

**AN ANALYSIS OF BANK RISK MANAGEMENT AND
ITS RELEVANCE FOR THE NON-BANK CORPORATE
SECTOR**

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DAVID ROLAND DIETRICH

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ABSTRACT

This thesis, entitled “An analysis of bank risk management and its relevance for the non-bank corporate sector”, investigates the extent to which financial risk management by the banking sector can be applied to the non-bank corporate sector. As banks’ risk management techniques are more sophisticated than those of the non-bank corporate sector we have endeavoured to ascertain the applicability of these established risk management methods to the non-bank corporate sector.

The main objectives of this study were to analyse the banking sectors’ risks and management thereof, and compare them to the risks faced by the non-bank corporate sector. This analysis was then used to present a theoretical financial risk management model for the corporate sector.

This analysis was conducted using qualitative research. The thesis engaged in an in-depth investigation of financial risk management through a documentary, literature and media analysis.

It was elucidated that not all companies face the same financial risks and therefore each company requires its own unique financial risk management model. Furthermore, it was established that there are several risks that both banks and non-bank corporates are subjected to. However, the management of these risks is not necessarily the same for these two types of institutes.

This thesis concludes by putting forward a financial risk management model which presents all the possible financial risks that non-bank corporates may face.

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DECLARATION

This masters thesis represents my own work and due acknowledgement is given in the references whenever information is derived from another source. No part of this master's thesis has been or is being concurrently submitted for another qualification at any other university.

A handwritten signature in black ink, appearing to read 'David Dietrich', written in a cursive style.

David Dietrich

4 July 2006

AN ANALYSIS OF BANK RISK MANAGEMENT AND ITS RELEVANCE FOR THE NON-BANK CORPORATE SECTOR

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND, CONTEXT AND RATIONALE FOR RESEARCH

Taking precautions and putting in place measures to protect against losses from adverse events is by no means a new concept. Valsamakis *et al.* (1992: 2) mention that the first recorded risk control measures can be dated back to the Greeks and Phoenicians from approximately 700 BC. In these times, in order to reduce the risk to the grantee of a bond, bonds were developed with special provisions, including factors such as loan terms, penalties for breach of contract and even provisions preventing ships from veering off from specified routes (i.e. the route considered to be the least risky).

From these early beginnings the basic principle of risk management was established: to decrease the possibility of loss as a result of an adverse event. This principle remains at the forefront of modern risk management. Dunley-Owen (1997: 12) points out that the goal of risk management is to help the company achieve its objective, which is the maximisation of shareholder value. As a result, companies throughout the world use various risk management techniques and it has become a fundamental part of their business. The importance of risk management in the corporate environment cannot be underestimated and this is postulated by various authors such as Sormunen (1994: 20) who states that risk management is an integral part of managing a business, and Jorion and Khoury (1998: 2) who comment that “risk management has become a tool essential to the survival of all business activity”.

As mentioned, the importance of risk management is an issue that has been in existence for centuries, but to truly understand this topic we need to dissect the subject of risk management. Risk management is described by Briers

(200: 6) as involving the “identification, analysis and management of risk across the whole spectrum of business”. This ‘whole spectrum’ to which Briers refers encompasses many aspects and gives rise to many risks. Briers (200: 6) goes on to mention that in most cases those risks do not act in isolation, and all need to be identified and appropriately managed. However, due to their large spectrum and complexity, it is not possible to cover each risk adequately in this analysis. It has therefore been decided that this paper will focus primarily on the financial risks faced by the banking sector, and the relevance of these to the non-bank corporate sector.

Many texts have been written about financial risk management, but they deal predominantly with financial intermediaries (mainly banks). Banks’ risks differ from the financial risks faced by non-bank corporates because (as described by Faure, 2005: 16) risk is their *raison d’être*. They profit by taking risks that others are not prepared to accept. This means that risk management is at the core of financial intermediaries’ activities, and as a result much has been written about these risks and how they are managed.

On the other hand, when dealing with non-bank corporates, financial risk management may appear to be of a similar nature but is in fact dealt with quite differently. Indeed, much has been written about the importance of this financial risk management by these corporates (and the losses which may be incurred if the risks are not properly managed) but little has been written about the actual risks and possible methods of managing these risks. Dunley-Owen (1997: 1) noted, “Risk management is an aspect of corporate financial policy that has received relatively little attention.” A few years later Briers (2000: 8) confirmed this lack of knowledge by stating that there was still a need for further research on this topic and that “risk management finds itself in the laboratory stage in its journey towards its formation as a recognized management science”. For this reason, it is appropriate to start our analysis by focusing on the risks that are faced by banks and then consider the extent to which these risks are applicable to the non-bank corporate sector.

In the past few years a number of contributions on this topic have been made; however, these often lack a full coverage of the risk management issues that

corporates face, including risk types and possible methods of managing them. Despite the fact that certain areas of financial risk management by non-bank corporates have been analysed, to the best of our knowledge there is no comprehensive financial risk management model. Given this fact, this analysis endeavours to assess the risks that banks face and then apply this analysis to determine which of these techniques can be used by non-bank corporates.

At this stage it is appropriate to note, when considering corporates, that the responsibility of managing the financial risks often lies in the corporate treasury department. The role of treasuries (or risk managers) will be examined when discussing the management of these risks, but the debates surrounding the various forms of treasuries (such as profit versus cost centre, or centralised versus decentralised) will not be dealt with. This is a topic that merits its own study and it is not the intention of this paper to explore this area of research.

1.2 WHY IS THE PROBLEM WORTH ADDRESSING?

The importance of this topic is explained by Jorion and Khoury (1998: 2) who stipulate that risk management has become so important it is necessary merely for survival. Risk management has become the topic of many financial debates of recent times and, according to Briers (2000: 6), the reason for the increase in importance of this issue is a result of a few key factors. Firstly, the increase in sophistication of business has resulted in many companies changing their risk profiles. Some examples include the increased use of e-commerce; more competitors; shorter product life cycles; etc. These elements of change all bring with them elements of uncertainty and subsequent risks to be managed. Another factor is the interconnectedness of risk. As already mentioned, risks no longer occur in isolation. An example could be exchange rate volatility. This may affect the cost of manufacturing in one country and lead to a decrease in sales in another. This would lead to a situation where risks would need to be managed in two separate, but linked, situations.

1.3 OBJECTIVES/GOALS OF RESEARCH

The main objectives of this study are to:

- Analyse the banking sector's risks and their management and compare them to those faced by a non-bank corporate
- Use this analysis and comparison to present a theoretical financial risk management model for the corporate sector.

1.4 METHODOLOGY

The analysis is conducted using qualitative research. This thesis engages in an in-depth investigation of financial risk management through a documentary, literature and media analysis. The information gathered through this analysis is used to assess the applicability of risk management by the banking sector to the non-bank corporate sector. This assessment allows us to determine whether non-bank corporates can use the same risk management techniques as banks.

1.5 ORGANISATION OF STUDY

This study is divided into eight chapters. Following this introductory chapter, chapter two analyses bank financial risk management. Chapter three examines what risk is. It analyses various definitions of risk and relates these to the corporate environment. Chapter four explores what risk management is. Once again it is considered in relation to the corporate environment. Chapter five is an in-depth evaluation of the financial risks faced by a corporate, which is followed by a brief look at how these risks are measured in chapter six. Chapter seven analyses how banks and non-bank corporates manage this risk. Chapter eight concludes the study.

CHAPTER TWO

BANK FINANCIAL RISK MANAGEMENT

2.1 INTRODUCTION

This chapter presents a brief overview of financial risk management by banks. It introduces the various financial risks, some of which are applicable to the non-bank corporate sector, and then introduces the methods the banks use to manage these risks. All the risks mentioned are discussed in more detail when they are considered in relation to non-bank corporates. The methods used to manage these risks are also discussed later.

It is appropriate to introduce this discussion with a statement of the assets and liabilities of the South African banks. Table 2.1 (derived from SARB, 2006: 8) provides this information in a synopsis form. Table 2.2 (derived from SARB, 2006: 8) presents the ratios of the items in Table 2.1 as ratios to total assets.

Assets		Capital and liabilities	
		Deposits	1 232 630
		Other liabilities to the public	
Central bank money	37 951	Repurchase agreements	54 308
Loans and advances	1 342 786	Foreign loans	11 983
Investments	250 042	Other	61 263
Other assets	46 795	Total	127 554
		Capital and other liabilities	317 390
Total assets	1 677 574	Total capital and liabilities	1 677 574

TABLE 2.2: SOUTH AFRICAN BANKS: STATEMENT OF ASSETS AND CAPITAL AND LIABILITIES (DECEMBER 2005) (RATIOS TO TOTAL ASSETS - ROUNDED)			
Assets		Capital and liabilities	
		Deposits	73
		Other liabilities to the public	
Central bank money	2	Repurchase agreements	3
Loans and advances	80	Foreign loans	1
Investments	15	Other	4
Other assets	3	Total	8
		Capital and other liabilities	19
Total assets	100	Total capital and liabilities	100

It will be evident from the tables that banks are unique institutions, in that (according to Faure, 2005: 21) they are essentially in the business of risk and risk management. Faure (2005: 21) goes onto comment that banks' *raison d'être* is to alleviate the risks and liquidity constraints faced by ultimate lenders (mainly credit and market risk) in lending to ultimate borrowers. This is done by intermediating themselves between the ultimate lenders and borrowers, and transmuting longer-term loans and investments (which they hold as assets) into shorter-term instruments (mainly deposits), which are desired by lenders.

Faure (2005: 21) explains that in this transmutation process the banks willingly take on risk. The risks taken on by the banks are evident from the asset and liability statement of the banking sector for December 2005 (as shown in Table 1 and Table 2), i.e. 97% of assets and financial investments and 81% of liabilities and capital are financial in nature. For example, the assets indicate the presence of credit risk and market risk; the liabilities indicate the presence of market risk (in the guise of an opportunity cost); the entire balance sheet indicates the presence of interest rate risk (not to be confused with market risk) and liquidity risk.

The Banks Act (94 of 1990: 8) defines bank risk as follows:

“... types of risk to which the bank is exposed, namely-

- (a) solvency risk;
- (b) liquidity risk;
- (c) credit risk;
- (d) currency risk;
- (e) market risk (position risk);
- (f) interest rate risk;
- (g) counterparty risk;
- (h) technological risk;
- (i) operational risk; or
- (j) any other risk regarded as material by that bank.”

As noted, those that are of interest in this discussion are the financial risks of the banks.

2.2 FINANCIAL RISKS FACED BY BANKS

2.2.1 Introduction

This section highlights the financial risks faced by banks according to the Banks Act (1990: 8) as outlined above. This is followed by an analysis of the management of these risks.

2.2.2 Solvency risk

Solvency risk is defined by Faure (2002: 146) as “the risk of being declared insolvent”. This will be the case when a bank’s reserves and capital are depleted and it is therefore unable to repay its debt or depositors.

It should be noted that solvency risk is not regarded as a risk (Faure, 2005: 18) because it is the consequence of deficient management of the other risks mentioned, i.e. poor management of credit risk, liquidity risk, market risk and

interest rate risk put a company in a position where it can not repay its debt. For this reason we will not be covering solvency risk in this thesis.

2.2.3 Liquidity risk

Liquidity risk is defined by the SARB (2004: 73) as the risk of “not being able to meet payments when they fall due, as a result of a duration mismatch between its maturing assets and liabilities”. According to Standard Bank (2005), due to the nature of banking (i.e. repaying deposits, making interest payments, expenses etc), banks are continually exposed to liquidity risk.

From the tables it can be seen that banks have vast amounts of financial assets and financial liabilities; as a consequence they have difficulty in matching their maturing assets and liabilities.

This risk is relevant to non-bank corporates. An example would be a company which is not able to meet an obligation (such as the payment for a shipment of goods) when it arises because the company’s funds are tied up (e.g. in a long term investment).

2.2.4 Credit risk

Credit risk is defined by Standard Bank (2005) as the “non-performance by a counterparty for facilities used”. These facilities are usually loans and advances. An example could be a borrower taking a loan and then defaulting on the repayments. The tables above show that loans and advances are the most abundant financial asset of the banks. This indicates that banks are subjected to credit risk to a significant extent.

Credit risk is relevant to non-bank corporates because in each contract they enter into (for example, a loan to a buyer of its products), there is the possibility that the counterparty may default.

2.2.5 Market risk

Market risk in the banking sector is defined by Van Greuning and Bratanovic (2000:189) as the risk of “volatility in positions taken in the four fundamental economic markets: interest-sensitive debt securities, equities, currencies and commodities”. This is put more simply by the SARB (2004: 76) which states that market risk is the risk that the market price of an asset could move in an adverse direction leading to a loss on the realisation of that asset. The tables indicate that banks have immense amounts of financial assets and liabilities; consequently, movements in interest rates will impact heavily upon banks. If the assets or liabilities were denominated in a foreign currency, adverse movements of the exchange rate would also affect these values.

This risk is relevant to non-bank corporates in many cases; for example if the company invests surplus funds in equities, market risk would exist in the form of a fall in the equities price.

2.2.6 Currency risk

Currency risk falls under the market risk umbrella and is defined by Van Greuning and Bratanovic (2000: 211) as the risk “resulting from changes in the exchange rates between a bank’s domestic currency and other currencies”. In other words, it is the risk that a currency will move in an adverse direction. This could either decrease the value of assets or increase the cost of liabilities.

This risk is relevant to all non-bank corporates that are involved in:

- Importing
- Exporting
- Investments in foreign currencies
- Raising funds abroad.

2.2.7 Interest rate risk

Faure (2005: 38) explains that interest rate risk is a major risk faced by all banks as they receive money (liabilities) and they lend money (assets) and consequently, there exists a possibility of a mismatch between interest paid (on liabilities) and interest received (on assets). The tables indicate that banks have an immense amount of loans and advances and deposits and they are therefore susceptible to interest rate risk, as the interest they receive (on assets) may not equal the interest they must pay (on liabilities).

This risk is relevant to all non-bank corporates who simultaneously have financial assets and financial liabilities.

2.3 MANAGEMENT OF THE FINANCIAL RISKS¹

2.3.1 Introduction

This section covers how banks manage the financial risks described in the Banks Act (1990: 8).

2.3.2 Liquidity risk

Standard Bank (2005) states that there are several components of the management of liquidity risk. The bank's first step is to ensure it "maintains a sound balance sheet with restricted mismatches between anticipated inflows and outflows within different time buckets" (Standard Bank, 2005). Other methods it uses to ensure sufficient liquidity include maintaining a certain level of liquid marketable assets as well as using cash flow management forecasts.

