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INTRODUCTION

Securities lending, as a financial product or activity, has been labelled by many as risky. It has been blamed for market volatility, speculative bubbles and spectacular losses. The aim of this dissertation is to test the validity of the view that securities lending is not only excessively risky, but also the source of risk responsible for the failure of financial institutions, market instability, market crashes and their related costs and losses. This dissertation will investigate the anatomy, role and function of securities lending, the type and sources of risks associated with securities lending, the way it is managed and its role in incidences of default and market crises.

To do this, a Sociological approach will be used. The reasons for this decision will be explained in detail in Chapter 1. The differences between the approach of economists and sociologists will be touched on, as well as indications of the role of social factors in market crashes. The reader will be introduced to the origins and focus of economic sociology and the importance of the forces that act as social controls over behaviour, in explaining social behaviour. The cultural approach as the sociological basis of this dissertation will be explained, to demonstrate its relevance for any study of the creation and operation of financial markets and market activity, such as securities lending. As part of this general approach, I discuss the relevance of political forces, as well as the role of structures and market practices in the creation of an environment conducive to the development of the trust necessary for the safe and efficient conduct of market activities like securities lending.

In Chapter 2 an analysis will be made of exactly what securities lending is. The distinction between different types of securities lending transactions will be made. The different uses and users of securities lending will be explained in order to demonstrate its necessity for the efficient running of financial markets and its importance to central banks. Participation in securities lending can be achieved in a number of ways, each offering its own set of advantages and potential risks. As with many other activities, these may range from what may be regarded as "cheap" do-it-yourself options, to the more expensive options, each with its own risk profile. This chapter is important, as it not only demonstrates the different uses, users and types of practitioners, but it also starts to show the importance of the why, the how, the where and the by whom when we investigate the risks associated with an activity.

A thorough assessment of the risks commonly associated with securities lending is conducted in Chapter 3. The first question that deserves answering is whether or not the risks faced by those participating in securities lending are unique to the activity or product. If the risks we encounter are also present in other financial activities or products, their source and origin need to be identified if we want to manage and contain the risks. After our investigation into the uniqueness of the risks that affect securities lending, the risks we encounter when securities are lent is discussed in detail. Special attention is given to the role of so-called rogue traders as a source of risk relevant to securities lending and the financial markets at large. The logical next step is how these risks are managed in order to ensure that participants and users are afforded as much protection as possible. The argument is basic: if participants are not protected from risks they may lose money, if they lose money, they

will lose trust. If they do not trust, they will not participate. This principle is as true for securities lending as it is for investing in the stock market.

Closely associated with the identification and management of risk is the quantification thereof. Chapter 4 discusses efforts to quantify levels of potential loss due to borrower default. The importance and the possible influence of social factors, such as political decisions, will be demonstrated through the use of practical examples in the South African environment.

In Chapters 1 to 4 it is demonstrated that a number of factors play a role in the risks associated with securities lending. In Chapter 5 the origins and types of risk that affect the banking sector are investigated, as indicators of the actual sources of risk relating to the use of derivatives may provide us with indicators pointing to the sources of risks related to securities lending. We investigate actual events of default and losses associated with securities lending, in order to determine the source of the risks responsible for these events. In line with what has been demonstrated up to now, the factors responsible for these failures and related losses had, in most instances, very little, if anything, to do with securities lending. In this chapter, the origin of risks that affect securities lending and other financial services and products are becoming clearer. This puts us in a position to reassess the validity of claims that securities lending was responsible for, or even played a meaningful role in, the events that led to the collapse of a large hedge fund called Long Term Capital Management (LTCM), Barings Bank and a number of other incidents.

This is our focus in Chapter 6. In this chapter the role of political, regulatory, cultural and operational inefficiencies and failures are investigated. A number of questions are asked about the role of several factors in and around LTCM. Was it purely the result of number of unforeseen events, or were there similarities between it and other incidents of failure? Were the highly regarded and qualified owners and management of LTCM as ignorant of the risks and potential losses inherent in their strategy as the politicians, trustees and management of the Orange County fiasco? Did regulative and operational efficiencies play a role, and is it possible to prevent the recurrence of such incidents?

In Chapter 7 we use a cultural approach to investigate the structural conditions that influenced the actions of those who borrow and lend securities in the context of the financial markets at large. We analyse the actions of traders, analysts, auditors, businessmen and even the public at large to determine under which circumstances extreme opportunism can develop and be maintained.

No research into the risks associated with securities lending would be complete without addressing the issue of its influence on market volatility, market crashes and systemic risk in general. In this chapter we will discuss how securities lending can affect financial systems at large. Its ability to transmit shocks due to its relationship with other financial systems and products are pointed out. Its popularity, due to its efficiency, warrants it to be properly regulated and monitored. This would require in-depth reporting and transparency from all parties involved. Another factor that is discussed is the dangers associated with the uncontrolled use of leverage. What is important for the purpose of this dissertation,

however, is whether or not there is evidence to suggest that securities lending is the cause of financial crises. One method available to determine the influence of securities lending on financial markets is an analysis of price discovery and price movements during periods of crisis, based on actual data. The findings of the Genesis report are analysed in Chapter 8 to determine the validity of claims that securities lending is the cause of market volatility and market crashes.

In conclusion, all the information is assessed to determine if there is sufficient evidence to suggest that securities lending is the source of risk responsible for incidences of default and crisis, ranging from the losses resultant from the Drysdale Securities failure, to the demise of LTCM and ENRON.

CHAPTER 1

Why a Sociological Approach?

1.1 Introduction

It is generally accepted that mainstream economists view the markets, in this case the financial markets, as abstract and efficient. In other words, the price of a commodity always reflects all the relevant information pertaining to the intrinsic value of the said commodity. Mainstream economists also hold the view that market participants are not affected by one another and their decisions are rational at all times. Perfect rationality is assumed by economists, says Richter (2001: 7).

This dissertation will move away from the perfect "Utopian" market concept where all actors are perfect machines and where all systems work like the proverbial Swiss clock. In reality, markets are more human than machine and, as Boden (2000:184) calls them, are "oddly local affairs".

Research done by Warner & Molotch on the role of news reports in the market crash of 1987 indicated that, out of 261 articles, only two related knowledge of corporate profits to the market crash. According to their research, articles fell into three main categories dealing with:

a) The undermining of stockholder confidence by the budget deficit, money supply and interest rates.

b) The social structure of the market, i.e. the role of mechanisms that organise the market, such as trading technologies, government policies and investor cliques.

c) The assumption that prices were rather embedded in the general psychology, as well as the structure and cultural forces that order our affairs. The decisions made by traders are not robot-like, they are influenced by what more powerful players do and what the herd does (Mizruchi and Stearns 1994 : 331).

The findings of Warner & Molotch were also supported by the findings of the Presidential Task Force on Market Mechanisms in 1988, where "social factors" were most frequently named as the cause of the 1987 crash (Mizruchi and Stearns 1994: 331). The need for a sociological approach is, therefore, clear.

1.2 The origins of Economic sociology

Weber and Durkheim did the work that initiated economic sociology. According to Smelser (1976: 19), Max Weber stressed the political-legal regulation of money and exchange. Weber, like Emile Durkheim, stressed the importance of a legal framework to guarantee the validity of contracts. Such guarantees will only be effective with a functioning administrative and judicial system to enforce legal regulations. Weber also saw states and markets as types of social orders containing fields (Fligstein 2001: 16). Although Weber never developed a fully-fledged theoretical system of economic sociology, his work is of vital importance. He postulated the existence of important institutional conditions under

which the capitalist system itself, and its regularities, could exist (Smelser 1976: 19).

Smelser goes further and says that the feature of behaviour that interests sociologists is its social aspects. Behaviour is oriented towards other humans, groups of humans and institutions. This social aspect can be viewed from a group or a social structure perspective. A group is formed by numbers of individuals with more or less common orientations. Social structure consists of recurrent and regularised interaction among two or more persons (Smelser 1976: 37).

Smelser summarised the scope of the sociologist's focus as follows: "several aspects of patterned, meaningful social behaviour". According to Smelser, the sociologist wishes to explain regularities and variations in individual orientations and behaviour, group behaviour, social structures, sanctions, norms and values (1976: 37-38).

Irrespective of their emphasis, sociologists are essentially concerned with the forces that operate (with varying degrees of effectiveness) as social controls over behaviour. Smelser (1976: 37-38) defines the most important of these controls as follows:

a) Values: "Values legitimise the existence and importance of specific social structures and kinds of behaviour that transpire in a given social structure. The value of 'free enterprise', for instance, endorses the existence of business forms organised around the institution of private property and engaged in the pursuit of private profit" (Smelser 1976: 38).

b) Norms: "Norms are standards of conduct that regulate the interaction among individuals. The norms of contract and property law, for instance, set up obligations and prohibitions on the agents in economic transactions" (Smelser 1976:38). The fact that norms are more specific than values is very important, as norms play a crucial role in creating an environment necessary for rational trust to exist.

c) Sanctions: "Sanctions, including both rewards and deprivations, involve the use of various social resources to control the behaviour of personnel in social structures. Aspects of this control include the inducement of individuals to assume and perform the roles, and the control of deviance from expected role performance. Examples of sanctions are: coercion, ridicule, money payments, withdrawal of communication, and so on" (Smelser 1976: 38).

1.3 The cultural approach

The theoretical basis for this dissertation will essentially be a cultural approach. As we are confronted with problems or challenges, we use the knowledge and skills we've learned over time, to find better ways to deal with these problems or challenges. Once we have achieved success, we pass on this knowledge to others (knowingly or unknowingly), who in turn will modify their behaviour (Cuber 1968: 82). Cuber says culture is "the continually changing patterns of learned behaviour (including attitudes, values, knowledge and material objects) which are shared by and transmitted among members of society" (1968: 76). Market culture, in turn, is also not fixed or cast in stone. It continuously changes to adapt to ever-changing environmental challenges. It is a set of enabling and

restraining understandings; it is the dos and the don'ts of the market. It is formed out of repeated interaction and transacting or, in other words, learned by experience. These understandings, says Abolafia, become institutionalised if they persist and become a resource for market participants, to protect them against uncertainties (Callon 1998: 69) or, in other words, from risks. According to Abolafia, people are socially embedded in a network of important social relations and are culturally embedded in a meaningful system of norms, rules and cognitive scripts. Social, cultural and economic forces shape every action or transaction in a market (Callon 1998: 69). These forces determine the rules and the boundaries, the "what" and the "how". The participants in markets develop sets of mutual understandings that later become institutionalised. They determine what may be done and what may not be done, what is acceptable and what is regarded as unacceptable or deviant behaviour.

Rules may be constitutive or regulative.

Constitutive Rules - These are rules that determine how things should be done, i.e. how a market should be constructed. Many of these constitutive rules are based on norms and values, about what is acceptable practice; some are based on "institutionalised scripts" or common practices that became institutionalised. In addition to the rules that constitute markets, actors rely on a "toolkit of strategies" that are culturally available in the arena they operate in. The toolkit is strategies learned to survive and be successful. Newcomers learn from what the successful actors do to reduce uncertainties and risks and ensure survival.

Regulative Rules - These are rules that vary depending on what is morally correct. These rules are more aimed at preventing immoral behaviour, such as cheating, front running and insider trading, to name a few.

The rules of most card games are constitutive, i.e. how many cards are dealt, the value of the different cards, etc. A regulative rule would be disapproval, following upon looking at someone else's cards, marking cards and having cards up your sleeve. Although regulative rules are mostly based on morals, norms and values, many constitutive rules do have their origin in norms and values about what is appropriate (Callon 1998: 69 – 74). Through repeated interaction, role players learn what is acceptable and what is not. They learn what their roles are and what is expected of them. Participants, therefore, constitute a market by creating roles and scripts for their roles. These roles and scripts, or rules and roles, are a product of interaction between powerful interest groups. The way in which these forces compete is shaped by the political, regulatory and economic boundaries of the playing field called a market.

Stable and orderly markets are enacted through constitutive rules and local rationalities that are created by the role players. This market culture is, however, a reflection of the efforts by the powerful actors in the market to control their environment. Market culture is, therefore, not fixed as it changes to adapt to ever-changing environments. Abolafia also recognises the fact that governments and politicians play an important role in influencing these culture changes (Callon 1988: 72-78). Because securities lending focuses on risk and the control or management thereof, the formation of rules and market practice and the influence of

governments and powerful players are all crucial in determining whether or not securities lending can be conducted in a controlled environment. Do we have the appropriate mix of formal and informal rules, regulations, norms and values to allow the "game" of securities lending to be played safely?

1.4 The Political Cultural Approach

In 2001 Fligstein produced his book "the Architecture of Markets". In order to define the terrain of sociology of markets in modern societies, he proposes five theoretical questions.

a) "What social rules must exist for markets to function, and what types of social structures are necessary to produce stable markets?" (2001: 10)

b) "What is the relation between states and firms in the production of markets?" (2001: 11)

c) "What is a 'social' view of what actors seek to do in markets, as opposed to an 'economic' one?" (2001: 13)

d) "What are the dynamics by which markets are created, attain stability, and are transformed, and how can we characterise the relations among markets?" (2001: 14)

e) "What are the implications of market dynamics for the internal structuring of firms and labour markets more generally?" (2001: 14)

Fligstein calls the approach he uses to answer these questions the "political cultural" approach.

The cornerstone of this approach is that social action takes place in "arenas" that can be called fields, domains, sectors or organised social spaces. In a field there are a collective of actors/role players that try to dominate that space (very similar to what you see at Loftus on a Saturday afternoon) and to do so requires the production of a local culture that "defines social relations" between players (Fligstein 2001: 16). These markets are governed by formal and informal rules that determine the boundaries and limits and how rules are made. According to the theory of fields, the main cause of social structure in markets is the search for "stable interactions with competitors, suppliers and workers" (Fligstein 2001:18). Control or the perception thereof is a solution to the lack of control. Procedures that lead to effective control are quickly copied by role players (Fligstein 2001: 18). The theory of fields also explicitly links stability with the formation of markets and firms. Governments play an important role in defining the social structure that stabilise markets, because stable markets require rules (Fligstein 2001: 19). Fligstein summarises by saying:

"…there is not a single set of social and political institutions that produces the most efficient allocation of societal resources." "The real issue for making markets is to create political and social conditions that

produce enough stability to allow investment" (Fligstein 2001: 23). What Fligstein is saying can be reduced to the following: what is necessary for people to trust enough to allow them to invest in or lend their money to a country? The answer to this is the crux of this dissertation.

A working committee of the Bank for International Settlements refers to "structural features" and "market practices" necessary for sound and efficient repo markets (B.I.S. 1999: 4). What is necessary to allow for repos, a form of securities lending, to be conducted safely? One of the central tasks of economic sociology, says Granovetter, is the identification of the circumstances necessary for people to trust in the safety of an activity by "setting aside suspicions that rational action would require them to have" (2000: 6). According to Thomas Volken (2002: 1-7), trust is based on two pillars, rationality and morality. Values, norms and attitudes, once generalised and internalised, can push norm enforcement by the state to a secondary position. However, if the proper regulatory and control structures are in place and they function effectively, rational trust is possible. In the modern era of the so-called global village, where transactions are often concluded across borders, market participants are often reliant on rational trust, that is derived from trust in systems, to make the efficient operation of financial markets possible, especially when dealing with developing markets.

1.5 Summary

Although it sometimes feels as if technology has taken over the financial world, everything is still anchored by people, i.e. brokers, traders, administrators, etc. "It is their individual and complexly achieved

collective understandings, interpretations, insights, innovations and not infrequent misreading that drive the market" says Deidre Boden (2000: 184). Technological advancement is also only of positive relevance if the social organisation exists that allows it to be relevant.

Without people we have no markets. As we have seen, social institutions are necessary to make markets. These social institutions are defined by, among other things, property rights, government structures, and conceptions of control and rules of exchange. Securities lending is, therefore, an activity that can only exist in a social structure called a financial market, as it is wholly dependent on an existing market in securities. As we have seen, for a financial market to operate, a number of factors are important. These factors are stability, as well as political and legal, administrative and judicial sophistication. The existence and level of development of social controls like values, norms and sanctions is of vital importance for the existence of a market in which participants can trust. Market stability is, therefore, enacted through constitutive rules and local rationalities embodied in regulative rules. Making markets is, therefore, dependent on political and social conditions that produce enough stability to allow for investment. In modern global financial markets, a level of sophistication of market participants is also very necessary to ensure operational efficiency by making technology relevant.

The risk associated with securities lending is wholly dependent on the same factors. Over and above the activity or product used, it is important to determine the appropriateness of the participant or user, for instance level of sophistication or experience in using complex financial instruments, appetite for risk and credit-worthiness, to name but a few.

Combined with this, the environment wherein transactions take place, as well as the culture and perceptions of other participants, are also crucial risk determinants. These factors are all risk generators or risk inhibitors and should be seen as such. From an irresponsible comment by a statesman to the flouting of an informal market practice, both have one thing in common, namely their impact on risk, by affecting people's ability to trust. Nowhere was this made clearer than in the events that led to the demise of LTCM. The transactions they entered into stayed essentially the same; however, the environment and perceptions of the players had changed (Mackenzie 2002: 35).

The existence and efficiency of those forces that act as social controls over behaviour will be the focus of this dissertation. These social controls are crucial in the creation of the circumstances and environment required for the development and maintenance of trust necessary for people to invest in, lend to, or even transact with a country, a corporation or even an individual.

CHAPTER 2

The Anatomy of Securities Lending

"Mutuum: A loan for consumption" (BESA 1997: 42 – 43)

2.1 Introduction

The aim of this chapter is to introduce the reader to the different types of securities lending transactions that are available, i.e. scrip or equity lending repo transactions and sell/buy back or, buy/sell back transactions and the small differences between them. Firstly, a number of uses of these mechanisms or products will be explained to the reader. Secondly, the different practical ways in which participation can be achieved, either by direct lending and borrowing, or through the use of an intermediary, will be outlined.

This chapter will also introduce the reader to a number of uses of securities lending. This may range from determining monetary policy and regulating the availability of money to speculating and entering into bear sales. It will be made clear that the mechanism per se should not be inherently risky; risk enters the fray in the how and the what for. I use the term "should not be" as there are a number of factors ranging from cultural to political, legal and technological that need to be in place. These factors necessary to allow for the safe execution of securities lending and most other financial services transactions will be addressed later in the dissertation.

The purpose of this chapter is to illustrate the different risk generators and their influence as a contributor or inhibiter of risk. For example, a repo transaction with the US Federal Reserve is as close to risk free as possible, while depositing your life savings with Saambou Bank (a South African bank that was allowed to fail) had a lot of hidden risks. It will also be made clear that intermediaries play a crucial role as generators or inhibiters of risk. A lender that appoints Euroclear to lend out his scrip is afforded the maximum protection, while a small fund that tries its hand at direct lending may expose itself unwittingly to many risks.

2.2 Instruments Used for Securities Lending

"Securities" is the general term used when referring to shares, gilts or bonds and other tradable instruments (Ryan 1989: 108).

