with 0% with no foreign exchange exposure (revenues), to 100% where the companies' has no local sales, categories rise with a 10% rate. Responses varied through different categories fourteen firms (20%) had no foreign exchange exposure, also eleven firms (15.7%) had foreign exchange exposure that represent (10%) of total sales, (11.4%) and (14.3%) of the companies fall in the categories of 40% and 50% of foreign exchange exposure to asset turnover respectively, other responds and categories are shown in Table 4.3 below.

Table 4.3: Percentages of Exchange Rate Exposure to Asset Turnover

	Frequency	Valid Percent
.00	44	20.0
10.00	35	15.7
20.00	30	11.4
30.00	16	8.6
40.00	30	11.4
50.00	20	14.3
60.00	8	5.7
70.00	7	4.3
80.00	4	2.9
100.00	6	5.7
Total	200	100.0

4.3.2 Percentage of Foreign Exchange Exposure to Profit Margin

Table 4.4 shows the firms distribution through the different categories, which are arranged in a similar manner with the above foreign exchange exposure to profit margin levels. (67.2%) of firms had foreign exchange exposure to profit margin level of 50% and more. Only (8.6%) had no foreign exchange exposure, (5.7%) of companies' with a 10% level of foreign exchange exposure. Finally (10%) and (4.3%) of companies' falls in the categories of 30% and 40% of foreign exchange exposure levels respectively.

Table 4.4: Percentage of Foreign Exchange Exposure to Profit Margin

	Frequency	Valid Percent
.00	16	8.6
10.00	8	5.7
30.00	28	10.0
40.00	7	4.3
50.00	28	10.0
60.00	7	4.3
70.00	36	18.6
80.00	36	18.6
90.00	30	17.1
100.00	4	2.9
Total	200	100.0

4.3.3 Percentage of Foreign Exchange Exposure to Debt

In order to measure the flow of foreign exchange currency to the companies' whether inflow or outflow, a measuring of the percentage of foreign exchange currency debt to total debt was provided and the results of that measurement is shown in Table 4.5 below.

Table 4.5: Percentage of Foreign Exchange Exposure to Debt

	Frequency	Valid Percent
.00	94	43.2
10.00	7	4.1
20.00	31	12.2
30.00	9	6.8
40.00	28	10.8
50.00	9	6.8
60.00	4	2.7
70.00	4	2.7
80.00	4	2.7
90.00	9	6.8
100.00	1	1.4
Total	200	100.0

A large segment of the sample (43.2%) have no foreign exchange exposure, (12.2%) of the companies' has 20% of foreign exchange exposure to debt. (10.8%) with foreign exchange exposure level of 40%, the rest of the companies' were distributed in small groups over the different levels of foreign exchange exposure to debt.

4.3.4 Percentage of Foreign Exchange Exposure to Size

Table 4.6 shows the companies' distribution through the different categories. Responses varied through different categories twenty companies' (22.4%) had no foreign exchange exposure, and also thirteen companies' (14.1%) had foreign exchange exposure that represent (10%) of size, (11.2%) and (10.8%) of the companies' fall in the categories of 20% and 40% of the foreign exchange exposure to companies' size respectively, other responds and categories are shown as below table.

Table 4.6: Percentage of Foreign Exchange Exposure to Size

	Frequency	Valid Percent
.00	47	22.4
10.00	35	14.1
20.00	29	11.2
30.00	9	6.8
40.00	28	10.8
50.00	9	6.8
60.00	3	3.7
70.00	4	4.7
80.00	7	6.8
90.00	2	2.7
100.00	27	10.0
Total	200	100.0

4.3.5 Percentage of Foreign Exchange Exposure to Asset Tangibility

Table 4.7 shows the companies' distribution through the different categories. Responses varied through different categories five companies' (6.8%) had no foreign exchange exposure, and also ten companies' (14.3%) had foreign exchange exposure that represent (10%) of asset tangibility, (11.2%) and (14.3%) of the companies' fall in the categories of 20% and 80% of the foreign exchange exposure to companies' tangibility respectively, other responds and categories are shown as below table.