¹ The management of these risks is discussed in more detail at a later stage

2.3.3 Credit risk

Mishkin and Eakins (2000: 620-624, in Faure, 2002: 147) mention that banks employ a number of methods to reduce credit risk. Some of these include:

- i. Screening – Due to asymmetric information, banks need to get as much information as possible about prospective clients. Screening involves completing numerous forms to provide banks with this information.
- ii. Monitoring – Because of the problem of moral hazard, banks need to monitor clients to ensure that the money is used as originally intended.
- iii. Long-term customer relationships – This enables banks to gather continuous information from clients at a low cost.
- iv. Collateral – When banks issue loans they almost always require some form of collateral. This ensures that if the client defaults on loan payments or the loan itself, the bank can use the collateral to make up for the capital and for the missed payments.

Saunders (1997: 516) mentions that banks also use various derivatives to manage credit risk, but these derivatives will be discussed in detail later.

2.3.4 Market risk

According to Standard Bank (2005) the bank makes use of risk limits in order to manage market risk. These limits are determined with the help of various measurement methodologies, such as value-at-risk (VaR) and stress testing.

Standard Bank (2005) explains that VaR estimates the possible losses that can occur under normal market conditions. However, Best (1999: 10) explains that VaR provides a statistical measure when the markets are behaving normally, but it does not cope with extreme price changes. For this reason VaR needs to be accompanied by stress testing which determines possible losses even under extreme market conditions. VaR and stress testing are looked at in more detail in chapter six.

2.3.5 Currency risk

Currency risk occurs when items of the balance sheet are denominated in different currencies, as there is a risk that the currency will move in an adverse direction. Saunders (1997: 508) states that in order to manage currency risk, a bank can hedge against adverse currency movements with the use of various derivatives.

2.3.6 Interest rate risk

Van Greuning and Bratanovic (2000:181) state that banks use the gap model to assess their interest rate exposure. Once the extent of the exposure is known, a bank can use derivatives to hedge against adverse changes in the interest rate.

2.4 CONCLUSION

This chapter presented a brief overview of financial risk management by banks by introducing the various financial risks and the methods used to manage these risks. Some of these risks and their management are applicable to the non-bank corporate sector.

All the risks mentioned will be discussed in more detail when they are considered in relation to non-bank corporates. The methods for managing these risks are also discussed later. The next chapter presents a discussion on what risk is.

CHAPTER THREE

WHAT IS RISK FOR THE NON-BANK CORPORATE?

3.1 INTRODUCTION

The purpose of this chapter is to provide a suitable definition for “risk” and a broad overview of the risks to which corporates are subjected. The sections are:

- A suitable definition
- Risks faced by corporates
- Conclusion.

3.2 A SUITABLE DEFINITION

3.2.1 Introduction

Trying to define risk in the context of corporations is a cumbersome task. Corporations operate in differing environments and are therefore subjected to different risks, resulting in diverse definitions, suitable to certain situations and not applicable to others. For the purpose of this thesis we will establish a general definition that can be applied to all organisations.

3.2.2 Defining risk

A suitable starting point is the Oxford Dictionary (2002: 604) where risk is defined as the “possibility that something unpleasant will happen”. This

possibility arises as a result of humans' inability to see future events, which leads to uncertainty.²

Valsamakis *et al.*, (1992: 25) argue that risk and uncertainty are related in a sense that uncertainty leads to risk. In other words, if the outcome of any situation (ranging from a change in interest rates to the public's reaction to the launch of a new product) involves uncertainty, there will be an element of risk. Put differently, risk is the absence of certainty, and therefore a risky event or situation will be one where there are a number of possible outcomes, but the one that will occur is unknown.

Thus, to provide a broad definition that can be applied to a large spectrum of businesses, we define risk as the possibility of/exposure to an adverse result as an outcome of an uncertain event. Individual companies may narrow this definition down to suit their specific environment, but as stated by Morgan (1998: 49), what we make of individual companies' definitions is of little importance, the main factor being the recognition of the possibility of an adverse event when there is variability (which creates uncertainty) of returns.

3.3 RISKS FACED BY CORPORATES

3.3.1 Introduction

The order of discussion of the risks below is random and has no bearing on their relative importance. Kendall (1998: 161) mentions that despite the fact that various risk managers place more emphasis on specific risks, all should in fact be given equal priority, as any one of the risks (ranging from unpredicted interest rate movements to legal implications) can cripple a company.

² Despite the belief that various statistical or econometric models are capable of doing this, future results cannot be guaranteed.

Table 3.1 illustrates the risks that will be covered:

TABLE 3.1: RISKS	
Financial risks	Operational risks
<ul style="list-style-type: none"> • Capital adequacy/solvency risk • Liquidity risk • Credit risk • Market risk: <ul style="list-style-type: none"> - risk of changing interest rates / prices - Currency risk - Commodity price risk • Interest rate risk 	<ul style="list-style-type: none"> • Fraud • Compliance/regulatory risk • Reputation risk • Human resource risk • Process/administrative risk • Legal and documentation risk • Information Technology • Systems risk • Catastrophe Risk
Source: Faure (2005), Goodspeed (2005), Kendall (1998) and Hewitt (1997).	

3.3.2 Financial risks

3.3.2.1 Capital adequacy/solvency risk

Solvency risk is described by Goodspeed (2005: 45) as the risk that an organisation's capital will fall to a level so low that the company may not be able to sustain its business. In a corporation this would be the risk that large exposures or open positions could impede its solvency. Faure (2005: 18) states: "Solvency risk is not to be regarded as a risk because insolvency is an outcome of poor risk management in general." For this reason we will not explore the realms of solvency risk.

3.3.2.2 Liquidity risk

Olsson (2002: 45) refers to liquidity risk as "the risk that amounts due for payment cannot be paid due to lack of available funds". Avoiding this risk

means having sufficient funding to meet liabilities when they fall due. Not paying debts can result in factors such as banks offering less credit or aggrieved suppliers and employees. This ties in with reputational risk, as not settling liabilities can create a bad reputation and harm business.

3.3.2.3 Credit risk

Credit risk is defined by Kendall (1998: 119) as “the likelihood that a transaction or transactions with a counterparty will be defaulted upon through that counterparty’s inability to meet its financial needs”. Essentially, it is the risk that a counterparty to a deal fails to perform as arranged. Goodspeed (205: 47) breaks down credit risk into five elements:

A. *Settlement risk*: The risk that settlement/completion of a transaction does not take place as expected.

B. *Country risk*: The risk of political/economic events in a foreign country leading to a situation where interests in those countries are adversely affected. An example could be foreign governments reneging on interest payments of an international government bond.

C. *Collateral risk*: This is the risk of potential financial loss due to inability to recover the full collateral value because of unforeseen events (such as legal impediments or adverse market movements).

D. *Concentration risk*: This is the risk of loss due to the concentration of exposure. This could mean overexposure to geographical, industrial or demographic groups (e.g. gender or income). Overexposure to a single group is considered risky because if that group’s preferences change, your company may lose a significant amount of business. This is essentially a risk caused by a lack of diversification.

E. *Industry risk*: Counterparties to a transaction may default because of industry-specific factors. In other words, various industries may be subjected to common events. In the commercial world, a practical example would be the

economic slowdown for the general retailing sector when interest rates increase.

3.3.2.4 Market risk

3.3.2.4.1. Introduction

Market risk is the possibility of financial loss because of unexpected changes in market rates or prices. Faure (2005: 52) simplifies this by stating that it is the risk that prices may change in an unanticipated direction.

Market risk can therefore be said to be the risk of adverse:

- Changes in interest rates (variable and fixed)
- Changes in foreign exchange rates
- Changes in the prices of commodities and equities that a company may hold as an investment (from surplus funds)
- Changes in the prices of commodities that the company may hold as trading stock (such as a grain trader).

It should be noted that “interest rate risk” is not mentioned here, although interest rates play a significant role in market risk. This is because interest rate risk is defined as the risk of liability and asset mismatching (in terms of term and variable versus fixed rate); this is discussed under a separate section.

3.3.2.4.2 Risk of changing interest rates

The risk of changing interest rates is explained by Goodspeed (2005: 47) as the risk of adverse movements in earnings or future cash flows as a result of a change in the interest rate. When considering floating rate corporate assets, a decrease in the interest rate will lower the earnings from these financial assets. When considering floating rate corporate liabilities, a rising interest rate will increase the interest payments that need to be made on these

liabilities. Hence, we can see that that with floating rate financial assets there is the risk of falling interest rates, and with floating rate financial liabilities there is the risk of rising interest rates.

3.3.2.4.3 Foreign exchange rate/currency risk

An appropriate definition for currency risk is given by Faure (2005: 77) as the risk that the value of assets/liabilities that are not denominated in domestic currency are adversely affected by change in the relevant currency's value (i.e. changes in the exchange rate). This would mean that adverse movements in the exchange rate decrease the value of an asset or increase the value (i.e. size) of a liability.

Corporations face this risk when conducting transactions that involve:

- Importing
- Exporting
- Investments in a foreign currency
- Raising funds abroad.

3.3.2.4.4 Commodity price risk

Goodspeed (2005: 47) defines this as the risk of a change in the price of a commodity that is an essential input/output of the company's business. If the price of an input increases or the price of an output decreases, this would adversely affect the company's financial position. A possible reason for a change in price of a commodity could be an under- or over-supply of that commodity. Consider a baker, for example, who needs flour as an input to make bread. A drought would lead to an undersupply of flour, so its price would rise, pushing up production cost of bread.

3.3.2.4.5 Equity price risk

Standard Bank (2005) explains that surplus funds are sometimes invested in equities. Here the risk is that the price of the share falls and the bank makes a capital loss when the share is realised.

3.3.2.4.6 Debt market instrument risk

Companies can also invest surplus funds in long term debt instruments such as bonds. The risk of investing surplus funds in bonds is that an increase in the interest rate would lower the price of the bond, and the holder would make a capital loss.

3.3.2.5 Interest rate risk

As mentioned, Faure (2005: 38) explains that all banks are subjected to interest rate risk, as they lend money (assets) and receive money (liabilities). This simultaneous lending and receiving of money creates a possibility of a mismatch between the interest paid (on the liabilities) and the interest received (from the assets). The possibility of a mismatch is increased by the fact that financial assets and liabilities may be lent or received at either fixed or floating rates and furthermore, these assets and liabilities are likely to have different terms to maturity.

This means that companies who simultaneously have financial assets and financial liabilities may be at risk of this mismatch.

3.3.3 Operational risk

3.3.3.1 Introduction

Operational risk is described by Clarke (1998: 14) as “the risk of financial loss that may result from inadequate systems and controls, human error and/or management failure”. A less formal definition is given by Kendall (1998: 14)

who describes operational risk as the sink into which risks which are not classified as financial are placed. This loose definition tends to understate the importance of the risks. This may be due to the fact that operational risks are not quantifiable and as a result, the extent of the risks (i.e. how much harm they could cause) cannot easily be measured. However, despite their unquantifiable nature, many authors emphasise the importance of these risks. To return to Clarke's (1998: 14) comments on these risks, where the importance of operational risk management is highlighted, it is said that the lack of operational risk management is one of the causes of the "financial fiascos" witnessed over the last decade.

This thesis acknowledges the importance of the non-financial component of risk management and its relevance to corporate treasuries' overall performance, but it is believed that it would not be possible to fully explore this topic in this thesis. It is for this reason that we only include the following discussion on operational risk management and do not return to this topic again.

3.3.3.2 Fraud

The relevance of fraud in today's society cannot be overlooked, and regular articles in the press confirm this. Fraud is defined by Kendall (1998: 162) as the "conscious concealment of the true state of affairs from those who have the right to know". The motives for fraud vary from personal profit (e.g. theft) to revenge (e.g. a hard-done-by employee trying to damage the company).

Kendall (1998: 163) continues by stating that it is not always the intention of risk managers to eliminate fraud entirely (this would be optimum but very hard to achieve), but rather to swiftly identify and rectify the damage. He goes on to suggest possible management techniques, including: transparency; internal and external audits; well-trained and experienced line-management and ensuring that policies and procedures adhere to best practices.

3.3.3.3 Compliance and regulatory risk

This risk is defined by Kendall (1998: 182) as “the loss caused to a company, by the non-compliance of that company with the relevant rules and regulations governing its activities”. This “loss” could be financial penalties, such as enforced payments; suspension or dismissal of key individuals or even the closing down of the company.

Kendall (1998: 182) provides one method of dealing with this risk: i.e. comply with all the relevant rules and regulations. This involves ensuring all staff are adequately trained and monitored and are well aware of the rules and regulations.

3.3.3.4 Reputation risk

A suitable definition for reputation risk is given by Faure (2005: 86) as “the risk of damaging the group’s image, which could impair its ability to retain and generate business”. This includes any activities which companies conduct that may result in bad press and the loss of customers to competitors.

One such example occurred in 1995 and is explained by Kendall (1998: 190) as follows: Shell (UK) had to dispose of a redundant oil platform and was not sure of the best method of doing so. Hence, they conducted research on the possible methods and concluded that the least harmful to the environment would be to tow it into the Atlantic Ocean and sink it. Unfortunately for them, Greenpeace (an international environmental organisation) caught wind of the plan and sabotaged the mission by blocking gas stations in Germany and physically boarding the platform. Shell (UK) changed its mind and towed the platform to a Norwegian fjord as per Greenpeace’s request. This incident had severe consequences for Shell’s business, particularly in Germany.

In order to deal with this risk, corporations need to ensure that they establish and maintain a good reputation. For this reason Faure (2005: 87) mentions that when managing reputation risk, companies need to be aware that it ties in with many other risks, most importantly, human resource risk.

3.3.3.5 Human resource risk

Faure (2005: 88) defines this risk as the inadequacies of human capital. In other words it is the risk that humans/employees will operate in a manner that can be harmful to their business. Examples include not meeting performance standards or leaking information to competitors. There is also the risk that an employee/group of employees can damage the firm's reputation.

He goes on to suggest that an appropriate way to manage the human resource risk would be adequate training and ongoing education or skills development.

3.3.3.6 Process/administrative risk

Process risk is defined by Standard Bank (2004, in Faure, 2005: 88) as "the failure to establish controls and procedures, inefficient or faulty processing, the inability to detect and report unauthorised transactions and inadequate recording and reporting". This is also referred to as administrative risk as these actions involve administrative activities.

To deal with this risk Kendall (1998: 192) recommends ensuring that there are policy and procedure manuals which are relevant and available to all staff. It should also be ensured that employment contracts are accompanied by detailed job descriptions, rather than simply meeting minimum legal requirements.

