FOREIGN EXCHANGE RISK MANAGEMENT PRACTICES AND USE OF PRODUCTS BY THE MANUFACTURING FIRMS IN THE WESTERN REGION OF MELBOURNE

Submitted by

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DECLARATION

I hereby declare that this thesis contains no materials which has been accepted for the award of any other degree or diany University. To the best of my knowledge and belief, it contains no materials previously published or written by another person, except where due reference has been made in the text.

Anthony Durojaiye Mayungbe

DEDICATION

To my mother Madam B.F Mayungbe

and

My wife and Children

ACKNOWLEDGEMENTS

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CHAPTER ONE

INTRODUCTION

1.1   BACKGROUND

The breakdown of the Bretton Woods system[1] in 1971 and later the Smithsonian agreement[2] in 1973 led to the floating of currencies in the International Monetary System. This floating of currencies generated instability in the exchange rate between countries.

The 1980s had been a period of high volatility in the financial markets and especially the foreign exchange markets which had led to wide fluctuations in financial prices. Furthermore the internationalisation of business and financial markets coupled with floating exchange rates and deregulation in world markets has resulted in an increase in the level of exposure to financial risks by firms. Companies conducting business in more than one currency may be exposed to foreign exchange risk. This exposure to foreign exchange risk might cause fluctuations in the company's earnings and make it less competitive. In response to this volatility in financial markets, a wide range of financial products have been developed by financial institutions to cope with the increased level of risk. As a result of concern with greater volatility, companies have placed more emphasis on foreign exchange risk management.

Various studies by Collier and Davis (1985), Teoh and Er (1988) Soenen and Aggarwal (1989) Collier et al (1990), Batten et al (1992) have dealt with important issues in foreign exchange risk management practised by the companies. Such issues covered are policy and responsibility of foreign exchange management, degree of centralisation, hedging

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[1] In the Bretton Woods System exchange rates were pegged to the USA dollars and fluctuations in the rate were to be plus or minus (+ or -) 1% band around par.

[2] In Smithsonian Agreement, exchange rates were also pegged to the USA dollars with an agreed margin of fluctuation of plus or minus (= or -) 2.25%. For further explanation on the Bretton Woods System and Smithsonian Agreement see Shapiro 1992

policies and foreign exchange risk management objectives. The result of the empirical studies have shown that companies were concerned about their exposures and managed them actively. The issues covered by the above studies are the main focus of this study, but they will be applied to a different population.

Abuaf (1988) described risk as the dispersion of possible values, favourable or not, around those values that are expected. Darke and Klar (1991) defined exposure as a quantified measure of risk outstanding at a particular time. They argued that the outcome of the movement in the exchange rate is normally unknown and creates uncertainty. This uncertainty will lead to a risky situation if the movement is unfavourable to the firm. Darke and Klar also defined risk as a situation in which the final outcome is unknown and is therefore uncertain. Furthermore that uncertainty provides opportunities for undesired or unpleasant outcomes such as injury or loss.

From these definitions of risk it could be seen that there is no one single approach or dimension to risk. One school of thought believes that it is the uncertainty of the future outcome that leads to risk (for example, Darke and Klar). The concept of uncertainty assumes that the future cannot be known with confidence. Therefore the future value of a transaction denominated in a foreign currency is blurred with uncertainty which gives rise to risk. Another school of thought believes that it is the exposure to the future outcome that generates risk (for example Shapiro (1990), Srinivasulu (1983), Teoh and Er (1988), and Abuaf (1988). The concept of exposure measures risk as a function of the firm being exposed to substantial loss if the movement in the exchange rate from the initial position is not favourable to the firm.

Both schools of thought have the same ultimate goal which is risk recognition. Applying these dimensions of risk to exchange rate movements, it implies that foreign exchange risk will exist if the profitability of the firm's operation could be affected by the movement in the exchange rate. A firm is said to be exposed to exchange rate risk if it has transactions (including foreign subsidiary operations) denominated in a foreign

currency while the exchange rate changes from it's initial position. Companies which are exposed to these risks may find their profits go down and be less competitive.

Amongst the manufacturing firms in the western region of Melbourne financial risk has become a matter of concern. Due to the deregulation of the financial sector in Australia, which had led to the floating of the dollar, the foreign exchange market has been unstable. This situation had exposed both large and small firms to exchange rate risks. The 1980's has seen the failure of many firms and thus their closure. For this reason, companies have developed great interest in the management of these risks, especially foreign exchange risk.

This study focuses on the concept of exposure to foreign exchange risk management, with particular reference to manufacturing firms in the Western Region of Melbourne. An explanation of the background to the study and the motivation for the study follows, together with a brief description of the objective, research question and the research method used.

1.2 MOTIVATION FOR THE STUDY

Most of the studies on foreign exchange risk management have been carried out on large firms and multinational companies across the borders of UK, Europe, Australia, and USA. There had been no focus on small companies except a slight mention of it by Teoh and Er (1988). In their analysis Teoh and Er found that there is a relationship between company size and hedging policies, and that large companies are more likely to establish hedging policies than smaller companies. They suggested that this may be due to the resources and expertise available to the larger companies to implement such policies. The point to note here is that the small sized companies in their study are small in relative terms only within the the range of large companies classifications. Their conclusion that company size is an important determinant in foreign exchange risk management practices need to be tested with smaller companies. This is one of the reasons why this author was motivated to conduct this research to test whether the assumption could be generalized to

a wider range of companies. Another point for motivation which is similar to the previous one is expressed by Batten et al (1992). In their study they found that the size of the firm (as measured by foreign exchange turnover) has the greatest impact on the risk management practices of the firm. Batten et al also found out that size has a significant impact on the use of synthetic products.

1.3 OBJECTIVE

The purpose of this research is to attempt a comparative study of the impact of size on foreign exchange risk management practices using manufacturing firms in the Western Region of Melbourne. This is to provide evidence to either support or refute the results from the other studies conducted whereby large companies and multinational corporations were used to determine whether size has a significant impact on risk management practices of a firm.

Specifically, this study investigated the risk management practices in manufacturing firms using company specific variables identified from the related literature reviewed viz: policy and responsibility, degree of centralisation, foreign exchange forecasting, risk management objectives, hedging strategy and policies, and computerisation of risk management.

1.4 RESEARCH QUESTIONS

The impact of size on the foreign exchange risk management practices in firms is the first research question. Risk Management practices in manufacturing firms were investigated..

The other question being asked is whether size has a significant influence on the use of synthetic products to manage foreign exchange risk.

1.5 RESEARCH METHOD

Data were collected through mail questionnaires sent to companies in the western region of Melbourne extracted from a database compiled by the Department of Employment, Education, and Training (DEET) Footscray. The data were analysed in accordance with the variables identified for the study.

1.6 OVERVIEW

Chapter one has given the structure of the whole study.

Chapter two gives an overview of the nature of the foreign exchange risk management process, examining the different approaches to a conceptual framework given in the literature. A brief description of the steps in the risk management process and hedging techniques are presented.

Chapter three focuses on the review and analysis of related literature from which appropriate hypotheses were generated for the study. Chapter four deals with the methodology employed which includes the step by step procedures used to collect the data for the study. The variables are defined and the merits and demerits of the method chosen are presented.

Chapter five focuses on the findings of the study and it's analysis while chapter six will report on the summary, conclusion and recommendations.

CHAPTER TWO

NATURE OF FOREIGN EXCHANGE RISK MANAGEMENT

2.1 INTRODUCTION

Understanding the nature of foreign exchange risk management entails knowing the answers to the following questions: what is risk management? why does it exist? what are the concepts used in it's management? and what are the processes involved in it's management? These are the questions being addressed in this chapter which explains the nature of foreign exchange risk management and how it is being practised by manufacturing firms in the Western Region of Melbourne.

2.2 CONCEPTS OF EXPOSURE

Shapiro, A. C. (1992) gave the concept of exposure as the degree to which a company is affected by exchange rate changes. Foreign exchange exposures are classified in the literature into three types viz:

1   Accounting or Translation exposure;

2   Transaction or Conversion exposure; and

3   Economic exposure.

It will be appropriate here to give a brief description of each of the exposures.

2.2.1 Accounting or Translation Exposure

Translation exposure exists when a company that has a subsidiary in another currency has to consolidate its financial statements. Consolidation means translating the subsidiary financial statements prepared in its local currency into the parent company's

currency of operation. This concept is supported by the description given by Shapiro (1992) that translation exposure arises from the need for purposes of reporting, and consolidation, converting financial statements of foreign operations from local currencies (LC) involved into the home currency (HC) of the parent company. This means that if the exchange rate changes between the previous reporting date and the current reporting date, then translation gain or loss will be incurred by the parent company. In actual fact the gain or loss does not involve any cash-flow, it is only a paper concept which does not add value to the company[3].

2.2.2 Transaction or Conversion exposure

When a firm has a foreign currency-denominated payable or receivable, investment or loan, a change in the value of that foreign currency will alter the amount of local currency to be paid or received (Srinivasulu, 1983). This type of exposure involves cash-flows because at maturity (or future date) if the foreign currency appreciates, the firm will gain/lose in respect of receivables/payables while at depreciation of the foreign currency, the reverse occurs. This exposure is measured on a currency by currency basis and thus equals the difference between the cash inflows and cash outflows. This is different from the economic exposure because it only affects specific transactions while economic exposure affects all the transactions in total.

2.2.3 Economic Exposure

This is a much broader concept than the transaction exposure because it focuses on the effect of exchange rate changes on the competitiveness of the company, that is, the impact on the company's cash-flows.

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[3]However, there could be a potential cashflow impact on the value of the firm depending upon the accounting rule applied to the foreign currency translation. For further explanation on this point, refer to Van Horne et al (1990) page 782-783.

It is a generally accepted fact in economics that devaluation of a local currency might be used to encourage exporters to be competitive internationally. This is because devaluation of a currency can be used by government in a managed foreign exchange system to encourage exporters while discharging their responsibility for managing the foreign exchange rate. On the other hand depreciation of a currency is the result of a freely floating exchange rate system as a result of the operation of market forces. The effect of depreciation is to make exporters more competitive against importers. Therefore any exchange rate movement has the potential to affect the firm's cost of inputs or price of outputs or both and thus the relative competitiveness of firms. This type of effect is the essence of economic exposure.

It could be argued that both transaction and economic exposure concepts are the same as both will influence cashflow but there is a difference between the two. In transaction exposure, it is only the future value of the converted local currency that is unknown due to the unknown future exchange rate but the foreign currency cash flow is known in advance. As for the economic exposure, since the exchange rate affects costs, prices, and sales volume, both the foreign currency cash flow and the local currency equivalent are not known . In short, economic exposure affects the value of the firm.

2.3 DEFINITION OF RISK

As discussed earlier in the introductory chapter, this study is based on the concept of exposure to foreign exchange risk management. The definition of risk is also based on such a concept. Shapiro (1992) defined foreign exchange risk as the "variability in the firm's value that is caused by uncertain exchange rate changes". Glaum (1990) defines foreign exchange risk as the "probability of changes, for better or worse, in the home currency value of an asset, liability, or cash-flow stream caused by unexpected future exchange rate changes." This definition is based on certain assumptions that:

1   the company is managed on behalf of it's owners who are interested in wealth increases in their home currency.

2   only unexpected future exchange rate changes gives rise to exchange risk.

3   exchange risk is not confined to firms with foreign transactions alone but also domestic oriented firms as well.

It is an accepted fact in the finance literature that the overall objective of a company is to maximise shareholders wealth (Van Horne et al 1990 p.12). All other subsidiary objectives (including risk management objectives) and policies of the company are directed towards achieving the overall objective. Maximizing shareholder's wealth means increasing the value of the firm, therefore the assumptions in the definition of foreign exchange risk by Glaum that the value of the firm is the most important seems appropriate.

The above definitions of risk are all based on an economic exposure concept . This concept is in agreement with the author's view because it is the value of the firm which is of utmost importance to the shareholders. Therefore to maximise the value of the firm, managing the inherent foreign exchange risk should focus on risk based on economic exposure.