Table 4.7: Percentage of Foreign Exchange Exposure to Asset Tangibility

	Frequency	Valid Percent
.00	7	6.8
10.00	35	14.3
20.00	29	11.2
30.00	7	6.8
40.00	28	10.6
50.00	9	6.8
60.00	13	8.6
70.00	5	5.7
80.00	35	14.3
90.00	4	4.3
100.00	28	10.6
Total	200	100.0

4.3.6 Percentage of Foreign Exchange Exposure to Market to Book

Table 4.8 shows the companies' distribution through the different categories. Responses varied through different categories five companies' (6.8%) had no foreign exchange exposure, and also eight companies' (11.4%) had foreign exchange exposure that represent (10%) of market to book, (15.7%) and (14.3%) of the companies' fall in the categories of 50% and 80% of the foreign exchange exposure to companies' market to book respectively, other responds and categories are shown as below table.

Table 4.8: Percentage of Foreign Exchange Exposure to Market to Book

	Frequency	Valid Percent
.00	9	6.8
10.00	29	11.4
20.00	4	4.3
30.00	9	6.8
40.00	29	11.4
50.00	44	15.7
60.00	13	8.6
70.00	4	4.3
80.00	35	14.3
90.00	9	6.8
100.00	15	9.6
Total	200	100.0

4.4 Hypothesis Analysis

H1: The debt of Malaysian companies' exhibit significant exposure to Foreign Exchange Exposure.

The levene test is statistically significant ($p < .05$). However this decision does not meet the assumption of homogeneity of variable between the companies' debt and their foreign exchange exposure. The one – way ANOVA test is statistically significantly difference [$F(3,331)=20.32, p < .05$]. This result is able to reject the null hypothesis and accept the hypothesis alternative. The Post Hoc (Turkey) test shows that the debt between with international operation and without international operation is significantly different. This analysis measure the extent of foreign exchange exposure with debt faced by Malaysian listed companies

Table 4.9
ANOVA Result for differences between company debt and foreign exchange exposure.

Source	Total Mean square	df	Mean Square	F	p
Between group	15.5	3	581.93	20.32	.10
Within group	84.4	331	28.63		
Total	99.9	334			

Significant at $p < 0.05$

H2: Firm size is significantly related to the degree of foreign exchange exposure.

The Levene test is statistically significant ($p < .05$). However this decision does not meet the assumption of homogeneity of variance between the companies' size and their foreign exchange exposure. The one-way ANOVA test is statistically significant difference [$F(2,311)=18.03, p < .05$]. This result is able to reject the null hypothesis and accept the hypothesis alternative. The Post Hoc (Tukey) test shows that the size between the company revenue is significantly different with foreign exchange rate. This analysis measures the extent of foreign exchange exposure and size of Malaysian listed companies.

Table 4.10
ANOVA Result for differences between company size and foreign exchange exposure.

Source	Total Mean square	df	Mean Square	F	p
Between group	10.3	2	471.03	18.03	.00
Within group	85.0	311	19.35		
Total	95.3	313			

Significant at $p < 0.05$

H3: The level of Asset Tangibility is significantly related to the degree of foreign exchange exposure.

Person's correlation test (Table 4.11) show that there is statistically significant positive correlation between Asset Tangibility with value ($r = 0.76$, $p < .05$). Therefore this result is able to reject the null hypothesis and positive relationship between asset tangibility towards foreign exchange exposure among these companies ($r=0.76$). It can be concluded that those asset tangibility have positive relationship with foreign exchange exposure. This could help in identifying the positive and negative relationship between asset tangibility with foreign exchange exposure.

H4: The level of Profit Margin is significantly related to the degree of foreign exchange exposure.

Person's correlation test (Table 4.11) show that there is statistically significant positive correlation between profit margin with value ($r = 0.86$, $p < .05$). Therefore this result is able to reject the null hypothesis and positive relationship between profit margin towards foreign exchange exposure among these companies ($r=0.86$). It can be concluded that those profit margin have positive relationship with foreign exchange exposure. This analysis measures and identified the positive and negative relationship between profit margin and foreign exchange exposure.

H5: The level of Asset Turnover is significantly related to the degree of foreign exchange exposure.

Person's correlation test (Table 4.11) show that there is statistically significant positive correlation between asset turnover with value ($r = 0.90$, $p < .05$). Therefore this result is able to reject the null hypothesis and positive relationship between asset tangibility towards foreign exchange exposure among these companies ($r=0.90$). It can be concluded that those asset turnover have positive relationship with foreign exchange exposure. This analysis measures and identified the positive and negative relationship between asset turnover and foreign exchange exposure.

H6: Market to Book is significantly related to the degree of foreign exchange exposure.

Person's correlation test (Table 4.11) show that there is statistically significant positive correlation between market to book with value ($r = 0.65$, $p < .05$). Therefore this result is able to reject the null hypothesis and positive relationship between market to book towards foreign exchange exposure among these companies ($r=0.65$). It can be concluded that those market to book have positive relationship with foreign exchange exposure. This analysis measures and identified the positive and negative relationship between market to book and foreign exchange exposure.