3.3.3.7 Legal and documentation risk

Legal and documentation risk is described by Faure (2005: 88) as "the risk of some unanticipated legal or documental hindrance that renders transactions incomplete or non-binding". Kendall (1998: 198) adds to this, saying it includes "risks arising from insufficient documentation and insufficient capacity or authority to enter into contracts".

This risk can be reduced by consulting legal advisors. Kendall (1998: 197) warns that corporations should not attempt to save money when seeking legal advice, as this may have long-term consequences. For example, the use of lawyers who may lack knowledge or experience can lead to incorrect counsel, which can be detrimental.

3.3.3.8 Information technology systems risk

Most corporations now rely substantially on information technology systems in order to conduct business. This use of technology is wide-ranging and can involve anything from personal computers to security systems. Due to their heavy reliance on this technology, a breakdown of the system would have a severe impact on their business and therefore represents a major risk.

A more formal definition is given by Faure (2005: 83): the risk of a breakdown of the information systems, preventing/delaying the revival of information. Furthermore, the upgrading/installing of new systems may add to the delay of business. Something as simple as automatic doors, which rely on computerised systems, may not operate if the computer fails. This would present obvious difficulties for any organisation.

In order to manage this risk Faure (2005: 184) recommends ensuring that there are suitable back-up systems and well-trained managers.

3.3.3.9 Catastrophe risk

Catastrophe risk is the risk of loss (normally to property, resources, raw materials or people) as a result of natural disasters, such as earthquakes; volcanoes; floods etc. Although the risk of a natural disaster occurring may seem very low, Peterken (1999: 13) points out that a result of globalisation is that companies acquire business in many parts of the world, and thus increase their exposure to such events. The management of this risk is usually executed with insurance.

3.4 CONCLUSION

As can be seen from this chapter, corporations are faced with a plethora of risks, not all of which are financial in nature. It is the intention of this paper to explore only the realm of financial risks that corporations face. The importance of non-financial risks is acknowledged but it is believed that this issue merits its own study and therefore will not be included in this thesis.

The next chapter defines risk management in the context of non-bank corporates.

CHAPTER FOUR

RISK MANAGEMENT BY CORPORATES

4.1 INTRODUCTION

As with risk identification, attempting to define risk management in the context of a corporation can be a cumbersome task, because corporations operate in various environments, are different in size and have diverse managerial structures. As a result, their risk management practices differ.

This chapter is arranged as follows:

- A suitable definition
- Identification
- Measurement of risk
- Management of risk.

4.2 A SUITABLE DEFINITION

A broad definition given by Valsamakis *et al.* (1992: 14), who describe risk management, as:

“A managerial function aimed at protecting the organisation, its people, assets and profits against the consequences (adverse) of pure risk, more particularly aimed at the severity and variability of losses.”

From this definition we can deduce that, essentially, risk management is an activity to be carried out at various levels, which are designed to protect a corporation from loss due to one of the risks described in chapter two.

There are a two important points that need to be mentioned. Firstly, Mulcahy (2003: 21) points out that risk management is not only about minimising the effects of adverse events, but also maximising the effects of positive events. This maximisation of positive events is often referred to as speculation, which leads to the second point. In modern day business, risk management requires an integrated approach. The risk management process entails many activities, ranging from protecting assets to speculating with assets, and from protecting against losses due to adverse interest rate movements to protecting from losses as a result of an earthquake.

Thus, an integral model encompassing all risks is required. Valsamakis *et al.* (1992: 16) state that in order to ensure all the risks are adequately managed, the practice of risk management within an organisation needs to be proactive and holistic. This means it should become part of general management and not be an isolated function. Kloman (1987, in Valsamakis *et al.*, 1992: 60) confirms this by stating that risk management practices should allow for the whole and not only consider specialities. The importance of considering “the whole” was mentioned in section 2.2 of this paper, where Kendal (1998: 161) comments that any one risk can cripple a company and therefore all possible risks need to be managed.

To better understand this topic of risk management, we need to examine what it entails. After various studies, Clements (1999: 35) concluded that risk management consists of three parts: identification, quantification and actual management. Each of these elements is now considered.

4.3 IDENTIFICATION

Identification is the part of the risk management process which was discussed in detail in the previous chapter and therefore does not require much elaboration at this stage. As already mentioned, this thesis will focus only on financial risks, which will be discussed in depth in the following chapter. For now it is sufficient (as well as logical) to say that before any effort can be made to manage risks (i.e. protect the organisation from the losses associated

with these risks), risks need to be identified. Put simply, if the risk is not identified, risk managers would have nothing to manage.

4.4 MEASUREMENT OF RISK

The measurement of risk is described by Clements (1999: 35) as “undoubtedly the most difficult part of the whole problem of risk management”, and he goes on to say that many still feel risk cannot be accurately measured. Despite these difficulties he states that there must be some sort of attempt at measurement if the risk management process is to be completed.

This is confirmed by Mulcahy (2003: 105), who argues that despite the fact that risks may not be accurately measured, some form of quantification is required in order to determine which risks warrant a response. This means that although individual risks may not be accurately measured, their quantification will allow for comparison with other risks. Essentially, quantifying risks allows risk managers to best spend their time and effort on the risks that present the greatest threat.

Olsson (2002: 67) adds to this by mentioning that despite the difficulties of quantifying risks, it is vital to do so, as the more subjectivity can be removed, the easier it will be to make decision with regards to the best possible management of these risks.

4.5 MANAGEMENT OF RISK

A good definition of the management of risk is given by Mulcahy (2003: 21) who describes it as a process, which is important in achieving results. The results to which she refers are described by Dunley-Owen (1997: 13) as the maximisation of the value of the company. From these two definitions it can be deduced that the management of risk is a process which increases the value of a company by decreasing the possibility of loss from an adverse event.

Clements (1999: 40) states that in the past the management of risk was achieved quite simply with the use of diversification. However, this has lost popularity among businesses. Today organisations need to make use of better analysis, more research, comprehensive information and adequate controls.

As can be seen, the methods of managing risk are evolving, and this again indicates the importance of this thesis topic. This issue will be discussed in depth in chapter five.

4.6 CONCLUSION

To define risk management is difficult, as different corporations have differing views depending on various factors such as size and managerial structures. However, if it is broken down into three components (i.e. identification, measurement and management) a general definition can be created. Chapter five will deal with the identification of these risks, chapter six will analyse the measurement of these risks and chapter seven will look at how these risks are managed.

CHAPTER FIVE

FINANCIAL RISKS FACED BY CORPORATE ENTITIES

5.1 INTRODUCTION

The main activities of treasury management are defined by Goodspeed (2005: 6) as:

- Cash management
- Investment management
- Debt management
- Risk management.

Cash management involves the efficient use and conservation of the cash and liquid resources of the corporation. Investment management is the management of the investments made from surplus funds. Debt management is the raising and redeeming of funds. Risk management is the identification, measurement and control of the first three activities.

This chapter presents an overview of the financial risks faced by corporate entities. The financial risks are inherent in three areas of treasury management:

- Asset (investment) management
- Liability (debt) management
- Asset (investment) and liability (debt) management.

5.2 RISKS INHERENT IN CORPORATE ASSETS

5.2.1 Introduction

Goodspeed (2005: 47) states that some corporations will have substantial surplus funds that are invested with the goal of generating returns. Generally, these investments will be in interest-bearing financial instruments, equities and/or commodities. The objective of these investments is to maximise return (interest, dividends and capital gains) at an acceptable level of risk. The risks faced in this regard are:

- i. Liquidity risk
- ii. Market risk
- iii. Foreign exchange/currency risk
- iv. Credit risk.

5.2.2 Liquidity risk

Liquidity risk is defined by Muranaga and Ohsawa (1997: 195) as: “the risk of being unable to liquidate a position in a timely manner at a reasonable price.” This is put more succinctly by Faure (2005: 54) as “the risk of not meeting financial obligations when they fall due”. From these definitions we can deduce that, in terms of investment management, liquidity risk is the risk that surplus funds that have been invested cannot be liquidated in time to meet obligations as they arise.

An aspect of liquidity risk is the liquidation of investments at the correct time in terms of meeting an obligation, but effecting the transaction at non-market-related prices (as a result of a temporary deterioration in market turnover / activity). Although this is unlikely in sophisticated financial markets, it is likely in fledgling markets.

5.2.3 Market risk

In chapter two, market risk was defined as the possibility of financial loss arising from unexpected changes in market interest rates or prices. This statement requires clarification. According to Faure (2006), companies may have investments in fixed-interest securities, and/or equities and/or commodities or may have the latter as trading stock (for example a maize trader). The market prices of equities and commodities may change causing companies invested in these assets capital losses (if prices fall) or capital gains (if prices increase). This obvious statement was made because its obviousness is not clear in the case of fixed-interest securities.

The prices of fixed-interest securities are inversely related to changes in the interest rates that apply to them. A rise in interest rates causes the prices of fixed-interest bonds to fall; the converse also holds.

Interest rates also affect the prices of *equities* in the long-term, and the magnitude of the effect may be loosely measured (as shown by Faure, 2003c: 142-143) with employment of the dividend discount model (DDM). This model determines that the present value of a share as being equal to the discounted value of future dividend flows. (It is assumed that these flows are constant.) The DDM is represented by the formula:

$$PV = D / rrr$$

where

PV = present value

D = dividend

rrr = required rate of return

As can be seen from the formula, an increase in the required rate of return would lead to a decrease in the present value (price) of the equity.

However, the assumption of constant dividends does not hold in reality. To include growing dividends we use the Gordon constant-growth DDM. This formula is made more practical by assuming that the immediately past dividend (D_0) will grow at a constant rate (D_g) and is represented as:

$$PV = D_0 / (rrr - D_g)$$

Once again, an increase in the required rate of return would lead to a decrease in the price of the share. However, due to the fact that it is difficult to make predictions of dividend flows (or the rate at which they will grow) in the distant future, this formula is used mostly in principle, and can be used to illustrate that increases in interest rates lead to decreases in equity prices and vice versa for decreases in interest rates.

Certain companies may partake in hedging activities (e.g. farmers, millers and finance companies) with the use of various hedging instruments such as futures, options and swaps. Hedging would also create exposure to market risk.

Hedging is defined by Goodspeed (2005: 76) as: “actions taken by companies to decrease the possibility of loss because of adverse movements in prices, interest rates or exchange rates”. Consider an example of a maize farmer who believes the maize price will decrease before it is time to harvest the crop, and therefore wishes to sell his crop forward. If the farmer sells his crop forward he is protected against any decrease in the maize price, but if the maize price were to increase the farmer would not profit, as he is locked in at the lower price. This example demonstrates that even though hedging may be used to protect against adverse price movements, the farmer has an upside market risk, i.e. is unable to take advantage of favourable price movements. This may be best termed an ‘opportunity risk’.

5.2.4 Foreign exchange risk

This risk is defined by Giddy and Dufey (1992: 1) as the potential gain or loss that occurs as a result of a change in the exchange rate. They give the example of an individual who has shares in a foreign company, for example a South African who has shares in an American company. If the value of the American dollar (relative to the South African rand) weakens, the capital sum and dividends will be worth less when converted back into rand.

Holding (2000: 15) explains that it is not only individuals who are subjected to this risk, but also corporations. He goes on to state that currency risk is inherent in corporate treasuries' activities and that this risk usually arises as a result of import and/or export contracts entered into with suppliers and customers.

Dhanani (2000: 24) explains that exchange rate risk is an inherent feature of a multinational corporation, and thus, when considering corporate assets (in particular foreign investment management), it is essential that this risk is appropriately managed. If it is not managed, multinational corporations may suffer high levels of uncertainty (and volatility) in terms of cash flows and profits from their investments abroad.

5.2.5 Credit risk

This risk is defined by Goodspeed (2005: 48) as the risk that a counterparty to a deal defaults on their obligation (for this reason it is also known as counterparty risk). For example, the issuer of a bond may not be able to make interest payments or repay the principal.

5.3 RISKS EMANATING FROM CORPORATE LIABILITIES

5.3.1 Introduction

Goodspeed (2005: 54) explains that companies raise funds (debt) from various sources on differing terms according to their requirements at the time. Companies can raise finance either by equity or debt issues. In South Africa the primary advantage of using debt instead of equity is the tax advantage, which allows the interest being paid on debt to be tax deductible but cash flows on equity (i.e. dividends) have to be paid out of after tax cash flows.

However, the problem with debt is that companies have to make interest payments on a regular basis and the corporation may not always have sufficient cash flows to settle their obligations, resulting in severe consequences. Therefore, although debt appears to be an attractive way of raising finance, it is accompanied by a number of financial risks including:

- i. Liquidity risk
- ii. Market risk
- iii. Currency risk
- iv. Reputation risk.

5.3.2 Liquidity risk

The definition of liquidity risk, with regards to debt management, is the same for that of investment management; however it is now the risk that a company does not raise sufficient finance (debt) to meet its future obligations.

5.3.3 Market risk

When considering debt management, market risk does not apply. If a company were to issue a fixed rate bond, interest rate movements would have no affect on the issuing company. For example, a company calculates that it can afford to issue a fixed rate bond at 10% (in relation to the internal rate of

return of a project it is embarking upon). If the interest rate falls to 8% it would have no bearing on the company. However, there is an opportunity cost of 2%; but there is no risk as the company is still paying the fixed rate of 10%, which it calculated to be affordable.

5.3.4 Foreign exchange risk

When one considers foreign exchange risk from the perspective of debt management, it is usually considered in terms of raising funds abroad. Faure (2003b: 7) explains that there are various reasons for raising debt abroad. For example, if a South African company wishes to make an investment in America, such as the construction of a factory infrastructure, it may fund this by applying for a loan in America, in order to take advantage of lower interest rates prevailing there.

In theory, and in particular the international Fischer effect, the above example would have no advantages. Dhanani (2000, 24) elaborates on this by stating that according to the international Fischer effect, the rewards for borrowing in countries where interest rates are low would be offset exactly by the disadvantage resulting from the revaluation of this currency. In other words, the low interest rates in America would be offset by the movement in the rand/dollar exchange rate. (This is because it is a South African based company and would repay the loan from South Africa.)

Once again, the theory differs from what happens in practice and companies can in fact benefit from the raising of loans in foreign countries. However, this “benefit” is accompanied by risk. If the South African company raised a loan in America, it would have to make its payments in American dollars. This would mean that for each interest payment and for the capital repayment it would have to buy a certain amount of dollars with South African rand. If the rand were to weaken the company would require more rand to settle its debt, but if the rand strengthened it would require less rands to settle its debt. A depreciating rand could jeopardise the profitability of the operation. Therefore, foreign exchange risk in respect of debt management needs to be managed.