"Bonds" or "gilts" are the terms used to refer to debt instruments issued by governments, semi-government bodies like national telephone or transport companies and private corporations, in order to raise long-term money in the primary capital markets (Ryan 1989: 13). Bonds may range in quality from those issued by large stable governments like the USA, UK and European countries to those issued by countries like Zimbabwe. Similarly, corporate bonds may also vary in quality, ranging from those issued by large multi-nationals like General Electric and Daimler Chrysler to the so-called "junk bonds" issued by smaller, less stable companies. A bond is normally made up of a capital portion or nominal value and a coupon or interest portion. The first refers to the capital amount payable at the end of the term of a bond, while the coupon refers to the interest payments that are made to bond holders at regular

predetermined intervals. These two components may, however, be separated and traded individually.

2.3 What is Securities Lending?

"It is the practice whereby long-term holders of securities make available their securities to borrowers, on condition that equivalent securities are returned to the lender at a further date" (Counihan & Malherbe 1999: 9).

Bond carries, repurchase and reverse repurchase transactions are also included in this study, as they are very similar in economic effect to securities lending and have very similar risk attached to them. Where the underlying asset in securities lending is mostly equities, repurchase agreements are mainly using bonds and NCDs (negotiable certificates of deposit). "A repurchase agreement is a sale of securities, with an undertaking by the seller to repurchase the same securities after a stipulated period of time, at a price (yield) determined at the time of sale" (Falkena, Fourie & Kok 1998: 246). Securities lending, repurchase transactions and buy/sell-back transactions (carries) are all designed to allow transfer of ownership of an underlying asset from one owner to another in such a fashion that, after completion of the total transaction, the initial owner of the underlying asset is in the position he would have been if he never entered into one of these transactions. Although ownership is "lost", the new "owner" of the underlying security is legally bound to return equivalent securities to the previous owner and compensate him for all payments and distributions he would have received, had he not entered into the transaction. This is commonly referred to as "making him whole".

The terminology used to describe repurchase or repo agreements is often confusing, to say the least. Similar to a repurchase agreement, is a buy back agreement. The buyer is "warehousing" or carrying the particular asset for a period of time. To the maker of the agreement, it is a repurchase agreement (i.e. he/she agrees to buy back what he/she sold). (Falkena, Fourie & Kok 1998: 246) The underlying security is usually quality, listed bonds issued by either the government or a private sector corporation. They usually are of a long-term nature, i.e. their maturity date may be ten years into the future. This maturity date, however, has little bearing on the maturity of the repo transaction. (The maturity of the underlying security must obviously be longer than the maturity of the repurchase transaction.) In general, repo transactions are for a week, but they can be rolled for extended periods. The term "rolled" refers to the practice where the two parties in a repurchase transaction agree, often up-front, before engaging in the first transaction, to enter into a similar transaction every time the existing transaction reaches its maturity (usually a week), for periods of up to three years and sometimes longer. Depending on the collateral used, small adjustments may be made to each rollover transaction. For example, when equity collateral is used to underpin a transaction, adjustments may be made to the value of the transaction, based on the market value of the equity collateral. This type of transaction may be seen as a hybrid between an equity collateralised bond loan and a repo transaction. Instead of "paying" cash for the bonds, the buyer would cede an agreed-to amount of equity or other collateral (150% – 200% of the value of the bonds) to the seller, who undertakes to "buy" the bonds he sold back from the buyer in return for the equity collateral ceded to the seller. Depending on the quality of the equity

collateral and the credit-worthiness of the buyer, collateral may be part equity and part cash and sometimes even include an overriding blanket guarantee from the borrower.

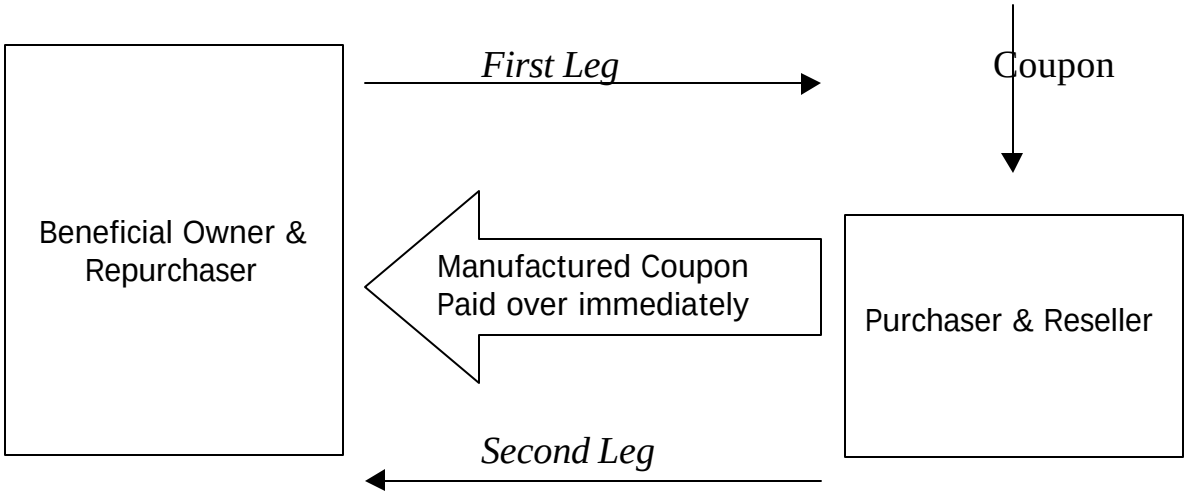
The buyer/borrower in these cases may then proceed to conclude a secondary separate repurchase transaction with the Reserve Bank, a bank or a big pension fund to convert the bonds he "purchased" into cash.

Repo transactions may have maturities from one day to one year. They mostly run for a week. As mentioned earlier, they may be rolled over. The one-year limitation is there due to the fact that, if the term for a repo is for longer than a year, the South African Revenue Service will regard this as a disposal of the asset in terms of the Income Tax Act (Counihan & Malherbe 1999: 15).

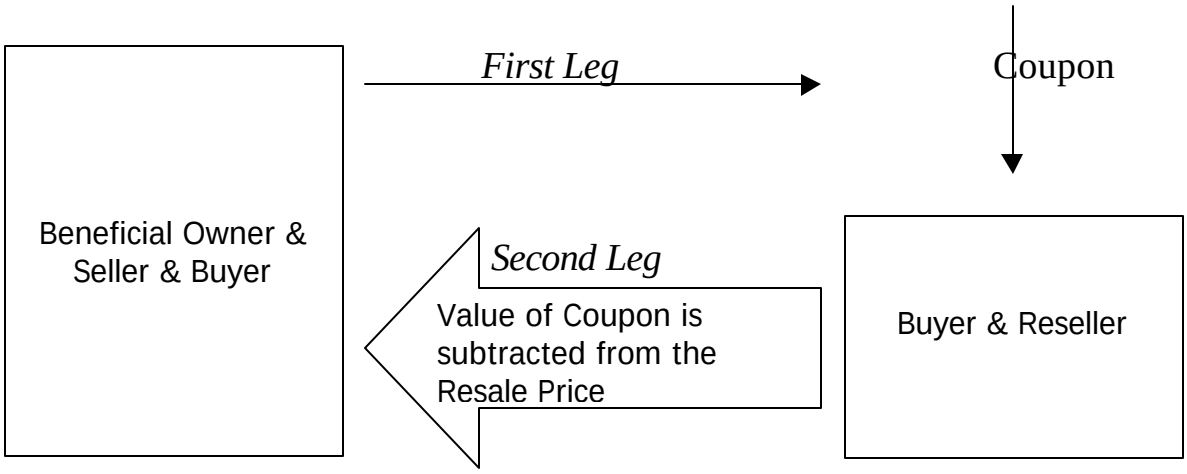
One often sees reference made to carries and repos. Technically speaking, the two have the same economic effect and differ primarily in the sense that the coupon on a bond is paid over immediately to the beneficial owner in the case of a repo, and in the case of a carry or buy/sell back transaction, it is subtracted from the price of the second leg of the transaction and is normally viewed as capital in nature.

Figure 1: The distinction between repos and buy/sell back or carry transactions.

Repurchase Transaction



Buy/Sell back or Carry Transaction



In the carry or buy/sell back scenario, the purchaser (for the period) will receive the income (i.e. coupon) due on the instrument (i.e. bond). However, by adjusting the price of the second leg of the transaction, the

seller is compensated for his loss of income. These carry transactions are often done to reduce tax on dividend income payable by the beneficial owner of the bond. In a repurchase transaction, the coupon is also paid to the purchaser; however, he is under obligation to pay any income received on the instrument to the seller as soon as possible. It is important to note that some overseas depositories will intercept such coupon payments and pay them to the rightful owner. This practice eliminates risk associated with the receipt and timeous pay-over of income on instruments out on loan or repo (Bond Exchange of South Africa 1997: 1 – 7).

The three types of transactions, i.e. securities lending, repo and buy/sell back transactions, can be divided into open dated or fixed transactions. In the case of fixed securities lending, fixed repo transactions and buy/sell back or carry transactions, the completion date and fee or price is fixed in advance. In the case of open dated securities lending transactions, the return date may be uncertain, as both parties usually have the right to terminate the transaction, i.e. the lender can recall the underlying security, or the borrower can return the underlying security. The pricing methodology is agreed to up front. An open dated repo allows for the repurchase date to be agreed to or to be on demand, with the proviso that both parties have the right to initiate termination of the transaction. The methodology to determine the repurchase price is, however, agreed to up front (Bond Exchange of South Africa 1997: 1 – 7).

2.4 The Users and Uses of Securities Lending

Equity or scrip lenders in South Africa are usually large retirement (pension and provident) funds. Due to certain tax benefits, these funds earn additional income that may be used to enhance the benefits of members of these funds, or to offset trustee expenses, leaving more money to be invested to the benefit of members.

The borrowers have different motivations: they can borrow either for settlement (settlement borrowing is when someone concludes a sell transaction and cannot deliver the sold security in time), or for bear sales (a bear sale is when you sell a share that you do not have, because you believe the price will drop and you can buy it back later at a cheaper price).

It is important to point out that bear sales are not the reason why share prices drop. A bear sale is entered into when the seller believes the price will drop due to other reasons. The argument can, however, be made that bear sales can exacerbate the drop in a share's price. This is true to a certain extent. There is, however, always the risk of a bear squeeze, where large holders of a specific share, sold short by bear sellers, hold onto their shares, causing a shortage in the market. The influence of bear sales on prices is normally of a temporary nature. The cause of losses to retirement fund members is usually due to conflict between the interests of the asset manager and the interests of the client (fund) and not in the practice of securities lending. The recent Mutual fund scandal in the US clearly showed that Fund Managers used their client's portfolios to enrich themselves by trading against their clients. The recent invention of the

Electronic Trustee, for the first time provides trustees with a tool to monitor all trading and timeously detect such activities (www.eletronictrustee.com).

Securities (scrip) are also borrowed for a number of other reasons.

a. Pairs Trading: This is the practice where "…two shares in a particular sector or two similar structured shares move away from the trend, a borrower will buy the share moving down, and sell the share moving up. The borrower will then borrow the shares to settle the sold stock."

b. Index Arbitrage: "When the underlying shares of the INDI 25 are worth more than the future, the borrower will sell shares and buy the future. The borrower will borrow to settle these shares. If the underlying shares are worth less than the future, the borrower will sell the future and buy the shares."

c. Settlement date mismatch: This is possible when "Borrowers find a gap between the Paris market and the SA market. They buy the shares in Paris and sell the shares in SA. The settlement requirements in SA are within seven days and in Paris once a month. The borrowers therefore borrow to settle their sale in SA and return the stock when they receive it from Paris at the end of the month" (Nelson 1998: 1 -3).

d. Securities lending also makes the taking of short positions possible: Market participants can use scrip lending or repo transactions to borrow securities in order to make delivery on, for example, a futures contract it entered into without holding the actual underlying security. The ability to

borrow securities allows market participants to sell securities they do not own. One of the reasons why market participants enter into such transactions is to hedge themselves against interest rate movements. If a market participant believes that interest rates will rise, he may decide to sell or write a put option over bonds that he does not own, because rising interest rates will decrease the value of bonds. He will then borrow bonds for delivery or buy them back in the market at a lower price (B.I.S. 1999: 6).

e. Securities lending and, more specifically, repo transactions are a key source of funding, allowing a market participant to take long positions. If a market participant holds bonds and he or she believes interest rates will fall, it will be sensible to acquire more bonds. In order to source funds, the market participant would repo his existing bond portfolio for cash, and use the cash to buy more bonds. These newly acquired bonds can be repo-ed out again. This transaction can be repeated over and over to build a leveraged position. The only factor that limits the size of the position that can be built through leverage is the size of the haircut demanded by the lender of cash. For example, if you have R100 worth of bonds and the lender of cash demands a 10% haircut, you will be able to borrow R90 in your first repo, R81 in your second repo, R72,90 in your third repo, R61,61 in your fourth, etc., etc. These haircuts are normally determined by the quality of collateral and the standing of the borrower (B.I.S. 1999: 6).

f. The practice of taking a view on the direction of interest rates is another form of speculative trading. By mismatching the maturity of repo transactions, one would enter into a term repo borrowing cash against

collateral at 12% per annum for a period of three months, for example. This position is taken if one is of the opinion that interest rates will rise over the period of the term repo. However, if you take the opposite view, i.e. interest rates will fall over the next few months, it is beneficial to borrow on a daily basis at a rate that you believe will decline and lend out for a long term, at a rate fixed at the present higher rate. If you "read" the market incorrectly, however, you will lose money for the term of your repo. Your market risk may therefore be substantial, as LTCM experienced (B.I.S. 1999: 7).

g. Matched-book trading is the direct trading of the prevailing repo rate itself. Securities or cash is borrowed with the intention of lending it out at a profit. The difference, however, is that the secondary lending transaction takes place in the same market, i.e. the terms of the two repos are the same. Maturity risk mismatch is therefore eliminated. Matched-book trading may be the re-lending of cash or securities. Normally, only a few basis points are made from this transaction, but volumes are substantial. This arbitrage trading accounted for more than 50% of overnight and more than 80% of term repo transactions in the US during January 1998 (B.I.S. 1999: 7).

Interesting phenomena of speculative and arbitrage transactions are incidences where the repo trading of a specific piece of collateral, i.e. a share or a bond, is higher than the amount of shares or bonds in issue. This is possible when a specific piece of collateral is used to effect settlement in a number of contracts on the same day, obviously by different parties, who used the collateral they received to effect further transactions. This is called velocity (B.I.S. 1999: 8).

In South Africa, like most developed countries, repos are also a tool used by a central bank. The Reserve Bank uses it to regulate the availability of cash in the money markets. It is therefore a tool to regulate liquidity in the money market. By dictating the length of the repos, the South African Reserve Bank can decide for how long it wants to draw a predetermined amount of money out of the market.

In South Africa, repos have also been a very important tool in the hands of the South African Reserve Bank to extend assistance or accommodation to banks that are short of cash. Repo rates have only a small risk premium built in, as they carry a low credit risk, because they are collateralised. This fact makes the repurchase market a very accurate source of information for Central Banks with regard to short-term interest rate expectations.

It has been used extensively as a monetary policy instrument among European Central Banks and was adapted by the Euro system as a key instrument in 1999, indicating the stance of monetary policy (B.I.S. 1999: 3).

Institutions that have sold bonds short can also use a repo transaction to obtain bonds to provide proof of possession to the Bond Exchange of South Africa (BESA). The prudential requirements of the SARB determine the amount of liquid assets a bank must have in its portfolio at all times. Repos are a handy tool to acquire the necessary scrip for the period needed. The maximum of 5% of liquid assets may be obtained by repos. In essence, repos are a balancing tool assisting banks to meet the prescribed requirements without entering into unnecessary buying or

selling transactions of securities they do not actually need over the medium to long term.

Repos are often described as a short-term collateralised loan. This may take the form of a bank selling bonds to the SARB, or a large pension fund, such as the Eskom or Transnet pension funds, to obtain cash over a short-term period, usually at a rate more favourable than those extended by banks.

Specialist security lenders and investment banks from time to time structure specialised lending, repo or buy/sell back transactions to raise capital for projects of the investment banks or their clients. What makes these transactions novel is the fact that strategic equity holdings can be used to raise capital at favourable rates without relinquishing voting or other rights associated with the holding of these stocks. Voting rights and coupon payments can be assured by switching out of a specific equity at the required time. Similarly, coupons can be protected by switching bonds over coupon payment days. Investment banks often prefer independent specialist securities lenders to structure the transactions for them, as it minimizes the possibility of the conflict of interest that may occur when they use the large firms that usually have their own investment banks.

Theoretically, these transactions can be constructed to allow for virtually any time frame. The specialised risk management methodologies associated with these types of transactions are handled in detail later in this dissertation.

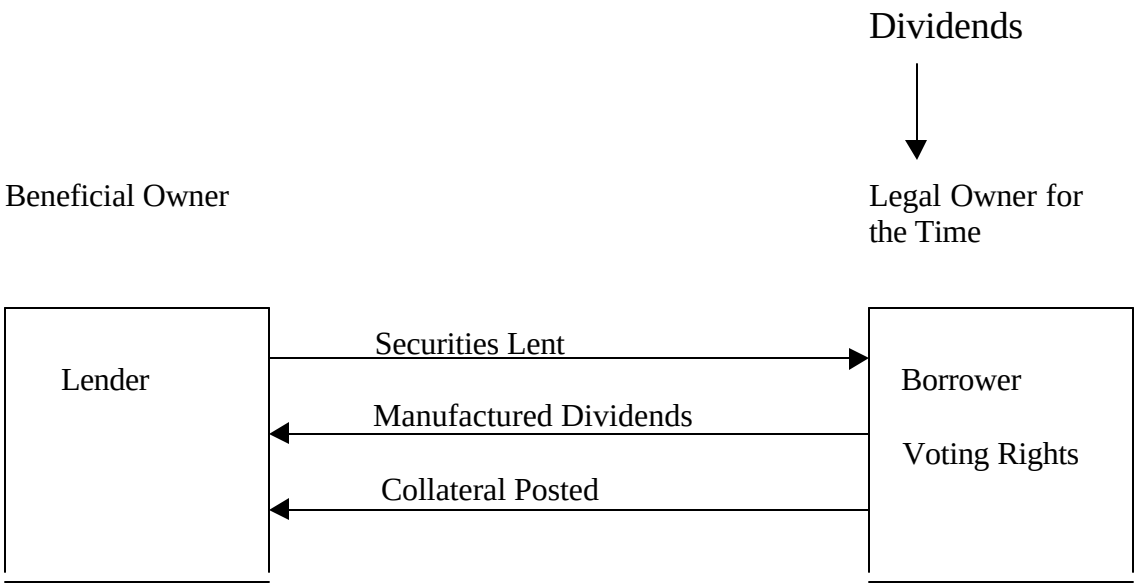
2.5 Securities Lending Intermediaries

Securities lending can take place directly between lenders and borrowers, or it can be done through an intermediary who will charge a fee for services rendered. As with any financial transaction (from depositing your money in a bank, to investing in futures), there are risks involved in securities lending. Some are clear and some are hidden.