2.4 NATURE OF RISK MANAGEMENT

Darke and Klar (1990) give a broad definition of risk management as "the ability to identify, measure, and assess limits to acceptable financial risk which an organisation may, at a reasonable cost, defray or reduce, using financial instruments available in the market". From this definition one could ask which one of the exposures is to be managed, but previous studies (such as Collier and Davis 1985, and Belk and Glaum 1990) have shown that there are divergences in practice as to the type of exposure being managed. Belk and Glaum's (1990) findings supported the use of accounting exposure to foreign exchange risk management in their survey in which 13 out of 16 respondents of multinational companies expressed the importance of accounting exposure management. Other studies show that transaction exposure management is the centre-

piece of foreign exchange risk management of some multinational companies (Belk and Glaum 1990; Collier and Davis 1985). Recent studies have shown that companies are now using the economic exposure concept in their foreign exchange risk management (Belk and Glaum 1990; Flood and Lessard 1986; Shapiro 1989). The economic exposure concept is generally accepted amongst academics as being the most important foreign exchange exposure concept and the most appropriate for use in exchange risk management (Glaum 1990).

2.5 RISK MANAGEMENT CONCEPTUAL FRAMEWORK

Risk management usually involves a series of steps to be followed in the process. Cornell and Shapiro (1983) developed the risk management concept into three stages:

1   Determining what is at risk which requires the appropriate definition of foreign exchange risk

2   Identifying the objectives of risk management and

3   Designing the policies to achieve the objectives.

Darke and Klar (1990) gave their conceptual framework of exposure management as follows:

1   Identifying the exposure risks

2   Quantifying the impact of the risk

3   Establishment of policies and objectives towards the management of those risks and

4   Implementing the risk management programmes.

Similarly, Holland (1986) gave his own framework as follows:

1   Defining the nature of the exposure

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2   Collecting information on the exposure

3   Forecasting the path of expected exchange rates changes

4   Identifying deviations and responding to the exposure and

5   Evaluating this response relative to the goals of exposure management.

Furthermore, Shapiro (1992) enumerated his own concept as

1   Measurement of exposure and

2   Managing the exposure.

Shapiro's concept of measurement encompasses the first two steps of Darke and Klar which is also similar to the first three steps of Holland. The concept of managing is similar to the other steps in Darke and Klar as well as those of Holland's.

It is clear from the above that risk management is not a simple process,therefore it must not be left as the responsibility of the treasurer alone but it should involve all the senior management team and should be included in the strategic policies of the firm. Glaum (1990) had argued the case for the strategic management of foreign exchange rate risks. He said that risk management should be approached from the economic exposure concept because the following reasons:

1   economic exposure concept is a dynamic, decision-making orientated concept;

2   it takes a long term approach seeing the firm as an on-going concern;

3   all cash-flows are affected by exchange rate changes; and

4   exchange risk affects all parts of the company and thus is not solely a financial phenomenon.

All the above point to the fact that foreign exchange risk is a strategic problem and it needs a strategic management approach. The constituents of each step of the process is

hereby given based on the conceptual framework of Darke and Klar with an additional step for evaluation.

2.5.1   Identifying exposure risk

This involves examining the operations of the company to see if it is exposed to foreign exchange risk. As discussed earlier, exposure exists either when a firm has any of it's assets, liabilities or cash-flows denominated in foreign currencies or if it has a foreign competitor. This is because any firm that has a foreign competitor is exposed to movements in exchange rates between its own local currency and that of it's foreign competitor's local currency.

If the exchange rate movement is not favourable to the domestic producer, it may lose sales revenue in foreign currency denominated costs as well as revenues and/or market share but if favourable, it may gain. Depending on the objectives and policies of the firm, one can determine whether the firm is exposed to accounting, transaction or economic exposures.

2.5.2   Quantifying the impact of risk

Quantification of the risk involves forecasting exchange rate changes and their impact on the operations of the firm. The extent of the impact can only be known after establishing the kind of exposure the firm faces as discussed in the last paragraph. Forecasting the exchange rate movement is the most difficult aspect but firms can collect information on expected rates from sources outside the firm (banks, consultants, foreign exchange dealers, etc) and compute a scenario of events in respect of their impact on the firm's value if they lack the resources to prepare their own forecasts internally.

2.5.3   Establishing objectives and policies

Establishment of objectives and policies towards the management of exposure is a task to be done by the Board of Directors, since this will be directed towards the firm's overall strategic interest. This step will provide the strategy to be used by the treasurer or anybody responsible for the operational management of the foreign exchange exposures. The operational tactics will also be enumerated as well as the procedures for the evaluation of performance. The strategy typically falls into three types viz: full coverage, partial or selective coverage, and no coverage. The limitations and the constraints in the procedures should be enumerated so that the treasurer will not be penalized for any adverse impact over which he/she has no control.

2.5.4   Implementing the programmes

Implementing the risk management programmes consists of using techniques to manage the exposure. The instruments used in hedging techniques are either obtained from the banks or from the exchange houses. Some large companies and multinational corporations do have in-built instruments. The type of instruments to be used, where, and when to be purchased, as well as the time to hedge will be enumerated in the guidelines as spelt out in the policies of the firm established above.

2.5.5   Evaluating performance

Evaluating the performance consists of measuring the performance of the technique used in the management of the exposure and comparing it with the benchmark established in the guidelines. This evaluation will also reflect the judgement and/or performance of the treasurer or anybody responsible for the operational management of the foreign exchange risk. Allan et al (1990) explained that there are three extreme benchmarks used to assess the management of a foreign exchange exposure: do nothing, cover everything, and

perfect foresight. The benchmark to be used will influence the type of strategy to be used in managing the exchange risk. This is to align the performance assessment with the strategy being used. Therefore if the evaluation benchmark is do nothing, then a do nothing strategy will be put in place in the guidelines. Likewise a cover everything benchmark will be used for full hedging strategy while the perfect foresight benchmark will be used for the selective hedging strategy. Once the benchmark has been established, then the instruments to be used to achieve the firm's objectives will be identified. These instruments are available in the markets or over the counter and according to Allan et al (1990), the instruments can be purchased in one market or in any combination of markets.

2.6 HEDGING TECHNIQUE AND INSTRUMENTS

In as much as there are various techniques used in foreign exchange risk management, there are also various instruments used for these techniques. Hedging is one of the techniques used in risk management. This section focuses on hedging techniques and appropriate instruments for hedging.

Darke and Klar (1991) described hedging as the process of reducing outstanding portfolio or business risk (exposure reduction) via new techniques, technologies, or products, or by altering the way business operates. This means taking an offsetting position in order to cover the original open position. In terms of currency it means taking an offsetting currency position so that whatever is lost or gained in the original currency position is offset exactly by a corresponding gain or loss in the hedged currency. There are three strategies in hedging techniques:

1   Full coverage in which case all the exposure in the original position is covered .

2   Selection or partial hedging involves covering a fixed proportion or certain part of the total exposure.

3   No hedge involves a do-nothing approach in which the total exposure is left open.

The strategy to be used by a firm will be specified in the guidelines depending on the objectives and policies of the firm. The instrument (henceforth will be referred to in this paper as products) used for hedging had been classified by Batten et al (1992) into two groups viz physical products and synthetic products. The group classified as physical products are spot, forward sales, short dated swaps and long dated swaps (more than six months). The synthetic products are futures, options, currency-swaps, forward rate agreement (FRA's), caps, collars and floors. These products are known in the financial markets as financial derivatives because they are derived from the financial products and their price is linked to the price of the underlying financial product. Batten et al's (1992) classification of these products will be used in this study. The glossary contains a brief description of these products.

Various studies on foreign exchange risk management have shown that firms do manage their exposure either actively, passively or as a hybrid of both (Batten et al 1992, Teoh and Er 1988, Collier et al 1990, Glaum and Belk 1990, Collier and Davis 1985). These results claim that risk management is necessary although some held the view that risk management was not necessary as it was time wasting. Dufey and Srinivasulu (1983) debated the case for and against foreign exchange risk management by examining extensively the reasons given by the firms. They concluded that inferring on a limited range of essentially empirical propositions identified, there is a case for foreign exchange risk management. Similarly, Eckl and Robinson (1990) supported the case for foreign exchange risk management by companies. In their conclusion they were concerned with how profitable a hedging transaction can be. They suggested that since profitable hedging implies beating the market, which does not always occur, then the best a company can do on average is to break-even in their hedging activities.

2.7 CONCLUSION

This chapter has explained the meaning of foreign exchange risk, how it exists and the different concepts of exposure used in its management. It also indicates the processes

involved as well as the techniques and some of the products available for foreign exchange risk management.

The conclusion derived from this chapter is that foreign exchange risk management is necessary for all firms and not only exporting companies.

In order to prevent or minimise the loss caused by unfavourable exchange rate movements, companies can hedge their exposures as well as actively managing their foreign exchange risk. The review of the literature supporting the contention that there is concern by companies regarding foreign exchange risk management, is the focus of next chapter

CHAPTER THREE

REVIEW OF RELATED LITERATURE

3.1 INTRODUCTION

There are various studies on foreign exchange risk management theory and practice. The academic research on risk management theory deals with the relevancy or not of foreign exchange risk management and what firms should do to effectively manage their exposure (Shapiro and Rutenberg1976, Logue and Oldfield 1977, Sirinivasulu 1983). The second type of study provides empirical evidence on how firms actually manage their exposures in practice (Collier and Davis 1985; Belk and Glaum 1990; Teoh and Er 1988). Batten et al (1992) extended the research by providing evidence on the synthetic products being used by firms to manage their foreign exchange exposures.

To investigate the studies that have been conducted on foreign exchange risk management practice generally and the use of synthetic products to manage foreign exchange risk management in practice, this review of the literature is divided into eight sections. Section one reviews the study done by Collier and Davis (1985). Section two focuses on the study of Soenen and Aggarwal (1989). Section three deals with the study done by Belk and Glaum (1990). Section four treats the work of Teoh and Er (1988). Section five looks at the survey conducted by Batten et al (1992). The research hypotheses are developed and presented in section six, while section seven gives the tabular summary of all the literature reviewed. Section eight concludes the chapter.

3.2 COLLIER AND DAVIS STUDY

Collier and Davis (1985) conducted a study on the management of currency risk by UK multinational companies. The study focussed on the relationship between organisational structure and currency risk management practices. The sample was based on the Financial Times Top 200 corporations with the use of questionnaires and follow-up

interviews. There were 87 responses giving a response rate of 43.5 per cent and the results showed that there is a relationship between organisational control (i.e degree of centralisation) and currency risk management. It also showed that there is a relationship between the centralisation or decentralisation policy and risk management. That is, the more centralised the organisational control, the greater the emphasis on the management of foreign exchange exposure. Likewise, the results indicated that a centralised structure is associated with active currency management. The study further found that there is no relationship between the degree of risk of a firm and the organisational structure of risk management.

3.3 SOENEN AND AGGARWAL STUDY

Soenen and Aggarwal (1989) conducted a study on corporate practices in cash and foreign exchange management in three countries of Western Europe. The study was conducted by the use of questionnaires sent to companies in manufacturing, trading and service industries. A sample of 750 companies were used (200 in United Kingdom, 250 in Netherlands,and 300 in Belgium) while 259 companies responded giving a response rate of 30.5 per cent. The study dealt with several issues which are of major concern to this present study. The issues covered are policy and responsibility, degree of centralisation, foreign exchange forecasting, hedging exposures, conflicts between departments and computerisation of foreign exchange management

Based on the above issues, the result of Soenen and Aggarwal's study are as follows:

3.3.1 Policy and Responsibility:

The results showed that the responsibility for foreign exchange management rested on the most senior executives of the company (V.P/Director of finance, treasurer, and controller) across the sample. With the help of the comments of the respondents, it was found that the responsibility of V.P Finance in respect of operational aspects is likely to

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occur in smaller companies. From the results it could be adduced that there is a relationship between the company size and responsibilities of company executives. The study suggested further that though there are guidelines for exchange risk management, they cannot be regarded as formal policies for the company. This present study tries to ascertain the relationship between company size and executive responsibilities by not restricting the focus to large firms as in the Soenen and Aggarwal's study. The same approach is used for ascertaining the presence or lack of formal policies for foreign exchange risk management

3.3.2 Centralisation and Decentralisation:

Soenen and Aggarwal also found that foreign exchange management operations are centralised at headquarters. This result is similar to the result of Collier and Davis (1985) who concluded that the more centralised the structure the greater the willingness to manage foreign exchange exposure in terms of active or passive management.