5.3.5 Reputation risk

In chapter two reputation risk was elucidated in the context of operational risk; however, it can also form part of financial risk. Firstly, a corporation's reputation can affect its ability to raise debt. Atkinson (2000: 50) states that there has been an increase in the number of European corporates obtaining debt ratings from leading rating agencies, and that this is expected to continue to grow at a rapid pace. It is also explained that a corporate borrower has much to gain by treating rating agencies as a distinct stakeholder group in order to get a good rating and thereby raise debt at a lower cost. Bad press or defaulting on payments can lead to a negative reputation and rating, ultimately increasing the cost of debt.

Secondly, with regards to the listing of certain financial instruments (such as corporate bonds or commercial paper), most exchanges (such as the Bond Exchange of South Africa or BESA) require that the corporations have good reputations if they wish to list their instruments.

5.4 RISKS INHERENT IN CORPORATE LIABILITIES AND ASSETS

5.4.1 Introduction

The risks that apply when considering investments (financial assets) and debt (financial liabilities) *together* are:

- i. Interest rate risk
- ii. Foreign exchange risk.

5.4.2 Interest rate risk

5.4.2.1 Introduction

Due to the nature of banks' activities (i.e. borrowing and lending money), this risk applies to all banks; however, some large corporations also partake in the simultaneous borrowing and lending of money (examples include mining houses and finance corporations), and as a result they are also subjected to this risk.

Interest rate risk is defined by Hefferman (1996, in Faure, 2005: 38) as the risk arising from "interest rate mismatches in both volume and maturity of interest sensitive assets, liabilities and off balance sheet items." Essentially this definition means that when large corporations have both financial assets and liabilities they are affected by interest rate movements. The size of the financial assets (or the interest earned on these assets) may not equal the size of the financial liabilities (or the interest paid on these liabilities) and the maturity dates of these may not be matched, which could result in the risk that a change in the interest rate will affect the returns / payments on assets differently to the returns / payments on liabilities.

Interest rate risk is made more challenging by the fact that interest rates take on many forms, the most common of which are fixed and variable rates. This complexity can be best illustrated with the help of following 5 scenarios³:

- Scenario 1: A company with fixed rate liabilities and variable rate liabilities.
- Scenario 2: A company with fixed rate assets and variable rate assets.
- Scenario 3: A company with fixed rate assets and variable rate liabilities.
- Scenario 4: A company with fixed rate liabilities and variable rate assets.

³ Note that these scenarios are not referenced because they were constructed by the author with the assistance of the supervisor.

- Scenario 5: a company with differing amounts of financial assets and liabilities.

5.4.2.2 Scenario 1: A company with fixed rate liabilities and variable rate liabilities.

An increase in the interest rate would mean that the payments on the variable rate liabilities would increase, but the payments on the fixed rate liabilities would remain unchanged. A decrease in the interest rate would mean lower payments on the variable rate liabilities and, again, the payments on the fixed rate liabilities would remain constant.

This means that if interest rates increase, companies would be better off by having more fixed rate liabilities, and if the interest rate were to decrease, the company would be better off by having more variable rate liabilities.

5.4.2.3 Scenario 2: A company with fixed rate assets and variable rate assets

If the interest rate increased, the variable rate assets would generate more income and the same amount would be received from the fixed rate assets. If there was a decrease in the interest rate, less income would be received from the variable rate assets and the amount received from the fixed rate assets would remain unchanged.

This indicates that with increasing interest rates it would be better for a company to have more variable rate assets, and with decreasing interest rates it would be better for a company to have more fixed rate assets.

5.4.2.4 Scenario 3: A company with fixed rate assets and variable rate liabilities.

If the interest rate were to increase, the income (interest) received from the fixed rate assets (assume bonds) would be unchanged, but the price of the bonds would decrease (market risk). However, the company's liabilities would

be repriced daily (assuming call loans to it), and this would result in the company having to pay more on its liabilities.

If there was a decrease in the interest rate, the income received from the assets would again remain constant (and the bond price would increase). However, the company would make lower payments on its liabilities.

This indicates that for a company with fixed rate assets and variable rate liabilities, an increase in the interest rate would leave the company worse off, and a decrease in the interest rate would place the company in a better position.

5.4.2.5 Scenario 4: A company with fixed rate liabilities and variable rate assets.

If the interest rate increases, payments on liabilities would not be affected. However, variable rate assets (assuming call deposits) will be repriced daily, putting the company in a better position, as their assets will be generating more income.

If the interest rate decreases, payments on the liabilities would remain constant, but the call deposit rate would be repriced daily in a downward direction, causing the assets to generate less income.

Thus, with fixed rate liabilities and variable rate assets, an increase in the interest rate would mean no change to the payment on liabilities, but the assets would generate more income, putting the company in a better position. If the interest rate decreases, the liability payments would remain constant but the assets would generate less income, leaving the company worse off.

5.4.2.6 Scenario 5: a company with differing amounts of variable rate financial assets and liabilities.

(Note that here “assets” and “liabilities” refers to *financial* assets and liabilities.)

Increasing interest rates would favour companies with more assets than liabilities, as the increased payments on the liabilities would be more than offset by increased income generated by the assets. However, companies with more liabilities than assets would be harmed by increasing interest rates, as the increase in payments on the liabilities will outweigh the increased income generated by the assets.

Decreasing interest rates would be beneficial to companies with more liabilities than assets, as the amount which needs to be paid on the liabilities would decrease by more than the decrease in income generated by the assets. Decreasing interest rates will harm companies with more assets than liabilities, as the decrease in the income generated by the assets would be larger than the decrease in the payment to be made on the liabilities.

It should be noted that the scenarios outlined earlier are extremes and (according to Holzer: 2006)⁴ in practice no company would have these extreme portfolio characteristics; this is because no treasurer has certainty with regards to future changes in interest rates. Therefore, in reality, companies would not make extreme portfolio decisions; rather they would “position” themselves somewhere within the extremes in order to reduce risk.

An inevitable conclusion is given by Faure (2005: 41), who states that because banks (and large corporations such as mining houses and finance companies) do not borrow for standard periods and then lend for the same periods, and because they do not do this at standardised interest rates, interest rate risk is very real for all banks and corporations which have both financial assets and financial liabilities.

5.4.3 Foreign exchange risk

The above scenarios are rendered even more complex when one considers

⁴ Mr. Colin Holzer is currently or has been actively involved with the risk management function of the following public companies: Pick ‘n Pay, Leisurennet, Mr. Price, Harvey, Club Mykonos and Appleton.

multinational corporations, which could have assets and liabilities denominated in different currencies.

According to Faure (2005: 77), the corporations not only have to decide on their mix of fixed versus variable assets and liabilities, but also have to consider how possible currency fluctuations will impact on these assets and liabilities. For example, a company may have a floating rate loan in a foreign country (i.e. variable rate liability); if the interest rate were to decrease, then, according to the scenarios above, the company would be better off. However, if the foreign currency strengthens dramatically (relative to the rand) the benefits of the lower interest payments may be overshadowed by the decreasing rand.

5.5 THE INTERCONNECTEDNESS OF RISK

Kendal (1998: 161) mentions that all risks should be given equal priority, as any one of the risks can cripple a company. This is primarily due to the interconnectedness of risk. When a company suffers a loss from one of the risks, this loss can have an impact on other risks.

We started this chapter with liquidity risk, which was defined as not being able to liquidate a position quickly enough to settle the given obligation. Consider a company that failed to liquidate an investment in time and as a result was unable to make interest payments on a bond it had issued. The company would now suffer the consequences of a liquidity problem that has resulted in a deteriorating reputation (reputation risk) as well as a credit default. This would mean that the company's credit rating would deteriorate, resulting in an increase in the cost of debt.

Another example is a multinational corporation that ignores foreign exchange risk. An adverse movement of the exchange rate may result in unfavourable movements in positions taken in that currency. The loss may be so severe that the company cannot afford to make repayments on a loan which it had

made use of, once again harming the corporation's reputation with the same consequences as above.

These examples demonstrate that financial risks are interconnected. For this reason risk managers need to identify all possible risks and not just focus on specific risks and their consequences.

5.6 CONCLUSION

As seen, there is a wide variety of financial risks that corporations need to consider. Considering these risks in isolation is poor treasury practice. Financial risks are related and the consequences of one bad risk event may spill over to other risk events, increasing the extent of loss. The next chapter considers how to measure these risks and this is followed by a discussion on the management of the risks.

CHAPTER SIX

MEASUREMENT OF RISK

6.1 INTRODUCTION

Owing to the importance of the measurement of risk, much academic research has been conducted in this area and consequently we do not include an elaborate explanation on this topic. Nevertheless, the measurement of risk is an integral part of the management of these risks. This is because the managers need to know the extent of the risk before they attempt to manage it. For this reason we include a brief explanation of some of the current trends in risk measurement.

6.2 MEASURING MARKET RISK (VALUE AT RISK)

It has become a popular trend to use Value at Risk (VaR) to measure market risk. We now consider how banks and non-bank corporates can measure market risk.

VaR is explained by Best (1999: 09) as “a statistical measure of risk that estimates the maximum loss that may be experienced on a portfolio with a given level of confidence.” It is defined by Dowd (2005: 11) as “the maximum amount we are likely to lose over some period, at a specific confidence level.” Best (1999: 10) provides some clarification to these quotes by stating that the time period for which the VaR is calculated is usually one day and the confidence level is 95%. This means that for the day that the VaR is calculated, there is a 95% chance that the loss will be lower than the calculated VaR. Put differently; there is a 5% chance that the loss will be greater than the VaR.

VaR calculations provide very useful information for corporate managers and this has led to an increase in their use in recent times. Dowd (2005: 10) lists the following six uses:

1. Senior management can use the information to set their risk targets. If the firm wishes to increase its risk, it can increase the overall risk target and vice versa for a decrease.
2. VaR calculations determine the maximum a company is likely to lose and can therefore provide an indication of how risky the investment is. This can help with the capital allocation as senior management can decide how much capital to allocate to various investments based partly on their riskiness.
3. VaR calculations can provide useful information for annual reports as it enables stakeholders to assess the risk of the various investments.
4. This information can be used to compare the risks of investment opportunities before any decisions are made.
5. VaR calculations can provide information which helps with the implementing of portfolio-wide hedging strategies.
6. This information can be used to help create rules for traders and managers with regards to the risks they take.

Despite these advantages, the VaR calculations are sometimes criticised. Dowd (2005:12) mentions that VaR models can lack accuracy for two reasons. Firstly, mathematical and statistical models are often not suited to social systems. Secondly, VaR models are exposed to implementation risks. As a consequence, similar VaR models may be implemented in different ways, providing varying estimates. This may result in a situation where users take on bigger risks and could lose more than they anticipated. Taleb (1997: 37, in Dowd, 2005: 12) explains this risk by stating, "You are worse off relying on misleading information than on not having any information at all. If you give a pilot an altimeter that is sometimes defective he will crash the plane. Give him nothing and he will look out the window."

Another limitation of VaR is mentioned by Best (1999: 10) who states that although VaR can calculate that a loss larger than a given value will only occur (on average) 5% of the time, it cannot tell us the size of that loss.

Furthermore, VaR provides an accurate statistical measure for when the markets are behaving normally, but it does not cope with extreme price changes. For this reason, VaR calculations need to be accompanied by stress testing. This testing can help determine what the maximum loss on a portfolio will be, even in the face of extreme price changes.

Best (1999: 11) explains stress testing as applying predetermined prices to the assets of the portfolio, then changing these prices and determining the effects it has on the value of the portfolio. Therefore, it is essential that the VaR and stress testing be used together as the VaR can establish the likelihood of the loss and stress testing can determine the extent of the loss.

6.3 MEASURING INTEREST RATE RISK (GAP ANALYSIS)

Marrison (2002: 190) states that for many years interest rate risk has been measured by gap reports. We now consider how companies and banks use gap reports to measure interest rate risk.

The 'gap' is the difference between the cash flows from assets and liabilities. This gap analysis is defined by Faure (2005: 43) as "the measurement of the gap between fixed rate liabilities (FRL) and fixed rate assets (FRA) or variable rate liabilities (VRL) and variable rate assets (VRA)." He goes on to present the following equations to determine the interest rate gap (IRG):

$$\text{IRG} = \text{FRL} - \text{FRA}$$

or

$$\text{IRG} = \text{VRL} - \text{VRA}$$

As a company's earnings on interest are determined by its interest earned on assets (IEA) less its interest expenses on liabilities (IEL), the company's earnings may be affected by changes in the interest rate. Van Greuning and Bratanovic (2000: 182) explain that if there is a positive gap (i.e. a company has more VRL than VRA), the company may be harmed if interest rates increase. For this reason the company needs to reprice the gap (i.e. to cover

the extra liabilities) as the interest rate rises. The opposite is true for falling interest rates. If there is a positive gap and rates fall, the company's earnings on interest will rise and the unmatched liabilities would be repriced downwards.

If a company has a view on future interest rates, it may wish to structure its balance sheet to take advantage of the future changes if they occur. Van Greuning and Bratanovic (2000: 182) state that if the company is not certain as to which way the interest rate will move, they can create a zero gap where $VRL = VRA$. This insulates the interest rate earnings from any fluctuations of the interest rate. This protects the company from adverse movements of the interest rate but also decreases the gains from favourable movements. Thus, if the company believes that the interest rate will increase, it will structure its balance sheet so that the VRA are greater than the VRL . It will do the opposite if it believes the interest rates will fall.

The interest rate gap is defined by Saunders (1997: 138) as the sensitivity of the net interest income (NII) to changing interest rates. He presents the following equation:

$$\Delta NII = (VRA - VRL) \cdot \Delta i = (\text{gap}) \cdot \Delta i$$

where:

NII – net interest income

VRA – variable rate assets

VRL – variable rate liabilities

i – interest rate

A weakness in this equation is pointed out by Faure (2005: 45) who states that it relies heavily on assumptions such as both the VRL and the VRA being based on a single interest rate and the period for the analysis. To counteract these harsh assumptions, Van Greuning and Bratanovic (2000: 181) mention that balance sheet components should be divided into repricing buckets. The allocation of assets and liabilities into these buckets is based on whether or

not they are sensitive to interest rates and they are also sorted by time periods (term to maturity).

The calculation of the gap allows a company to determine its exposure to interest rates and once it is aware of the gap it may change it to suit its risk appetite.