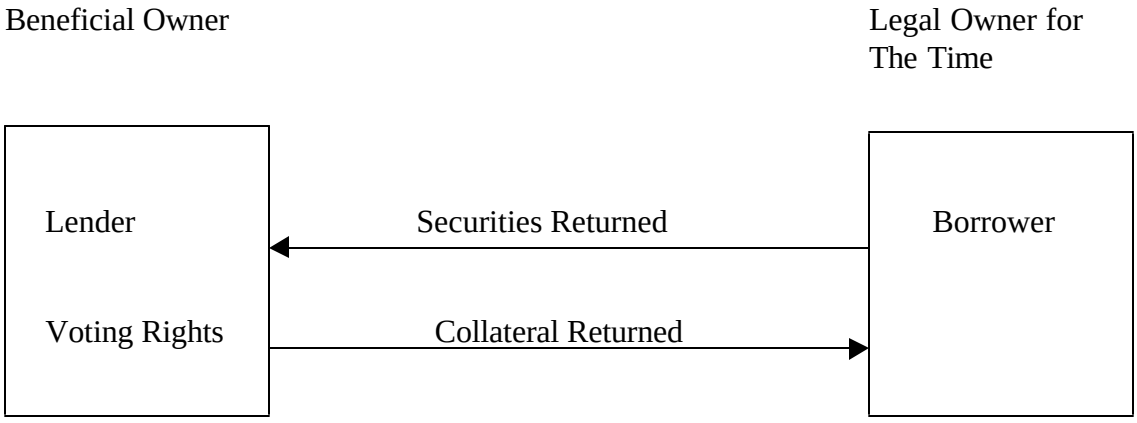
The risks associated with securities lending varies depending on whether or not intermediaries are used and the type of intermediary used. The risk for lenders is, in short, the non-return of securities that are lent out. The intermediary faces the risk of being held responsible for any loss or shortfall suffered by the lender on whose behalf they acting. The borrower faces the risk of recall at an inappropriate time and the unavailability of stock due to a so-called bear squeeze on repayment of the loan. (In short, holders of the stock realise the borrower needs the stock and withhold it from the market.)

Figure 2: Direct Lending

First Leg



Second Leg



Although it is possible for sophisticated lenders and borrowers to transact directly, most transactions are executed through an intermediary. Although direct lending holds the lure of higher income (the lender takes all the income it generates from its lending programme), the lender would not only take the full risk with every transaction, it would have to employ staff to set up all legal agreements with borrowers, negotiate loans, and vet and manage its counter parties. A direct lender would also have to put borrowing facilities in place in the event that he has to borrow stock in the market (this usually occurs if a borrower is temporarily unable to return borrowed securities). A direct lender is also responsible for building its own pool of borrowers and will have to market its own securities. The importance of and relevance to this dissertation is clearly the effect that the different types of intermediaries have on risk. As I mentioned previously, if the owner of a South African government bond goes to the Reserve Bank and repos that bond for cash, there is no risk. However, if the owner of the bonds loses this money on the horses, he would not be able to repurchase his bonds from the Reserve Bank. His comment will then be "these repos are so risky"! Similarly, intermediaries influence the level of risk associated with securities lending. In most instances, experienced intermediaries reduce the risk associated with the direct lending of securities.

There are three types of intermediaries involved in the securities lending market at present. Two of these groups, lending agents and loan brokers, are usually involved in lending transactions with a longer term, while the third category, called settlement-driven intermediaries, is mostly made up of custodian banks and international clearing organisations like Euroclear

and Cedel. In South Africa, STRATE is fulfilling the function of Euroclear and Cedel.

One step away from direct lending, we find exclusive arrangements that a lender of securities could enter into. Usually for a fee, a lender could sell the rights to lend out his portfolio to a borrower directly, or to a loan broker. The fee earned by the lender may not depend on the amount of income generated on securities actually lent out. What often happens is that, for the right to lend out a pension fund's assets, an intermediary will guarantee the pension fund (lender) a fixed amount per year. In South Africa, some banks offer between 0,1% and 0,2% per year of the value of the portion of the fund's portfolio that is available for lending. The benefit to the fund is a guaranteed income stream and, in most cases, the lending agent will indemnify the fund against any losses. There are, however, negatives as well.

Over and above the fact that a lender is precluded from dealing with other borrowers, credit risk could be very concentrated in this type of arrangement. The lender is very dependent on the credit-worthiness of the borrower or loan broker, as he does not know the extent of securities lent out or the sufficiency of collateral pledged and ceded.

Lending agents differ from loan brokers (see p.46) in the sense that the securities of the lender are transferred into the lending agent's nominee account. In most cases, lending agents are custodian banks. The degree of discretion may vary from full discretion, i.e. choosing borrowers and forms of collateral and acceptable levels required, to arrangements where borrowers, collateral types and levels and individual trades all need

authorisation from the lender. The lending agent may also invest cash collateral with full discretion or the lender may be prescriptive.

There are a number of benefits to the use of a lending agent. Not only should they be able to maximise lending revenues due to their ability to pool and substitute securities, more effective cash management and more efficient systems, they should also be able to reduce the risk to lenders.

Risk reduction is achieved through explicit indemnification against certain risks, as well as a guarantee of sale proceeds and distribution, and the payment of manufactured coupon interest and dividends as if the securities were never lent out. In most cases the lender would be protected against any interest rate losses, but the sale proceeds themselves are normally not guaranteed.

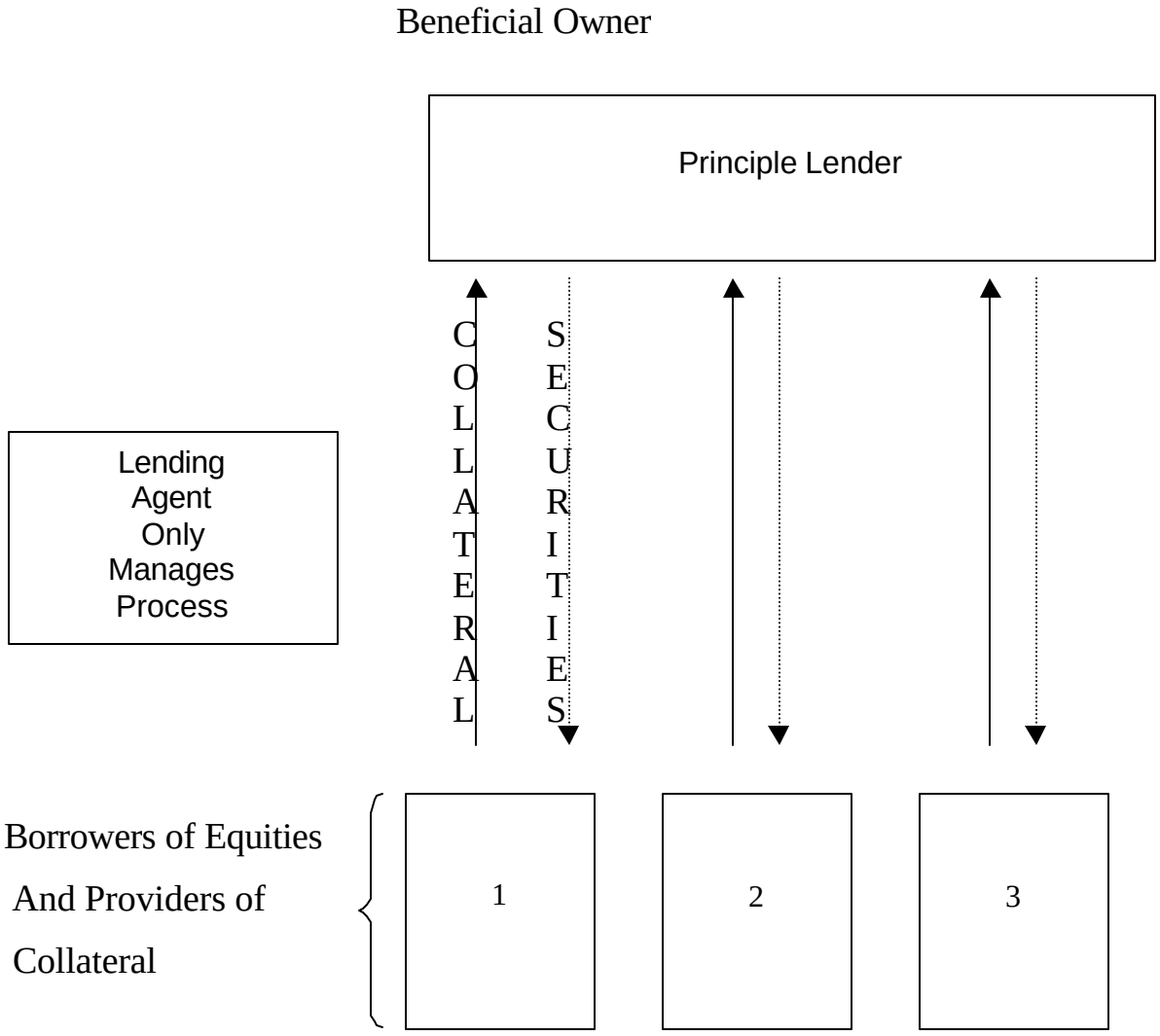
One of the major benefits that good quality lending agents should be able to offer is risk reduction through advance credit analysis, by being experts at assessing, monitoring and controlling counter party risk. Through advanced computer systems that automatically do mark-to-market calculations and collateral management functions, risk can be reduced. The automated management of entitlements also minimises the risk of possible loss to a lender that could result from the missing of a corporate action such as the payment of dividends.

A second category of lending agents is those who take no principal risk and who do not tell the borrowers of stock who the lenders are. (In most instances, this will be to prevent borrowers from approaching lenders directly.)

The duties of fully disclosed agents are clearly spelled out in their contracts. This would include, amongst other things, who he may deal with, the extent of exposure to each borrower, the types of collateral he may accept and the levels required, as well as the mark-to-market procedures.

The only risk this agent takes is the risk of being sued for negligence in the event of breach of contract. From a borrower's perspective, he would be exposed to the principal risk of the lender, to whom he has paid over more collateral than the value of securities he borrowed (normally at least 105%). It is very important to be comfortable with the credit-worthiness of the lender, as well as his treatment of collateral. In South Africa, cash collateral is normally only invested with the four largest banks or, in the event of another bank, with the approval of the borrower. Equity and bond collateral are normally ceded and pledged, allowing the lender only access to the collateral, if the borrower defaulted in some or other way.

Figure 3: Lending through intermediary that takes no principal risk



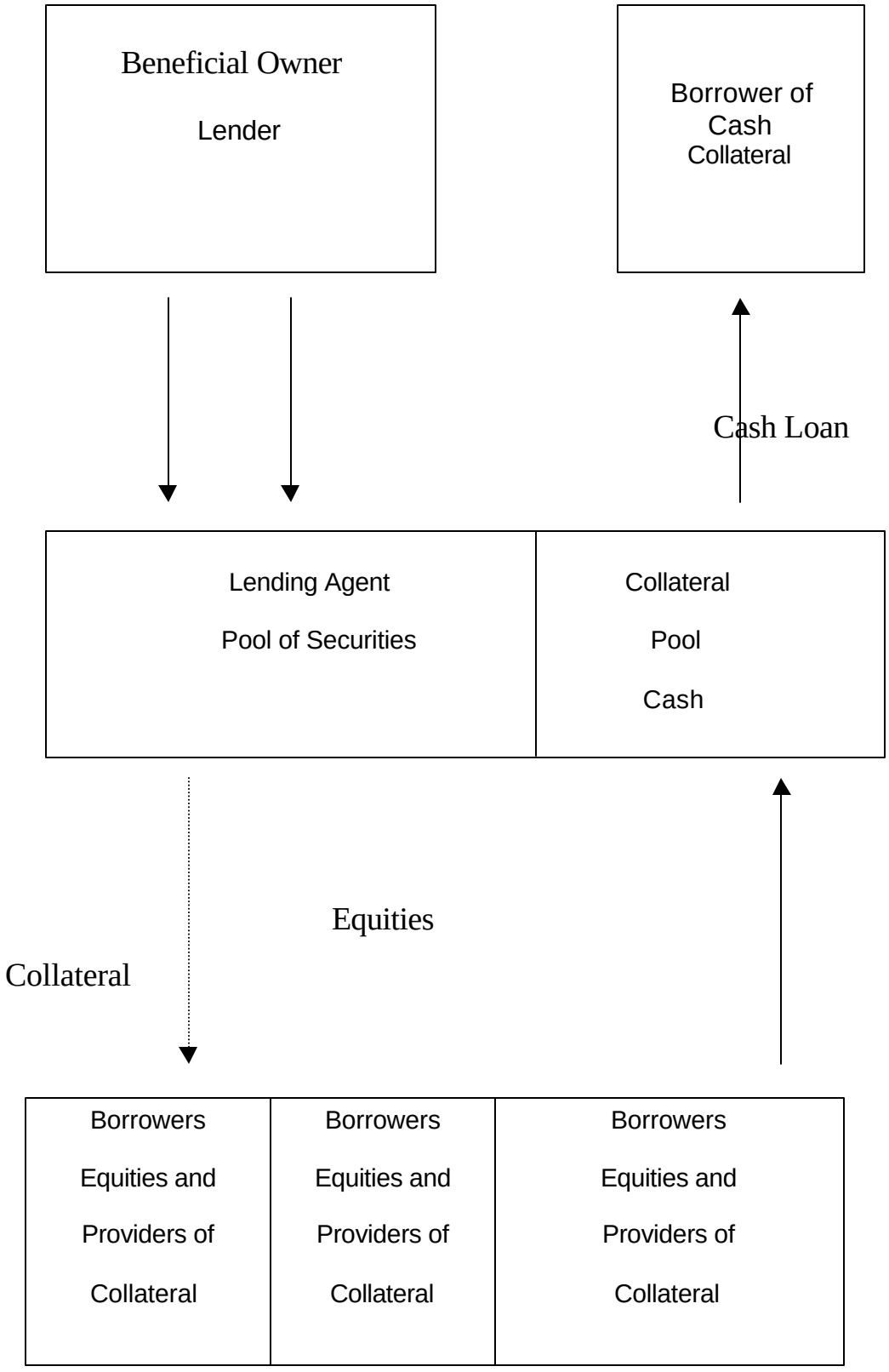
Agents can further be subdivided by the risk they are prepared to take, or the type of indemnity they would offer their clients.

One normally finds that the more risk the agent takes on, the less input and information the lender and borrower has. Agents offering

indemnification also take a higher percentage of the proceeds of transactions. It is very difficult, even with computerised lending systems, to know how much of your securities were lent out at what fee. There are, however, incidences where agents take no principal risk and do not disclose their borrowers to their lenders. In most instances the lenders demand some form of indemnification against specific losses, for example borrower default. This indemnification is, however, only offering limited protection, as the agent may be short after selling the borrower's collateral to buy the borrowed share in the market. The full extent of indemnity clauses is, therefore, crucial to lenders.

Agents that take full principal risk normally disclose very little to both borrowers and lenders. Their only risk would be the quality (in balance sheet and expertise) of the agent. Custodians and other big banks normally offer this service.

Figure 4: Lending through intermediary that takes principal risk



Legal Owners for Term of Loan

Another category of security lending intermediary is loan brokers.

Loan brokers can be subdivided into dedicated loan brokers and trading loan brokers. Trading loan brokers are usually stockbrokers and dealer banks, i.e. banks with a stock-broking arm and sometimes custodians. So-called dedicated loan brokers are usually stand-alone entities that specialise in borrowing stock and lending it out again. They act as borrower and lender and take on principal risk. The trading loan broker that takes on principal risk does have a different loan profile than the specialised loan broker. Principle risk, in the case of the specialist loan broker, lies with the parties it is transacting with. The major risk associated with a specialist loan broker lies in his ability to conduct his business, i.e. operational risk.

The loan brokers take on the full role of borrower and lender and they may borrow for their own trading purposes or to on-lend to other borrowers.

The major benefit for a borrower to sign with a loan broker is the ability of the loan broker to get stock from numerous sources. For the lender, the ability of the loan broker to use and on-lend is a major benefit. This also brings flexibility to the market by providing, for instance, cash collateral to the lender, but taking in equity collateral for the securities they out on-lend. This transaction is similar to a repo in economic effect. Where repo transactions usually use bonds, these transactions normally use equities (Bond Exchange of South Africa 1997: 32 – 35).

Some firms are specialised loan brokers that do not use any securities internally and on-lend all the securities they borrow. In the UK, these specialist lenders have broker dealer licences; in South Africa this is not yet a requirement.

As these entities do not trade for their own account and only on-lend, they take no market risk. Many institutions prefer to have arrangements with entities that do not invest in the market, as there is no risk of conflict between the interests of the investor and the loan agent. These dedicated loan brokers also offer absolute confidentiality between borrowers and lenders. Many lenders and borrowers prefer this arrangement and non-competitiveness and do not deal with institutions that also trade in the market (Bond Exchange of South Africa 1997: 23 – 41).

Settlement Driven Intermediaries are those intermediaries that depend on securities lending to ensure that trading systems used by exchanges can operate efficiently without securities lending. Without securities lending, the effective settlement of buy and sell transactions would not be possible. The risks to lenders or borrowers that transact with these organisations are negligible, as they are usually fully indemnified by the intermediaries. These indemnifications are very relevant, as these institutions are not only very strictly regulated and constantly monitored, they normally also offer a blanket guarantee to the lenders and borrowers.

Settlement driven intermediaries like Euroclear in Brussels and Cedel in Luxemburg provide trade settlement and safe custody services. This is similar to the services provided by STRATE and the custodian banks in

South Africa. STRATE, the SA Central Securities Depository (CSD), operates with the major custodian banks called Central Securities Depository Partners (CSDPs) to provide securities lending services. In South Africa banks like ABSA, Standard Bank and Nedcor, for example, act as CSDPs. The clearing houses and global custodians like Euroclear and Cedel cooperate internationally with sub-custodians like ABSA and Nedcor that specialise in the custody of assets in one country, such as South Africa for example. The risk for lenders and borrowers transacting with these intermediaries is negligible. The clearing-house provides a guarantee to the lender and the borrower. The guarantee to the lender is that it will receive its securities back with all entitlements and fees, and to the borrower it is that it will get its collateral back with all entitlements. The guarantees provided by Euroclear are from the Morgan Guarantee Trust Company of New York, Brussels branch, and the Cedel guarantee is provided by a syndicate of banks headed by Citibank. The clearing houses pay for these guarantees out of the 1% spread (price difference) between what they pay the lenders and charge the borrowers (Bond Exchange of South Africa 1997: 35 – 37).

2.6 Summary

What is very clear from this chapter is that a blanket statement holding securities lending as risky is totally unfounded. In the event where a securities lending transaction is conducted through Euroclear or Cedel, or where a lender or borrower is transacting with a custodian bank that accepts principal risk, the risks are similar to investing money with that bank or buying securities that settled through, or are held in custody by, that clearing house or custodian. If doubts exist about the ability of a

bank or custodian to meet its obligations, then all transactions done with that entity will be risky. It is unfortunately the case that securities lending is often blamed as risky due to the failure of such an entity. In reality, the securities lending transaction per se will be much safer than a savings account with such a bank, due to active risk management procedures like mark to market.

Similarly, the different types of securities lending instruments are essential for the proper functioning of settlement systems, securities markets and economies at large. In its most basic forms, a repo is very similar to a collateralised loan. The same applies to an equity loan. From a legal point of view there are, however, important differences, especially in the way it is treated in the event of insolvency. There are also a host of structural features and market practices that need to be in place before people can participate with confidence in this activity.