Table 4.11

Correlation for Foreign Exchange Exposure with Dependent Variable

Variable	Foreign Exchange Exposure
Asset Tangibility	.76**
Asset Turnover	.90**
Profit Margin	.86**
Market to Book	.65**

** p < .01

4.5 Chapter summary

This chapter covered the results of the analyses undertaken in this study. The results were rather different when industry sectors were considered. The sector was most expose to foreign exchange was the industrial product sectors. In the other sectors there were fewer incidences of exposures. Results from questionnaire survey conclude that independent variable is statistically significant with dependent variable with positive relationship.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

This chapter summarizes the interpretation of results presented in the previous chapter and provides conclusions for this study. The discussion is based on the foreign exchange exposure of Malaysian listed companies and the possible determinants of this exposure. The first section provides the summary of the findings and the second presents the recommendations for further study.

5.1 Findings

The objective of this study has been to determine if Malaysian listed companies are exposed to exchange rate risk. This study investigates the foreign exchange exposure of companies traded on Bursa Malaysia. Malaysia as one of the small open economy with fast-growing economy, also an emerging market, offers a good opportunity to examine the effect of foreign exchange on the company value in the economy.

This study shows that only some Malaysian listed companies face significant foreign exchange exposure and that too in some years only and not in others. Indeed, this study that on general Malaysian companies' exposure are not significantly different from the exposure faced by the companies in other developing countries. Further, this study documented that, in general, the level of exposure (all exposure, both positive and negative in absolute terms, and from all sectors) was more negatively, than

positively, related to company the size. This is similar to the finding on Doidge et al.(2006). Further, the exposure was negatively related to asset turnover and asset tangibility, and positively related to the market to book ratio. These were similar to the findings with Aggarwal and Harper (2010). There were some different results that arose from the different ways that were used in combining the positive and negative exposure. The exposures' absolute value were regressed together first. Then, the positive exposures were regressed separately. Finally, the negative exposure absolute values were regressed separately.

The degree of exposure was more pronounced in the industrial products sectors than in the other sectors. Using several ways to combine the positive and negative foreign exchange exposure, this study finds that industrial products sector had significant relationship with almost all variables, investigated in this study to different degree. This findings appears to resonate the findings of He and Ng(1998), and Muller and Verschoor (2007), who stated that Asian industrial products sector showed high positive as well as negative exposure.

5.2 Implication of the Study

There are some limitations to the presented research. Despite the attempt design objective and precise questions one can argue about a certain degree of subjectivity in some of the survey questions. This is one of the possible reasons that some of the regression results were not robust when the regressions were estimated on the restricted sample of companies. Generally, the limitations of the research do not make the results less valuable for the decision making process, however, the results should be interpreted with a certain degree of caution. The other limitations for the study were sample size. Analysis of the results would have benefited on several accounts from a larger sample. This was reflected for instance in some cases on the low levels of statistical significance. Partially this limitation could possibly have been avoided by improved structuring of the survey questionnaire. However, a higher response rate would surely have contributed significantly. Finally it can be concluded that there is always room for improvement in the scoring model as our understanding of managing foreign exchange exposure advances.

Despite the attempt design objective and precise questions one can argue about a certain degree of subjectivity in some of the survey questions. This is one of the possible reasons that some of the regression results were not healthy when the regressions were estimated on the restricted sample of companies. Generally, the limitations of the research do not make the results less valuable for the decision making process, however, the results should be interpreted with a certain degree of carefulness.

This study employed Johansen's (1991) maximum likelihood method to examine whether or not the exchange rate and stock price series for each company. This model helps in measures the differences between the dependent and independent variables with the foreign exchange exposure.

5.3 Recommendation for Future Study

Future study could use a longer time horizon to generate more representative results. This study only covered a period of 11 years of monthly data to measure the foreign exchange exposure. The longer time horizon might lead to findings of greater quantity of exposure, and also hopefully greater quality.

A comparable investigation study on a similar sample of medium sized companies from countries with small and open economies like Malaysia would contribute to a better understanding and interpretation of the results achieved in the present thesis. Analysis on a less aggregate level, like an analysis of companies from the same industry would be advantageous and a study with follow-up interviews or case study on the topic would also be relevant.

Other than that, the future research could also consider expanding the scope of foreign exchange exposure management practices from those included in this study as some may have been overlooked or new practices may be develop in the future.