6.4 LIQUIDITY RISK MEASUREMENT

As mentioned, liquidity risk is the risk that a company cannot liquidate a position to meet obligations as they arise. Due to the consequences of this, Faure (2005: 61) explains that a company should always be able to measure its liquidity position. Saunders (1997: 330) mentions the following tools, which can be used to measure liquidity. Firstly, peer group ratio comparisons can be used. These entail comparing ratios and various balance sheet items to similar companies. Secondly, a liquidity index measures the potential losses incurred from the sudden sale of an asset compared to a fair market value. Thirdly, a net liquidity statement outlines the sources and uses of liquidity; from this the firm can determine its liquidity position. Other measurement tools include the financing gap and financing requirements and liquidity planning.

6.5 MEASUREMENT OF CREDIT RISK

As mentioned by Saunders (1997: 190), a company needs to measure the probability of borrower default in order to assess its credit risk exposure. Faure (2005: 69) explains that this is where rating agencies come into play. Rating agencies assess a borrower's ability to repay money that it owes. In essence, they measure risk. Two well know rating agencies are Moody's and Standard & Poor's. These companies assign a probability of default to individual companies. As the probability of default increases, so the rating falls.

Companies cannot always use rating agencies to measure credit risk and in this case they then do their own assessment on the probability of default.

These assessments usually involve the investigation of financial statements and future economic prospects.

6.6 CONCLUSION

In order to manage risks, risk managers need to know the extent of the risk and for this reason this chapter highlighted the main methods of measuring the various types of risks. However, as much academic research has been conducted on this topic, it was not explored in great detail in this thesis. More detailed information can be found from the mentioned references. The next chapter analyses the methods used to manage the financial risks.

CHAPTER SEVEN

MANAGEMENT OF FINANCIAL RISK

7.1 INTRODUCTION

This chapter analyses the possible methods of managing the various financial risks that non-bank corporates are subjected to. The analysis will consider the similarities and differences in the management of these risks between non-bank corporates and banks. In doing this we will ascertain the relevance of bank risk management to the non-bank corporate sector.

This chapter is arranged as follows:

- Risks inherent in corporate assets
- Risks emanating from corporate liabilities
- Risks inherent incorporate assets and liabilities.

7.2 RISKS INHERENT IN CORPORATE ASSETS

7.2.1 Introduction

This section considers the risks that relate to corporate assets, under the following headings:

- Market risk
- Credit risk.

7.2.2 Market risk

As a reminder, in chapter two market risk was defined (Goodspeed, 2005: 66) as the possibility of financial loss arising from unexpected changes in market

interest rates or prices. For this reason we include the risk of changing interest rates, the risk of adverse exchange rate movements, the risk of changing commodity prices and the risk of changing equity prices under the umbrella of market risk.

7.2.2.1 Risk of changing interest rates

Bessis (1998 in Faure, 2005: 35) states that changing interest rates can result in a decline of earnings or an increase of payments. In the context of corporate assets, it is the risk that a decrease in the interest rate will decrease the earnings from a floating rate financial asset. A decrease in the rate of a fixed-rate asset will not affect the fixed rate of return, or it will deliver a capital gain if the asset is sold.

Faure (2005: PI) states that for companies with financial assets, there are two decisions that need to be made. Firstly, risk managers must decide whether to invest short term (which will be at a floating rate because the investment will be repriced regularly) or long term (at a fixed rate). The decision is based on the risk manager's view of future interest rates. The second decision that needs to be made is what to do if the company's opinion of future interest rates changes.

7.2.2.1.1 Short term investing⁵

If the company hypothesizes that the interest rate will increase, it will invest short term to take advantage of an increasing floating interest rate.

If the company's opinion of the future interest rate trend changes after the investment has been made, it needs to decide on what changes need to be made to the portfolio. There are two possible scenarios:

⁵ Note that these scenarios are not referenced because they were constructed by the author with the assistance of the supervisor.

- Scenario 1: the company speculates that the interest rate will move sideways.
- Scenario2: the company speculates that the interest rate will fall.

7.2.2.1.1.1 Scenario 1: sideways-moving interest rate

The company will leave the portfolio unchanged and earn the short-term rate, which is compounded because interest is paid frequently. Alternatively, if the yield curve is positively-sloped it may decide to invest longer (i.e. for the period of the investment horizon).

7.2.2.1.1.2 Scenario 2: a decreasing interest rate

Under this scenario, the company will be concerned that the decreasing interest rate will lead to a decrease in its interest income. In this scenario, the risk manager needs to use derivatives to ensure that the impact of the decreasing interest rate is kept to a minimum. In order to achieve this, they can make use of any of the following derivatives:

- Forward rate agreements
- Interest rate swaps
- Swaptions
- Floors.

A. Forward rate agreements

A forward rate agreement (FRA) is defined (Goodspeed, 2005: 83) as an agreement between two parties that enables the user to hedge against unfavourable interest rate movements. This is achieved by fixing a specific rate of interest on a notional amount (the underlying asset), for a specified period, starting from an agreed future settlement date. Goodspeed (2005: 83) further states that a FRA is structured so that it is separate from the underlying asset and subsequently relates to interest rates only.

Skerritt and Associates (2003: 54) explain that FRAs allow lenders of money to lock in at a fixed rate of interest for a specific period. As they provide protection for only one of several periodic interest periods, they have been labelled “the sharpest weapon in the interest rate hedger’s arsenal” (Skerritt and Associates, 2003: 55). For this reason, if the company believes the interest rate will decrease for a specific period, they will be an appropriate instrument.

The drawback of a FRA, according to van den Berg (1998:91), is that if the company’s view is incorrect and the interest rate increases, the company is locked into the fixed rate and as a result cannot reap the benefits of a higher interest rate.

B. Interest rate swaps

If a company is concerned that the interest rate will decrease, as in scenario two, it may hedge against this with the use of interest rate swaps. With regard to the management of financial assets, interest rate swaps can be used to “transform an asset” (Faure, 2003a: 87). This means that a company can transform a floating rate financial asset into a fixed rate financial asset. Therefore, a decrease in the interest rate will not decrease the interest income generated by the asset, as the holder will receive a fixed rate of interest.

In essence, an interest rate swap is “an agreement between two parties to exchange a series of fixed rate cash flows for a series of floating rate cash flows in the same currency” (Faure, 2003a: 86). Van den Berg (1998: 91) explains that if a company is receiving a floating rate of interest, and is concerned that the interest rate will decrease, as in scenario two, it could swap its floating rate with another company (via a bank) that is receiving a fixed rate and has a different opinion on which way the interest rate will move. In doing this, the company transforms a floating rate asset into a fixed rate asset and, consequently, it no longer has to be concerned with interest rate fluctuations.

The disadvantage of an interest rate swap is the same as that of a FRA, in that if a company transforms its floating rate asset into a fixed rate asset and

the interest rate increases, it is locked into the fixed rate and as a result can not capitalise on the increasing interest rate (van den Berg, 1998: 91).

Moir (1999: 136) states that since interest rate swaps are essentially a series of FRAs, swaps are more appropriate for longer term positions, such as when the company believes that the decrease in the interest rate will be a long term phenomenon. FRAs are more appropriate for short term positions in situations where the company is of the opinion that there will be a change in the interest rate in the form of a short term decrease.

C. Swaptions

With FRAs and interest rate swaps, a company is able to hedge against adverse interest rate movements but cannot take advantage of favourable movements in the interest rate (van den Berg, 1998: 91). Faure (2003a: 100) explains that options give the holder the right but not the obligation to buy or sell the underlying asset. This means that the option will only be exercised if it is beneficial to the holder, thereby protecting the company from a decrease in the interest rate but still allowing the company to take advantage of increasing interest rates.

This leads us to the third derivative which companies can use to hedge against decreasing interest rates. This derivative is options and more specifically, options on interest rate swaps i.e. swaptions. Faure (2003a: 119) explains the workings of a swaption as follows. As explained, with an interest rate swap, fixed rate cash flows are swapped for floating rate cash flows. With regards to swaptions, the underlying commodity is the fixed rate obligation. Consequently a call swaption gives the holder the right to receive a fixed rate in exchange for a floating rate and a put swaption gives the holder the right to pay a fixed rate in return for a floating rate.

Moir (1999: 137) explains that for the purpose of protecting a financial asset from a decrease in the interest rate, as in scenario two, companies should purchase call options. This would allow the company to receive a fixed rate of interest even if the rate fell. If the interest rate increased, the company would

not exercise the option, thereby enjoying the higher rate at only the cost of the premium.

Moir (1999: 141) subsequently states that companies can expect options to be more expensive than FRAs and swaps as they offer additional flexibility; they not only hedge against the downside, but also allow for upside gains. Despite this extra cost, Moir (1999: 141) goes on to conclude that in environments with high interest rate volatility, swaptions may be the most cost effective interest rate risk management instrument.

D. Floors

Moir (1999: 141) defines interest rate caps and floors as “packaged interest rate options”. Skerritt and Associates (2003: 96) add to this by describing caps and floors as a series of options that give the holder the right to exercise them on each reset date. From these definitions it can be deduced that caps and floors are akin to options in that they give the holder the right (but not the obligation) to protection from increases or decreases in the interest rate.

Van den Berg (1998: 96) explains that interest rate floor agreements were created for investors (holders of financial assets) to hedge against falling interest rates. Faure (2003a: 122) elaborates by explaining that a floor contract creates a floor past which interest rates cannot fall. If interest rates fall below the floor, the option will be exercised and the company will receive the rate of the floor. In contrast, if interest rates rise, the company may take advantage of higher interest income. Thus, floors are appropriate for companies with financial assets that are concerned about falling interest rates, i.e. scenario two.

Skerritt and Associates (2003: 142) conclude that the cost of floors decreases the returns from financial assets if they are not exercised. However, the cost is limited to the premium and the upside potential is unlimited.

7.2.2.1.2 Long term investing

In making its first decision with regards to the investment of financial assets, if a company hypothesizes that the interest rate will decrease, it will invest long term (at a fixed rate).

If, after some time, the company's opinion on the future interest rate changes, it is obliged to make a decision on the necessary changes to be made (i.e. the second decision). There are two possible scenarios:

- Scenario 1: the company speculates that interest rates will move sideways.
- Scenario 2: the company speculates that the interest rate will rise.

7.2.2.1.2.1 Scenario 1: a sideways-moving interest rate

As it invested at a fixed rate, the sideways movement of the interest rate has no bearing on the interest income and, consequently, it will make no adjustments to its portfolio.

7.2.2.1.2.2. Scenario 2: an increasing interest rate

Because it invested long, under this scenario it is unable to capitalise on the rising interest rate. In order to ensure that its interest income generated from its assets increases in line with the interest rate, it needs to make use of one or more of the derivatives discussed above.

It will use the same derivatives in the opposite manner. For example, interest rate swaps and swaptions will be used to exchange a fixed rate (which the company is receiving) in return for a floating rate.

7.2.2.1.3 Conclusion

In terms of corporate assets, when a company has invested short a decrease in the interest rate would lower the interest income and thus a company would

need to hedge against a falling interest rate. If a company has invested long, it would not be able to capitalise on interest rate increases without the use of the derivatives discussed.

Four common derivatives were discussed, namely FRAs, interest rate swaps, swaptions and floors. The disadvantage of the former two is that they do not allow for upside gains whereas the second two do, but this comes at the cost of the premium.

7.2.2.2 Risk of changing currency values

7.2.2.2.1 Introduction

Exchange rate risk is defined by Giddy and Dufey (1992: 1) as “a potential gain or loss that occurs as a result of an exchange rate change”. Faure (2005: 78) explains that when a corporation has its assets (revenue) and liabilities (costs) denominated in the home currency, there is no currency risk. Yet when parts of one or both sides of the balance sheet are denominated in foreign currency, currency risk management is required. This means that money generated overseas is subjected to currency risk if at any stage it is planned to be bought back to the home country.

Davis and Militello (1995:81) give an example of the multinational corporation Mobil, which has its head office in the US and a subsidiary in Asia. In terms of its foreign subsidiary’s earnings, Mobil only hedges the portion of earnings that will be remitted to the US from overseas. The portion of earnings that will be re-invested overseas will remain unhedged.

7.2.2.2.2 Hedging against currency movements

7.2.2.2.1 Introduction

For companies to ensure that the value of their financial assets do not decrease as a result of an adverse exchange rate movement, they are required to hedge against this risk with the following derivatives:

- Forwards and futures
- Currency options
- Currency swaps.

7.2.2.2.2 Forwards and futures

A forward contract is defined by Faure (2003a: 19) as “a contract between a buyer and seller at time $T+0$ to exchange an asset (widely defined) for money at a specified price on a specified future date”. A futures contract is very similar to this in that the seller is obligated to make delivery and the buyer is obligated to take delivery. The difference is that futures contracts are traded on an exchange, which makes them less risky and less flexible.

According to Davis and Militello (1995: 93), forwards are the most frequently used foreign exchange hedging instrument by non-financial corporations, whereas banks use mainly futures. Skerritt and Associates (2003: 37) explain that the only difference between forwards and futures is in the form and terminology, and that there is no difference in the fundamental mathematics and economics. Yet it should be noted that these differences could produce legitimate price differences.

Considering that these two instruments appear to be so similar, it is important to look at the advantages and disadvantages of forwards to understand why corporates choose either forwards or futures to hedge their exposure. The following advantages and disadvantages are taken from Faure (2003a: 21):

Advantages:

- There is flexibility in terms of delivery dates.
- There is flexibility in terms of size of contracts.

Disadvantages:

- Forwards are not guaranteed by the exchange. Hence there is the possibility of default by one of the parties.
- Both parties are locked in to the deal for the duration of the contract.
- There is no option of settling in cash. Thus the underlying asset must be delivered.
- The quality of the assets may vary.
- There are high transaction costs (both parties have to find each other, negotiate etc.).

Owing to these disadvantages, the market for futures was developed. Faure (2003a: 21) explains that futures are traded on an exchange. This means that the exchange interposes itself in all transactions (i.e. the exchange is the buyer to all sellers and the seller to all buyers). This eliminates most of the disadvantages of forwards at the expense of a loss of flexibility (in terms of size and date).

In order to understand how companies can use these two derivatives to prevent loss from adverse exchange rate movements, we now consider hedging with forwards and futures.

A. Outright forwards

Outright forwards are defined by Skerritt and Associates (2003: 37) as contracts between buyers and sellers to trade an agreed amount of foreign exchange on a specified date at a specified price.

In the following example it can be seen how foreign exchange risk can be hedged in terms of corporate assets. A company has an investment abroad (for example a South African company owning a factory in the US) and is planning on selling this investment in six months time. When the factory is sold the money will have to be converted back into rands. This means that either a depreciation of the dollar or an appreciation of the rand (within the next six months) would lower the value of the investment. The company can approach a bank and enter into a forward contract, whereby it sells the dollar proceeds to the bank at a rate agreed upon from the outset, but the delivery of the dollars will only occur in six months when the factory is sold.