CHAPTER 3

The Risk Associated with Securities Lending

3.1 Introduction

Risks are those factors that prevent or inhibit the development and or existence of trust. Risk management methods and procedures are all aimed at maintaining or enhancing the level of rational trust in a specific environment. Risk management per se is only relevant in an environment where conditions are such that the most basic form of rational trust is possible. The most carefully drawn up contracts, marking to market procedures and state-of-the-art settlement systems, are of no use in a lawless society.

There are two principal types of risk associated with most financial transactions. These are risks that affect the participants directly, called individual risk, and those that directly or indirectly affect the financial system at large, referred to as systemic risk. Martin Mayer defined systemic risk as “the risk that the illiquidity or failure of one institution, and its resultant inability to meet its obligations when due, will lead to illiquidity or failure of other institutions” (2003; 3). Individual risk, on the other hand, refers to those types of risks that have the capacity to negatively affect securities lending participants on their own.

There are a number of types of risks that participants in securities lending are faced with on a daily basis, i.e. credit risk, operational risk, liquidity risk and risks associated with leverage, to name a few. These types of

risks are not only important in their own right as sources of risk, but when a risk chain or domino effect can be identified between these factors, the potential for systemic failure can become a reality. Securities lending is a social activity that is conducted in a market, driven largely by perceptions. The role of perceived risk as a creator of actual risk is therefore very relevant, when the risks associated with securities lending are assessed from a sociological perspective. If these risks are not understood and managed, the trust in the activity of securities lending will soon diminish, leading to the collapse of the industry. If individuals experience that individual losses and failures in securities lending lead to larger systemic failures, the industry will be doomed.

Over the next five chapters we will place the risks associated with securities lending in the context of those risks that affect all individuals with money or debt. What will be demonstrated is the indisputable fact that the types and sources of risk faced by those who actively participate in the financial markets, are similar to those that are present in the securities lending market (IOSCO & CPSS 1999: 40). The different risk management procedures available, aimed at keeping individual and systemic risk at acceptable levels, will also be discussed. In a similar vein, efforts to quantify the potential losses resultant from under-collateralisation and borrower default will also be tested with respect to the influence of social factors on the validity of such calculations.

What are the risks associated with securities lending? To answer this question, we will firstly assess the risks that participants in these markets are faced with. Secondly, we need to assess the potential of the securities lending market to contribute to systemic risk, due to its linkages with

short-term finance products and other securities markets (B.I.S.. 1999: 25-28). In order to identify the main areas of risk affecting individuals and the system at large, we will analyse a number of independent reports on the subject. These will include joint research conducted by the technical committee of the International Organisation of Securities Commissions (IOSCO) and the Committee on Payment and Settlement Systems (CPSS) and a report by the Bank for International Settlement, identifying four main categories of risk associated with repo transactions and its contribution to, or reduction of systemic risk. We will also analyse the findings of the Genesis research group. This group was commissioned by the South African Financial Services Board (FSB) to investigate the securities lending industry in South Africa. In terms of individual risk, we will utilise the same categories of risk, as these are also risk-generating factors for the individual lender, or borrower. We will, however, also add categories of risk, identified by Anders W Hall from the Hewitt Group that offers an American perspective on risk. Similarly, a South African and Canadian perspective on risk will also be mentioned in order to make provision for country specific emphasis on different risk factors.

This dissertation will most importantly make a thorough analysis of a number of reported defaults and/or losses that were related, correctly or incorrectly, to securities lending. Sufficient evidence will be provided to prove that the placing of blame on rogue traders for some spectacular defaults, such as Barings Bank, is a massive over-simplification. Even blaming the rogue trader for using securities lending and derivatives brings us no closer to the origin of the risk we need to identify, if we ever want to institute measures to prevent such disasters. In a 1996 article by

Ken Kohn of Bloomberg Business News, he quotes the former chairman of the US Commodities Futures Trading Commission as follows: “It’s amazing how people can do pretty much what they want as long as they make money”(Bloomberg: 1996). Isn’t this also true of political leaders who appear to be immune from prosecution as long as they have a large enough support base or powerful friends and/or allies?

In the first instance, we will identify the risks that any individual with money is faced with. This is very important, as it allows the reader to view the risks associated with securities lending through the perspective of general market participation risks, faced by all individuals that make use of financial markets and/or services. As a point of departure, this dissertation will clearly show that, even in the absence of securities lending, we are still faced with the same market participation risks, proving that the origin of risk is not inherent in a product like securities lending, but in the environment in which it is practised.

3.2 General Risks

Before we look at the risks that face participants in the practice of securities lending, we need to take a look at the risks that face anyone with money or debt and any investor ranging from Joe Soap with a small savings account at the bank to the likes of Warren Buffet and Bill Gates. Even if you keep your money under your mattress, you are not isolated or protected from a number of risks (Came 2002: 21).

3.2.1 Legal Risks

Legal risks are those risks associated with the legality of your investment product or transaction and the protection afforded to you under international and country specific laws, through the relevant judicial systems, by having the ability of enforcing your agreement or contract, written or otherwise, with the party or parties you transacted with.

All financial products and transactions have legal risks attached to them. In most cases, the political party that wins the majority in an election or the party or person that has the most power militarily or financially, has the responsibility to ensure that the relevant legislation is promulgated to regulate the financial services sector in a particular country. If one merely thinks of some of the "great minds" that ruled and in some cases are still ruling countries, individuals like Marcos, Amin, Mugabe and the like, the potential risks are very real. It is normally also the responsibility of the government of the day to establish a regulator tasked with the responsibility to ensure that the relevant legislation is enforced. In South Africa, to name an example, one would find that most pension fund related matters are governed by the provisions of the Pension Funds Act, and the regulator responsible for its enforcement is the Financial Services Board (FSB). Some of the matters that are typically legislated, and regulated in legislation that govern retirement provision, would include the type of investments, i.e. equities, bonds, etc., where and at what levels cash may be invested, who is allowed to invest retirement funds and who may give advice on retirement fund matters.

In the absence of such legislation and a regulator to monitor compliance, making provision for your retirement would be a lot more risky than it already is. However, the risk does not lie in this very necessary activity, but in the how, the with whom and the where. Effective legislation, efficient regulation and an impartial and functioning judicial system are, however, prerequisites to reducing some of the risks associated with retirement provision. In spite of this, it is quite safe to say that more money is lost every day by people trying to make retirement provision for themselves than any other financial activity, including gambling in all its forms.

3.2.2 Currency Risk

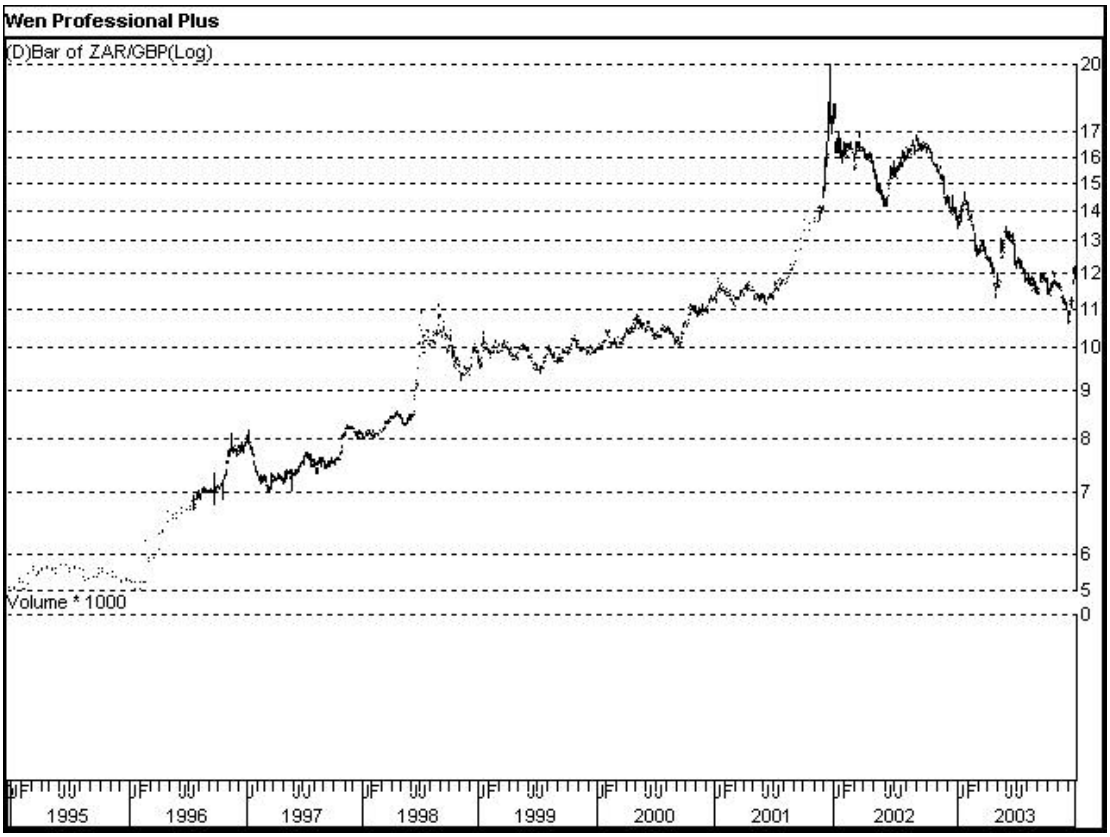
Currency risk is another risk that faces those of us brave enough to embark on the high-risk activity called saving. Currency risk is simply the risk that the currency you are saving in, the Zimbabwe Dollar to name an example, is losing its value relative to other currencies. By merely saving in the wrong currency you could lose more money than your colleague who “plays the horses”.

If we look at figure 5 below, it is clear to see that anyone who had commitments in Pound Sterling in January of 2002 and were saving in South African Rand (ZAR) in years prior to that, were severely affected by currency risk.

One can only imagine the influence on a securities lender who borrowed securities that tracked the Pound Sterling, while he was providing cash

collateral in Zimbabwe Dollars. (Not that anyone would accept Zimbabwe Dollars as collateral.)

Figure 5: Rand (ZAR) / Pound (GBP) Exchange Rate



(Source: Wen Professional)

3.2.3 Institutional Risk

Institutional risk is the risk associated with the institution you invested in or are transacting through. Shareholders or holders of corporate bonds issued by ENRON lost a bundle, and so did those unfortunate souls that were heavily invested in Russia in the late 1990s. As few of us have the

time or inclination to make a thorough analysis of every financial institution we deal with, a lot of trust is placed in the research of rating agencies. These institutions, such as Standard & Poor's, Fitch Ratings and Moody's, created an industry out of evaluating institutional and country specific risk. Standard & Poor's and Moody's are by far the largest of the three, as the much smaller Fitch Ratings were focussed on banking and only recently started to expand into a fully fledged rating agency (Kerwer 2002: 1-6). Their business is to make a determination of the stability and long and short-term viability of corporations and countries. In other words, what level of trust can one have in an institution or country to meet its financial commitments or obligations? As we have seen with the demise of ENRON and WorldCom, rating agencies are not infallible. Accusations were made, in the case of ENRON, that the publication of a very negative report on the company's financial viability was held back by one of the rating agencies (Kerwer 2002:1).

3.2.4 Liquidity Risk

This is one of the most underrated risks faced by many investors. It simply refers to the ability of an investor to realise any investment, i.e. turn it into cash, when necessary. As we have seen with the LTCM incident, when assets are liquidated under pressure, one finds that they seldom fetch a price that resembles their true price. One of the key reasons offered by the chairman of the US Federal Reserve, Allan Greenspan, in justifying his intervention in the LTCM case, was the fact that a forced liquidation of LTCM positions could have triggered a wider and possibly systemic instability (Federal Reserve Board 1998; 1-7).

Liquidity often has more to do with timing than intrinsic value. The need to service short-term obligations or needs often forces market participants to liquidate assets at unfavourable prices.

3.2.5 Operational Risk

This category of risk is one that faces virtually anyone who has to use a service of any nature. In general, it can be referred to as poor or inefficient service related risk. Came (2002: 21) describes it as "the risk that you will lose money, or time, in badly run businesses which do not have good systems and controls". The source of these risks is usually human error related. Appropriate management controls and the proper use of computer systems are normally part of the prescribed remedy for this problem. This solution is, however, to a large degree dependent on the skills of the operators that use it and the environment in which it is deployed.

3.2.6 Interest Rate and Inflationary Risks

Interest rates are one of those risks that always have two sides to them. When interest rates rise, some people are affected adversely while others are affected positively. In an environment where interest rates are falling, those dependent on interest for their income run the real risk of not being able to make ends meet, purely because the return they receive on their savings declines. In an environment where interest rates are moving higher, those dependent on interest income will receive a higher income. Those who are dependent on credit or debt to make ends meet will, however, experience the opposite effect. The higher the interest rate, the

more difficult it becomes to service debt, as interest payments can quickly spiral out of control when interest rates rise.

This brings us to another risk that is normally closely related to interest rates, called inflation risk. Inflation risk is, in short, a reduction in the "buying power" of your money due to its level of availability. If the supply of money outstrips the supply of commodities, the prices of such commodities normally rise, creating an environment where one pays more for the same article purely due to an oversupply of money. The repo mechanism is one of the most widely used tools available to central banks to control the amount of cash in the economy of a country. By adjusting the repo rate, i.e. the rate at which banks borrow from the central bank, levels of individual and corporate borrowing can either be encouraged through lower interest rates, or discouraged through higher interest rates.

3.2.7 Market Risk

As markets are, to a large extent, merely a reflection of people's perceptions and levels of trust at a given point in time, they have a tendency to fluctuate. These fluctuations may vary from mild to severe and sometimes catastrophic. Savvy investors employ a number of strategies to protect themselves against severe market fluctuations. The first technique is commonly referred to as diversification. The strategy of "not putting all your eggs in one basket" has served many a farmer, businessman and investor well in times of adverse circumstances. Ryan (1988: 37) explains diversification as the situation "where a company spreads its risk by splitting its investment over a wider area, this is

diversification. So if one operation fails, there are others to support it". Diversification of investment portfolios can be done in a number of different ways, ranging from sector diversification, to asset class diversification, to name two. The second defence against market fluctuations, severe or otherwise, is to have the patience and resources to "ride it out" (Came 2002: 21).

3.3 Securities lending risks

3.3.1 Credit Risk

Although securities lending transactions are collateralised to varying extents, the value of this collateral is fluid and requires constant adjustment and management. As the price of collateral and securities lent or borrowed changes, the parties to the transaction are exposed. If the value of the securities lent increases, the collateral needs to be increased, otherwise the lender is directly exposed to the creditworthiness of the borrower. Similarly, the borrower and provider of collateral would be directly exposed to the creditworthiness of the lender, if the collateral posted exceeds the value of the securities borrowed.

As we have seen in the LTCM case study, borrowers who are regarded as highly creditworthy sometimes borrow money with low or no haircuts, using more volatile securities as collateral. It is very important to those lending to them, to realise that they have extended uncollateralised credit to such an institution and must put the necessary risk management procedures in place. Exposure to credit risk can easily develop if collateral is not properly segregated or transferred, allowing for easy

access in the event of a default. Proper margin calls and haircuts are also essential to minimise credit risk (B.I.S. 1999: 26).

The Bond Exchange of South Africa (BESA) summarises credit risk as those risks consisting of counterparty risk, relating to the return of securities lent out, as well as the receipt of all entitlements due to the lender, but received by the borrower. BESA also identifies collateral risk as a part of credit risk, referring specifically to whether or not collateral is sufficient, liquid and accessible (BESA 1997:19 – 22).

Credit risk in the context of securities lending can, therefore, be subdivided into two distinct categories or types of risk (IOSCO & CPSS 1999: 41). The first type of credit risk faced by a party to a securities lending agreement is principal risk and the second and equally important is replacement cost risk. These risks usually only occur in the event that it is impossible for a counter party to meet its commitment. This normally only occurs when a counter party is insolvent. It should always be borne in mind that, unless there are legal factors that play a role, the counter party to a securities lending agreement is always responsible for making the other party whole, in other words as if the transaction was never done.

3.3.1.1 Principal Risk

Normally the largest risk that faces a party to a securities lending agreement will occur when either the first or the second leg of a securities lending transaction is not completed. In other words, when the borrower delivers collateral and the lender fails to deliver the securities borrowed or the lender delivers the securities borrowed, but the borrower fails to

deliver the collateral. As previously mentioned, the non-defaulting party will only suffer principal loss in the event that the defaulting party goes insolvent at the same time, or there is a legal reason preventing the aggrieved party to enforce its legal claim to either the securities lent, the collateral provided, or damages. As securities lending transactions are normally over-collateralised, the party exposed to the largest risk is usually the borrower. This risk is commonly referred to as settlement risk. In sophisticated environments, where delivery versus payment (DvP) systems are in place, settlement risk is all but eliminated. In an environment where a delivery versus payment or a delivery versus delivery (DvD) system is in place, it is impossible for a transaction or "deal" to "settle" if one of the parties has not fulfilled its commitment in full. While the delivery versus payment system refers to cash collateral, a delivery versus delivery system refers to those situations where other securities are accepted, normally referred to as equity or "scrip" collateral. This does not mean that without a DvP or DvD system there are no checks and balances built in to protect against settlement risk. Best practice in a non-DvP or non-DvD environment prescribes that the borrower will deliver collateral before the lender delivers the borrowed securities. When the transaction is unwound, the borrower is also obliged to return the borrowed securities before the lender returns the collateral. It is, however, clear that borrowers are afforded a lot more protection against settlement risk by DvP or DvD mechanisms (IOSCO & CPSS 1999: 41).

The second instance where principal risk is possible is when securities lending transactions are entered into without collateral. Although rare, such transactions are usually entered into when, in the view of the lender,

the borrower is seen as so creditworthy that the posting of collateral is deemed unnecessary and is waived. The implication of such a decision is that the lender is exposed to the credit risk of the borrower for the full duration of the loan. As we have seen with the LTCM incident and the ENRON collapse, these types of loans are inherently risky.

3.3.1.2 Replacement Cost Risk

Replacement cost risk is one of the most important risks faced by those participating in securities lending transactions. Replacement risk is exactly what it sounds like: it is the risks associated with replacing either the securities lent out, in the event of a borrower default, or the securities provided as collateral, in the event of a lender defaulting on his obligation to return the borrower's collateral once a securities loan is completed. In practice, the non-defaulting party would liquidate the collateral in the event of a borrower default, or the securities borrowed in the event of a lender failing to return collateral, and attempt to buy similar securities of the same quantity back in the open market. Risk of financial loss, only enter the fray when the costs associated with buying particular securities is higher than the value of the collateral held in the event of a borrower default, or the value of the borrowed securities in the event of a lender failing to return collateral. As securities lenders normally mark their collateral to market, and collateral normally exceeds the value of the securities lent by some margin, the value at risk to borrowers is often larger than the value at risk to lenders. A very important characteristic of replacement cost risk is the fact that, even if the loan is fully collateralised and executed in a DvP or a DvD environment, it can still occur. Two factors are essential to this risk. In the first instance, either

the borrower or the lender must default on their obligations. Only then is there potential for replacement risk. The second factor is the ability of the non-defaulting party to buy the required securities in the market at a price lower than the value of the cash collateral he was holding, or the price he received when he liquidated the collateral he was holding, or those securities he borrowed. Theoretically, this loss can be unlimited or at least immeasurable. Take an example where a lender or borrower lent out a strategic holding in a listed entity and a counter party fails to return those securities. To buy such a stake back in the market may be impossible and the non-defaulter may lose control over a strategic asset, even if only temporarily. If this occurs in the event of a hostile takeover bid, for example, the results may be disastrous.