3.3.3 Foreign Exchange Forecasting:

In this aspect the results from Soenen and Aggarwal indicated that the main sources of information used for foreign exchange forecasting are obtained from banks and financial publications. While some use an intuitive approach, others modify information obtained from outside sources based on their experiences to suit their own purpose. The study did not indicate why most of the companies relied on outside information for their exchange rate forecasting. With the size and resources available to multinational corporations, one is tempted to ask the question why they cannot have their own in-built system to generate the information needed for exchange rate forecasting. In answering this question, it may be suggested that cost could be a contributing factor whereby the cost of obtaining information from outside might be less than the cost of generating it from inside. Lending support to this, the literature has shown that with the sophistication in the technology and communication industry, the cost of obtaining information from the

financial markets has been considerably reduced. Therefore when investigating the sources of information available to small firms for foreign exchange forecasting, it could as well be assumed that their source of information will be mainly from banks and financial publications. The forecasting horizon of the sample was found to be between 0 and 12 months. According to Soenen and Aggarwal this shows that the companies are risk averse, else it is assumed that if they are not risk averse, they should have a longer time horizon than twelve months. Glaum claimed that risk management should be strategic in nature and since strategic management is always based on a long term approach, then the forecasting horizon should also be commensurate with the nature of strategic management. No explanation was given for this short term approach by the companies. The indicators used by most companies in exchange rate forecasting are mainly Interest rate differentials, and Inflation, while the use of a combination of indicators are also indicated. The use of these indicators might be related to the various theories in the literature and finance texts which supported their usage (Shapiro 1992).

3.3.4 Hedging exposures:

The results showed that most companies concentrate on managing transaction exposures either separately or in combination with the translation exposures. This is similar to the result of Belk and Glaum (1990) which found that though most companies have the management of transaction exposures as the centre-piece of their foreign exchange risk management, they still hedge their translation exposures as well. With the degree of exposures being hedged, it shows that most companies are risk averse; therefore they try to minimise their loss in foreign exchange by hedging rather than making profits from speculation in foreign exchange. The most common strategy being used for hedging by the companies in the study was selective hedging, followed by fully hedged and then no hedge. The rationale for the selective hedging strategy is that the cost of full coverage of exposures is more than the benefits to be derived from it. Another reason is that some companies are risk averse but still want to enjoy benefits from any rally in exchange rate

movements. The bottom line is that the strategy being used by any company is dependent on the company policies. Furthermore, Soenen and Aggarwal indicated that most firms used a combination of methods for hedging their exposures. The most widely used methods were forward contracts, and currency invoicing, while the others were International money market transactions and leading and lagging. However, all had significant differences in their usage.

3.3.5 Conflicts with other departments:

The results showed that when decisions are made on foreign exchange risk management, conflicts do occur between purchasing, sales, and finance departments. The reason adduced for this is that risk management procedures are left to be the sole responsibility of one department - treasury. In order to resolve this conflict, it is advisable to apply the strategic approach to the foreign exchange risk management using the economic exposure concept. This approach supports the recommendation of Glaum (1990).

3.3.6 Computerisation of foreign exchange management:

The Soenen and Aggarwal (1989) study found that most companies do not use computers in their foreign exchange risk management, but have experts for data processing only. The reason given for not using computers ranges from: not cost justifiable, not considered suitable, to not yet being evaluated as to the cost-benefit analysis. This result can be assumed to be applicable to small companies due to their size, resources available and probably the volume of their International transactions.

3.4 BELK AND GLAUM STUDY

Belk and Glaum (1990) reported on their study of U.K multinationals as regards risk management practices. The study focussed on the following issues: the concept of exposures being used in foreign exchange risk management, the organisational structure

of risk management, and the objectives of foreign exchange risk management. Though the study was on a sample of 17 industrial companies with a significant degree of International involvement, the total population and basis for sample selection were not given. Personal interviews were used for the study based on pre-determined open-ended questions. The results provided evidence that the majority of firms do manage both translation and transaction exposures to a great extent, but the degree of management varies between the companies. There was little or no use of the economic exposure concept by the companies which is in contrast to the various views being expressed in the literature that supports the concept. The reasons given for the flaw are the complex nature of the topic and the respondent's use of transaction exposure concept for economic exposure concept. The majority of the companies used hedging techniques to manage their exposures with various strategies ranging from no hedge to full cover. Furthermore, all of the companies used financial products for hedging their exchange risk.

In the area of organisational structure, Belk and Glaum found that many companies centralised their exposure management but to varying degrees. Nine of the companies had a high degree of centralisation in which the decision making and implementation were at the headquarters. Seven companies had a low degree of centralisation whereby the decision-making was being made at the regional or subsidiary level, while the implementation was being done at the headquarters. Only one company was observed to be completely decentralised whereby both decision-making and implementation were done at the subsidiary level. The study observed further that treasury departments were being run as either profit centres or service (negative cost) centres. Two firms operated the treasury as a profit centre, while nine companies operated it as a service centre, though the department was expected to contribute to the company profits. Sixteen of the 17 respondents indicated their objectives of risk management, out of which 12 said they were risk averse and the remaining four were classified as risk taking. This is similar to other results in the literature (Teoh and Er 1988) that most firms are risk averse, therefore they hedge most if not all their exposures.

3.5 TEOH AND ER STUDY

Teoh and Er (1988) investigated the effect of floating the Australian dollar on foreign exchange risk management practices in Australia. ANOVA and CHI-SQUARE tests were used to find out the main and interaction effects amongst the variables. The independent variables identified by the study are company specific such as: ownership structure, company activity, sales turnover, and international involvement. Investigating the foreign exchange risk management practices, the following aspects were examined: extent of resources channelled to the risk management function, risk management objectives, organisational structure, exchange rate forecasting and hedging policy and strategy. The survey method was used by sending a mail questionnaire to 460 companies of which 132 responded given a response rate of approximately 31 per cent.

The result of this study showed that companies with substantial involvement in International activities were more likely to set up a formal organisational structure for their risk management. It was observed that the structure is highly centralised with decision-making at the headquarters for companies with subsidiaries and at the top-level management for single companies. The reasons given for the high degree of centralisation are lack of experience at the operating level, and severity of fluctuations in exchange rates, demanding as a result, senior management attention. This indicates that risk management is considered to be the concern of top management, and thus should be managed strategically. As regards the risk management objectives, the result was that the company objective should be the elimination of exchange losses arising from translation, transaction, and economic exposures. This is synonymous to the risk averse objective expressed in the literature. In respect of exchange rate forecasting, it was discovered that large companies used information from banks while small companies used an intuitive approach to forecasting. At the same time some companies used mathematical models for forecasting. Furthermore, large companies were found to be more likely to have established hedging policies than the smaller ones which shows that size is an important

factor in determining foreign exchange risk management. The observations of Teoh and Er also revealed that forward contracts are the most widely used hedging technique.

3.6 BATTEN, MELLOR, WAN, AND SYME STUDY

Batten et al (1992) conducted a survey on foreign exchange risk management practices and the product usage of large Australian firms. The study analysed the characteristics of a firm that had a major impact on foreign exchange risk management practices by the firm. The firm characteristics identified are industry grouping, sales turnover, international involvement, and ownership structure (sub-divided into foreign, Australian, private, public). The risk management practice variables identified are the use of physical and synthetic products, degree of centralisation, usage of short and long term funding techniques, and the use of technology in the measurement and management of foreign exchange risk. Questionnaires were sent to a sample of 500 firms with a response from 94 firms of which 72 were found usable for the study with a response rate of 14.4 per cent. Chi-square test was used to ascertain the relationship between the firm variables and the risk management variables. The descriptive analysis showed that the majority of the firms used the transaction exposure concept in managing their exchange risk (61% of the sample) followed by the use of an economic concept (17%) with only 8% using the translation concept. This is similar to the results of Soenen and Aggarwal (1989), Glaum (1990), Collier et al (1990). The only exception is the result of Belk and Glaum (1990) which stated that multinational corporations in U.K do manage both translation and transaction exposures. Batten et al further observed that most companies use both synthetic and physical products in their foreign exchange activities with forward contracts as the main physical product being used (similar to findings by Teoh and Er 1988, Soenen and Aggarwal 1989) followed by spot contracts. The most widely used synthetic product is the foreign currency options followed by currency swaps.

As regards the risk management strategy, it was observed by Batten et al (1990) that almost all the companies covered their exposures but to varying degrees. A fully hedged

strategy was used by 21 firms (approximately 30.4%), 22 firms (approximately 31.9%) actively traded their positions and the remaining 26 firms (approximately 37.7%) were assumed to be using selective hedging. This result provides evidence as well as supporting other findings that companies are risk averse . Surprisingly, the result on the use of computers in risk management pointed out that companies do largely use PC based systems followed by the use of the combination of both PC based and mainframe systems. This is in contrast to the observation of Soenen and Aggarwal (1989) that most companies do not use computers in their foreign exchange risk management. The difference might be attributed to the location of the study and/or the degree of advancement in technology in Australia between 1989 and 1992. In analysing the firm variables that have the major impact on management practices, it was discovered that the size of the firm measured by foreign exchange turnover had the most impact. The impact is mainly in the use of computers in risk management, the use of both physical and synthetic products, and the funding (both short and long term) activities of the firm.

3.7 RESEARCH HYPOTHESES

All the above diagnoses were conducted using multinational corporations and big companies. In most of the studies, it has been shown that size of the firm has a great impact on risk management practices. Since the big companies are not the only participants exposed to foreign exchange risk, a decision was made to replicate or conduct a similar study using smaller-sized firms with International involvement. The foregoing discussion will be used as a conceptual framework for this study. In investigating the foreign exchange risk management practices in both large and small firms, two hypotheses were developed and tested based on the findings of the previous studies.

The first null hypothesis was developed to test the impact of size on foreign exchange risk management practices and is stated as:

'Risk management practices are not dependent on the size of the firm'

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The next investigation involves testing the impact of size on the use of synthetic products in foreign exchange risk management. The null hypothesis is stated thus:

'The use of synthetic products in foreign exchange risk management is not dependent on the size of the firm'

To test these hypotheses, the following identified firm specific variables similar to those identified by Teoh and Er (1988) are used

1. Ownership

2. Turnover

3. Extent of International Involvement

The principal activity was selected based on the result of Batten at al (1992) which found that companies in the manufacturing industry are the largest foreign exchange users. Therefore, the sample for this study was selected from the manufacturing industry.

The following variables are identified for the risk management practices based on the related studies reviewed above.

Policy and responsibility;

Degree of centralisation;

Foreign exchange forecasting;

Risk management objectives;

Hedging strategy and policies; and

Computerisation of foreign exchange risk management.

In total the study will provide evidence on the foreign exchange risk management practices by small firms based on the concepts they use, the objectives they follow and the organization of the management function.