With this forward contract in place, if the rand appreciated or the dollar depreciated the value of the investment would not be affected. However, if the rand depreciated or the dollar appreciated the company would not be able to take advantage of this as it would have committed itself to the bank.

B. Currency futures

Faure (2003b: 54) explains that currency futures are similar to forwards in that the seller undertakes to sell to the buyer or the buyer undertakes to buy from the seller a currency on a future date at a rate agreed upon from the outset. Generally, because futures are traded on an exchange (and the exchange interposes itself as a buyer to each seller and a seller to each buyer), at expiry the parties do not deliver the actual currencies; instead they will settle their profits or losses in cash.

Holzer (2006: PI) explains that many companies in South Africa generally do not make use of futures; rather, they remove the risk of fluctuating exchange rates by operating in the forward market, i.e. buying or selling currencies forward (i.e. agreeing on the future rate at the time of the signing of the contract, and exchanging the currency in the future).

7.2.2.2.3 Currency options

As mentioned, Faure (2003a: 100) explains that for a holder of an option, the profit is unlimited and the loss is limited. In contrast, for the writer of an option, the profit is limited and the loss is unlimited. Davis and Militello (1995: 94) state that the increasing use of options (due to their unlimited profit and limited loss) is one of the most important trends in foreign exchange risk management.

Moir (1999:137) mentions that due to the unlimited loss and the limited profit for writers of options, risk managers of companies should only buy options (i.e. long options) and not write them. Writing options involves risk whereas buying options transfers risk to the writer.

A. Long call options

The holder of a call option has unlimited profit potential if the price of the underlying asset rises. If the price of the underlying asset falls, the holder will only lose the premium. Consider an example take from Faure (2003a: 136) where the ZAR is the underlying asset. A South African company is concerned about recent fluctuations in the exchange rate as it has an investment in the US. It is concerned that when the investment expires in three months (at a value of USD 100 000) it will be worth less when brought back to South Africa because of a strengthening of the ZAR against the USD. Thus, the company purchases an option (i.e. long foreign currency call). The spot rate is currently USD/ZAR 7.00 and the option gives the company the right to purchase ZAR at USD/ZAR 7.05. The 0.05 extra is the price of the premium.

In three months time, if the value of the ZAR strengthens against the USD the company will exercise the option. If the ZAR weakens against the USD the company will let the option expire out of the money, as it will be more profitable to make the exchange in the spot market. By purchasing the option,

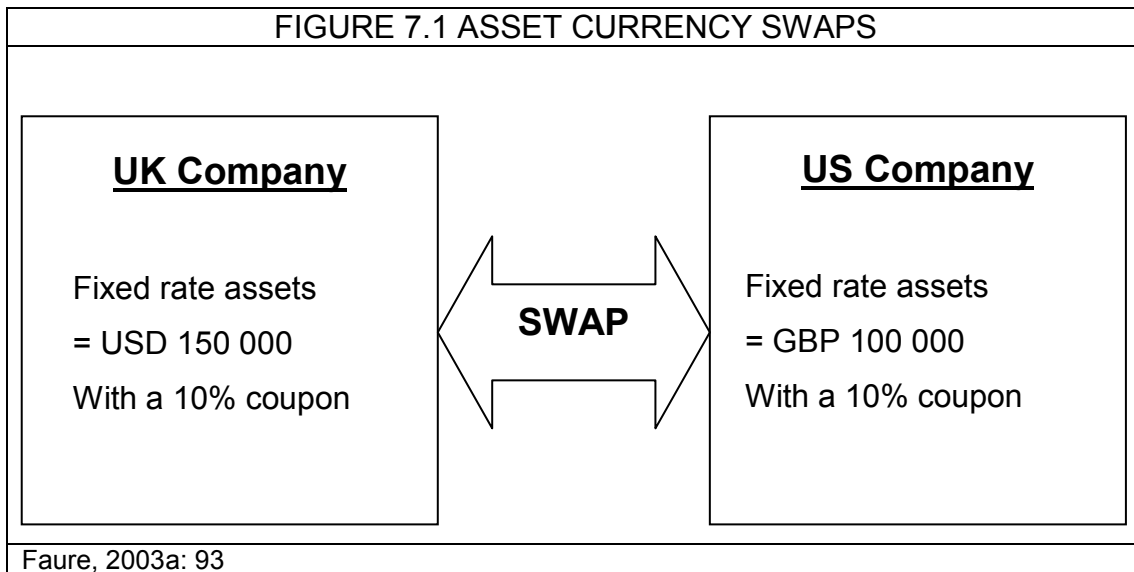
the company has ensured that the minimum it will get for its investment is R705 000.

B. Long put options

Long put options give the holder the right to sell the underlying asset at a rate agreed upon originally. In the example above, instead of purchasing a long call option (and having the option to purchase ZAR at an agreed rate), the company could purchase a long put option (which gives them the right to sell USD at an agreed rate). A long put option is the mirror image of a long call option. The South African company has the right to sell USD at an agreed rate (USD/ZAR 7.05). Thus, if the ZAR strengthened relative to the USD, the company would exercise the option and if the ZAR weakened against the USD it would let the option expire out of the money. This is because the USD 100 000 investment would now be worth more when converted back to ZAR in the spot market.

7.2.2.2.4 Currency swaps

Currency swaps are defined by Faure (2003a: 92) as “the exchange of principal and interest payments in one currency for the principal and interest payments in another currency”. The following example, taken from Faure (2003a: 93), illustrates the basis of currency swaps: A UK company has GBP 100 000 worth of assets in USD and a US company has USD 150 000 worth of assets in GBP. The UK company believes that the USD will weaken relative to the GBP and the US company believes that the GBP will depreciate relative to the USD. This represents a situation where both parties are concerned that their assets (and the interest they generate) will be worth less when they are converted back into the home currency. For this reason they enter into a currency swap (as indicated in Figure 7.1):



Each company has opposite views on which way the exchange rate will move so they swap their assets for a specified period. This method of currency management is only effective if the company's predictions of future exchange rate movements are correct. If a company is confident that it knows which way the value of a currency will move, currency swaps can be used to ensure that its foreign assets do not lose value as a result of adverse exchange rate movements.

7.2.2.2.5 Alternative foreign exchange risk management tools

Rose (2000, in Faure, 2003b: 60-61) explains that derivatives are not the only method to manage exchange rate risk, and presents the following alternatives:

7.2.2.2.5.1 Dual-currency bonds

This is a type of bond where the principle is payable in one currency and the interest in another. This means that if either currency depreciates or appreciates, the increased payments on either the principle or the interest will be offset by the decreased payment on the other.

7.2.2.2.2.5.2 Payment for exports

Companies which are involved in the exporting of goods can reduce currency risk by exporting on the condition that payment is made at the time of the shipment.

7.2.2.2.2.5.3 Risk adjusted pricing

This entails increasing the price of goods exported to countries which experience high levels of currency volatility. Essentially, the exporter is demanding a higher price for the high level of currency risk.

7.2.2.2.2.5.4 Leads and lags

If a South African importer believes that the ZAR will depreciate relative to the USD, it will try to make the payment as fast as possible (leads). This will ensure that the payment does not become more expensive in ZAR terms.

A South African exporter who has the same view of the currency will try to leave the money abroad for as long as possible (lags). The longer the exporter can keep the money in the US; the greater its value will be when converted back to ZAR.

7.2.2.2.2.5 Conclusion

Foreign exchange risk occurs in companies which are involved in earning and paying in foreign exchange. This includes activities such as exporting and importing, investing offshore or raising money offshore. This risk can be reduced by hedging against adverse changes in the value of a currency, which is usually done with the mentioned derivatives.

It should be noted that there are alternatives to derivatives when managing foreign exchange risk and these must be considered as they may better suit a company in certain cases.

7.2.2.3 Risk of changing commodity prices

As a reminder, Goodspeed (2005: 47) explains that commodity price risk is the risk that the price of a commodity which is an essential input or output to a company, changes in an adverse direction.

This risk is managed with the use of various derivative instruments, such as futures and options. Consider the example of a corporation which purchases wheat from farmers to produce bread. If the corporation is concerned that the wheat price will be higher when the wheat is harvested, it will purchase the wheat forward, thereby fixing the price at the outset. Subsequent price changes in wheat will not have any bearing on the corporation's production cost.

Alternatively, the corporation could make use of options. This would give it the right but not the obligation to buy the futures contract and consequently purchase the wheat at the predetermined price. However, if the price of wheat falls it would not exercise its option as it would be cheaper to purchase the wheat at the market price.

7.2.2.4 Risk of changing equity prices

Companies with excess funds may chose to invest in equities. The risk they have is that the prices of the equities will fall, resulting in a capital loss.

According to the Bank of New York (2006), there are various derivatives that companies can use to hedge against the risk of falling equity prices. One of the more common derivatives are put options. In this instance a company purchases a put option from a dealing bank (paying the bank the premium); if the share price falls, the company has the option to sell the shares to the bank who is obligated to purchase them at the predetermined price.

7.2.3 Credit risk

As a reminder, Kendall (1998: 119) defines credit risk as “the likelihood that a transaction or transactions with a counterparty will be defaulted upon through that counterparty’s inability to meet its financial needs”. In this section we look at two types of credit risk, namely, credit risk on loans and investments and credit risk from product sales (i.e. risk inherent in “debtors”).

7.2.3.1 Credit risk on loans and investments

Goodspeed (2005: 66) explains that this risk is that counterparty may fail to perform as originally agreed. Goodspeed (2005: 66) goes on to give the example of an issuer of a bond being unable to make interest payments or repay the principal.

In the context of non-bank corporates, if a company decides to invest its surplus funds in bonds, it may be subjected to the risk described above. Faure (2005: 70) mentions that an appropriate way of managing this risk is simply to avoid it. This is done by investing only in prime securities. Examples of these include government bonds and treasury bills. However, investing in prime securities has a cost: in the form of a sacrifice of returns. Government securities are regarded as risk-free and therefore are issued and traded at low rates relative to the rates on non-prime securities.

7.2.3.2 Trade credit risk

In terms of product sales of non-bank corporates that are to be paid for in the future (i.e. debtors), credit risk is described by Zsolt (2004: 24) as “the risk of not getting paid the agreed-upon amount at the agreed-upon time”. This form of credit risk is referred to as trade credit risk (Wikipedia: 2006). Venn and Williams (1999: 16) elaborate on this by explaining that if customers are allowed to pay for goods and services after they have been supplied, they may default on their payment (or part there of). By granting customers this

luxury, one takes on trade credit risk over the period from supply until payment.

International Enterprise Singapore (2006) remarks that trade credit risk can be managed by purchasing trade credit insurance. Essentially, this is an insurance product that protects a company from buyers defaulting on payments. The company pays a premium and if its debtors default, the insurer will cover the loss. Thus, it provides a company with assurance that it will get money for the goods it sells.

Holzer (2006: PI) reveals that in South Africa, many non-bank corporates are faced with this risk. Some companies manage this risk by increasing the price of its product/s to accommodate the cost of the policy. In essence thus the trade credit risk is built into the price.

7.3 RISKS EMANATING FROM CORPORATE LIABILITIES

7.3.1 Introduction

The following section considers the risks that are inherent in corporate liabilities. The risks are:

- Market risk
- Reputation risk.

7.3.2 Market risk

7.3.2.1 Introduction

A reminder: Goodspeed (2005: 66) defined market risk as the potential financial loss that may be incurred as a result of changing market interest rates and prices. Market risk on the liability side of the corporation's balance sheet comes in two guises (the risk of changes in equity and commodity prices obviously only applies to the asset side of the balance sheet):

- the risk of changing interest rates
- the risk of adverse exchange rate movements.

7.3.2.2 Risk of changing interest rates

7.3.2.2.1 Introduction

Goodspeed (2005: 47) states that with floating rate liabilities, there is a risk of an increasing interest rate, making interest payments on the liability more expensive.

Faure (2006: PI) states that, as with companies with financial assets, there are two decisions that need to be made when deciding to take on financial liabilities. The first decision to be made in this regard is whether to borrow short term or long term. As we have seen, short term borrowings are repriced frequently (hence the name: floating rate liabilities) and long term borrowings (we assume here) are at a fixed rate. When considering the management of corporate liabilities, the company's decision will be the opposite of the decisions made with regard to the management of corporate assets. The second decision that must be agreed upon is what to do if the risk manager's opinion on future interest rates changes.

The following is covered:

- Short-term borrowing
- Long-term borrowing.

7.3.2.2.2 Short term borrowing

We assume that the first decision of the company is that the interest rate will decrease. It will borrow short term in order to take advantage of the decrease in the interest payments on its financial liabilities.

As with the management of corporate assets, if the company's opinion of the future interest rate trend changes after the liability has been issued, it needs to decide on what changes need to be made to the portfolio. There are two possible scenarios:

- Scenario 1: the company hypothesizes that the interest rates will move sideways.
- Scenario 2: the company hypothesizes that the interest rate will increase.

7.3.2.2.1.1 Scenario 1: a sideways moving interest rate

In this scenario the company will leave the portfolio unchanged and pay the short term rate (that is unchanged over the period).

7.3.2.2.1.2 Scenario 2: an increasing interest rate

In this scenario, it foresees that the interest rate will increase, thereby making liability payments more expensive. For this reason, the risk manager needs to use derivatives to ensure that liability payments do not increase. As in the case of the asset side of the balance sheet, the following derivatives can be used:

- Forward rate agreements
- Interest rate swaps
- Swaptions
- Caps.

A. Forward rate agreements

As previously mentioned, Goodspeed (2005: 83) defines FRAs as an agreement between two parties to fix a specified rate of interest on a notional amount (the underlying asset) for a specific period. This allows the user to

hedge against unfavourable interest rate movements, i.e. an increasing floating rate on financial liabilities.

FRAs allow borrowers to lock into a fixed interest rate for a specific period (as explained by Skerritt and Associates, 2003: 55). Hence, if the company believes that the interest rate will increase for a specific period, FRAs would be an appropriate derivative. As was noted earlier, FRAs are referred to as “the sharpest weapon in the interest rate hedger’s arsenal” (Skerritt and Associates, 2003: 55). This is because they provide protection for just one of several periodic interest payments.

However, according to van den Berg (1998:91), the drawback of FRAs is that they force companies to lock in at a fixed interest rate. This means that if the interest rate falls, companies cannot capitalize on their liabilities becoming cheaper.