5.4 Conclusion

Further studies can be developed in several areas as an extension of this study. There are many variables that affect the foreign exchange exposure of a company. This study has indeed focused more on the size as the proxy of the company's market value; asset turnover as proxy of efficiency of a company; and asset tangibility as proxy of company's used asset structure. This study did not consider the companies hedging activities as a factor that can reduce the foreign exchange exposure. As a recommendation, it is suggested that some other variables, hedging may be added to extend this study, and gain a better understanding of foreign exchange context in Malaysia.

The investigation data obtained from the conducted questionnaire survey supports the fact that interaction between operational and financial hedges exists in the actual risk management practice of companies and the operational and financial strategies are seen as being complements to each other. One third of the responding companies directly stated that operational and financial means are equally important in the management of foreign exchange operating exposure. Furthermore, the companies indicated that the second most important reason for not involving financial means into the risk management of operating exposure is that the exposure can be managed by the means of various operational strategies. Pricing strategy was named as the most popular operational hedging strategy used by the companies. When it comes to the adoption by the companies various real actions as a response to foreign exchange rate

fluctuation, the majority of the companies consider a shift of supplier to foreign locations where it is became cheaper to source due to exchange rate changes.

The investigation part of this study shows that company debt, asset turnover, profit margin, size, asset tangibility and market to book uses in its operations have significant explanatory relationships with foreign exchange exposure practices that a company employs. According to Pramborg (2002), Hakkarainen et al (1996). stated that on part of company size and foreign exchange exposure findings of this study support the findings of earlier studies. On part of the number of foreign currencies a company uses in its operations this study adds to literature, as to the extent of the knowledge of the author earlier studies have not recorded this relationship.

The empirical findings of this study showed that in each component of the foreign exchange exposure management framework there were practices with significant correlations with the three explanatory factors.

REFERENCES

- Aabo, T. & Simkins B.J., (2005). "Interaction between real options and financial hedging: fact or fiction in managerial decision-making", *Review of Financial Economics* 14, pp.353 – 369.
- Adler M, Dumas B. (1984). 'Exposure to currency risk: Definition and measurement', *Financial Management*, pp.41-50.
- Aggarwal, R., & Harper, J. T. (2010). Foreign exchange exposure of domestic corporations. *Journal of International Money and Finance* 29, 1619-1636.
- Allayannis, G. (1996). Exchange Rate Exposure Revisited. *Working Paper, The University of Virginia* .
- Allayannis, G. & E. Ofek, (2001). "Exchange rate exposure, hedging, and the use of foreign currency derivatives", *Journal of International Money and Finance* 20, 273-296.
- Bacha, O.I., Mohamad, A., Zain, S. R. S. M. and Rasid, M.E.S.M. (2013). *Foreign exchange exposure and impact of policy switch – the case of Malaysia listed firms*. *Applied Economics*, 45, 2974-2985.
- Bailey W, Chung Y P.(1995). 'Exchange rate fluctuations, political risk, and stock returns: Some evidence from an emerging market', *Journal of Financial and Quantitative Analysis*, 30(4), pp.541-561.
- Bank Negara Malaysia (1991). The central Bank and the Financial system in Malaysia – A Decade of Change 1989 – 1999, 40th edition, 1959 – 1999.
- Bartram, S. M. (2008). What lies beneath: Foreign exchange rate exposure, hedging and cash flows. *Journal of Banking & Finance* 32 , 1508–1521.
- Bartram, S. M., Brown, G. W., & Fehle (2009). Resolving the exposure puzzle: The many facets of exchange rate exposure. *Journal of Financial Economics*, 95, 148-173.
- Bartov E, Bodnar G M. (1994). 'Firm valuation, earnings expectations, and the exchange-rate exposure effect', *Journal of Finance*, 49(5), pp. 1755-1785.
- Bartov E, Bodnar G M, Kaul A. (1996). 'Exchange rate variability and the riskiness of US multinational firms: Evidence from the breakdown of the Bretton Woods System', *Journal of Financial Economics*. 42(1), pp. 105-132.