To manage replacement cost risk, the first factor to be taken into consideration is the probability that a counter party may default. This is important, not only from a lender perspective, but often more importantly from a borrower perspective for reasons previously mentioned. The second variable that needs to be determined in order to manage it is the extent of possible replacement cost risk in future. To determine this potential cost, three factors are crucial for any meaningful calculation in a DvP or a DvD environment. The first two factors are purely an issue of the variance in the difference between the value of collateral and the securities lent since the last mark to market and margin call, and the time it takes the non-defaulter to liquidate the security of the defaulting party. The third factor is a positive or negative correlation between the price movements of securities lent and collateral. The ideal situation for both parties would be a situation where the price of collateral tracks the price of securities lent out. A positive correlation from a lender's point of view

would be where the collateral increases in value relative to the value of securities borrowed, while from a borrower's perspective an increase in the value of securities lent would be a disincentive to a lender to default on returning collateral received. An example of efforts to quantify the extent of potential risk due to under-collateralisation in the event of borrower insolvency and the influence of social factors on such efforts is fully investigated in Chapter 5. The IOSCO & CPSS report does, however, warn those trying to quantify exposure that the correlation between price movements in different securities seldom holds form during extreme market conditions. The LTCM incident and other events of default discussed in this dissertation are clear testimony to this fact.

3.3.2 Operational Risk

Although securities lending transactions are essentially simple transactions, there are operational risks attached to them, as with any financial transaction. Due to the fact that each securities lending transaction is made up of a number of smaller transactions, some of the associated transaction structures may be quite complex. This may include cash and securities settlement procedures and systems, as well as legal procedures, to name a few (B.I.S. 1999: 26).

Similarly, the Bond Exchange of South Africa (BESA) includes under operational risk Intra-day Settlement Risk, and risks due to ineffective or inefficient systems, controls and procedures, as well as foreign regulatory and tax requirements. Operational Risk includes Intra-day Settlement Risk, and risks due to ineffective or inefficient systems, controls and

procedures, as well as foreign regulatory/tax requirements (Bond Exchange of South Africa 1997: 19 – 22).

To summarise, one can describe operational risk as the risk of losses due to the breakdown of internal procedures, controls and/or systems. As pointed out earlier in this chapter, operational risk is not unique to securities lending and is, in fact, present in any financial transaction. Its root cause may range from the failure of a complex cross-border business relationship to the laziness or tardiness of a junior administration clerk. As we know by now, a security lending transaction starts with the assessment of the probability that a counter party may default on his obligations. Once it is determined that the counter party is credible enough, the type and quantity of collateral needs to be determined. Appropriate legal agreements, compliant with the requirements of all the jurisdictions relevant to the transaction, entered into by duly authorised representatives of the parties, is the next step in the process. The two parties are now ready to execute the first leg of the transaction. Irrespective of whether a DvD or DvP system is in place or absent, arrangements must be made to transfer and match securities and the agreed-upon collateral. Once this is successfully completed, the continuous process of marking to market the collateral, monitoring the financial position of the counter party and general market conditions can commence. Collateral must at all times be kept at the appropriate levels through a timely margin management process. Too little collateral leaves the lender exposed, while too much collateral will expose the borrower to unnecessary risk. The borrower is, for the life of the loan, responsible for ensuring that all corporate actions that affect the lender are managed appropriately. This may range from collecting and paying over dividends

in the form of manufactured dividends, to the processing of share-splits. The party or parties responsible for managing the transaction also need to be in constant contact with the portfolio managers tasked with the day-to-day management of the underlying investment portfolio. Any decision to sell securities out on loan must immediately prompt a recall and/or borrow-in to ensure timely delivery of the securities sold. Failure to deliver such securities on time can lead to settlement-related penalties, or even larger, opportunity cost losses. One of the biggest challenges facing those responsible for managing operational risk is found around the coordination of securities loans that span multiple jurisdictions and/or countries. One may often find that back-office staff from a fully automated environment need special coaching to alert them to all the eventualities that must be checked and coordinated when dealing with a counter party in a manual environment.

In environments like the USA where most collateral is reinvested in order to generate primary income for the lender and agent, operational efficiency is cardinal for success. As we will show later in this chapter and in Chapter 5, most defaults experienced in the US were in some way related to the reinvestment of collateral. The reinvestment of collateral adds a third operational dimension to the equation, as a full third leg is added to the securities lending transaction. Unlike the situation where virtually all cash collateral is placed on call with one of the biggest four banks, return on cash collateral is usually increased by investing for longer periods with more risky counter parties.

To conclude our discussion on operational risk, the phenomenon of the rogue trader must be mentioned. The actions of these so-called rogue

traders are important to securities lending, as their actions usually lead to massive losses and, more often than not, the collapse of the institutions they were working for. As these institutions are mostly banks or investment houses, their effects on securities lending is multi-dimensional. The first instance would be a situation where the affected institution is a counter party to numerous lending and/or repurchase transactions. Secondly, the corporate bonds or shares of the affected institution may have been used in a repurchase transaction in order to raise funds or as collateral in a securities loan. Thirdly, collateral held by a lender may have been converted into shares or short-term debt instruments issued by the affected institution. Fourthly, lenders may have appointed the affected institution to manage their collateral and, fifthly, cash collateral may have been invested directly with the affected institution. Indirect consequences would include the fact that lenders such as pension funds may be forced into early recalls because of a sudden loss of cash or a dramatic reduction in the value of their investments. Borrowers could find themselves in a similar position, where they need to unwind securities lending transactions prematurely in order to get their cash collateral back. It is also possible that a borrower and a lender may be affected by all the above simultaneously.

Very important for the purposes of this dissertation is the question of whether or not rogue traders are diabolical monsters who intentionally destroy those they work for, or is it merely the absence of, or lapse in, the social controls that were supposed to be in place to manage their behaviour? To answer this question, we will investigate a number of "rogue trader" incidents in Chapter 5.

In 2003 the CSFI report found the use of complex financial instruments as their number one potential risk, up from no. 4 in 2002 (CSFI 2003: 9). One of the respondents quoted by the CSFI report highlights the fact that the market is driven by "complex financial instruments not understood by top management" (2003: 9). My question is simple: how on earth can the management of companies allow their institutions, and obviously their staff, to use instruments they don't understand? If this is, in fact, the case, perhaps Nick Leeson does have a point in blaming poor management for creating an environment where it is possible for traders to become rogue traders. One possible explanation of why people who don't understand complex financial instruments allow their companies to use them is offered by another respondent quoted in the CSFI report, "yet because they appeal to our need for sophistication, they are greeted with admiration" (2003: 9). Walter D Hops, the treasurer of Ciba-Geigy, a large chemical firm, captured the essence of this dissertation in a quote published in Business Week of October 31 in 1994: "Derivatives are nothing more than a set of tools. And just as a saw can build your house, it can cut of your arm if it isn't used properly" (Federal Observer: 3). A clear illustration of this happening was the $1,6 billion US losses, suffered by Orange County in December of 1994. These losses were ascribed to the use of leveraged repurchase agreements, once again a massive over-simplification.

Operational risks can, therefore, also be described as human error risks. Like securities lending, the environment that humans operate in to a very large extent determines the influence that operational risk can exert.

3.3.3 Liquidity Risk

Liquidity risk refers to the risk that a counter party will settle his obligations late (IOSCO & CPSS 1999: 43). Liquidity risks are normally temporary in nature, causing a delayed settlement referred to as a "fail". However, if such an inability becomes permanent, a failed trade will become a default. As indicated in 3.2.4 this risk is common to many financial services, especially banks, and is by no means unique to securities lending. This phenomenon is often referred to as a shortage of liquidity in either cash or a specific asset or category of asset.

Where securities lending transactions (normally repos), are used as a funding mechanism, a sudden decrease in the value of the instrument repoed will lead to the lender calling for more collateral. Failure to provide such collateral could lead to a fail or an eventual default. As repo transactions are mostly short-term in nature, a firm that has no medium-term funding in place stands the risk of going insolvent. After the 1990 collapse of Drexel, the firm managed by Mike Milken, securities firms in the US added medium-term debt to their mix of funding in order to reduce their overall reliance on repos. As shown in Chapter 6, LTCM experienced similar problems when their counter parties valued the corporate bonds they repoed at such a low price that their source of funding was technically cut off, unless they could provide alternative collateral. Alterative collateral had to be either cash or high quality government bonds. In order to achieve this, the borrower must liquidate assets in an illiquid market, making the chances of getting full value for whatever he is trying to sell very slim, as well as driving the market for what he is selling, further down. The second source of liquidity risk

usually manifests itself when the holder of collateral tries to liquidate the collateral. As this usually happens when a counter party defaults, it often has to be done in a time when markets are under stress, as counter parties seldom default when markets are buoyant. As we have seen in the LTCM case, liquidity is usually out the door quickly when markets are under stress. Holders of collateral forced to sell in such an illiquid market will seldom get full value for their collateral and will, therefore, be exposed to risk.

Another form of liquidity risk important to those who are party to securities lending transactions is “market” liquidity risk (IOSCO &CPSS 1999: 43). This marketability or gap risk refers to the inability of a seller or buyer to conclude his transaction at or near the current market price. This type of market is usually referred to as “thin”, reflecting large movements in price at any attempt to buy or sell. Very often a decision by asset managers to sell their total holding of a particular security can initiate such liquidity problems. What happens in practice is that securities out on loan are recalled immediately. Those who borrowed the security for the purposes of a short sale now need to find an alternative source of these shares. This may prove difficult, if short sellers who entered into substantial short sales anticipated the downward movement of the share. This normally occurs in shares that are referred to as illiquid, because there is not a large quantity of the particular security issued, or a few individuals and/or institutions hold it. As we saw during the events of late 1998 that led to the demise of LTCM, a sudden oversupply of corporate bonds led to such a drop in their value that most lenders who were holding these bonds as collateral found themselves under-collateralised.

Securities lending does, however, have the inherent potential to create liquidity pressures in a market. This stems from the fact that both parties to a securities lending agreement, i.e. borrower and lender, normally have the right to terminate a transaction on demand. Although certain transactions, normally funding transactions structured by specialist agents, may have severe penalties built in to discourage early termination, this is more the exception than the rule. An unexpected recall often triggers a number of reactions. The borrower often needs to recall the borrowed securities from a secondary borrower, or try and borrow it in from someone else, or buy the particular security in the market. Similarly, a lender of securities who reinvested or on-lent securities or cash provided by a borrower as collateral, may find itself under severe pressure as a result of a borrower unexpectedly returning loaned securities and demanding his collateral back. Lenders and borrowers are especially vulnerable in situations where portfolio managers liquidate large portions of their holdings simultaneously. As this often happens when adverse information regarding a security or type of asset becomes public knowledge, an already difficult situation can quickly become unbearable, as we saw in the ENRON collapse. The normal procedure employed in the event of an untimely recall is to borrow-in the necessary securities. This ability is usually the strength of many brokers or agents.

It is clear that liquidity is a crucial factor that needs to be considered very carefully when haircuts and credit lines are set, when lending terms are negotiated and especially when collateral is reinvested. These controls can prevent a unforeseen event from turning into a crisis.

3.3.4 Leverage Associated Risk

As we have seen with LTCM, in most instances leverage acts as a multiplier for credit and liquidity risk. Although leverage is important for all securities lending transactions, it is particularly relevant to repo market participants, due to the fact that repos are a very cost-effective source of leverage.

Notwithstanding the fact that, at appropriate levels, leverage facilitates the efficient use of capital, it needs to be managed. As we have seen in the LTCM case, the absence of appropriate haircuts and the use of OTC (Over The Counter) swaps and other derivative procedures that have their own inherent gearing, it was possible to achieve massive levels of gearing. The vigorous applications of haircuts, margining and marking to market practices are specifically designed to limit leverage and need to be followed religiously.

Due to the fact that OTC transactions are not traded through recognised exchanges, the extent of their use is more difficult to determine. This, in turn, complicates the determination of appropriate leverage and credit levels (B.I.S. 1999: 27). However, if one looks at the levels of reporting already in place in many jurisdictions, reporting of OTC transactions should not be impossible to institute by legislators.

3.3.5 Reinvestment Risk

Reinvestment related risk is the risk of financial loss due to the reinvestment of collateral provided by a borrower. Reinvestment Risk

can be divided into Basis Risk, Credit Risk, Duration Risk, Interest Rate Risk, Lending Risk and Maturity Risk. The reinvestment of collateral adds another dimension of risk to a securities lending transaction, as most of the risks that affect the principal lending transaction will also be present in the secondary reinvestment transaction. In the event that collateral becomes inaccessible or lost in totality, the principal risk management tool, i.e. collateral, becomes a potential risk multiplier. An example of such an event will be if a borrower defaults at the same time that the entity in which the collateral is reinvested goes insolvent.

Many, especially in the US, regard reinvestment risk as the largest contributor to risk. This is, however, mostly due to the fact that in the US fees per se are minimal and lenders primarily generate income out of the reinvestment of collateral. To increase your potential income from this activity, you essentially have two methods at your disposal: you can lengthen the maturity of your investment, i.e. you tie it up for longer, or you lower the credit quality of your investment (higher risk, higher return) (Hall; 2002; 1-19).

Cash is the collateral of choice in the US domestic market, accounting for 90% of collateral accepted. In stark contrast, one would find that cash is rarely accepted in Britain and Germany, for example. In the UK this is due to an unfavourable tax regime and in Germany to the 12,1% minimum reserve requirement. A German bank can lend out and, therefore, pay interest on only 87,9% of every 100 Euros it receives on deposit (Bond Exchange of South Africa 1997: 16-46).

3.3.6 Revenue Split Risk

The risk of paying too much is labelled as Revenue Split Risk. In short, this means you put your business at risk by overpaying the lender (Hall 2002: 1 – 25). Lisa Polsky identified this risk very aptly by saying "Not making a return is also a risk" (Mayer 2003:3). People often forget about the human impact of a business that fails.

A lender who negotiates lending terms with its agent that leave too little for the agent or broker to survive on, creates the potential for agent default. Such an arrangement can also act as an incentive for the lending agent or broker to take excessive risk in order to make a profit. Similarly, lenders should be aware of agents or brokers who offer very favourable terms to lenders, as those agents and brokers may often make their money by taking some form of risk often not visible to the lender.

3.3.7 Custody Risk

Custody risks are those risks directly associated with the honesty, efficiency and financial soundness of your custodian. The safety of securities under the control of a custodian are also affected by a number of other factors (IOSCO & CPSS 1999: 47-48). These would include the legal status of the securities and the laws that govern the custody relationship. Securities held by a custodian should be separate from its own assets and the laws and courts of that jurisdiction should acknowledge and enforce such, in the event that a custodian is declared bankrupt.

Another area of custody risk is the probability that a custodian may transfer, sell, pledge and cede, or otherwise encumber securities in its custody without the authorisation of the borrower or, alternatively, release collateral prematurely to the borrower, thereby leaving the lender exposed. Although a substantial trust relationship normally exists between custodians and their clients, it is always prudent from a risk management perspective for both parties to provide a custodian with clear instructions regarding its mandate.

Outright fraud is also a risk that may occur at any institution that keeps or manages money or securities. What is, however, much more difficult to detect is the unfair exploitation of clients. Many custodians also act as lending agents for their clients and a conflict of interest may occur. A simple example would be where a custodian lends out securities at a discount to borrowers in order to attract further custodian business. One step further would be the lending out of securities without the knowledge of the owner of the securities. Although custodians would virtually always ensure that clients never suffer any direct losses due to borrower default, for example, potential income is lost.

3.3.8 Settlement Risk

Settlement risk is the risk that any leg of a securities lending transaction will not be completed (IOSCO & CPSS 1999: 46-47). Once again, not a risk unique to securities lending. Settlement risk may, however, cause substantial financial loss and damage to the reputation of an institution. One of the reasons for the existence of securities lending in the first place is the prevention of settlement failure. If the owner of a security sold the

security but is unable to deliver it, the security is borrowed and delivered to ensure that the transaction will settle. Very often a number of interdependent transactions are strung together and the failure of one may affect a number of other transactions. The owner of a security may, for instance, decide to sell the security, but he is not able to deliver the said security and decides to borrow the required securities for settlement. The buyer of the security may have bought the security in order to write futures contracts over these securities. If the initial seller fails to deliver, the buyer's only option is normally also borrowing, unless he can find a seller at short notice without paying a higher price. The opportunity and other costs in the event that both these lending transactions fail, can clearly be astronomical in a volatile market and will undoubtedly also increase the potential for credit and liquidity risk, especially in a market under stress.

The causes of failed settlements can also be found in factors as mundane as different time zones. With settlement periods becoming shorter, trade day plus three days (T+3) being the norm and same-day settlement becoming a common occurrence, any delay in a recall can lead to a settlement failure. For this reason, global securities lenders need to be in a position to process recalls on a 24-hour basis.

Similar to the potential influence of different time zones, differences between paper and paperless or dematerialised environments also have the potential to play havoc with the best-laid plans. A borrower in a paper environment may require physical share certificates, which means the share has to be materialised again, wasting valuable time. In some jurisdictions, foreign ownership levels in companies may be restricted. If

a foreign holder of securities lends to a resident, it may allow another foreigner to acquire securities in that entity. At the time where the resident needs to restore the owner's ownership, this may prove to be extremely difficult.

As mentioned earlier, any failed or delayed transaction may have serious repercussions, especially if a lender is prevented from exercising his voting rights at a critical time.

3.3.9 Market Risk

Market risk refers to the possible risk of losing money due to a sharp increase or decrease in the market value of assets (IOSCO &CPSS 1999: 44). In an uncollateralised situation, the influence of market risk is only one-dimensional; the value of the borrowed asset may rise over the loan period, making it more expensive for the borrower to buy a similar asset in the market and give it back to the lender. As securities lending transactions are normally collateralised, market risk in the context of securities lending is two-dimensional in nature, becoming a reality when the market price of the assets lent out moves in a negative direction relative to the collateral provided by the borrower, or vice versa. Market risk can, however, only materialise if a counter party defaults and the lender was under-collateralised due to inadequate marking to market or margining practices, or he couldn't access and sell the collateral and perform a buy-in at the appropriate price. In cases where cash collateral is reinvested, market risk is also a very important risk factor. The recipient and provider of collateral will normally agree on a rebate rate that the recipient must pay to the provider of collateral. In South Africa

that would normally be the “call rate” offered by the four main banks at the time. For the recipient of collateral to now make a profit from this collateral, he needs to reinvest it at a higher rate. To achieve this, one normally needs to invest the collateral for a longer fixed period or in a riskier type of investment. If there is a negative correlation between the return the recipient of the collateral receives and what he needs to pay to the provider of collateral, there is risk.