B. Interest rate swaps

Scenario two presents a case where the company is concerned that interest rates will rise, subsequently making interest payments on its financial liability more expensive. To prevent this, the company can use interest rate swaps where, as described by Faure (2003a: 86), they “transform their liability” from a floating rate liability to a fixed rate liability. The mechanics of this are explained by van den Berg (1998: 91) who mentions that a company such as the one in scenario two, that is paying a floating rate of interest and is concerned that the interest rate will increase, could swap its floating rate with a company that is paying a fixed rate and has a different view on which way the interest rate will move. In doing so, the company transforms a floating rate liability into a fixed rate liability and consequently a rise in the interest rate will have no bearing on the payments on the liability.

The disadvantage of interest rate swaps is the same as that of FRAs as, according to van den Berg (1998: 91), they force the holder to be locked in at a fixed rate and they are not able to take advantage of favourable interest rate movements (i.e. a decrease of the interest rate in scenario two).

As noted earlier, Moir (1999: 136) states that if the company speculates that the interest rate increase will be long term, swaps may be appropriate, and if the interest rate increase is foreseen to be short term, FRAs should be the derivative of choice. This is because swaps are essentially a series of FRAs.

C. Swaptions

Faure (2003a: 119) claims that with swaptions, fixed rate cash flows are swapped for floating rate cash flows. In the case of a call swaption, the holder has the right to receive a fixed rate and with a put swaption, the holder has the right to pay a fixed rate.

Moir (1999: 37) states that when protecting financial liabilities from increasing interest rates (such as in scenario two) companies should purchase put options. This gives them the right to pay a fixed rate of interest, regardless of interest rate fluctuations. Moir (1999: 141) concludes that when there is high interest rate volatility, swaptions may be the most cost efficient interest rate risk management derivative.

D. Interest rate caps

As deduced earlier, caps and floors are akin to options in that they give the holder the right but not the obligation to protection from interest rate changes. Van den Berg (1998: 94) explains that interest rate cap agreements were created to protect borrowers against rising interest rates.

Faure (2003a: 122) elaborates on this by saying that a cap contract creates a ceiling past which interest rates cannot rise. If the interest rate increases to above the cap, the option is exercised and the company pays the interest rate of the cap. In contrast, if the interest rate decreases, the company benefits from a decrease in the payments on its liability. Thus caps are appropriate for companies concerned with rising interest rates.

As mentioned, Skerritt and Associates (2003: 142) believe that if the option is not exercised, it can increase the cost of the liability. Nevertheless the cost is limited to the premium and the upside potential is unlimited.

7.3.2.2.2 Long term borrowing

In making its first decision with regards to borrowing, if the risk manager hypothesizes that the interest rate will increase, they will borrow long term so that the rate to be paid on the liabilities remains fixed.

If, after some time, a company speculates that the interest rate trend will change, it will need to make the necessary changes to its portfolio. There are two possible scenarios:

- Scenario 1: the company speculates that the interest rates will move sideways.
- Scenario 2: the company speculates that the interest rate will decrease.

7.3.2.2.2.1 Scenario 1: a sideways moving interest rate

The company speculates that the interest rate will move sideways. As it has borrowed at a fixed rate, the sideways movement of the interest rate will have no bearing on the interest payments due on the liability. Consequently, no adjustments will be made to the liability portfolio.

7.3.2.2.2.2 Scenario 2: a decreasing interest rate

The company's view of the future interest rate alters and it now speculates that the interest rate will fall. As it has borrowed at a fixed rate, the falling rate will not reduce the interest payments on its liability. In this scenario, a company would need to make use of the various derivative instruments discussed above in order to benefit from the decreasing interest rate (in the form of a decrease in its interest payments). It will use the same derivatives as described above in an opposite manner. For example, interest rate swaps and swaptions would now be used to exchange a fixed rate of interest for a floating rate.

7.3.2.2.3 Conclusion

With regards to corporate liabilities, a rise in the interest rate would increase the cost interest payments on a financial liability. Thus, the company will need to hedge against this, using the derivatives discussed above. The problem with forward rate agreements and interest rate swaps is that they limit the upside potential where swaptions and interest rate caps do not (although this benefit comes at an increased cost).

Holzer (2006)⁶ explains not many non-bank corporates do not make use of these derivatives in South Africa, and explains that their perceived complexity seems to deter companies.

7.3.2.3 Risk of changing currency values

As mentioned, exchange rate risk is defined by Giddy and Dufey (1992: 1) as “a potential gain or loss that occurs as a result of an exchange rate change”. Faure (2005: 78) states that when a company has part of one or both sides of its balance sheet denominated in a foreign currency, currency risk management is required. The instruments used in foreign exchange risk management with regards to corporate liability management are the same as those used in investment management.

7.3.2.3.1 Hedging against currency movements

7.3.2.3.1.1 Forwards and futures

A. Outright forwards

The use of forwards in terms of corporate (foreign) liability management can best be illustrated with the help of an example. A South African company may have a liability in a foreign country (e.g. Japan), which will be due for payment in a set period (e.g. seven months). If the value of the ZAR depreciates or the

JPY appreciates, repayment would be more expensive. If the South African company believes this will happen, it may choose to avoid this risk by entering into a forward contract with a bank. This would mean that the company would enter into an agreement to buy JPY at a price agreed upon but only take delivery in seven months time. The risk of a weakening ZAR relative to the JPY would now be removed. However, the company would not be able to take advantage of a strengthening ZAR as it is contracted to the bank.

B. Currency futures

As explained under corporate asset management, there is little difference between hedging with futures contracts and forwards contracts. The difference is that the company would enter into the futures contract that most closely matches its requirements, and instead of delivering the underlying asset (i.e. the actual currency) it will simply settle its profit or loss in cash. The disadvantage is that this removes the chance of profiting from favourable exchange rate movements.

As mentioned, Holzer (2006) explains that many companies in South Africa manage currency risk on their foreign liabilities by making use of the outright forward market.

7.3.2.3.1.2 Currency options

In terms of debt management, consider the example of a South African company that has a foreign liability of EUR 100 000, which it will have to settle in three months. If the ZAR strengthens (relative to the EUR) in the next three months, the company would be able to pay less ZAR to settle its debt. Conversely, if the ZAR weakens (relative to the EUR), the company will require more ZAR to settle its debt. If the company is not prepared to take the risk of a weakening ZAR, but still wants the benefits of a strengthening ZAR, they would use currency options.

Companies do not usually write (sell) options, because speculation in the financial markets is not their core business. Thus they are limited in the options market to buy call or put options.

A. Long call options

The company could enter into a long call option whereby it would be able to buy EUR 100 000 (in three months' time) at the rate agreed upon. If the ZAR strengthened it would not exercise this option, as it would be more profitable to make the exchange in the spot market. If the ZAR weakened, the company would exercise the option and would exchange ZAR for EUR at the agreed upon rate.

B. Long put options

This would work in a similar way, except that instead of having the option to buy EUR in exchange for ZAR, the company would sell ZAR in exchange for EUR. Once again, if the ZAR weakened, the option would be exercised, and if the ZAR strengthened, it would not be exercised and expire out of the money.

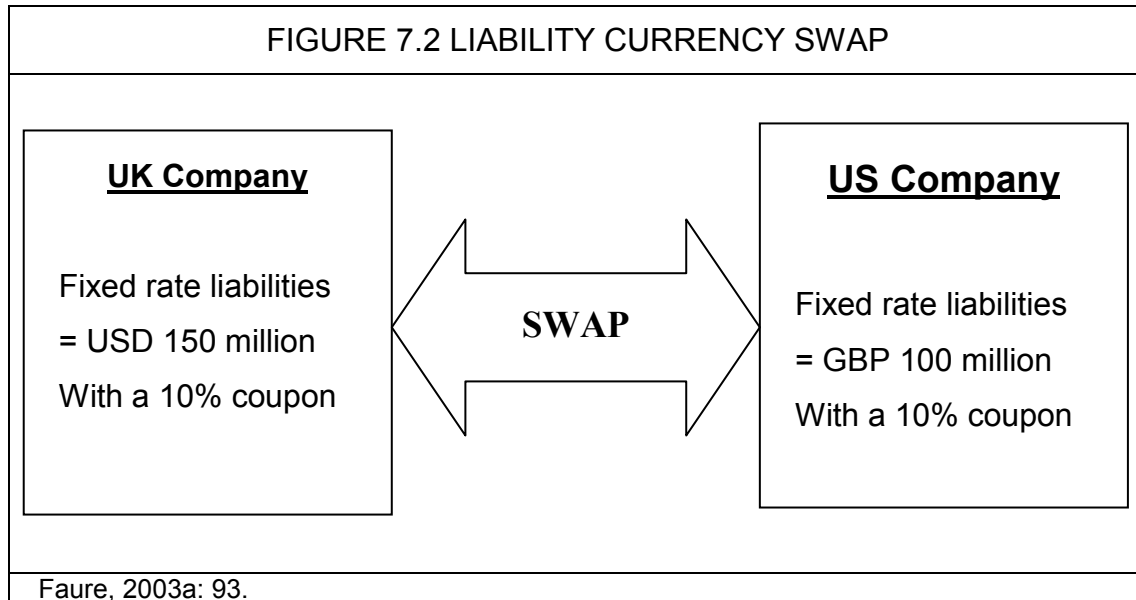
These examples illustrate that options can be used to mitigate the risk that adverse exchange rate movements will make foreign debt more expensive. They also allow for the benefits (for the cost of the premium) of favourable exchange rate movements, thereby making foreign debt cheaper.

C. Currency swaps

Currency swaps can also be used to protect the value of a financial liability, and this is shown in the following example taken from Faure (2003a: 93): a UK company has all its assets in GBP but has GBP 1000 000 of its liabilities in USD. A US company has all its assets in USD but has USD 150 000 000 in GBP liabilities.

The UK company is worried that the GBP will depreciate relative to the USD, therefore increasing its debt. The US company is concerned that the USD will

depreciate relative to the GBP making its debt more expensive. Thus the companies search for a banker who will propose a deal as shown in Figure 7.2.



Essentially each company has transferred its liabilities from one currency to another. If a company has a view on the future direction of the exchange rate and it finds (the bank that it is using finds) a company with the opposite view, they swap liabilities for the duration of the swap and then swap back.

If a company is confident that it can predict what will happen to the home currency relative to the foreign currency, currency swaps are good instruments to ensure that the cost of one's debt does not increase because of adverse exchange rate movements.

7.3.2.3.2 Conclusion

As explained, foreign exchange risk is present in all companies where one or both sides of the balance sheet are denominated in a foreign currency. This risk can be avoided by hedging against adverse movements in the exchange rate with the use of the various derivative instruments that have been discussed.

7.3.3 Reputation risk

7.3.3.1 Introduction

A reminder: Faure (2005: 86) defines reputation risk as the “risk of damaging the group’s image, which could impair its ability to retain and generate new business”. Goodspeed (2005: 68) elaborates on this by explaining that reputation risk could result in financial loss because of various factors which ruin a company’s reputation. Some of these factors are sub-optimal customer service, bad publicity and fraud.

7.3.3.2 Managing the cost of debt

Despite the fact that reputation risk falls under the category of operational risks, it does have financial features. These features exist because if a company tarnishes its reputation, it will suffer a loss of income due to a loss of customers. An example was presented in chapter two, i.e. Shell (UK) suffered severe financial losses as a result of activists blocking its gas stations because of its poor reputation.

In addition to this direct financial risk, there is also a credit risk dimension. Faure (2006) remarks that when a company suffers a financial loss, such as in the Shell (UK) example, its financial statements will reflect this. The rating agency’s (or agencies’) review of the company’s financial position will reflect the changed situation and possibly lower the company’s credit rating. In turn, this will be reflected in a higher rate of borrowing as financial intermediaries factor in the increased risk level (i.e. higher probability of default) pertaining to the company. Thus, via a lowered credit rating, a tarnished reputation can affect the cost of debt (Atkinson, 2000: 51).

Kendall (1998: 191) comments that companies need to manage reputation risk by placing a high emphasis on public relations. Additionally, it is important to establish high-quality relationships with all employees, customers and

suppliers. Kendal (1998: 292) concludes that a reputation “takes a long time to build up and only a very short time to destroy”.

7.3.3.3 Conclusion

Reputation risk is an operational risk which includes a financial feature and ultimately a credit risk dimension. By ensuring a positive reputation, a company can ensure that it has sound financial statements, thus preventing a decrease in its rating. This will ensure that interest payments on debt are kept to a minimum as described by Atkinson (2000: 51), lowering the cost of borrowing money.

7.4 RISKS INHERENT IN CORPORATE LIABILITIES AND ASSETS

7.4.1 Introduction

The following section considers the risks which are present when corporations have financial assets and financial liabilities. There are two risk types that are considered:

- Interest rate risk
- Liquidity risk.

7.4.2 Interest rate risk

7.4.2.1 Introduction

As explained due to the nature of banks' activities (i.e. borrowing and lending money), this risk applies to all banks and this section considers how banks and companies manage this risk. This is done under the following sections:

- Interest rate risk management by banks

- Interest rate risk management by non bank corporates.

7.4.2.2 Interest rate risk management by banks

7.4.2.2.1 Introduction

The starting point for managing interest rate risk is to calculate the extent of the risk. The measurement of this risk was discussed in chapter five where Marrison (2002: 196) commented that banks have measured interest rate risk exposure for many years with the assistance of gap reports.

According to Jorion and Khoury (1996: 96), there are two possible strategies for managing interest rate risk; either a passive or an active strategy.

7.4.2.2.2 A passive strategy

Jorion and Khoury (1996: 96) explain that a passive strategy consists of structuring the balance sheet to ensure that variable rate assets (VRA) = variable rate liabilities (VRL) and thus, the interest rate gap is set at zero. Moir (1999:120) states that by setting the gap at zero, one is essentially ensuring that the “same amount of assets and liabilities reprice at the same time”. Van Greuning and Bratanovic (2000: 182) note that as a result the bank would have insulated itself from interest rate fluctuations. This is because an increase or decrease in the interest rate would have the same effect on the assets as it would on the liabilities.

However, in chapter one it was explained (Faure 2005: 16) that risk is banks’ *raison de’ etre*. Jorion and Khoury (1996: 96) elaborate on this by remarking that there is profit to be made from accepting some degree of interest rate risk and it is in the banks’ interest to do so. Despite the profit motive, Faure (2006: PI) states that, in practice, it is impossible for banks to create a zero gap due to clients (depositors and borrowers) having different requirements regarding fixed versus floating rates, magnitude of deposit / loan, and time to maturity. Furthermore, banks exist because they accept risks that others are not

prepared to take. Thus, if it were possible to avoid risks, banks would not exist. This indicates that banks must make a decision on the extent of risk that they are willing to accept and pursue an active strategy.