- Baum C F, Caglayan M, Barkoulas J T. (2001). 'Exchange rate uncertainty and firm profitability', *Journal of Macroeconomics*, 23(4), pp. 565-576.
- Bodnar G M, Gentry W M. (1993). 'Exchange rate exposure and industry characteristics: Evidence from Canada, Japan, and the USA', *Journal of International Money and Finance*, 12(1), pp. 29-45.
- Bodnar G M, & Wong M. (2003). "Estimating exchange rate exposures: Issues in model structure", *Financial Management*, 32(1), pp. 35-67.
- Bradley, K. & Moles, P. (2002). "Managing Strategic Exchange Rate Exposures: Evidence from UK firms". *Managerial Finance* 28, pp. 28 - 41
- Brown, G.(2001). "Managing foreign exchange risk with derivatives", *Journal of Financial Economics* 60, 401-448.
- Bursa Malaysia. (Economic Report). Putra Jaya: Ministry of Finance Malaysia.
- Carmines, E.G. & Zeller, R.A. (1979). "Reliability and Validity Assessment", *Sage Publications, Thousand Oaks, CA*, pp. 59-70.
- Choi J.J. and Prasad A.M. (1995). Exchange Risk Sensitivity and its Determinants: A Firm and Industry Analysis of US Multinationals", *Financial Management*, Vol.24(3), pp. 77-88.
- Chow, E. H. & Chen, H. L. (1998). The determinants of foreign exchange rate exposure: Evidence on Japanese firms. *Pacific-Basin Finance Journal* 6,153-174.
- Chow, E, W. Lee, & M. Solt, (1997). "The exchange rate risk exposure of asset returns", *Journal of Business*, 70: 105-123.
- Chue, T.K. and Cook, D. (2008). Emerging market exchange rate exposure. *Journal of Banking and Finance*, 32, 1349-1362.
- Copeland, T. & Copeland, M. (1999). Managing Corporate FX risk: A Value Maximizing Approach. *Financial Management* , Vol. 28 (3), 68-75.
- Creswell, J.W.(2003). *Research Design: Quantitative, Qualitative, and Mixed Methods Approaches*. SAGE. Thousand Oaks. USA.
- Daniels, J. (2004), "International business: environments and operations", Pearson Education International, Upper Saddle River, NJ, USA
- Dominguez, K. M. E. & Tesar, L. L. (2006). "Exchange rate exposure". *Journal of International Economics*, 68, 188-218.

- Doidge C, Luo Hang and Jiang Chun (2007). “Measuring the economic importance of exchange rate exposure”, *Journal of Empirical Finance*,
- Doidge C, Griffin J, Williamson R. (2006). ‘Measuring the economic importance of exchange rate exposure’, *Journal of Empirical Finance*, 13(4-5), pp. 550-576.
- Dufey, G. (1972). “*Corporate finance and exchange rate variations*”, *Financial Management*, Summer vol. 1, Issue 2, Pages 51-57.
- Eichengreen, B. & Andrew Rose, A. (2011). “The Implications for China of Abandoning its Dollar Peg”, *UC-Berkeley mimeo*.
- Eiteman, David K. Stonehill, Arthur I. and Moffett, Michael H. (2001) *Multinational Business Finance* 9th edition, published by Addison-Wesley Longman, Inc.
- Fama, E.F. & Jensen, M.C. (1983), “Separation of Ownership and Control”, *The Journal of Law and Economics*, June, Vol.25:301-325
- Froot, K. A. Scharfstein, D. S., & Stein, J. C. (1993). Risk Management: Coordinating Corporate Investment and Financing Policies. *Journal of Finance* , vol 48,1629-1658.
- Glaum, M . (1990). “*Strategic management of exchange rate risk*”, *Long Range Planning*, vol. 23, Issue 4, Pages 65-72.
- Hakkarainen, A. Joseph, N. Kasanen, E. and Puttonen, V. (1996). “*Foreign exchange exposure management among Finnish firms*”, Working Papers, Helsinki School of Economics and Business Administration, Finland.
- He, J. & Ng, L. (1998). The foreign exchange exposure of Japanese multinational corporations. *Journal of Finance* 53, 733-753.
- Ibrahim, M. H. (2008). The Exchange-Rate Exposure of Sectoral Stock Returns: Evidence From Malaysia. *International Journal of Economic Perspectives*, 2 (2), 62-76.
- Johansen, S. (1991), “Estimation and Hypothesis Testing of Cointegration Vectors in Gaussian Vector Autoregressive Models,” *Econometrica* 58, 165-188. Jorion, P. (1990). *The Exchange-Rate Exposure of U.S. Multinationals. The Journal of Business* , Vol. 63 (3), 331-345.
- Jorion, P. (1990). The Exchange-Rate Exposure of U.S. Multinationals. *The Journal of Business* , Vol. 63 (3), 331-345.