Similarly, market risk can also play a role in the secondary transaction a borrower may enter into with the securities that he borrowed. This secondary transaction provides another risk dimension. If the borrower enters into a short sale or bear sale transaction with the borrowed securities and the market price of the securities sold short rises instead of falling, the borrower will have to buy the securities at their higher price if he can’t borrow them. Market participants that borrow securities to exploit arbitrage opportunities may also find themselves exposed to market risk if the movement of the market prices of the underlying securities is not positively aligned to what they expected.

3.4 Origins of Risk

The major risk to a lender is essentially that the borrower does not return the stock he/she borrowed. The fundamental reasons for not returning the borrowed stock are twofold: the borrower cannot return the stock, or the borrower does not want to return the stock.

If a borrower cannot return the stock, it may be due to the fact that the borrower does not have the stock to give back. He may have sold the

stock and cannot buy the stock back in the market due to: a) unavailability, i.e. he can afford to, but the stock is unavailable; or b) he does not have the financial resources to buy the stock back due to cash flow restrictions or insolvency. Alternatively, the borrower may have lent the stock out to a secondary borrower who may not be able to give the stock back for the same reasons. It may be that the borrower has gone insolvent or has been liquidated or put under administration or curatorship, and the assets borrowed cannot be separated from the borrower's own assets.

Due to the potential reputational risk facing a defaulting party in most markets, the probability of a borrower holding on to borrowed securities is remote. This scenario may, however, occur where a borrower believes that it will be more profitable not to return the stock he/she borrowed. Given that securities lending agreements are always collateralised, the following reasons may lead to a "profitable" refusal to return stock.

a) From a legal point of view, the lender may not be able to lay claim to the financier's collateral. This may be due to unenforceable contracts, or an "unfair" or ineffective legal system.

b) The value of the stock may have risen dramatically against the collateral or the value of the collateral may have dropped dramatically against the value of the stock lent out. (This can only occur if proper market-to-market procedures are not in place to ensure regular top-ups of collateral.)

Similar to the potential risk facing a lender, the borrower is exposed to the risk that the lender may not be able, or willing, to return the cash or other collateral that the borrower had to post. As this collateral normally exceeds the value of borrowed stock, by between 5% and 100% or more, a borrower can theoretically be exposed to more risk than the lender.

Inappropriate collateral management may expose the borrower to interest rate, dividend and coupon losses, as the lender is responsible to pay to the borrower interest on collateral as agreed, as well as all dividends, coupons and any other proceeds that the borrower was entitled to. In order to minimize the exposure of the borrower to the credit-worthiness of the lender, collateral is often ceded and pledged and not physically paid over to the lender. It is usually held in a separate account at a custodian and can only be released with mutual consent from the lender and the borrower.

Due to the fact that all securities lending transactions have some form of "collateral" provision, the potential loss a lender may incur is dependent on the difference between the value of the stock he lent out and the collateral received in return.

If we assume that the lender receives a 105% cash collateral and top-ups in cash are requested daily, a loss is only possible when the value of the stock lent out rises by more than 5% between the time of the last mark to market and margin adjustment and buy-in of the required securities, after a default occurred. As we have seen in this chapter, there are numerous factors that affect the time necessary to effect a buy-in if one is possible, as well as the price of collateral and the borrowed securities.

In the event that cash collateral is provided and reinvested by the lender, the lender is exposed to collateral reinvestment risk to the extent of the difference between the rebate payable to the provider of collateral and the return he earns on the collateral. In the event that the institution with whom the lender is reinvesting the borrower's collateral defaults, the lender will be exposed to the full cost of replacing the borrower's collateral, securities or cash, plus the agreed-to rebate or return.

3.5 Procedures and Practices to Maintain or Enhance the Level of Trust

The procedures and practices applied to create an environment where at least rational trust can exist, or those procedures aimed at maintaining and/or enhancing existing levels of trust in an environment, are often referred to as risk management procedures.

Few financial services are so focussed on managing risk as securities lending. As I explained in the beginning of this chapter, participants in the financial services industry are often unaware of the risks associated with saving with a bank or buying a unit trust. Very few participants in the securities lending industry are, however, under the illusion that securities lending is risk free. They do, however, share the conviction that with proper management the risks that affect securities lending can be kept at a controllable level. The biggest danger of all lies in those risks one is not aware of. The management of risk is also not only the responsibility of the compliance officers or risk managers in a firm. The ability to manage risk is usually predetermined by the promises that the company's CEO and board of directors make to shareholders. If

unrealistic profit expectations are created, everyone in the firm will be under pressure. The pursuit of unrealistic profits is probably one of the most important sources of risk in the securities lending and financial services sector at large. Unrealistic profit expectations, combined with very lucrative incentives, are ingredients for risk. The excuse of management and boards of directors that they "did not know" holds no water. It is common sense that exceptional profits are seldom made without taking exceptional risks.

In securities lending very few, if any, losses can occur if the counter party, borrower or lender doesn't default on his fundamental obligation to meet all its obligations to the other party in full. If the counter party to a securities lending agreement honours all its obligations to the other party, it is immaterial whether a written contract is in place or even if a legal or judicial system even exists. Volatility in the prices of securities lent relative to securities pledged, or fluctuations in interest received by a lender relative to what he must pay the borrower, are of no concern if a counter party doesn't default. Quality and efficiency of back-office staff, management control systems, collateral management and marking to market practices or computer systems do not come into play if a counter party does not default. Even if the custodian you are using goes bankrupt, it is still your responsibility to ensure the counter party you are dealing with will suffer no loss. In the closed environment of the diamond traders of Antwerp, the level of social capital is such that counter parties are not concerned about any of these potential sources of risk, because they trust the counter party to honour his obligations irrespective of the circumstances. This is sadly the exception to the rule in the impersonal global village of today. In most instances, we have to

rely on rational trust to make doing business possible. We do, however, still start with a rational evaluation of the ability of our counter party to honour his obligations towards us. This process is augmented by an assessment of other factors of social control, i.e. political, judicial, technological and administrative, as contributors to or inhibitors of risk. Together with the abilities of our own active risk management procedures (i.e. taking and managing collateral, efficient marking to market of such collateral, legal binding and enforceable contracts, active monitoring of the financial status of counter parties and the use of virtually fail-safe computer-driven delivery versus payment or delivery versus delivery settlement systems), we are able to make a judgement as to whether or not the required level of at least rational trust is possible to make it feasible to enter into a securities lending transaction with a specific counter party, purely from a risk point of view.

3.5.1 Counter Party Selection and Monitoring

The selection of a counter party for the purposes of securities lending should never be a one-off process. It is also not a one-dimensional exercise. In most firms, the final decision on which counter parties to deal with, and to what extent, would not lie solely with the securities lending department. In large firms, separate credit committees are normally responsible to determine the overall exposure of a firm towards a counter party once this firm has been approved as suitable in the first place. In smaller firms, the final decision regarding the approval of counter parties would normally lie with the board of directors. One of the criticisms that can be levelled against LTCM was the fact that the partners came from either an academic background or a corporate

environment where risk management, counter party selection and the determination of credit limits were done by someone else, so that the partners themselves had had little practical risk management experience. Smaller firms should theoretically be dealing with fewer counter parties, making selection and monitoring easier. One also finds that, in most small broking or agent firms, the lender has a greater input in selecting and approving borrowers. One may, for instance, find that borrowers are restricted to those with an appropriate credit rating from one or more of the recognised rating agencies.

Once a firm has been approved as a borrower, the credit limit needs to be determined. In large firms, this may be driven by intricate risk models that will assign variable credit limits determined by the volatility and liquidity of securities borrowed on a deal-by-deal basis. In jurisdictions where netting is legal and enforceable, a large bank will assess all its transactions with a specific counter party when setting and adjusting credit limits, as they would be allowed to offset losses in one area against profits or assets held as security from the same client in another transaction. These assigned credit and deal limits are monitored constantly, and factors like the volatility of a market in totality, the credit rating of a particular firm or the country it is operating in (in the event of cross-border transactions), are all factors that may trigger an increase or decrease in the credit limit of a counter party. Many of these monitoring functions have been automated and computer systems are often designed to automatically adjust credit limits or block the entering of new trades into the system when a borrower reaches his credit limit.

Other than large sophisticated lenders, the determining of credit limits and the monitoring thereof is in most instances left to appointed agents or brokers. In instances where brokers or agents, like large custodian banks, indemnify lenders against any losses, the lender would have no say in the entire process, from the initial borrower selection to the determination and monitoring of credit limits. In the case of small boutique brokers, the lenders are often intimately involved in the decision of lending to whom and how much of what, against what collateral. The broker or agent will, however, be responsible for monitoring the chosen borrowers and recommending adjustments in the list of approved borrowers and/or their credit limits.

This whole process is, however, not limited to the selection of borrowers. In most instances, borrowers would utilise similar methods to select appropriate lenders and monitor their exposure to those lenders. As they are normally expected to provide collateral in excess of the value of the securities borrowed, their losses in the event of a lender default are potentially higher than those of the lender. Another important factor that the borrower needs to consider is the suitability of the lender from a practical perspective. Ideally, a lender should be a substantial and long-term holder of the required securities. A lender that is an active trader may subject its borrowers to frequent and often untimely recalls that could place the borrower under unnecessary stress.

3.5.2 Procedures to Manage Legal Risk

As we mentioned in 3.4.1, legal agreements often only become relevant in the event of a default. The last thing any counter party wants to

experience is any unnecessary delays due to contractual or other legal uncertainties. As we have illustrated, any delay between the time a default takes place, collateral is accessed and a buy-in is effected, can increase potential under-collateralisation exponentially. A sound and enforceable legal agreement is one of the tools available to the securities lending practitioner to ensure that remedial action, for example a buy-in, can be effected as soon after a default as possible. The existence of such sound and enforceable agreements can also act as a strong deterrent to would-be defaulters.

One of the greatest advances in the securities lending industry is the standardisation of agreements. At present there are three standard agreements that are widely accepted. The first two are the PSA/ISMA agreement produced jointly by the Public Securities Association and the International Securities Market Association, as well as the GLMSLA or Global Master Securities Lending Agreement produced by the International Securities Lending Association. The third agreement is the ISDA or International Swaps and Derivatives Associations agreement that covers derivative-related transactions. The PSA/ISMA is mostly used for repurchase type transactions, while the GLMSLA is mostly used for equity lending type agreements.

Although not all jurisdictions use master agreements, there is nevertheless a definitive tendency for more and more jurisdictions to use it. In many jurisdictions, standard annexes have been produced for use with master agreements to ensure they are enforceable. In many jurisdictions, however, no case law exists regarding the enforceability of securities lending agreements. Organisations such as PSA, ISMA and others

therefore obtained legal opinion, through highly respected law firms, regarding the legal status of the agreements in those jurisdictions (IOSCO & CPSS 1999: 49-51). As valid contracts are an important manifestation of social control, standardisation and international acceptance are crucial building blocks for trust.

These standard contracts also play an important role in the reduction of operational risk and legal risk in general. The implementation of these agreements also plays a part in forcing legislators to amend their insolvency and other legislation to comply with international best practice. Most important of these are post-insolvency closeout netting, and general access to collateral, allowing parties at risk of loss as result of a default to react quickly and decisively. Netting allows a counter party to, in essence, pool all the positions of a defaulter in order to play off his losses in certain transactions against the profits from others with the same counter party. The term "closeout" in this context refers to the ability to terminate all transactions with a counter party immediately after he defaults on even one transaction (IOSCO & CPSS 1999: 50, 66). As indicated previously, any delay due to the legal process, uncertainty or contractual ambiguity has the potential to increase the value at risk exponentially.

3.5.3 Procedures to Manage Operational Risk

Operational risk management is the responsibility of every employee of a firm that participates in securities lending activities. The ultimate responsibility always lies with management at all levels. By setting realistic profit expectations and by providing staff with the necessary

equipment and training to do their work, management lays the foundation for sound risk management practices. Risk management is a culture that develops over time. All the rules in the world are of no use if there is no compliance. It is the responsibility of management to ensure that all phases of the securities lending process are executed in line with international best practice or the accepted code of conduct of the market in which it operates. In South Africa, for example, the International Securities Lending Association (ISLA) code of conduct was adapted for use by the South African Securities Lending Association (SASLA) (SASLA 1-25).

One of the most important prerequisites for proper management and oversight is timely and accurate information. This information would, for example, include all open positions with all counter parties, the levels of collateralisation, the duration of the transactions, etc. This information can either be generated by computer systems or, in the case of small boutique agents, it can be prepared manually. Similarly, all transactions executed must be checked and signed off by someone in a position of authority. The mere fact that computer systems are utilised does not negate the need for manual oversight and checking of transactions. By separating the functions of the trading desk, client servicing, compliance and administration, management contributes to better risk management, as these different departments should perform an oversight function over one another. It is, however, crucial for management to collate all the activities of and information received from these departments. If this doesn’t happen, it is possible for the development of other risks caused by a lack of communication. In some cases firms would, for instance,

outsource the pricing of their collateral to ensure that emotions do not play a role when collateral is priced (IOSCO & CPSS 1999: 51-52).

3.5.4 Credit and Liquidity Exposure Management

As I have indicated earlier, the greatest source of risk facing a party to a securities lending agreement is the risk that the counter party to the transaction will default. The main form of protection against this risk is the use of collateral (IOSCO & CPSS 1999:52-54). By ensuring that the borrower provides collateral with a greater value than the value of the securities he is borrowing, and ensuring through mark to market and top-up procedures that he always stays over-collateralised, any incentive to default is removed. However, the borrower remains at a disadvantage in the event of a lender default. For this reason, most collateral is only ceded and pledged to the borrower and is usually kept with a custodian that will only allow the lender access to the collateral in the event of borrower default. However, in scenarios where cash and securities offered as collateral might be reinvested, no such protection exists.

All the collateral in the world is of no use if it is not accessible and liquid. The non-defaulting counter party must, therefore, make extra sure that his contracts cover all eventualities and are enforceable. The collateral he accepts must also be liquid, in other words he must be able to sell it as quickly as possible. Collateral takers should bear in mind that, more often than not, defaults occur in times of adverse market conditions. The marking to market of collateral is one of the most crucial activities, as any delay or mistake in this area can leave a lender under-collateralised or a borrower too over-collateralised. Lenders and borrowers normally agree

on a band in which collateral can fluctuate, to avoid unnecessary micro adjustments.

I would like to reiterate the fact that, in jurisdictions where the primary income from securities lending is generated from the reinvestment of collateral, collateral reinvestment is often a much bigger source of risk than securities lending per se. As we will see in Chapter 5, a number of losses occurred in instances where the institution where collateral was reinvested failed, leaving the lender exposed in the principal lending transaction. Recipients of collateral can also find themselves under pressure if they are faced with unexpected returns on a large scale, as they then need to unwind the transactions where they reinvested the relevant collateral.

3.5.5 Indemnification

Indemnification is the practice whereby one party undertakes, usually in terms of the provisions of a legal contract, to make good any losses suffered by the other party to the contract (IOSCO & CPSS 1999: 55). Indemnification is normally offered by custodians and agents or brokers. Indemnification can take many forms and vary from full indemnification to partial and qualified indemnification, that sometimes only covers very specific events to specific levels. Indemnification, by its very nature, also implies that the party that provides the indemnification must have full control over the events he is indemnifying against. An agent cannot indemnify a lender against borrower default if the lender retained the right to select the borrowers.

The most obvious indemnification would be against the risk of losses due to borrower default. Similarly, agents can also indemnify borrowers against the losses due to lender default. Custodians and agents may also offer indemnification against settlement related losses, as well as any losses related to the non-payment of corporate event related losses such as the loss of income and dividends from bonds and equities.

As explained earlier, it is seldom, if ever, in any party's interests to default on a securities lending agreement. It must, however, always be remembered that any indemnification is only as good as the party that offers the indemnification. If the indemnifier fails, the indemnity is usually worthless, unless a third party such as an insurer is contractually obliged, through an insurance policy for instance, to make good the indemnity. One of the most difficult factors to ascertain, especially when working with large multinational conglomerates, is the overall extent of indemnities they have provided to lenders and/or borrowers. Indemnification by even the largest institution always remains only a risk management tool to be used in conjunction with other risk management practices.

In Chapter 5 we will be discussing a number of default incidents, and in many of these cases indemnifications occurred, either as part of initial contracts or in the form of ex post facto indemnifications (Knupp 2003: 1-7). Most notable was Mellon Bank, which in 1994 made its clients whole to the tune of $130 million; Harris Trust & Savings Bank absorbed a loss of $51 million in 1994, and in 1982 a number of banks absorbed hundreds of millions of losses, after the failure of Drysdale Government Securities (IOSCO & CPSS 1999: 42).

3.5.6 Managing Failed Trades

Securities lending transactions, due to their collateral component, are designed to dissuade borrowers from defaulting. The reputational risk implications for the ability of a financial institution to stay in business is normally a large enough disincentive for lenders to hang on to collateral in order to gain an illicit profit (IOSCO & CPSS 1999: 55-57).

Part of the core business of a participant in securities lending, especially market specialists like agents, brokers and custodians, is the prevention and avoidance of situations where fails could occur. This includes situations where untimely recalls are forced on borrowers when asset managers need to adjust or balance their holdings in a specific security, while the total holding of a fund has been lent out. The lending or taking of illiquid securities as collateral needs to be managed with great care. In environments where netting and the setting off of positions are possible, agents will be able to use illiquid securities as collateral or lend them to a client, if it forms a small portion of the borrower's total transactions and a buffer float is kept in the event of a recall.

One of the most valuable tools available to an agent is to know your clients and their service providers. A lender with asset managers that churn his portfolio should have a much smaller percentage of his shares lent out than a lender with value managers that keep a stable core portfolio. It is also possible to have a more favourable income split with stable lenders.

The borrowing-in of securities by an agent or custodian, to assist a borrower who is temporarily unable to return a borrowed security, is a widely used tool in the market. The extent to which this is done is usually a factor of the quality of the borrower and the relationship he has with this agent or custodian. It is at all times an activity that must be closely managed, especially the decision on whether or not a borrow-in must become a buy-in. The decision to effect a buy-in is not one that is taken lightly, as there are a number of legal issues that need to be considered. Without post-insolvency netting and set-off, an agent may sustain severe losses if he does not execute a timeous buy-in. However, if an agent forecloses improperly on collateral, he may leave himself open to legal action from such a borrower. Some of the key issues that provide protection to agents and lenders should be contained in securities lending agreements. These are, for example, failure by a borrower to advise a lender of a negative change in his business and/or finances, failure to advise of any regulatory investigation, proceeding or complaint, any misrepresentation by the borrower, or the non-payment of a margin call. With appropriate marking to market and immediate sell-off on the missing of a margin call, securities lending risk is largely mitigated (IOSCO & CPSS 1999: 57).

A classic example of failed risk management systems was the failure of a US firm called MJK Clearing Inc (Net Risk 2001: 14-17). In September 2001, MJK Clearing failed after substantial losses were incurred when their largest client, Native Nations Securities, collapsed. What is clear from the research conducted by Net Risk is the fact that, as early as May 2001, Native Nations failed to honour their obligations towards MJK Clearing by not meeting margin calls. If MJK Clearing thought they

were managing a fail, they made a total mess of it. By August 2001, about three months later, MJK Clearing had paid $15,9 million in margin calls to Native Nations' counter party, as the value of the Imperial Credit bonds that they used as collateral dropped dramatically.