7.4.2.2.3 An active strategy

7.4.2.2.3.1 Introduction

An active strategy is defined by Jorion and Khoury (1996: 96) as “assuming a certain amount of risk and profitably exploiting it”. This refers to hypothesizing on the future direction of interest rate changes and structuring one’s balance sheet accordingly. Under an active strategy a bank can speculate on the following three possible directions of future interest rates:

- An increase in the interest rate
- A decrease in the interest rate
- A sideways movement of the interest rate.

7.4.2.2.3.2 Scenario 1: bank hypothesizes that future interest rates will increase

Van Greuning and Bratanovic (2000: 182) explain that in this scenario, the bank will want more assets to be repriced frequently than liabilities. As discussed under the management of market risk, Faure (2006) states that the bank would try to structure its balance sheets in order to have short term assets (floating rate) and long term liabilities (fixed rate), to the extent dictated by its risk profile (or appetite). Consequently, the increasing interest rate will increase the interest income generated from the financial assets and the interest expense on the liability would remain constant.

7.4.2.2.3.3 Scenario 2: bank hypothesizes that future interest rates will decrease

Van Greuning and Bratanovic (2000: 162) declare that in this circumstance a bank will want more liabilities to be repriced more frequently than assets. This

situation was considered under the management of market risk and Faure (2006) stated that a bank would aim to have long term assets (fixed rate) and short term liabilities (floating rate), to the extent dictated by its risk appetite. The decreasing interest rate will subsequently lower the interest expense on the liabilities side of the balance sheet and it will not impact on the interest income generated from the assets.

7.4.2.2.3.4 Scenario 3: bank hypothesizes that future interest rates will move sideways

Faure (2005: 45) indicates that if a bank speculates that the interest rate will move sideways, it will structure its balance sheet so that $VRA = VRL$, thereby creating a zero gap and insulating the bank from interest rate changes.

In these scenarios, Jorion and Khoury (1996: 96) remark that if interest rates move in an opposite direction to what the bank was expecting, it would be subject to losses.

Interest rate risk is a serious threat to a bank, but as can be seen from the above scenarios, if the bank speculates on the direction that future interest rates will move, it can use this risk to increase asset income or decrease liability expenses.

7.4.2.3 Interest rate risk management by non-bank corporates

7.4.2.3.1 Introduction

Holzer (2006) explains that companies' balance sheets differ from banks' in that the proportion of financial assets and financial liabilities in relation to other assets and liabilities is smaller in certain companies. However, he continues to explain that despite the smaller size of the financial assets and liabilities, there still exists the possibility of a mismatch between them, and that this mismatch can potentially lead to financial losses. However, if a company speculates on which way the future interest rates will move and adjusts its

portfolio accordingly, it can potentially increase its revenue. The management of interest rate risk by non-bank corporates will be looked at under the following sections:

- A passive strategy
- An active strategy.

7.4.2.3.1.1 A passive strategy

Under the analysis of interest rate risk management by banks it was concluded that as banks' *raison de' etre* (Faure, 2005: 16) is risk, they generally do not adopt a passive strategy.

Because corporates generally do not have matching financial liabilities and assets, by being passive they are taking on risk. Generally, they attempt to avoid interest rate risk and therefore pursue an active strategy; however, it is an active strategy in the sense that they undertake transactions in order to create a zero gap as described above. According to Faure (2005: 41), in order to create a zero gap, companies use the derivatives discussed under market risk to alter the nature of their assets and liabilities. The zero gap created protects companies from interest rate risk as they are insulated from interest rate changes.

7.4.2.3.1.2 An active strategy

If non-bank corporates wish to pursue an active strategy (in the sense of having a positive gap) and thereby profit from interest rate changes, they will speculate in the same ways as banks do on future interest rate trends. They will structure their balance sheets following banks' methods to capitalise on the interest rate movements. As such, if they speculate that interest rates will increase, they will attempt to have long term liabilities and short term assets. They would adopt the opposite aim for falling interest rates. If they speculate that the interest rate will move sideways, they would try to create a zero gap.

Another dimension for corporates in this respect is the mismatch of the magnitude of their liabilities and assets; this is taken into account when accepting interest rate risk.

7.4.2.4 Conclusion

If non-bank corporates wish to profit from interest rate changes, they can adopt the same speculative strategies that banks do. There is risk in this, in that the interest rate may move in an unanticipated direction.

However, if non-bank corporates do not wish to take on any risk, they can avoid it by using derivatives to change the nature of their assets and liabilities, creating a zero gap. This will insulate companies from any interest rate changes.

7.4.3 Liquidity risk

7.4.3.1 Introduction

A reminder: Olsson (2002: 45) refers to liquidity risk as “the risk that amounts due for payment cannot be paid due to lack of available funds”. The failure of a company to pay its debts can lead to severe consequences such as banks offering it less credit, and/or aggrieved suppliers and employees. It is therefore essential that companies manage this risk effectively in order to ensure that they have sufficient funds to meet obligations when they arise. The management of liquidity risk is considered under asset and liability management because it is primarily managed with the use of cash flow forecasts, which involve both assets and liabilities.

7.4.3.2 Cash management versus liquidity management

The distinction between cash management and liquidity management is often blurred, but Goodspeed (2005: 40) remarks in this regard that cash management is a flow concept whereas liquidity management is a stock

concept. This indicates that liquidity management includes all assets that can potentially be converted back into cash, whereas cash management deals with the assets and liabilities that will be converted into cash. Furthermore, due to the high proportion of financial assets that can be converted into cash in a bank's balance sheet, liquidity management is usually a bank phenomenon, whereas cash management is normally a non-bank phenomenon.

7.4.3.3 Cash management

Cash management is defined by Goodspeed (2005: 40) as ensuring that cash resources are effectively used or conserved. Moir (1999: 1) remarks on the importance of cash management by stating that there is no sense in a company being highly profitable if it does not have enough cash to pay employees and suppliers.

Moir (1999: 11) explains that to manage liquidity risk a company needs to be certain about the availability and future requirements of cash, and thus needs to prepare cash forecasts on a regular basis. Cash forecasts are also used by banks to manage liquidity risk (van Greuning and Bratanovic, 1999: 159). Bank of America (2004) states that it "develops and maintains contingency funding plans" based on cash forecasts in order to assess its liquidity position. This ensures that it can operate during times where regular sources of funding are inhibited.

7.4.3.4 Developing cash flow forecasts

Cash flow forecasts predict future cash needs and availability, thereby ensuring that a company is never in a position where it cannot settle its obligations (Goodspeed, 2005: 40). According to Moir (1999: 11) cash forecasts are normally prepared for different time horizons, more specifically for short term (approximately one month), medium term (approximately six months) and long term (approximately five years) horizons. Goodspeed (2005:

41) states that they are utilised to provide information that can be used as follows:

Short term forecasts:

- To invest short term cash surpluses
- For the funding of short term financing requirements
- To ensure that there are no surplus funds in a non-interest bearing account.

Medium term forecasts:

- To ensure that there is adequate cash to fund the business
- To give the treasury time to identify high return investments by providing information on future cash surpluses.

Long term forecasts:

- For making decisions on major investments
- To ensure a dividend policy is met.

7.4.3.5 Conclusion

As explained, the risk that companies cannot meet future obligations can lead to severe consequences such as banks stopping or offering less credit, and/or aggrieved suppliers and employees. Consequently, it is vital that companies manage this risk effectively, thereby ensuring that they have sufficient funds to meet all obligations when they arise.

According to Holzer (2006), liquidity risk is present in all non-bank corporates and, if it is not managed appropriately, it can lead to the demise of a company. Hence, companies need to construct cash flow forecasts in order to ensure that they are continually aware of cash requirements and obligations.

7.5 CONCLUSION

This chapter analysed possible methods of managing the various financial risks that non-bank corporates are subjected to. It was elucidated that certain risks are similar to those faced by banks and consequently, in these circumstances, non-bank corporates can use similar methods to those used by banks to manage these risks. However, it was also indicated that certain risks which corporates and banks face (e.g. interest rate risk) can be managed differently by corporates.

CHAPTER EIGHT

CONCLUSION

8.1 INTRODUCTION

This thesis began by focusing on the risks faced by banks and briefly considered how they were managed. It then explored what risk and risk management are in relation to non-bank corporates. This was followed by an in-depth analysis of the financial risks faced by non-bank corporates. After considering how risk can be quantified, the thesis moved onto the management of financial risk.

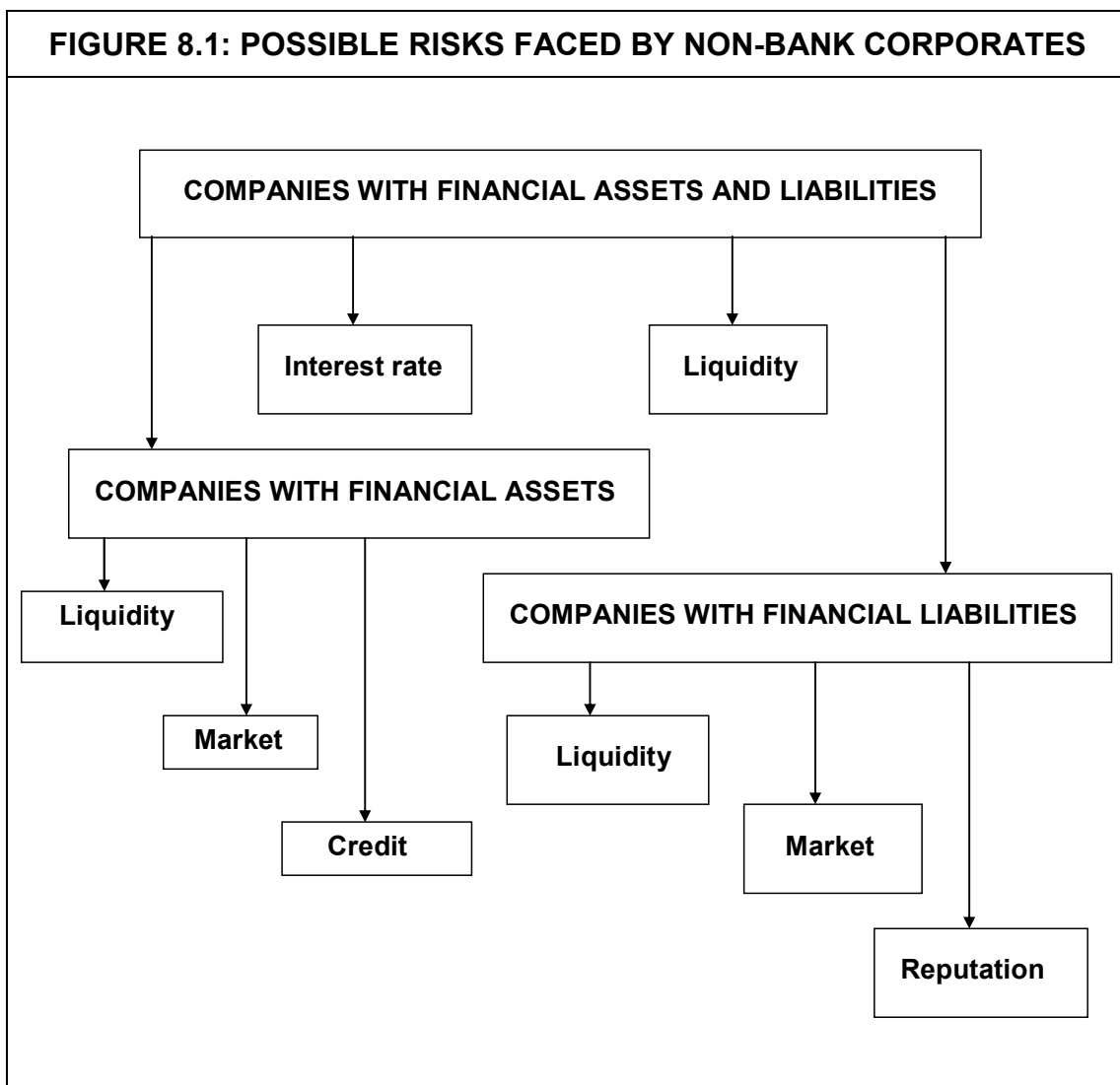
8.2 THE STUDY

It was elucidated that not all companies face the same risks. For example, a company which does not have one side of its balance sheet denominated in a foreign currency may not be directly affected by the risk of changing currency values (foreign exchange risk). A further example is that of a company with either financial assets or financial liabilities, but not both. Here the company would be subjected to the risk of rising or falling interest rates (market risk), but would not be subjected to interest rate risk. Consequently, as different companies face different risks, each company requires its own unique financial risk management model.

Furthermore, it was established that several risks (and their management) faced by banks are applicable to certain non-bank corporates. For example, interest rate risk is inherent to banks and will also be present in non-bank corporates which have financial assets and financial liabilities. However, the management of this risk may be different in these two types of organisations as non-bank corporates may chose between an active or passive strategy of management, whereas banks will only pursue an active strategy.

An additional finding was that there are risks which both banks and non-bank corporates may manage in the same fashion. An example of this is liquidity risk, where both types of organisations make use of cash flow forecasts to mitigate this risk.

As each non-bank corporate faces different risks, they would each require their own unique risk management model. However, after analysis of this topic, we can produce a financial risk management model which covers all the possible risks that a non-bank corporate may face: see Figure 8.1.



The following financial risks were covered and are thus included in the model:

- Solvency risk (was mentioned as a financial risk but is not included for reasons already explained)
- Liquidity risk
- Credit risk
- Market risk (more specifically, foreign exchange risk and the risk of changing interest rates that apply to both sides of the balance sheet, and changing prices of equity and commodity investments that apply only to the asset side)
- Interest rate risk
- Reputation risk (an operational risk).

The model indicates that companies with only financial assets are subjected to liquidity risk, credit risk and market risk. If companies only hold financial liabilities, then it will face liquidity risk, reputation risk and market risk. Companies which have both financial assets and financial liabilities will be subjected to all of the above risks.

This model's value lies in the fact that it indicates which risk is associated with each type of financing activity (assets, liabilities or both). Consequently, individual companies can ascertain which financial risk they will need to consider (in terms of management), based on the type of financial instruments in its balance sheet.

8.3 CONCLUSION

The study analysed bank financial risk management and then assessed its applicability to the non-bank corporate sector. It elucidated that certain risks can be managed in the same manner by both types of organisations, and other risks require different mitigation methods by both types of organisations.

The thesis concludes by presenting a model of all the possible financial risks which non-bank corporates could face.

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