3.8 SUMMARY

The summary of various previous studies is presented in Table 3.1 below

Table 3 1 Summary of Previous Studies

STUDY	FOCUS	RESEARCH METHOD	FINDING
Collier and Davis (1985)	Degree of centralisation and currency risk management practice.	Empirical: survey of 114 UK multinationals within the Top 200 categories using mail questionnaire.	About 90% of the companies surveyed centralised their currency risk management.
Soenen and Aggarwal (1989)	Cash and foreign exchange management: Theory and corporate practice in three countries; UK, Belgium, and Netherlands.	Empirical: Survey method using mail questionnaire sent to 200 companies in UK, 250 companies in Netherlands, and 300 companies in Belgium.	Selective hedging found common in all countries. Centralisation of decision at headquarters. Senior management team responsible for risk management policies.
Belk and Glaum (1990)	Foreign exchange exposure management practices in UK multinational corporations.	Survey of 17 major UK industrial companies.	Active management of accounting exposure. Transaction exposure centre-piece of foreign exchange risk management. Firms are totally risk averse
Teoh and Er (1988)	Impact of floating Australian dollar on foreign exchange risk management practices. The extent of company response in managing foreign exchange risk.	Mail questionnaire sent to 460 companies with international involvement. Anova test used to asses main and interaction effects of the variables used for the study.	More resources channelled to risk management after the floating of the Australian dollar. Centralised decision, and size has impact on risk management practices
Batten, Mellor, Wan, and Syme (1992)	Foreign exchange risk management practice and product usage of large firms operating in Australia.	Survey method using mail questionnaire sent to 500 firms in New south wales. Chi-square test used to asses the independence of the variables used for the study.	Large firms actively manage their foreign exchange exposures and act as risk bearers to optimise returns. Size has the most important effect on risk management practices and use of synthetic products.

3.9 CONCLUSION

The literature reviewed has touched on many aspects of foreign exchange risk management in either large companies or multinational corporations. All of the studies focussed on larger companies and this fact motivated the present study.

To investigate the foreign exchange risk management practices in both large and small firms hypotheses were developed and tested with the variables identified from the literature reviewed.

The step by step procedure employed in collecting the data to measure and quantify these identified variables for the study are the focus of the next chapter.

CHAPTER FOUR

METHODOLOGY

4.1 INTRODUCTION

This chapter presents the step by step procedure used in collecting the data required to answer the research question. The data are used to provide evidence on the foreign exchange risk management practices in manufacturing firms in the Western Region of Melbourne. It also deals with the analytical techniques used in the study and the shortcomings of the procedure employed.

4.2 SOURCES OF DATA AND GENERAL APPROACH

4.2.1 Type of Study

The survey method was preferred in this study because the primary goal is to give the description and the relationships among the variables used in the study rather than causal inferences. It also permits data to be collected from their natural settings.

A mail questionnaire was used because it allows for data to be collected from a larger number of respondents that will be more representative of the sample and at a lower cost than other methods. Though this method helps in reducing or eliminating certain bias such as interviewer and interviewee bias, it has it's own interpretation bias both for the respondents (interpreting the question) and the researcher (interpreting the responses). This method also allows for the anonymity of the respondents but the response rate and motivation may be very low.

4.2.2 Research Location

The Western Region of Melbourne consisting of Footscray, Altona, Werribee, Sunshine, West footscray, Laverton, Flemington, Brooklyn, Williamstown, e.t.c was selected as

the research location. This was necessary because a wider area such as a state or the whole country could not be covered due to the limited time and funds available for the study.

4.2.3 Sample Size

The population was made up of 190 companies in the manufacturing industry. All companies within the research location were targeted. The population selection was purposive because it was focussed on only the manufacturing industry. The reason is based on the finding of Batten et al's (1992) study that companies in the manufacturing industry are the largest foreign exchange users. This reason has been explained in chapter three.

4.2.4 Sample Definition

The names of the companies were obtained from a database of the government of Department of Employment, Education and Training (DEET) Footscray, responsible for the Western Region of Melbourne.

This department compiles the list of companies under it's jurisdiction to build-up a database according to the classification in the Australian Standards Industrial Classification (ASIC) codes.

4.2.5 Sample Frame

Since foreign exchange risk management entails having international involvement, either explicit or implicit, assurance was made that each of the companies selected for the study has at least some international involvement. Explicit involvement might be through import, export, foreign borrowing, foreign investment, or a combination of any of these factors. Indirect involvement might arise through a competitor or competitors being involved in import, export, foreign borrowing, foreign investment or a combination of these factors.

4.2.6 Data Collection Instrument

The questions were designed in such a way to give the respondents choices in their answers. This design is used because the choices in the answers focus on the objectives of the study. The greatest advantage is that it limits or eliminates the problem of interpretation of the questions on the part of the respondents and the interpretation of the responses on the part of the researcher. It's disadvantage is that some of the answers might be too narrow for the respondents, or underestimate the capacity of the respondents. (A problem which occurs in this study and will be explained later). Some of the questions were asked in an open-ended form and provision was made for general comments on most of the questions. This idea is to delimit the information to be collected in such area of the questionnaire thereby eliminating the disadvantage of the choice-answer question mentioned above. Furthermore, it gives the respondents the opportunity to give their own opinion about the issues at stake. The disadvantage of open-ended design is that it creates the problem of interpretation of questions and information collected.

The questionnaire was divided into sections to focus on the variables for the study. In all, the questionnaire consists of six sections viz:

Section one consists of questions aimed to collect information on the ownership structure of the firm, the turnover, and the extent of international involvement.

Section two focuses on the risk management organisation and policy structure which provides evidence on the responsibilities for the management and operational policies of the firms, and the organisational structure of the treasury system.

Questions relating to exchange rate forecasting including the sources of information and indicators for the exchange rate forecasting were asked in section three.

Section four focuses on exposure measurement and management. The questions asked were designed to provide evidence for the risk management objectives and the type of exposure being managed.

Questions on the risk management techniques being used as well as the products used for the technique were the focus of section five.

Section six contains questions on computerisation of risk management practices. A full copy of the questionnaire is given in appendix A.

4.2.7 Operational Definition of the Variables

The variables used were identified from the related literature review. They were found to be relevant in providing answers to the research questions. Though the variables are similar to some of those used in the earlier studies, their meaning is different. Even where they have similar meaning, their degree or capacity of usage are different. The variables were classified into two viz firm specific and risk management practices specific. The firm specific variables are ownership, turnover, and extent of international involvement. The risk management practice specific variables are policy and responsibility, degree of centralisation, foreign exchange forecasting, risk management objectives, hedging strategy and policies, and computerisation of risk management.

OWNERSHIP: This is used to measure the different kind of ownership existing within firms in manufacturing industry and to ascertain the proportion of foreign ownership to Australian ownership. It is also used to measure the influence or impact of ownership on foreign exchange risk management practices of the firms.

TURNOVER: The turnover is measured as a function of average annual sales which is used as a proxy for size. Other items such as total asset value and foreign exchange turnover could not be used as a proxy for size because the reported values for these items might be due to differences in the accounting policies and principles used by the firms in measuring their values. In the analysis involving size, the firms were

categorised into two viz: firms with sales less than AUD100 million and firms with sales greater than AUD 100 million

EXTENT OF INTERNATIONAL INVOLVEMENT: This is measured by the value of the foreign exchange turnover of the company. The turnover is measured as a combination of imports, exports, foreign borrowing, and foreign investments made by the company. The firms were divided into two under this variable. Those having foreign exchange value less than AUD 5 million and those having foreign exchange value greater than AUD 5 million.

POLICY AND RESPONSIBILITY: This measures who is responsible for the formulation of foreign exchange management policy and foreign exchange operational policies within the hierarchy of the company. It was also used to ascertain whether manufacturing firms in the Western Region of Melbourne do have a formal policy for foreign exchange risk management.

DEGREE OF CENTRALISATION: The variable focuses on examining the extent to which foreign exchange risk is being managed. This is to investigate whether a separate treasury does exist in manufacturing firms or not; as well as to ascertain whether the company has a centralised or decentralised system of exposure management.

FOREIGN EXCHANGE FORECASTING: There are various ways of forecasting exchange rates. Other studies have found that some companies do obtain the exchange rate from banks, foreign exchange dealers, financial publications etc. While some do forecast the exchange rate on their own with the assistance of information from various sources such as banks, financial publications, as well as the use of their intuition or previous experience. This variable measures how small firms forecast their exchange rates and their source(s) of information used in forecasting the exchange rate.

RISK MANAGEMENT OBJECTIVES: This is to measure the various types of risk management objectives existing in small firms, how they are being pursued as well as find out whether formal objectives are in existence.

HEDGING STRATEGIES AND POLICIES: Hedging is measured in terms of the strategy being used i.e full cover, partial cover, or no cover. It also measures the products being used for hedging and the source(s) of those products. The policies cover who sets the guidelines for hedging, who decides what and when to hedge, as well as providing evidence on whether there are formal policies for hedging in small firms.

COMPUTERISATION OF RISK MANAGEMENT PRACTICES: This measures the activities of firms in the area of using computers in their risk management activities and the type of system they use. On the other hand, if they are not computerised, the reasons for not using computers are examined.

4.2.8 Response Rate

Questionnaires were mailed to the 190 companies within the research location out of which 27 copies were mailed back thus giving a response rate of approximately 14%. These were screened for their international involvement in foreign exchange activities. Ten (37 per cent) of the completed questionnaire were not exposed to explicit foreign exchange risk and thus were not analysed further. The balance of 17 (63 per cent) responses were used as sample for the study to examine the risk management practices of firms with direct international involvement.

4.2.9 Follow-up Interview

Due to the underestimation of the capacity of the firms used in the sample, a follow-up interview was necessitated. The value of the total assets and the average sales turnover was estimated to be a maximum of AUD5,000,000 each, but the responses showed that the majority (about 90%) of the firms had a value for these items which was more than the maximum stipulated in the questionnaire. Since the sales turnover figure is used as a proxy for size in this study, it is imperative for a follow-up interview to be conducted amongst the sample firms. The outcome of the interview made the size to be more sensitive for the study. This type of problem is one of the disadvantages of using choice answers for the questionnaire as stated earlier.

4.3 ANALYTICAL TECHNIQUES

4.3.1 Data Collection and Coding

The information collected was classified according to the choice-answer alternatives to reflect the responses of the firms. Coding was done by assigning numbers to each of the alternatives in a way that enhanced easy analysis by computer.

4.3.2 Data Analysis

The coded data were stored in the computer and the excel package was used for the analyses

4.3.3 Level of Measurement

Univariate methods of analysis which employed descriptive statistics such as per cent frequency distribution were used to summarise the patterns in the responses of the sample in the first stage of the analysis.

4.4 LIMITATIONS

The major limitation of the research was that the response rate was too small for any significant statistical inference to be derived from the result. Due to the financial constraints and the time available for this study, a second mail out was not carried out to lift the response rate. For these reasons, an in-depth analysis could not be done as expected. Therefore, the study only focused on the foreign exchange risk management practices in the manufacturing firms and the relationship between the firm specific and the risk management practice specific variables.

4.5 CONCLUSION

The information collected through the use of the above enumerated procedure is presented and analysed in the next chapter.

CHAPTER FIVE

FINDINGS AND ANALYSIS

5.1 INTRODUCTION

This chapter presents the results and analysis of the data collected for the study in two parts. The first part gives the descriptive analysis of all the variables used to provide evidence on the foreign exchange risk management practices by manufacturing firms in the Western Region of Melbourne. The analysis is based on their objectives, concepts of exposure, the foreign exchange risk management organisational structure, the hedging strategies and computer techniques they used in their foreign exchange risk management practices.

The second part focuses on the testing of the relationship between the firm specific variables and the risk management practice specific variables using chi-square tests. This is to provide evidence to either accept or reject the hypothesis that risk management practices are not dependent on the size of the firm. A five per cent (5%) level of probability was chosen for accepting significant differences in the relationship between the variables tested.

5.2 FIRM CHARACTERISTICS

5.2.1 Ownership

Table 5.1 shows the distribution of the firms according to the different kind of ownership existing within the small firm group in the manufacturing industry. About 53% of the firms are foreign-owned while about 47% are Australian owned.

Table 5.1 Classification by form of Ownership

Per cent frequency

Form of Ownership	Number of firms	Percentage
Australian-owned	8	47.1
Foreign-owned	9	52.9
Total	17	100

5.2.2 Sales Turnover

Table 5.2 summarises the annual sales for the respondents. More than half (59 per cent) of the firms had annual sales less than AUD100million, 18 per cent of the firms had between AUD101million and AUD200million while another 18 per cent had sales turn over of AUD201million and AUD300million. Only one (approximately five per cent) had sales over AUD 300million.