On 27 July 2001, these discrepancies were "discovered" by MJK Clearing staff, but apparently no action was taken. This was, however, not the end: in the first two weeks of September 2001, another share used as collateral by Native Nations called GENI (Genises Interactive) lost 40% of its value. Once again, MJK Clearing paid margins of around $50 million to different counter parties without collecting this money from Native Nations. When MJK Clearing's management discovered these losses in September 2001 and tried to collect from Native Nations, they realised that Native Nations were no longer in business. To add insult to injury, trading in GENI shares was suspended on 25 September 2001 and, when it opened again, it lost 95% of its value, as massive price manipulation by Genises Interactive's management was uncovered. MJK Clearing was sitting with worthless collateral and massive losses, resulting in its insolvency.

The forces that were supposed to operate as social controls over behaviour, i.e. values, norms and sanctions, were absent or failed in the MJK Clearing incident. The possible presence of fraudulent activities at Native Nations and the companies whose shares they offered as collateral, coupled with at least severe neglect at operational level at MJK Clearing, as well as the deficiencies in management control and oversight, were the more likely causes of this disaster. Any financial services company

would end up in disaster with this calibre of client, staff and management. Securities lending was clearly not the source of risk.

3.5 Summary

In this chapter we have seen that risks are those factors that inhibit or prevent the existence of trust. Risk management is, therefore, a crucial element in any activity or service that has risks attached to it. In this chapter we clearly demonstrated that the risks that face practitioners and participants in securities lending are not unique. In reality, they are essentially the same risks that face virtually anyone who makes use of financial services. What is very clear from this chapter is that securities lending risks have been clearly defined and that a well researched set of internationally accepted risk management procedures has been developed, to ensure that an environment conducive to the development of at least rational trust can be created through the rigorous application of these risk management procedures. Risk management is, however, only one of a range of social controls that affect the safety of any financial transaction, including securities lending. In the next chapters the possible influence of these other social controls will be our focus.

CHAPTER 4

The Role of Social Factors in Quantifying Exposure

4.1 Introduction

The ability to accurately estimate the extent of exposure one faces, when entering into a securities lending transaction, is an important part of effective risk management procedures. An important contribution in this regard was made in June 2000 when Bradford Cornell of UCLA published a paper on "Assessing The Risk of Borrower Default in Securities Lending Transactions". The paper aims to assist market participants in their efforts to quantify the extent of potential risk that a securities lending participant faces as a result of borrower default.

In his article assessing Credit Risk in South African Securities Lending Transactions, Edward Black applied the principles of the Cornell paper to the South African securities lending environment. In this chapter we will analyse the possible effect of social factors on some of the assumptions made by Black, and the robustness of his findings in practice. Black estimated the probability of default on a securities loan by any given borrower, on any given trading date, at less than one in five hundred. Without disputing its accuracy, it is necessary to look at his reasons for assuming such a low probability, after he assessed possible reasons for voluntary and forced default.

4.2 Voluntary Default

The first matter that one needs to investigate is whether or not there are any incentives for voluntary borrower default. As collateral exceeding the market value of securities lent must be pledged by the borrower, and this collateral usually exceeds the value of the securities borrowed by at least 5% in South Africa, there is no financial incentive for the borrower to default. Even in situations where, due to a sharp market movement, the value of the collateral falls below the value of the shares borrowed, effective market-to-market practice should prevent the difference from being significant in monetary terms. As his gains would be marginal at best, the tangible costs, such as legal costs due to defending his breach of contract and, more importantly perhaps, his intangible costs like the damage to his reputation, would probably far outweigh any possible gain and negate any logical reason for voluntary default.

4.2.1 What Influence do Social Controls have on the Probability of Voluntary Default?

In order to put this assumption into perspective, one needs to look at the environment in which the securities loan takes place. As the central pillar of a securities loan, one finds the collateral agreement. At present, in South Africa, one would find that different forms of collateral are readily accepted. This would include the following: cash @ 105%, liquid bonds @ 110% – 120%, liquid equities @ 120% – 140%, NCDs @ 120% – 140%, less liquid equities and corporate bonds @ up to 200%, plus additional other guarantees.

For the purpose of Black's research, the first form of collateral, i.e. cash, is assumed as the one used. The use of so-called "Dollar Collateral" or foreign currency collateral has been suspended since Black's paper was released. The advent of STRATE with its SIDvP has, however, taken effect since the paper, which eliminates the risk of one of the parties failing in its obligations at the outset, or at the unwinding of the transaction, exposing the counter party to principal risk, i.e. losing the full value of the loan or collateral.

With the collateral level exceeding the value of the securities borrowed, there are no incentives for the borrower to voluntarily default, as he stands to gain nothing. In the event that the value of the collateral falls below the value of the securities lent out, a theoretical incentive to default does exist. However, one needs to take the possible magnitude of such an under-collateralisation into consideration. What one needs to determine is the extent to which the value of the securities lent out can exceed the value of the 105% collateral, (or more in the event of scrip collateral), within the period it takes the party responsible for the marking to market of collateral to detect a default and take remedial action by initiating a buy-in, for example. In other words, unless the appropriate marking to market is not done efficiently, what we are looking at is movement of the value of a share, either the ones lent out or those pledged and ceded as collateral, in the period of one to five trading days.

This is, however, not the end for any potential defaulter. There is very little doubt that the lender, in most cases multi-billion Rand retirement funds, will take legal action to recover the differences between the value of the collateral and the cost of buying the securities lent out, in the

market. Of even greater importance is the fact that a voluntary defaulter will find it very difficult, if not impossible, to conduct business in the South African financial markets ever again. From a reputational point of view, corporate suicide would be the appropriate term to use.

What we are therefore saying is that unless mark to market practices are not applied properly, the best a voluntary defaulter can hope for is the value of the movement of the share borrowed exceeding the (at least) 5% over-collateralisation, within one to five trading days, less the legal costs and loss of future income due to reputational damage. In view of these facts, I do believe the incentives for voluntary default can safely be put at marginal.

4.2.2 Possible Causes of Involuntary Default

If one puts everything aside, the reputational risk that will follow a voluntary default and its associated financial penalties in the form of loss of income, to a large extent eliminates the possibility of voluntary default. This then brings us to the scenario of an involuntary default. The first reason would obviously be insolvency, i.e. the borrower is bankrupt and cannot return the securities borrowed by him. Secondly, the borrower may have sold the shares he borrowed in the market and is unable to buy the shares back in the market due to, for instance, a bear squeeze. (This is a situation where holders of a security realise a market participant is short of a specific security and inhibit the availability of that share by not selling or lending it out.) Another form of default is failure by a borrower to meet a margin call. This is, in short, a failure to provide additional security when the price of collateral drops below the agreed threshold. In

most instances, collateral top-ups are done in cash and, if the lender calls for additional margin before 12 o'clock (12h00), payment must normally be in before close of business on the same day.

4.3 What Social Controls are assumed to be in Place?

The social controls that are assumed to be in place are very important to the validity of the estimates.

4.3.1 Legal and Regulative

From a legal point of view, it is assumed that the necessary legislative framework is in place to allow securities lending to take place. In South Africa this would start with the use of Roman Dutch Law, in which a loan for consumption or "mutuum" is provided for. Secondly, one assumes that from a contractual point of view, all requirements stipulated in the contract have been adhered to and that the contract provides equal protection to both parties in all eventualities. The most important requirement from a contractual point of view is that the contract was duly entered into by both parties and is enforceable.

This brings us to the need for a functioning, accessible and fair judiciary. If the rule of law is not maintained in a country, the best contracts are of little, if any, value. A corrupt judiciary negates the possibility of any real chance to enforce a contract. Any form of interference by any political or private institution or individual would make the safe practice of securities lending nearly impossible.

Stability, from a regulative and policy perspective, is also assumed to be present. Policy makers and regulators that change the "rules of the game" at short notice can put an industry like securities lending in severe turmoil. Other than the suspension of the use of foreign currency collateral, the South African securities lending industry was quite fortunate in the treatment it received from the regulators. By abolishing MST and UST (two forms of tax) on securities lending transactions, South Africa was brought in line with international best practice (ISF 2003: 2-3). Similarly, the amendment of South African insolvency legislation to allow for post-insolvency set-off has dramatically improved protection to holders of collateral in the event of the insolvency of a borrower (Barnet 2003). The ability to set-off post-insolvency allows the holder of collateral to act expediently in utilising the collateral he is holding to effect a buy-in as quickly as possible and, in so doing, to minimize the possibility that the price of the shares that were lent out will rise by more than the 5% with which the borrower over-collateralised his position.

4.3.2 The Existence of a Set of Generally Accepted Market Practices

Another assumption one makes is that the securities lender, or the agents he appointed, is applying the accepted market practices. If the lender does not insist on an initial margin of 5% in the event of cash collateral and maintain this level, through vigorous marking to market at least once a day, a lender can easily find that he is under-collateralised in the event of a default. The effect of not vigorously managing margins was very clearly demonstrated in the LTCM incident referred to in Chapter 1. In line with ensuring acceptable collateral levels, it is also important for the

lender to ensure that collateral is safe and accessible. International best practice would expect a lender to ensure that collateral is held in an appropriately segregated account with a reputable custodian bank, where it is protected against any financial instability of the custodian itself.

As mentioned in Chapter 3, the on-lending of collateral is also a source of risk for securities lenders. If a lender on-lent the collateral he received to another party without the necessary early termination clauses in the contract, the lender may suffer serious losses in the event of a primary borrower default, i.e. default by the borrower of securities and provider of the collateral that the lender on-lent. As the collateral may now be inaccessible, it is possible for the lender to incur substantial losses due to a sharp increase over the period on the price of the securities he lent out. For the purposes of the one in five hundred estimation it is assumed that cash collateral is placed on call at a reputable bank.

4.3.3 Reputational Risk

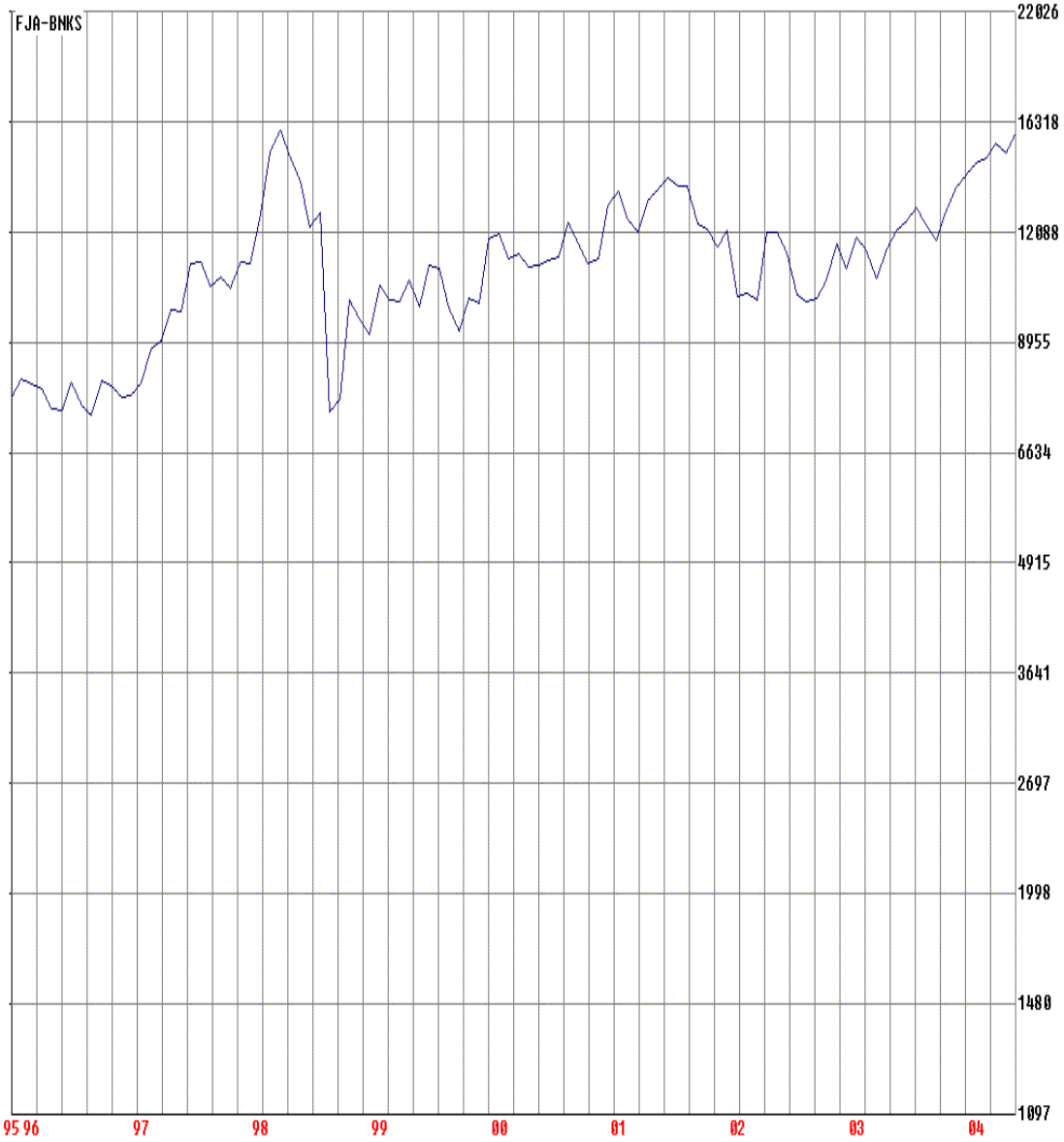
This brings us to the question of reputational risk, acting as a deterrent for default. As we have seen in the introduction to this dissertation, in the absence of a shared informal set of values, norms and sanctions that exist between market participants, the fear of reputational loss would not exist. If it is not a shared belief that voluntary failure is not an option and an informal understanding does not exist that everyone would shun such a defaulter in future, the practice of securities lending would be all but impossible.

4.4 Involuntary Default

Involuntary default refers to those situations where a borrower defaults out of necessity and not out of choice. We assume that borrowers are all listed financial institutions. Black assesses their potential for involuntary default due to insolvency. He argues that due to the nature of their business, i.e. investing, banking, etc., their financial health has a positive correlation to the direction of the markets. (If the markets are booming, so are the financial services companies.) The inverse would obviously also be true in a bear market. When prices of shares are, however, falling and assuming cash collateral is used, the value of your collateral will most likely exceed the value of the shares lent out.

In the event that equity collateral is used, it is important to be aware of a possible mismatch of collateral. Such a mismatch can occur if the shares lent out and the collateral provided have a negative correlation. Shares of South African companies that are export dependent would normally be negatively affected by a strong domestic currency, while those that are import dependent would normally benefit from a strong domestic currency. If a borrower of import dependent shares provides export dependent shares as collateral in a period where the domestic currency is strong, the potential for collateral shortfalls increases substantially. The inverse is, however, also true and the risk of a collateral shortfall will be substantially reduced in the event where the borrower of export dependent shares provides import dependent shares in a period where the domestic currency is strong.

Figure 8: JSE Banking Index ’95 – ’04



(Source: McGregors BFA)

What Black is saying is that, assuming you lend out equities against cash collateral to a reputable financial services company, for example a major

bank, the probability of borrower default is low in a bull market when the potential for under-collateralisation due to rising prices is high. In a bear market, when your potential for insolvency is higher, risk of under-collateralisation is lower, due to falling share prices (Black 2001: 11-13).

4.5 How much is at Risk?

When applying this research to the South African context, Edward Black produced the following results.

By analysing movements on the JSE for the period March 1996 to March 2001, one will see that there were 57 instances where a 5-day move on the ALSi40 (top 40 shares by market capitalisation) exceeded 5%. In other words, it happens once every 21,7 trading days.

The extent to which the movement of the ALSi40 exceeded 5% was 2,19% on average. The potential loss due to under-collateralisation is $^{1}/_{21.7}$ X R1 m X 2,19% = 0,101% of the principal value or R1 009,22 per million (principal value). On a total loan of R500m, the potential loss due to under-collateralisation is therefore around R500 000.

In order for a lender to suffer a loss due to under-collateralisation, the borrower must also default while the lender is under-collateralised. In order for the lender to suffer a loss, both must, therefore, occur simultaneously. The potential loss per million Rand out on loan can, therefore, be calculated as follows:

Potential loss due to under-collateralisation X probability of default (R1009,22) X ($^{1}/_{500}$) per R1m out on loan = R2,02 per million or 0,0202% of the value of the loan (Black E; 2001; 10-21).

It is clear from Black's research that the potential loss due to under-collateralisation is very small. The uncertainty, however, lies with the assumption that the probability of borrower default is less than one in five hundred. As the correctness of this assumption may be a matter open for debate, the important fact for this dissertation is what factors influence the reliability of this assumption. One factor that can influence the probability of default of a financial institution is the policy of the government of the day with respect to assisting ailing financial institutions. If we narrow the field of potential borrowers down to only banks, due to the fact that they are arguably the best regulated financial services sector in South Africa, is a one in five hundred probability of default still valid?

In South Africa, we had two incidents where banks failed or required assistance during the last three years. The first incident was the placing under curatorship of Saambou Bank. This bank, with a market capitalisation of around one billion Rand, was allowed by the government to fail. A few months after the Saambou failure, a larger bank, BOE, with a market capitalisation of $\pm$ 7 billion Rand was in trouble. This time the Minister of Finance approved a takeover by Nedcor Bank, one of the four largest banks in South Africa.

In a recently published survey of 22 banks in South Africa, respondents expressed concerns about the way the SARB handled the so-called A2

banking crises. (Both Saambou and BOE were rated A2.) Several respondents commented that the demise of another small bank, Regal Treasury, should have alerted participants that there were problems in the sector.

Comments by local banks regarding the cause and handling of the A2 crises varied. Some blamed the decision by the rating agencies to downgrade the small banks as the catalyst, which led to the crises. Others said that the demise of Saambou Bank triggered the problems at BOE Bank. Others laid the blame at the regulators and political powers of the day. In the first instance, the regulatory environment was cited as unfavourably disposed to mergers, secondly a lack of pro-active supervision was rated as a shortcoming and, thirdly, the most disturbing, a possible conflict between the South African Reserve Bank (SARB) and the Department of Finance was seen as a cause for the demise of the A2 banks. In a similar vein, foreign banks accorded some blame to the regulator, saying it should have been more active and that a guarantee from the SARB could have helped the small banks to restore confidence in them. Very importantly, the banking industry and the press were also cited as contributors to the crises, not only in terms of the banks' transparency towards regulators, but also their role as an industry together with the press in handling people's perceptions (Metcalfe 2003: 23).

If we now revise the estimate of potential default to one in four hundred, our results will be the following: (1009,2 x 1/100) = R10,09 per R1 000 000 of the amount out on loan. If we assume a 100% chance of default, the expected loss from a default for a lender of securities is only R1 009,2 per R1 000 000. It is clear, from a mathematical perspective, that

securities lending is extremely robust due to its collateral component. As long as the collateral is accessible, its value exceeds that of the securities lent out and it is possible to acquire the relevant securities in the market at a price less than that of the collateral, the probability of loss due to a counter party default is very small. In the event that there are dramatic movements in the value of shares and collateral, the usefulness of these calculations may, however, be seriously affected.