- Jorion, P. (1991). The Pricing of Exchange Rate Risk in the Stock Market. *The Journal of Financial and Quantitative Analysis*, Vol. 26 (3), 363-376.
- Joseph, N.L. (2000). "The choice of hedging techniques and the characteristics of UK industrial firms". *Journal of Multinational Financial Management* 10, pp. 161-184.
- Klein, L. R. (1983). *The Economics of Supply and Demand*. Baltimore: *Johns Hopkins University Press*.
- Kuhn, J., (2007). "Corporate Risk Management and Hedging Practice by Medium-sized Companies in Denmark", *Master thesis, Aarhus School of Business*.
- Laitiainen, T. (1996). "Foreign Exchange Exposure in Finland", *Thesis t6680, Helsinki School of Economics, Finland*
- Linsmeier, T. and Pearson, N. "Risk measurement". (1997). In: G., Klopfenstein, ed. "FX: Managing global currency risk", Glenlake Publishing Company, Ltd., Chicago, IL, USA, Chapter 13, Pages 213
- Linsmeier, T. & Pearson, N. (1997). "Risk Measurement *Managing global currency risk*", Glenlake Publishing Company, Ltd., Chicago, IL, USA, Chapter 13, Pages 213
- Levi, M. (1994). Exchange rate and the valuation of firms. In *Exchange Rates and Corporate Performances*.
- Malaysia. (Economic Report 2003/2004). *Chapter 2: Economic Performance and Prospects*. Putra Jaya: Ministry of Finance Malaysia. (FBM KLICI)
- Malaysia. (Economic Report 2002/2003). *Chapter 3: Public Sector Finance*. Putra Jaya: Ministry of Finance Malaysia. (FBM KLICI)
- Malaysia. (Economic Report 2003/2004). *Chapter 3: Public Sector Finance*. Putra Jaya: Ministry of Finance Malaysia. (FBM KLICI)
- Marston (2001). The effects of industry structure on economic exposure. *Journal of International Money and Finance* 20, 149 - 164
- Martin, A. D., & Mauer, L. J. (2005). A note on common methods used to estimate Foreign exchange exposure. *Int. Fin. Markets, Inst. and Money* 15, 125-140.
- Martin, A. D., & Mauer, L. J. (2003). Transaction versus economic exposure: which has greater cash flow consequences? *International Review of Economics and Finance* 12, 437-449.

- Miller, K. D. & Reuer, J. J. (1998). Firm Strategy and Economic Exposure to Foreign Exchange Rate Movements. *Journal of International Business Studies*, vol. 29 (3), 493-513.
- Mishra, K.A. (2004). “Stock market and foreign exchange market in India: Are they related?”. *South Asia Economic Journal*, 5, 2, New Delhi: Sage Publications
- Muller, A. and Verschoor, W. F. C. (2007). Asian foreign exchange risk exposure. *Journal of the Japanese and International Economies*, 21, 16-37.
- Neumann, W.L. (2003). “Social Research Methods: Qualitative and Quantitative Approaches”. *5th Edition, Allyn and Bacon, Boston, USA*.
- Nguyen, H. Faff, R. & Marshall, A. (2007). Exchange rate exposure, foreign currency derivatives and the introduction of the Euro: French evidence. *International Review of Economic and Finance* 16, 563-577.
- Pramborg, B . (2002). “Empirical essays on foreign exchange risk management”, *School of Business Stockholm University, Sweden*.
- Riley, F. K. (2000). *Investment Analysis and Portfolio Management Orlando, USA: The Dryden Press*.
- Solnik, B. (2000). “International arbitrage pricing theory” *Journal of Finance*, 38, 449-457.
- Shapiro, A.(1974).“Exchange rate changes, inflation, and the value of the multinational corporation”, *Journal of Finance* 30, 485-502.
- United Nations, Economic Commission for Latin American and the Caribbean (2010). Policy coherence and stabilization: rebalancing stabilization and developmental policies in Latin America and the Caribbean. Paper presented at the World Economic and Social Survey 2010 workshop, entitled “Towards a new development paradigm? coherence in development policy and international cooperation”, held in Geneva on 8 and 9 February. Available from http://www.un.org/esa/policy/wess/wess2010workshop/wess2010_eclac.pdf.
- Williamson, R. (2001). Exchange rate exposure and competition: evidence from the automotive industry. *Journal of Financial Economics* 59, 441-475.
- Yucel And Kurt (2003). Foreign exchange rate sensitivity and stock price: *Estimating economic exposure of Turkish companies*,