Table 5 2 Classification by Sales Turnover

Per cent frequency

Sales Turnover	Number of firms	Percentage
$0 - $100 m	10	59
$101m - $200m	3	18
$201m - $300m	3	18
>$300m	1	5
Total	17	100

5.2.3 Foreign Exchange Turnover

Table 5.3 categorises the responses for the annual foreign exchange turnover. About 41% of the firms had turnover less than AUD 5million and another 41% had foreign exchange turnover between the range of AUD 5million and AUD 50million. Two of the firms had foreign exchange turnover in excess of AUD 50million.

Table 5.3 Classification by Foreign Exchange Turnover

		Per cent frequency
Foreign Exchange Turnover	Number of firms	Percentage
Less than $5m	7	41
$5m - $50m	7	41
Over $50m	3	18
Total	17	100

Discussion

The results on the characteristic of the firms as regards their sales turnover is as expected. The expectation was that the the firms in the study should have sales turnover that cut across the range of classes used for the variable. The larger percentage (approximately 59%) of the firms fall into the small size category used in the study to test the hypotheses.

The result on the distribution of the foreign exchange turnover is not surprising either because of the size of the firms as depicted by their sales turnover. The form of ownership was tested to ascertain the distribution of the firms between foreign ownership and Australian ownership. This distribution was used to test the independence of firm-specific variables and foreign exchange risk management-specific variables.

5.3 RISK MANAGEMENT PRACTICES

5.3.1 Policy and Responsibility

The responsibilities of the executives of the firms are divided into three categories. Those responsible for foreign exchange management policies, those for foreign exchange operational policies, and those responsible for both policies. The result is as presented in Table 5.4.

Table 5.4 Responsibility for Foreign Exchange Management

Per cent frequency

Responsibility	Management Policy		Operational Policy		Both	
	No of firms	Percentage	No of firms	Percentage	No of firms	Percentage
Treasurer	2	11.8	4	23.5	4	23.5
Controller	1	5.9	3	17.6	0	0
Currency manager	0	0	1	5.9	0	0
Financial Dir/or VP finance	4	23.5	1	5.9	3	17.6
Other	1	5.9	0	0	3	17.6

Column sums >100 per cent due to overlapping of responses

The result as summarised in Table 5.4 reveals the responsibilities of different executives of the firm as regards the management and operational policies of foreign exchange risk management. The result further revealed that most of the firms assigned responsibility to more than one executive for each of the policies or both.

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Risk Management policy

Approximately 24 per cent of the firms made risk management policy solely the responsibility of the financial director/vice president finance while approximately 12 per cent made it the responsibility of the treasurer. Only about six per cent vested this responsibility in the controller.

Operational Policy

The treasurer was responsible for the foreign exchange risk management operational policy in approximately 24 per cent of the firms. About 18 per cent had the controller being responsible for such policy and in about six per cent of the firms, the currency manager and the financial director/vice president finance were responsible for the operational policy.

Both Policies

In the situation where an executive is responsible for both the management and operational policies, the treasurer was the most prominent (about 24%). In about 18% of the firms, the financial director/vice president finance was responsible for both decisions shared by another executive classified as others in the table. From the remarks made by the respondents, this classification represents the parent company of the foreign-owned companies.

The result as presented in Table 5.5 reveals that the financial director/vice president finance and the treasurer share this responsibility. In about 41% of the firms the financial director/vice president finance was responsible for setting the guidelines for foreign exchange risk management while about 35% saw it as the responsibility of the treasurer. About 18% made the controller responsible for setting the guidelines. Likewise, the parent company also plays an important role in this aspect according to the result because they constitute the bulk of the responsibility classified as others in the table. The result

further reveals that the responsibility for setting the guidelines on foreign exchange risk management was shared between two or more executives.

Table 5.5   Responsibility for Guidelines on Foreign Exchange Risk Management

Per cent frequency

Responsibility	Number	Percentage
Treasurer	6	35.3
Controller	3	17.6
Currency manager	1	5.9
Financial director/Vice President Finance	7	41.2
Others	4	23.5

Column sums >100 per cent due to overlapping of responses

Discussion

The involvement of vice president finance as being responsible for the operational policies for foreign exchange risk management is an indication of the size of the firm. This result confirms the assumption of Soenen and Aggarwal (1989) that involvement of vice president finance in foreign exchange operational policies is more likely to occur in smaller firms. It could be argued that since the majority of the firms are small especially with the size of the foreign exchange turnover as found in this study, the responsibility for both the foreign exchange management policies and foreign exchange operational policies of the firm can be shouldered by the vice president finance with the help of a few middle level management executives. This opinion could be adduced for the involvement of the vice president finance in the foreign exchange operational policies of the firm.

Furthermore, from this result, it could also be argued that the firms in the study recognised the importance of the strategic nature of foreign exchange risk management as advocated by Glaum (1990). This assumption is derived from the responses that the

responsibility for foreign exchange risk management is placed on the senior management team of the firm such as vice president finance, treasurer, and financial director. These types of executives are those found in companies formulating the corporate objectives and policies on a long-term basis which is the focus of strategic management. In the case of foreign-owned firms the parent company is responsible for foreign exchange risk management. This argument is reinforced by the responses on who sets the guidelines for foreign exchange risk management (see Table 5.5).

As for the presence or lack of formal policy for foreign exchange risk management, this study could not ascertain this aspect. In view of the result stated above, it was found that guidelines were being laid down for the management of foreign exchange risk. This result also goes in line with that of Soenen and Aggarwal (1989) that guidelines are set for foreign exchange risk management, but the content cannot be regarded as constituting formal policies. This was arrived at after follow-up interviews were conducted. Judging by the level of executives who set the guidelines (vice president finance, finance director, treasurer, and the parent company of foreign-owned companies) and the size of the firms in the study, it could be tentatively deduced that formal policies do exists in smaller manufacturing firms in the Western Region of Melbourne.

5.3.2 Degree of Centralisation

The result of this study on the degree of centralisation of treasury function is presented in Tables 5.6 and 5.7.

The result in Table 5.6 indicates that about 47% of the firms have a separate treasury department while about 53% have no separate treasury department. On further investigation, it was discovered that those without a separate treasury department had the functions of the treasury or the treasury itself merged with other departments under the canopy of a finance division or department. Some of the firms had the treasury functions being performed by the headquarters or the parent company.

Table 5.6   Proportion of the Firms Having Separate Treasury Department.

Per cent frequency

	Number	Percentage
Yes	8	47.1
No	9	52.9
Total	17	100

Table   5.7 Degree of Centralisation

per cent frequency

	Number of firms	Percentage
Centralised	16	94.1
Decentralised	0	0
Others	1	5.9
Total	17	100

The results on the type of treasury system being employed by the firms, summarised in Table 5.7 indicates that about 94 per cent of the firms did centralise their foreign exchange risk management while about 6 per cent used another system classified as others.   The only firm using this other system indicated that a combination of centralisation and decentralisation was being used by the firm. The details of this could not be determined, but the operation could be like the one found by Mathur (1982) in his study as explained below.

Discussion

The result on the degree of centralisation is in line with Collier and Davis's (1985), Soenen and Aggarwal's (1989), Teoh and Er's (1988), and Belk and Glaum's (1990) studies that foreign exchange risk management operations are centralised at headquarters. In the case of the single entity firms, the decisions are made by the top level executives which is supported by earlier result on policy and responsibility. This study found that foreign-owned companies play a major role in this aspect by making decisions at the parent headquarters and leaving the implementation to the subsidiary. This type of approach to centralisation is similar to those found by Mathur (1982) in his study on the type of exposure management used by U.S multinational corporations. Mathur called this approach 'low degree of centralisation' because decisions are made at headquarters while the implementation is carried out at the operating units. He also found two other degrees of centralisation which he called 'High' and 'Decentralised'. This study did not go into sufficient detail to classify the degree of centralisation as done by Mathur. It only ascertained whether foreign exchange risk management is centralised or not.

Some of the reasons advanced for centralised exposure management by Allan et al (1990) are that it enhances collection of exposures, collation of exposures, determination of strategies and operations (tactics). These reasons could be also be assumed to be responsible for the high degree of centralisation found in this study. Another reason could be the size of the firms and the value of their foreign exchange turnover.

5.3.3 Exchange Rate Forecasting

Exchange rate forecasting has been found to be one of the difficult ,if not, the most difficult stage of the foreign exchange risk management process. It involves predicting the movement in the future exchange rate with at least some degree of accuracy. The two basic approaches to forecasting are fundamental approach and charting/technical analysis approach. Whichever approach is used, it entails certain procedures like collecting information, the time horizon, and the indicators to be used for the forecast.

This study did not go into the details of the fundamentalists or the technical analysts approaches to exchange rate forecasting but only ascertained whether the manufacturing firms in the Western Region of Melbourne do forecast the exchange rate on their own or not. If they did forecast, they were asked to comment on their source(s) of information, the time horizon and their most useful indicator(s) for exchange rate forecasting. On the other hand, if they didn't forecast on their own, then the study investigated what they do with their foreign currency denominated transactions. The findings of the study concerning exchange rate forecasting are presented in Tables 5.8 to.5.11.

Table 5.8 Distribution of Exchange Rate Forecasting

Per cent frequency

Percent frequency	Number of firms	Percentage
Yes	10	58.8
No	7	41.2
Total	17	100

Table 5.8.shows the proportion of the firms that did forecast their own exchange rate. More than half of the firms (approximately 59%) did forecast the exchange rate movement while approximately 41% of them did not.

Table 5.9.summarised the sources of information used by the firms in the preparation of their exchange rate forecasting. The majority of the firms (about 88%) used banks as their primary source of information while about 53% used financial publications. The use of intuition and foreign headquarter had the same proportion of usage (about 18%). The use of financial models in exchange rate forecasting was found to exist amongst a small number of the firms (about 12%). Use of external independent consultants as a source of information for foreign exchange forecasting was not common amongst the firms.

Table 5.9   Sources of Information used for Exchange Rate Forecasting

Per cent frequency

Sources of information	Number of firms	Percentage
Banks	15	88.2
External consultants	1	5.9
Financial publications	9	52.9
Intuition	3	17.6
Foreign headquarter	3	17.6
Financial models	2	11.8
Others	1	5.9

Column sums >100 per cent due to overlapping of responses

Table 5.10 Distribution of Time Horizon Used for Exchange Rate Forecasting

Per cent frequency

Time period	Number of firms	Percentage
Less than 6 months	11	64.7
6 to less than 12months	6	35.3
12 to less than 24 months	2	11.8
24 to less than 36 months	0	0
More than 36 months	1	5.9

Column sums >100 per cent due to overlapping of responses

The time frame used for forecasting exchange rate movement amongst the firms is summarised in Table 5.10. Some of the firms (about 18%) used more than one time frame based on their objectives and policies. In all, about two-thirds (65%) of the firms

prepared forecasts of exchange rate movement for a period less than six months. About 35% of them prepared forecasts for a period between 6 and 12 months. About 12% of the firms prepared forecast for a period between 12 and 24 months while 6% prepared forecasts for a period longer than 36 months.

Table 5.11 Indicators Used in Exchange Rate Forecasting

Per cent frequency

Type of indicators	No of firms	Percentage
Balance of payment surplus and deficit	12	70.6
Inflation rate	7	41.2
Government budget deficits	7	41.2
Money supply growth	4	23.5
Interest rate differentials	10	58.8
Political stability	5	29.4
Others	2	11.8

Column sums >100 per cent due to overlapping of responses

The indicators used for the exchange rate forecasting as presented in Table 5.11 show that the most widely used indicator by the firms is the balance of payment surplus or deficit (about 71%) followed by interest rate differentials (about 59%). Other indicators that are widely used by companies are inflation rate (41%), government budget deficit(41%), while political stability (29%) is also given consideration. Two firms (about 12%) gave a different opinion about the indicators. One said the parent company does the forecasting and as such was not sure of the type of indicator(s) being used. The other said all the indicators listed in the questionnaire are being used in various combinations and different times depending on the situation prevalent at the time of use.

Discussion

Some of the firms that did not forecast exchange rate movements relied on outside sources to obtain the exchange rate while some obtained the rate from the parent company or their headquarters. Furthermore, amongst those that did not forecast, it was found that some of them dealt in Australian dollars i.e they receive their revenue in Australian dollars. Some of them transact their business using spot rates so they saw no reason for forecasting. It was found that due to the small size of the foreign currency involved, they saw no cost justification in setting up an in-built exchange rate forecasting mechanism for the company.

This study tends to support the rationale of no-cost justification since it will be cheaper to obtain this service from outside sources than incurring in-built machinery costs through staff salaries and benefits and or cost of equipment. On the other hand, the reason of dealing only in Australian dollars is not fully supported. The issue is that as a manufacturing company importing machinery or raw materials, the cost of production will have to be minimised and one of the ways is to buy inputs at lower prices. Since the exchange rate movement affects all prices, it is economically reasonable to buy when the effective cost imports is low and sell when the effective price of exports is high in Australian dollars term. Any adverse movement in the exchange rate may increase the cost of inputs or reduce revenue from exports.

If the price of output is higher than those of the competitors, sales revenue will be lost and profits will be affected, invariably affecting the value of the firm. In view of this,it is necessary to forecast the exchange rate movement irrespective of the size or type of the firm.

The result on the sources of information revealed that the main source of information is the banks, this is similar to the result found for larger companies and multinational corporations in Australia and overseas by Teoh and Er (1988), and Soenen and Aggarwal (1989). The result of this study further confirms the result of Soenen and Aggarwal that

companies used a combination of information from more than one source. In their result they cited the banks and financial publications as the most widely used sources, while this study also found that about 88% and 53% used banks and financial publications respectively as sources of information more than other sources.

The use of these two sources could be attributed to the fact that it is cheaper than the other sources. Since the banks are the major players in the foreign exchange market, coupled with competition amongst the players, the cost of obtaining such information is bound to be lower than other sources. Likewise, the financial news publishers produce at lower costs for their readers unlike the external consultants who charge higher fees for the services they provide. Similarly, the use of financial models requires employing experts in the field and incurring equipments costs both of which may more than offset the benefits to be derived from models unless warranted by the volume of international involvement of the firm.

The use of intuition as found in this study supports the findings of Soenen and Aggarwal. Likewise, in as much as it supports Teoh and Er, that small companies use intuition as their source of information, the result does not show that they rely on intuition. Rather, they rely heavily on banks and financial publications like most larger companies observed by previous studies. Hence, it could be deduced that size does not have an impact on sources of information for exchange rate forecasting. Also, it was found that few of the companies (about 12%) used financial models though the type of the models used were not investigated. This could be an area for further research.

The findings on the time horizon used for exchange rate forecasting supports Soenen and Aggarwal's (1989) result. The implication of this result could be assumed to indicate that most of the firms are risk averse because they tried to limit their exposure to less than 12 months. Active management of exchange rate risk demands monitoring the movement as often as possible. Thus forecasting the movement within a six month period can be regarded as active management in order to eliminate or minimise the risk. The policy of

active management of the exposure is believed to have spurred the forecasting horizon or vice-versa.

The result on the indicators used is in contrast to the result of Soenen and Aggarwal which indicated that interest rate differentials and inflation rates are the two most widely used indicators. The similarity between the two results is that they both found that most companies use different combinations of indicators. The critical question that could be asked as regards this result is why should the small firms rely more on balance of payment surplus or deficit than the rate of inflation which is considered important to the bigger companies than other indicators as found in the literature. This question needs to be investigated further.

The difference in the indicators used for forecasting according to this result, could not be attributed to the size of the company. To ascertain the reason for the difference in the use of indicators between the small and larger companies. Further research has to be conducted.

5.3.4 Risk Management Objectives

Many authors have described the type of foreign exchange risk management objective being pursued as risk averse, risk neutral, and risk taking (Carew and Slatyer 1989,Allan et al 1990). The result of this study on the risk management objective pursued by small firms are presented in Table 5.12.

Table 5.12 Risk Management Objectives Amongst Firms

Per cent frequency

Objective	Number of firms	Percentage
Risk averse	6	35.3
Risk neutral	11	64.7
Risk seeking	0	0
Total	17	100

The result in the table reveals that eleven firms (about 65%) are risk neutral, while about 35% were risk averse. None of the firms in this study indicated that they are risk seekers.

Table 5.13 Foreign Exchange Exposure Management Strategy amongst the Firms

	Active		Passive		Do nothing	
						Per cent frequency
Strategy	Active		Passive		Do nothing	
	Number	Percentage	Number	Percentage	Number	Percentage
Translation	1	5.9	7	41.2	5	29.4
Transaction	11	64.7	5	29.4	0	0
Economic	2	11.8	5	29.4	2	11.8

Column sums >100 per cent due to overlapping of responses

As regards the type of exposure concept being used by the firms, it was found that most firms used more of the accounting and transaction exposure concept than the economic exposure concept. The result presented in Table 5.13 shows that transaction exposure is the most important to the firms because about 65% of the firms did actively manage this exposure. About 42% managed the translation exposure passively, with about 29% each for transaction and economic exposures. As for the do-nothing strategy, it was found that 29% of the firms use this strategy for translation exposure, 12% for economic exposure and none for transaction exposure.

To further validate the importance of transaction exposure to the firms the study looked into how often the exposures are being revised or calculated. The result shows that about 24% of the firms revised their transaction exposures daily and weekly while about 29% did monthly revision. On the other hand only about 24% did revise the translation exposure monthly with none for daily and another 24% for other type of revision which was shared between yearly and fortnightly, but more often yearly.

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Table 5.14 Frequency of Revision of Exposure

Per cent frequency

Frequencies	Translation		Transaction	
	Number	Percentage	Number	Percentage
Daily	0	0	4	23.5
Weekly	1	5.9	4	23.5
Monthly	4	23.5	5	29.4
Quarterly	1	5.9	2	11.8
Others	4	23.5	2	11.8

Column sums >100 per cent due to overlapping of responses

Discussion.

The result on the risk management objectives of the firms, on the surface contradicts the results of previous studies which found that most companies are risk averse (Collier and Davis 1985, Teoh and Er 1988, Belk and Glaum 1990). Risk averse firms are said to be eliminating all risks or attempting to minimise them while those that are risk seeking enjoy taking risk with the hope of having a share in the foreign exchange rate rally if it occurs or face the loss if the movement is unfavourable. Risk neutral firms are said to be taking a position in-between the total averse and total risk seeking positions.

The implication of the findings is that in terms of risk management objective, results indicates that companies are more inclined to be risk averse than risk taking. Hence, it could be suggested that all the firms are risk averse while the degree of avoidance of risk might be different according to the firm's level of acceptable risks.

The result on the concept of exposure is clear evidence that the firms are more concerned with transaction exposure measurement and management than with other types of exposures. This result lends support to other studies like Belk and Glaum 1990. From this result, it could be argued that the firms did not concern themselves with the

translation exposure because it adds nothing to the value of the firm. Rather they are more concerned with the transaction exposure which involves cashflow.

From the above result, it could be deduced that the type of foreign exchange risk management objective is a determinant factor for the type of operational strategy applied to achieve the objective. Since the firms are risk averse then the implication is that an active management strategy is being used to avoid all the risk inherent in the foreign exchange exposures of the firm.

5.3.5 Hedging Strategy and Policies

Numerous techniques abound in the literature that are used in managing foreign exchange risk. Such techniques are leading and lagging, hedging (both commodity and financial prices), borrowing and lending, matching. Another approach is to use physical and synthetic products. This study focused on the use of hedging and synthetic products in foreign exchange risk management.

The result on the proportion of firms using hedging techniques in their risk management practices presented in Table 5.15 shows that approximately 77% of them used hedging technique while approximately 23% did not. Those that did not hedge belong to the group of firms whose parent company performs the hedging function for them.

Table 5.15   Proportion of Firms Using Hedging Technique

Per cent frequency

	Number of firms	Percentage
Yes	13	76.5
No	4	23.5
Total	17	100

Table 5.16 Responsibility for When and What to Hedge

per cent frequency

Responsibility	When to hedge		What to hedge		Both decision	
	No of firms	%	No of firms	%	No of firms	%
Board of directors	0	0	2	15.4	1	7.7
Senior Mgt team	1	7.7	2	15.4	4	30.8
Treasurer	1	7.7	1	7.7	3	23.1
Parent company	1	7.7	0	0	4	30.8
Management committee	0	0	0	0	1	7.7

Column sums >100 per cent due to overlapping of responses

Further investigation on the hedging strategies and policies of the firms revealed that there are different practices going on between the firms. The result as presented in Table 5.16 shows that different executives made decisions on when and what to hedge. In some cases there was an overlapping of functions especially within the firms. In most firms, the parent company, senior management team, and the treasurer were responsible for making decisions on both when and what to hedge.

In approximately 31% of the 13 firms that did hedge their foreign exchange risk, the senior management team made the decision on both when and what to hedge. In another 31%, the parent company was involved in making both decisions, while about 23% of the firms used the treasurer for both decisions. Only one of the firms had both decisions made by a foreign exchange management committee. In one of the firms, the parent company decided on when to hedge while the treasurer at the subsidiary level decided on what to hedge. More interestingly, in one firm, the decision on when and what to hedge was jointly made by the parent company and the treasurer at the subsidiary. In another firm this kind of decision was made jointly by the parent company and the senior management team at the subsidiary. Other firms either have the decision on when to

hedge being made by a higher level executive and the decision on what to hedge being made by another executive lower in rank to the first one. This result supports the centralisation of foreign exchange risk management amongst the firms as reported earlier in this study.

Table 5.17 Use of Physical Products

Per cent frequency

Products	Number of firms	Percentage
Forward contacts	15	100
Short-dated swaps (< 1month)	4	26.7
Swaps (1-6months)	4	26.7
Swaps (>6months)	2	13.3
Others	1	6.7

Missing data=2

To investigate the use of products by the firms, the study used the types of classification in Batten et al's (1992) study. This is to make the result comparable as well as support or refute the findings in the earlier study.

Investigation on the use of products by the firms revealed that about 15 firms used physical products in managing their risk, while only eight of the firms used the synthetic products. It was assumed that these products were being used for hedging purposes, so their degree of use was probed as well as the firm's choice of first preference. Of the 15 firms that used physical products, the most widely used product was the forward contract (100%). Other products next in the degree of use were swaps (less than 1month and 1-6months categories), with one firm using the spot rate. On further investigation it was found that this spot rate was used in combination with other products like forward contracts and swaps.

Table 5.18   Use of Synthetic Products

Per cent frequency

Products	Number of firms	Percentage
Futures	0	0
Options	3	37.5
Currency swaps	2	25
Forward rate agreement	8	100

Missing data =9

The findings on use of the synthetic products by the eight firms revealed that forward rate agreement (FRA'S) is the most widely used product amongst the firms. All of the firms (100%) used the product, while three of the firms used them in combination with options and currency swaps.

Discussion

The results on hedging policy does not agree with the assertion of Teoh and Er (1988) that larger companies are more likely to establish hedging policies than smaller companies because of the resources and expertise to implement such policies. In contrast, the firms in this study are a mixture of small and large companies and they did have hedging policies for their exposures either at the company level or the function prepared on their behalf by the parent company or at the headquarters. One may then suggest that this is because whatever the size of a company, no company will have the goal of negative operating profit in their financial statement, so they will try as much as possible to reduce or eliminate the cause of any loss. Also, with the sophistication of financial markets and abundance of hedging instruments at lower cost, hedging does not require the degree of expertise and higher resources perceived by Teoh and Er. It could also be argued that size has no effect on the hedging policies of a firm, irrespective of what is used as a

proxy for size. This is because this study and that of Teoh and Er used the same proxy for size but the result is different.

The result that forward contracts were the most widely used physical product and that they are being used in combination with other products supports the findings of other studies like Mathur (1982), Teoh and Er (1988), Soenen and Aggarwal (1989), and Batten et al (1992).

The result on the use of synthetic products is in contrast to Batten et al's (1992) study in which he found that options were the most popular synthetic product used by the firms. He also found that currency swaps are the next product in popularity while forward rate agreement(FRA'S) were the least popular among the firms. In this study, it was found that futures were not used by the firms. Therefore, it was assumed that one of the reasons for not using futures is the lack of a viable financial futures market in foreign exchange at the futures exchange in Australia. Another reason for not patronising foreign exchange options to the same extent as forward rate agreements might be the up-front payment in the form of a premium, as compared to the volume of their foreign exchange transactions.

In investigating the preferences of the firms in the use of these products, they were asked to indicate in order of preferences how the firms used the products. Of the 15 firms that indicated the use of physical products,it was found that all the firms (100%) preferred forward contacts as the first preference over other products. The result that a forward contract was the most popular product for hedging agrees with Teoh and Er's (1988), Mathur's (1982), and Batten et al's (1992) findings. Amongst the eight firms that used synthetic products, seven (about 87.5%) of the firms chose forward rate agreements (FRA'S) as their first preference while one chose options as the first preference.

The study further revealed that about 53% of the firms obtained these products from banks while about 40% used the Futures Exchange with only one firm obtaining its products from the parent company. This result confirms the assumption made earlier that

since the banks are the major dealers in risk management products, it is apparent that the firms will obtain the products from the banks. In the case of the firm that obtained the products from the parent company, this might be assumed to be due to the policy of the firm.

The length of time that these products have been in use by the firms varies from zero to over 10 years. Based on the number of firms that used these products,about 48% of them had been using the products for more than 10 years.About 33% of the firms have been using them for less than 5 years and another 33% for a period between 5 and 10 years. This shows that most of these products are new to the firms, but it may also be argued that the length of time corroborates the establishment of the firm. It is believed that this could only be a partial reason. Apart from the forward contracts and swaps which have been in existence for a long time, other products have been introduced in less than two decades ago. For example, an options market was first introduced at the Chicago Board of Exchange U.S.A in 1973, and at the Sydney Stock Exchange in 1976. Similarly, the financial futures on the Australian dollar was commenced in 1988 on the Sydney Futures Exchange (Van Horne et al 1990). The recent introduction of these products was assumed to be attributable more to the length of time the products have been in use by the manufacturing firms in the Western Region of Melbourne than the time of establishment.

Questions were asked on who makes decisions on what and where to purchase the products. The findings revealed that decision making on what products to buy and where to buy them rests mainly on the treasurer amongst the firms (about 47%). Other executives responsible for such decisions in some of the firms are finance director, senior management team, and currency manager (about 20% each). Only in one firm did the parent company make such a decision. This result could be assumed to confirm that the firms recognise the importance of the treasury function thus allowing the treasurer to use his team of experts to perform the function of foreign exchange operational management. The use of the parent company might be due to the centralisation policy of their foreign

exchange risk management. The use of other executives corresponds with the result on responsibility for foreign exchange risk management reported earlier in which those executives are involved in both the management and operational policies.

5.3.6 Computerisation of Risk management

With the high level of technology evidenced in Australia, it was hypothesized that companies operating in Australia do computerise their operations especially foreign exchange risk management

Table 5.19 Proportion of Firms Using Computers in Foreign Exchange Risk Management

		Per cent frequency
	Number of firms	Percentage
Yes	5	29.4
No	12	70.6
Total	17	100

The result on computerisation of risk management as summarised in Table 5.19 indicated that only 5 (approximately 29%) of the firms used computers in their risk management practices while about 71% of the firms did not make use of computers.

The result summarised in Table 5.20 reveals that the most popular reason for not using computer in their risk management is that it is not cost justifiable as indicated by about 42% of the firms. While four (approximately 33%) of the firms gave no reason for not using computers, one firm (approximately 8%) each considered it not suitable or that the cost-benefit analysis had not yet been evaluated.

Table 5.20 Reasons for not Using Computers in Foreign Exchange Risk Management

Per cent frequency

Reasons	No of firms	Percentage
Not cost justifiable	5	41.6
Not considered suitable	1	8.3
Not yet evaluated	1	8.3
Others	1	8.3
No response	4	33.3
Total	12	100

Missing data = 5

Discussion

The result on the use of computers in risk management practices contrasts with Batten et al's (1992) result that most companies (about 71%) do use computer-based systems in their risk management practice. On the other hand, it supports Soenen and Aggarwal's (1989) result which indicated that a lower percentage of companies make use of computer-based systems for their foreign exchange risk management practice. The result also negates the argument put forward earlier in the chapter reviewing the literature that location and the degree of advancement in technology in Australia may have accounted for the difference between the findings of Batten et al (1992) and those of Soenen and Aggarwal (1989). The result also rejects the hypothesis stated above. Comparing this result with that of Batten et al (1992) on computerisation (because both were conducted in Australia), it leads one to believe that size might have an effect on the use of computers in risk management practice. Furthermore, all the companies were found to use only a PC-based system, while none used a main frame system.

The reasons given for not using a computer-based system for their risk management are similar to those found by Soenen and Aggarwal in their study. The most popular reason

given by Soenen and Aggarwal was that the cost-benefit analysis had not yet been evaluated by the companies. In this study however the most popular reason is that it is not cost justifiable. Judging by the value of the foreign exchange turnover of the firms in this study, one tends to support their main finding of lack of cost justification in computerising risk management practice. Another aspect that supports this reason is that most of the companies receive more than half of their revenue in Australian dollars.

Above all, it could be argued from this result that size has an effect on the computerisation of foreign exchange risk management. On further analysis, the study revealed that the firms that used computers have foreign exchange turnover less than AUD30million with sales turnover more than AUD100million. This foreign exchange turnover is less than the value of the foreign exchange turnover of those firms that did not use computers. It is assumed that high foreign exchange turnover should necessitates the use of computer-based system but the result did not support the assumption. Therefore it is suggested that depending on what variable is used as a proxy for size, it may or may not have an effect on computerisation of risk management practice.

5.4 CONCLUSION

With all the analysis above, it has been shown that size has no significant impact on risk management practices of the firm. In general it has also been ascertained that the foreign exchange risk management practices are independent of the firm specific variables identified. All the various conclusions arrived at in these analyses are summarised in the next chapter taking into consideration the limitations to the study while some recommendations will be made especially in the area that needs further research.

CHAPTER SIX

SUMMARY AND CONCLUSION

6.1 INTRODUCTION

The purpose of this study was to investigate the foreign exchange risk management practices in manufacturing firms in the Western Region of Melbourne. The study was also conducted to provide evidence to either support or refute the results from other studies that size has an impact on foreign exchange risk management practices.

This chapter presents the summary of the findings in this study in respect of each of the variables used. It also gives the conclusion of the study in answering the research questions. Finally, recommendation as to the areas that need further investigation as extracted from the findings are presented.

6.2 SUMMARY

The last two decades have witnessed high volatility in the financial markets. Globalisation of world markets and floating of currencies have resulted in an increase in level of exposures to financial risks by firms. As a result, profitability of firms have been negatively affected and had even caused the failures of some firms especially in the Western Region of Melbourne.

This had led to the concern of many firms regarding foreign exchange risk management. In response to the volatility in the financial markets, a wide range of financial products have been developed by financial institutions. Similarly, many studies had been conducted to investigate foreign exchange risk management practices in firms and to give recommendations as to how to cope with the increased level of exposure to foreign exchange risk.

A review of related literature on risk management practices in firms within Australia and overseas was conducted to establish how it is being done in practice. Evidence from the literature which focussed on large and multinational corporations had shown that firms do manage foreign exchange risk by hedging their exposures. Findings revealed there were divergences in the risk management objectives of the firms surveyed, some tended to be risk averse, some were risk takers, while some tended to be risk neutral.

Most of the firms had a high degree of centralisation and the responsibility for the management and operational policies vested in the top level executives of the firm, headquarters, and/or the parent company of subsidiaries. The concept of exposure management amongst the firms surveyed also varied in this study. While some firms used accounting/translation exposure concept, the majority of firms used a transaction exposure concept and some used the economic exposure concept. Exchange rate forecasting by the firms was also divergent. Some firms had in-built mechanisms, some used information from outside sources, while some used intuition in their exchange rate forecasting.

This study investigated foreign exchange risk management practices in manufacturing firms in the Western Region of Melbourne. The total population in the research location comprising 190 manufacturing firms were targeted. The names of the firms were obtained from the database of the government Department of Employment, Education, and Training (DEET) Footscray, responsible for the Western Region of Melbourne. A mail questionnaire was sent to the total population. Twenty-seven usable questionnaires were received from the respondents thus giving a response rate of approximately 14%. Of the twenty-seven usable responses, ten were found to have only implicit risk, while the balance of seventeen firms that had explicit risks were used as the sample for the study.

The main question addressed in this study was whether size has an impact on foreign exchange risk management practices in manufacturing firms in the Western Region of

Melbourne, but a secondary question also addressed was whether size has a significant influence on the use of synthetic products in foreign exchange risk management.

To answer these questions, the variables identified from the related literature review were used. The variables were classified into two categories: firm-specific and risk management practice-specific. The firm-specific variables were ownership, turnover, and extent of international involvement. The risk management practice-specific variables were policy and responsibility, degree of centralisation, exchange rate forecasting, risk management objectives, hedging strategy and policies, and computerisation of foreign exchange risk management. A summary of all the observations made according to each of these variables are as follows.

The observation on the responsibility and policy had shown that the firms in this study recognised the importance of strategic management and therefore had incorporated it into their foreign exchange risk management. This recognition had been shown by all the firms having the senior executives of the firm (financial director, vice president finance, treasurer, controller) responsible for their foreign exchange management and operational policies. This observation is further consolidated by another observation which shows that these senior executives are also responsible for setting the foreign exchange risk management guidelines in all the firms. This is an indication that risk management practices exist in manufacturing firms in the Western Region of Melbourne.

In addition to senior executives being responsible for management and operational policies, they also made decisions on risk management functions which has implications for the degree of centralisation by firms in the survey. This means that decision making is being centralised either at the parent company or the top management level of single firms. Centralisation of decision making may indicate the importance of foreign exchange risk management to the firms and therefore explain why they are managing it actively.

Most of the firms did forecast exchange rate movements. They either did it directly by relying on internal sources or obtained the service from outside. Only a minority of them saw it as not cost justifiable to forecast exchange rates and the number of firms in this category is not sufficient to nullify the importance of exchange rate forecasting for smaller manufacturing firms. These findings were similar for both large and small manufacturing firms in the Western Region of Melbourne. Just as large companies relied on banks and financial publications as their main sources of information for exchange rate forecasting, so did smaller firms. Therefore size was not a significant factor influencing the source of information and exchange rate forecasting.

There appears to be a consensus amongst firms, according to the results, that the firm's foreign exchange risk management objective should be risk averse - eliminating or minimising all risks to which the firm is exposed. Furthermore that transaction exposure should be actively managed more than economic and or translation exposure. This is supported by the frequency of revising the policy on transaction exposure by the firms in which about three-quarters of the firms carried out a review in a monthly range.

The responsibility for hedging policies was vested with the parent company of a subsidiary or the top management level of single entities. This corroborates the earlier observation on the importance of risk management to manufacturing firms in the Western Region of Melbourne as exhibited by the degree of centralisation and the responsibility for foreign exchange risk management and operational policies. The existence of hedging policies was also found amongst the firms. The proportion of firms that did hedge indicates that hedging of foreign exchange risk is not limited to large companies. Even the use of products in risk management practices is not limited to the multinational corporations or large firms alone as the smaller firms in this study were observed to have used forward contracts to the same degree of usage as the larger companies. This is also reiterated in the preference of the firms for forward contracts to other physical products. Likewise the products were being used in combination as with the larger companies.

While only a small percentage of firms used synthetic products they still used them in combination as did the larger companies. Most firms recognised the technical expertise of the treasurer whereby the responsibility for where and when to buy the risk management products rest with them.

The use of computers in foreign exchange risk management seems not to be common amongst manufacturing firms in the Western Region of Melbourne. This appears to be due to the cost involved in setting-up the in-built machinery for such practice.

To summarise, all the results indicated that size has no impact on either the foreign exchange risk management practices or the use of synthetic products in foreign exchange risk management practice. The test of independence between the two categories of variables used in this study was statistically proved because of the low response rate. However, the results indicate independence between almost all of the firm-specific and foreign exchange risk management practice-specific variables, the form of ownership was an exception. Findings indicate ownership has an effect on the use of synthetic products in risk management practices of the firms. Foreign-owned companies used more synthetic products and in greater combination than their Australian-owned counterparts who only use the forward rate agreements.

6.3 CONCLUSION

Previous studies by Collier and Davis (1985), Teoh and Er (1988), Soenen and Aggarwal (1989), Collier et al (1990), and Batten et al (1992) have provided evidence that foreign exchange risk management practices exist in large and multinational corporations. This study have provided evidence that foreign exchange risk management practices exist in manufacturing industries in the Western Region of Melbourne.

Furthermore, it had been shown that size has no impact on the foreign exchange risk management practices or on the use of synthetic products in foreign exchange risk management.

The firms focussed on transaction exposure as the most important of all the exposures and tended to concentrate on it's active management rather than passive management. The implication of this conclusion is that the firms in this study have not fully realised the benefits of using the economic exposure concept in their foreign exchange risk management practices. Using economic exposure concept would have enhanced the incorporation of strategic management in their exposure management. This would enable the firms to take a long term approach to risk management and therefore contribute to the maximisation of the value of the firm.

For firms to fully realise the benefits of foreign exchange risk management, it is recommended that they should follow the strategic approach advocated by Glaum (1990) in the management of their foreign exchange exposures.

To determine whether the results of this study can be generalizable to all categories of firms, further research should be conducted to include firms operating in other industries of the Australian Standard Industrial Classification Codes (ASIC).

Another aspect that needs further investigation is the most important indicator used for exchange rate forecasting. Previous studies by Soenen and Aggarwal (1989), Batten et al (1992) have shown that the rate of inflation is the most important indicator used by large firms and multinational corporations. This study found that the balance of payment surplus and deficit is the most important indicator for the manufacturing firms in the Western Region of Melbourne. This difference needs to be investigated.

6.4 LIMITATIONS OF THE STUDY

Limitations to the study have been discussed in chapter four and any conclusions derived from this study should bear these in mind. In addition, the respondents were all manufacturing firms from the Western Region of Melbourne, generalisation of the findings to manufacturing firms throughout Australia cannot be carried out with confidence.

APPENDIX 1   GLOSSARY

Forwards: This is a contract which obligates the parties to the contract to buy/sell the specific item in the contract at a future date at a price determined today. In essence it allows a company to cover its exposed position in a foreign currency by selling certain amount of that exposed currency on a forward basis. Literature has shown that this is the most widely used product in foreign exchange risk management (Teoh and Er 1980, Batten et al 1992, Mathurs 1982). The contract attracts no payment upfront, but the gain or the loss must be accounted for at maturity. Though it allows for the minimisation of loss but it does not allow the buyer to enjoy any exchange rate rally, because the gain/loss in the forward contract is equal to the loss/gain in the spot market assuming the initial position is not covered. It is normally a contract between the company and the bank (OTC).

Futures: This is almost similar to forwards contract except that it attracts upfront payment in terms of margin payment, deposit and other fees. Generally they are exchange - traded products with many convenants which might not suit the needs of the firms. They are mostly used for commodity and interest rate management but not foreign exchange risk management. The main advantage over forwards is the elimination of default risk which had been the problem with forwards contracts.

Options: A contract that gives the holder/buyer the right but not the obligation to buy the underlying items in the contract at a specified time in the future at a price determined now is known as Options contract. The price is called the exercise price and the money paid by the holder to the grantor is called the premium. While the holder has the right to buy, the grantor has the obligation to supply the items. This is the most popular synthetic product used by companies to manage their exchange risk (Batten et al 1992). It allows the holder to minimise the risk and at the same time enjoy the exchange rate rally. They are traded both at OTC and exchanges. While the downside risk for an option buyer is limited to the premium

paid, the writer has unlimited risk. The greatest advantage of option is that it can be used as a hybrid on any of the other products (for example Swaptions, option on futures etc).

Swaps: A Swap is a contract between two parties obligating them to exchange specified cash-flow for some specified period into the future (Darke and Klar 1990). The cash-flow may be in form of currencies or interest rates. As for interest-rate Swap, it will be based on a notional principal amount. In practice only the difference between the rates are paid from one party to the other depending on the movement of the rate. The same applies to foreign exchange rate as for interest rate. The main problem with Swap is the counterparty - risk due to default by either one of the parties. This problem is being eliminated by the banks intermediating itself between the parties, so that the banks now bears the risk, thus making the products to resuscitate from it's decline in importance.

APPENDIX 2   QUESTIONNAIRE

GENERAL INFORMATION

1.Company's name: _____

    Address_____

    Telephone no_____

2.Function or Position in the company

_____

3.Please state the main activity of your company

_____

4. In your own opinion please indicate below the industry in which your company can be classified.

    Manufacturing_____

    Wholesale and Retail trade_____

    Finance, property, and business servises_____

    Construction _____

    Agriculture _____

    Transport and storage_____

    Electricity, gas and water_____

    Mining _____

    Communication_____

    Public Administration and defence _____

    Community services_____

    Recreation, personal and other services_____

5. Indicate the type of ownership

    Wholly Australian owned_____

    Foreign ownership _____

6 If Australian owned, do you have any subsidiary or operate overseas?

    Yes_____

    No_____

7. Please indicate the type of overseas transactions

Import _____

Borrowing _____

Export _____

Investment _____

8. What is your average annual foreign exchange turnover?

<100,000 _____

100,000 < 500,000 _____

500,000 < 1,000,000 _____

1,000,000 < 5,000,000 _____

>5,000,000 _____

9. Indicate below the size of your company's total assets in Australian dollars

<100,000 _____

100,000 < 500,000 _____

500,000 < 1,000,000 _____

1,000,000 < 5,000,000 _____

>5,000,000 _____

10. What is your average annual turnover in Australian dollars?

<100,000 _____

100,000 < 500,000 _____

500,000 < 1,000,000 _____

1,000,000 < 5,000,000 _____

>5,000,000 _____

11. Please indicate the currencies of your revenue as a percentage of total revenue.

Australian dollar _____

United states dollar _____

Others (specify) _____

Remarks _____

12. Please indicate the currencies of your borrowing as a percentage of total borrowings

Australian _____

Foreign _____

13..Please indicate the currencies of your investment as a percentage of total investment

Australian _____

Foreign_____

Remarks_____

14. Please state the total numbers of employees in your company

_____

ORGANISATION AND POLICY STRUCTURE

16. Do you have a separate Treasury department ?

Yes_____

No_____

17. Please indicate the type of treasury system your company operates.

Centralised_____

Decentralised_____

Others (specify) _____

Remarks_____

18..Indicate which one(s) of the following treasury structure(s) do you operate ?

Profit centre_____

Cost centre_____

Others (specify) _____

Remarks_____

19. Who is responsible for your company's foreign exchange management policy and/or foreign exchange operational policies?

	Policy	Operational	Both
Treasurer			
Controller			
Currency manager			
Finance Director / V.P Finance			
Other			

20. How do you organise your foreign exchange risk management

By currencies _____

By geographic areas _____

By products group_____

Others (specify) _____

Remarks_____

21. Who sets the guidelines for foreign exchange risk management

Treasurer_____

Controller_____

Currency manager_____

Finance Director/ V P Finance _____

No guidelines set_____

Other_____

Remarks. _____

FOREIGN EXCHANGE FORECASTING

22. Indicate the source(s) of information for your exchange rate forecast

Banks _____

External consultants _____

Financial publications _____

Intuitions_____

Foreign headquarters _____

Financial models_____

Others (specify) _____

Remarks_____

23. Do you forecast exchange rate movement of your own ?

Yes_____

No_____

If yes , in which currencies?

All currencies in which you are greatly exposed_____

Volatile currencies only_____

Major world currencies _____

Remarks_____

24. What is the time horizon of your forecast ?

    < 6 months _____

    6 < 12 months_____

    12 < 24 months_____

    24 < 36 months_____

    >36 months_____

25. In your own opinion what is the most useful indicators of expected changes in exchange rates

    Balance of payment surplus or deficit_____

    Inflation_____

    Government budget deficit_____

    Money supply growth_____

    Interest rate differentials _____

    Political stability _____

    Others (specify) _____

    Remarks_____

EXPOSURE MEASUREMENT

26. Specify your company's attitudes towards risk.

    Risk averse _____

    Risk neutral_____

    Risk seeking _____

27. What type of exposures do you have ?

    Translation / Accounting _____

    Transactions _____

    Economic _____

28. Name the exposure(s) that is/are most important to your company.

    Translation exposure_____

    Transaction exposure _____

    Both_____

If both, are they treated separate ?

    Yes_____

    No_____

29. How often do you calculate or revise your exposure ?

	Daily	Weekly	Monthly	Quarterly	Others
Translation					
Transaction					

RISK MANAGEMENT TECHNIQUES

30. Do you use hedging technique to manage your exposure?

Yes_____

No_____

31. What is your company's strategy towards hedging exposure

32. Please describe briefly your company's foreign management objectives and your operational foreign management objectives

policy _____

operational _____

33. Who decides on what and when to hedge?

	When to hedge	What to hedge
Board of Directors		
Senior management		
Treasurer		
Parent company		
Foreign exchange management committee		

34. (a) Please indicate in order of preferences how your company uses the following products using 1,2,3.. for the first, second, and third respectively

Forward contracts _____

Short dated swaps(< 1 month)_____

Swaps(1-6 months)_____

Swaps(>6 months)_____

Others (specify) _____

Remarks_____

(b). Indicate also in order of preferences how your company uses the following products using 1,2,3, for first,second,and third respectively.

Futures _____

Options _____

Currency swaps _____

Forward rate agreement (FRA'S) _____

Caps, Collars, Floors _____

Others (specify) _____

Remarks_____

_____

35. Where do you obtain these products

Over the counter_____

Exchange houses _____

In-built products _____

Others (specify) _____

Remarks_____

36. Who decides on what and where to purchase these products?

V.P Finance/Finance Director_____

Board of Directors_____

Senior management_____

Treasurer_____

Currency manager_____

Foreign exchange management committee _____

Others (specify) _____

Remarks_____

37. How long have you been using these products

    <5 years _____

    5 < 10 years _____

    > 10 years _____

    Remarks _____

38. Is your decision on the choice of instruments influenced by:

    Your competitors attitudes towards risk management _____

    Your perception of what you think the competitors did or doing _____

    Your company's objectives and policies. _____

    Remarks _____

39. Are there any constraints in the use of these instruments?

    (briefly list the type of constraints, and instrument) _____

    _____

    _____

    _____

    _____

40. Indicate how you manage the following exposures

EXPOSURES	STRATEGY		
	Actively	Passively	Do nothing
Translation			
Transaction			
Economic			
Others			

    Remarks _____

    _____

    _____

41. How do you measure the performance of your exposure management?

    Use of benchmarks _____

    Others (specify) _____

    Remarks _____

42. Please state the type of bench-marks.

    _____

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43. How often do you evaluate your performance?

Daily _____

Weekly _____

Monthly _____

Quarterly _____

Half-yearly _____

Yearly _____

FOREIGN EXCHANGE MANAGEMENT SYSTEMS

44. Do you computerise your foreign exchange management?

Yes _____

No _____

45. what type of system do you use?

PC based system _____

Main-frame system _____

Others _____

Remarks _____

46. Which of following reason(s) is/are similar to your reason for not using computer

Not cost justifiable _____

Not considered suitable _____

Not yet evaluated _____

Others _____

Remarks _____

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