One example of how social and political factors can affect the risks associated with securities lending occurred in August 2004 in South Africa. The South African rand strengthened substantially since 2002 against the US Dollar (USD), due mostly to Dollar weakness and relatively high interest rates in South Africa, compared to its major trading partners. The expressed policy of the South African government is to manage its inflation rate within a very tight band, largely through the use of interest rates. One of the effects the strong Rand has on the South African economy is its negative effect on the mining industry. As the price of gold and platinum are quoted in USD, the stronger Rand reduces the income and profitability of South African mines in Rand terms. The effect of this was that mines had to consider curtailing their operations, due to dwindling profits, which in turn threatened the jobs of thousands of mineworkers and others in export dependent industries. In South Africa the government also appoints the Governor of the Reserve Bank and the Reserve Bank in turn determines interest rates in South Africa through the Monetary Policy Committee. The question of how much direct influence the government exerts over Reserve Bank policy is a matter for debate. What is important is that conflict between governments and their central banks and internal conflict within central banks can

easily enhance an environment for speculation against a currency. Two prominent incidences of speculation indicated that the speculation took place with the approval of at least some senior central bank officials. During investigations that followed the speculation against the New Zealand Dollar in 1987 by Andy Kruger and the speculative attack by George Soros on the British Pound in 1992, both speculators stated that the two central banks were consulted prior to the speculation and that they welcomed the speculation, as they believed the respective currencies were overvalued. There appeared to have been conflict between the views of the political leadership and the views of the central bank. I am not suggesting that this is the situation in South Africa, I am merely pointing out the importance of sound and consistent monetary policies.

On Thursday 12 August 2004 the Monetary Policy Committee announced their decision to cut interest rates by 50 basis points or 0,5% (Moneymax 2004: 1). This decision was obviously unexpected. In less than half an hour the ZAR weakened by 4% against the US Dollar (USD). The Top 40 index (ALSI40) rose by 3,5% by close of trading, resource stocks rose by 4,2% and the gold mining index rose by 6,5% on the day, as USD based earnings will be affected positively by a weaker rand.

The relevance of this is clear: if an agent was trying to buy gold mining stocks for a lender on 12 August 2004 following the default of a borrower, and we assume he was holding a 105% ZAR collateral, he could find himself under-collateralised by 1,5% or R15 000 per million, out on loan. This would, however, only translate into a loss if the lender is incapable of recouping any shortfalls from the borrower.

4.6 Summary

What is clear from this chapter is that the stability of the financial services sector and, in particular, the banking sector is very reliant on perception. Rating agencies, Regulators, Banks and the Press carry a huge responsibility to act responsibly. If their efforts are not co-ordinated, a bank can easily fail unnecessarily. Contrary to the way the Federal Reserve handled LTCM, co-ordination was lacking in the Saambou collapse. It is also quite clear that perception and not fact is often the major determinant of the level of fear experienced by participants. It is this factor that plays havoc with the best mathematical models (Metcalfe 2003: 23).

It is clear that socio-political and cultural factors are crucial to the accuracy of the process used to determine the probability of borrower default in South Africa and, for that matter, any other country. As mentioned earlier, the mathematical calculations are in most cases very accurate, while the validity of the assumptions made is usually the grey area. As we have seen from this example, intangibles such as the influence of pressure groups on political decisions and reputational risk are essential elements to factor in when one assesses the factors influencing the risk associated with the practice of securities lending. Determining the conduciveness of the environment (for example consistency in political decision making) to effective risk management is essential in order to make informed assumptions that can be utilised to calculate the probability of default risk.

What is however very clear is that securities lenders are as exposed to the risks generated by political decisions and the efficiency of government policies as the shareholders and depositors of a failing bank.

CHAPTER 5

The Origins of Risks Facing Financial Services

5.1 Introduction

As we have shown up to now, there are a number of steps that those associated with securities lending transactions can take to protect themselves against most of the risks associated with securities lending. These are all measures designed to protect securities lending participants from default and/or potential losses from default. We must, however, ask ourselves the question: are we focussing our efforts in the right areas? In order to evaluate our measures, it is important to investigate the risks that face a very important role player in most securities lending transactions, namely banks. Not only are most custodians owned by or affiliated to banks, they also play a major role in clearing many transactions as an intermediary. Banks are also extensively used as places of safety where cash collateral can be invested. The failure of a bank can have serious implications for all participants in securities lending transactions.

5.2 The Origins of Risk in the Banking Sector

In August 2003 the Centre for the Study of Financial Innovation (CSFI) conducted a study of the risk faced by banks across the world. Respondents were firstly asked to describe their main concerns about the financial system for the next 2 – 3 years. Secondly, they were asked to rate a list of potential risks (called Banana Skins) by severity and whether they are stable or becoming more or less important. Thirdly, respondents

were asked to rate the preparedness of financial institutions to handle these risks (2003: 4).

The report was based on 231 responses from 31 countries, including 4 from South Africa. These respondents were made up of 118 Bankers, 28 Customers (users of banking services, mostly corporate treasurers), Regulators and Observers (mostly analysts, consultants and academics) (CSFI 2003: 3 – 8).

Top of the list in 2003, after being ranked 4th in 2002, is the high level of use of complex financial instruments (specifically credit derivatives), while there is a low level of understanding of these instruments.

The question can be asked: what is the relation between credit derivatives, securities lending and other complex financial instruments? In essence, securities lending, and especially repos, allows for substantial leveraging. If you invest in a product with borrowed money, you are taking a risk; if you are, however, investing in an investment product that you do not fully understand and you do it with borrowed capital, your risk grows exponentially.

5.2.1 What are Credit Derivatives?

Credit derivatives, according to Vinod Kothari, can be defined as "arrangements that allow one party (protection buyer or originator) to transfer credit risk of a reference asset, which it may or may not own, to one or more other parties (the protection sellers)" (Kothari 2002: 2). This is, however, a thousand-year-old practice known to most of us. Those of

us who studied with loans extended to us by banks will remember that the bank insisted in many cases on someone to stand surety for the loan. In essence, the bank was diversifying its risk by spreading it between two parties. Although today's credit derivatives are much more sophisticated, the principle is the same.

Currently, credit derivatives generally used in the market can be classified into the following broad categories.

5.2.1.1 Total Return Swaps - This is where the originator, who is entitled to, for instance, the rental income from his flat in London, swaps all this income for a predetermined prefixed return from the protection seller. The owner of the flat may have a bond to repay and is prepared to swap his higher, but uncertain rental income in pounds for a lower, but more secure fixed monthly income. Sounds similar to the bird in the hand being better than two in the bush story! The seller of protection may, however, believe that he is a very good hunter and that there are actually ten birds in the bush.

5.2.1.2 Credit Default Swaps - This is, in essence, a sophisticated financial guarantee or surety. It also covers events other than actual default. In terms of the student example, it will pay if you decide to change courses, i.e. from medical to B.Sc. The bank believes that your ability to earn enough money to repay the loan has diminished. Credit default swaps, however, cover only credit risk inherent in the asset.

If the investment grade changes of a company that was obliged to pay the originator a monthly amount, the seller of protection will have to pay.

The seller will, however, still be entitled to all income paid monthly by the company. This form of derivatives is necessary where companies or pension funds, due to rules or regulations, are only allowed to have AAA graded debt on their books. The downgrading will force the company or fund to immediately call in the loan, for instance, putting the institution that has been downgraded under more stress.

5.2.1.3 Credit Linked Notes - In return for an upfront discounted amount, the buyer of the note (the seller of protection) will receive an income stream from the seller of the note (the buyer of protection). In the event that the debtor defaults or goes bankrupt, the buyer of the note will suffer either a delay in payment of the income stream or forgo interest altogether. The buyer of protection obviously received his protection in the form of the upfront discounted fee. Credit linked notes are a securitised form of credit derivative, i.e. a specific debt is underpinning the note.

The technology of these notes was derived from Catastrophe Bonds or "Cat" Bonds.

Following the chaos that Hurricane Andrew caused, insurers decided to look beyond re-insurers in spreading their risks. Bonds with favourable interest payments (coupons) were issued to the general market. In the event of a catastrophe, however, the buyer must sacrifice some of the capital portion of the Bond, to allow the issuer to pay claims with it (Kothari 2000: 1 – 30).

As can be seen from the above, these financial instruments are inherently simple and necessary and have been around for a long time in their simplest form. Martin Mayer says "Credit derivatives have an obvious utility, permitting very inexpensive diversification, as banks in the Oil Patch swap risks with banks in the Rust Belt, but the system is susceptible to all sorts of gaming and because its attraction is that it is cheap, neither side of the swap is likely to exert much diligence." He goes on to say that two Federal Reserve researchers wrote the following on the subject: "…the introduction of a market in credit default swaps can alter the equilibrium in the loan sales market, causing banks to reduce their loan sales and thus increasing the likelihood of their own insolvency" (Mayer 2003: 17).

Banks can, therefore, increase their leverage by offloading the risks of default on these loans, to a derivatives counter party, allowing more loans to be kept on its books, increasing potential profit. (Or losses in many instances.)

In order to put the comments made by respondents referred to in the CSFI report into perspective, one needs to take a step back. Securities lending in general, and more specifically repos, are about leverage. It is a very cost-effective method of raising capital, or doubling-up on an investment, or gearing one's assets. As we see below with LTCM, securities lending and repos were used to take five billion US dollars and create a position of a hundred billion US dollars. It is done to increase potential profit - no more, no less. Why people need to make more profit is the subject of a thesis in its own right. We therefore ask, why do banks use credit derivatives? In a nutshell, banks can increase their leverage by "off-

loading" the risks of default on loans to borrowers of money, to a derivative counterparty (or seller of protection). This is done to allow them to keep more loans on their books in order to increase potential profit. The question that needs to be answered is, what social controls influence the way in which and by whom, credit derivatives are used? One example would be the existence and efficiency of sanctions that should discourage those in decision-making positions at banks and other financial institutions from following strategies that may lead to their default.

5.2.2 What are the Risks Associated with Complex Financial Instruments?

The CSFI report highlights the seriousness and possible extent of the problems surrounding complex financial instruments like credit derivatives. According to respondents, the following problem areas exist.

5.2.2.1 CFIs (complex financial instruments) are used because the users want to be seen to use sophisticated products and, in many instances, the top management of companies that use CFIs do not understand the risks associated with their use.

5.2.2.2 Due to the lack of transparency in the way banks report their use of these products, no-one knows with certainty where these risks finally end up and what the concentration of risks is at individual institutions. Together with the fact that the extent of use of CFIs is very difficult to determine, the possible systemic risk due to their use is unknown.

5.2.2.3 Concerns were also expressed regarding the liquidity of firms that sell protection. Do they have deep enough pockets to survive market turmoil or even an economic downturn? Another important question is whether the buyers of risk have sufficient free capital. In the event of an economic downturn and, more importantly, when markets are under stress, the value of assets can sometimes drop quite rapidly. At times like this, cash is very necessary, specifically to make margin payments. The significance and importance of the availability of free capital were demonstrated very dramatically in the J F Eckstein & Co incident, where Salomon Brothers took over their portfolio, and in the demise of LTCM. The problem is not so much in the what, as in the "whom". As demonstrated in the LTCM case, the consortium that took over the LTCM position, massive as it was, managed to recoup its capital and make a modest profit (Mackenzie 2002: 29). Similarly, Salomon made a bundle by taking over Eckstein's portfolio (Lovenstein 2002: 3 – 5). In both instances the idea of the trade and the logic behind it was rational. Unfortunately, humans, not mathematical models, make the markets.

5.2.2.4 Of even more concern are comments made to the effect that banks may use credit derivatives to force borrowers into bankruptcy without loss to themselves. For example, bank A wants to buy bank B. In order to get hold of its assets, bank A will extend credit to bank B. Bank A sells the credit risk of bank B to bank C. It is now possible for bank A to force bank B into financial problems without any loss to itself. One of the most common reasons why this may happen is to weed out competitors.

5.2.2.5 A further concern respondents raised with the use of credit derivatives is that sellers of protection may use legal loopholes not to pay claims. It is interesting if one notes that at one stage LTCM had two insurance policies in place to cover a transaction in Italy. The second policy was there in case the first policy failed. Interestingly enough, some banks went as far as to claim that Russia's default on domestic debts was due to an "Act of God" and therefore they did not have to honour their obligations (Mayer: 2003: 19).

5.3. The Role of CFI's as Sources of Risk

Are intricate financial products like derivatives the root of all evil? If we abolish the use of derivatives, will we be able to prevent market crashes and systemic risk? In a presentation to a pensions and investment conference in June of 1996, Edward T Burton, a trustee on the board of the nearly $22 billion US public pension fund known as the Virginia Retirement Systems, addressed the issue of the risks associated with derivatives (1996: 1-14).

Burton argues, (like Kothari), that derivatives are essentially very simple transactions. He dismisses the claim by decision makers at large financial institutions that lost money in derivative transactions, that they did not understand what they were doing. Burton demystifies the whole derivative debate by identifying its basic elements. The reason why they were using derivatives was to make money. The concept of risk and reward was common knowledge to all of them and its principles are as applicable to derivatives as buying shares. He argues that those that lost money in derivative transactions lost money because they did not

understand the first rule of market participation: high risk, high reward (or high loss). If you use leverage to increase the potential for profits, you are also increasing your potential for losses. In the final instance, and probably the most important factor, is the inability of human beings to predict the future actions of other human beings. Burton identified the root cause of many derivative losses as simply the fact that "too few people understand the reality that markets do whatever they want whenever they want regardless of how certain we are that they cannot" (1996: 11).

Are the causes of financial bubbles and spectacular losses to be found in the intricacy of financial products or in a lack of understanding of the way humans, and especially groups of humans, behave and the fact that market behaviour is no more than a manifestation of human behaviour? In order to answer this question, this dissertation will analyse most of the published incidents of losses ascribed to securities lending transactions, as well as a number of incidents where losses were ascribed to derivatives and/or rogue traders.

5.3.1 Drysdale Securities – 1982

Prior to the failure of Drysdale Securities in 1982, accrued interest or interest earned up to the transaction date was not factored into the mark to market calculations used for US repurchase transactions (IOSCO & CPSS 1999: 42). What Drysdale Securities did was to "borrow" bonds by using repurchase transactions. Due to the fact that the "purchase" price of the bonds did not include the value of accrued interest up to the trade date, they could "purchase" a bond that they had to resell to the seller at a

future date, below its present market value. They then went ahead and entered into an outright sale of that security in the market. Their "immediate" but temporary profit would be the value that the accrued interest added to the resale price of the bond. If one concludes a large amount of these transactions, a substantial amount of cash can be raised in this fashion. This was, however, not the end for the wise men of Drysdale Securities. They took their newly found cash and wagered it on the future direction of interest rates in the US. As long as interest rates went in the direction they predicted, they made money; when their predictions were wrong they …? "Correct", they lost their shirts.

When Drysdale Securities filed for bankruptcy on 17 May 1982, their repurchase counter parties realised that the cash they received on their repurchase transactions with Drysdale was insufficient to buy the bonds back in the market, as they were missing the accrued interest or coupon portions. The reactions to this incident included an overall re-evaluation of risk management (IOSCO & CPSS 1999: 42). One of the first issues that was addressed was the standardisation of contracts in which collateral requirements were specified, so as to provide for the effect of accrued interest/coupons. The fact that counter parties had to be better scrutinised was also driven home, as the banks that cleared the transactions for Drysdale, including Chase Manhatten Bank, had to absorb substantial losses. Due to the fact that the banks acted as intermediaries, for a fee, in these transactions, they had to make the Drysdale counter parties whole again, to protect their own reputations. This incident, however, raises a number of questions very relevant to this dissertation: What caused the demise of Drysdale and would the new measures prevent a repeat of such events? The origin of risk lay not in

how Drysdale raised their capital, it lay in what they did with it. They took a view on the way interest rates would move in future and were wrong. The fact that they were leveraged in order to maximise potential profit, also maximised their losses, but cannot be seen as the origin of risk. Their belief that they could predict the future was the origin of risk. The risk management procedures could only reduce potential losses, as they did not address the origin of risk.

5.3.2 MELLON Bank – 1994

In 1994 Mellon Bank had to absorb approximately $130 million US in losses to protect its reputation (Knupp 2003: 5). Mellon Bank was an experienced securities lender that was holding billions of US Dollars in collateral for clients that were counter parties to securities lending transactions. In order to enhance potential profits, Mellon Bank invested heavily in products (probably derivatives) that would yield a very nice return if interest rates fell or even just remained stable. Interest rates, being determined by the individuals that manage the US Federal Reserve in consultation with the government of the day, however, rose sharply and Mellon Bank lost a bundle.

The visible risk factor is losses due to collateral reinvestment that was not properly diversified. The origin of risk is nothing else than the belief of the investment professionals at Mellon Bank that they could accurately predict the future movement of interest rates.

5.3.3 Harris Trust and Savings Bank – 1994

In June of 1994 the Bank of Montreal's Harris Trust and Savings Bank lost $51,3 million US as a result of securities lending transactions (Knupp 2003: 9) (Chance 1998). In order to protect their reputation, Harris Trust absorbed the losses and made their clients whole.

The investment managers at Harris Trust, in an effort to maximise profits, invested heavily in mortgage derivatives. The collateral they received on behalf of their clients from borrowing counter parties was invested in a $2,3 billion US, capped floating rate collateralised mortgage obligation. The essence of this instrument was simple: if interest rates remain stable or drop you will make money; if it rises sharply, the answer should be obvious.

So sure was the securities lending unit at Harris Trust and Savings in their ability to predict future interest rate movements, they felt confident to invest 34% of the $6,7 billion US they were managing on behalf of clients into this CMO (collateralised mortgage obligation). The fact that the reinvestment of collateral was not done in a prudent fashion, as it was not properly diversified, is once again the obvious culprit. The origin of risk is, however, nothing other than the belief of the investment managers that they can actively predict future market movements.

5.3.4. UBS – 2002

Another example of an incident where losses were attributed to securities lending occurred in 2002. Collateral that was provided by borrowers of

securities was invested in the UBS Commingled Fund. The Commingled Fund in turn invested the money in ENRON corporate paper. As most of us may know, ENRON was heading for disaster, leaving the investors in the Commingled Fund to share the losses, rather than the profits among themselves (Knupp 2003: 5 -9). The obvious origin of risk is once again the reinvestment of collateral. There is, however, no doubt that the apparent fraudulent activities of the management of ENRON was the actual source of the risk. The total failure of the social controls at ENRON created the environment for the mismanagement practices to remain undetected for such a long time.

5.3.5 Allied Irish Banks – 2002, The Common Fund – 1995 and Barings Bank

These three incidents are grouped together as examples of losses that were directly ascribed to the actions of so-called rogue traders. In July of 1995 the University Record reported that the University Fund stood to lose approximately $1,5 million US due to the actions of a rogue trader. The University Fund, together with 1 421 other educational institutions, had a portion of their funds managed by The Common Fund, a non-profit consortium aimed at enhancing the financial resources of educational institutions in the US. The Common Fund appointed First Capital Strategists to manage its securities lending and arbitrage programme. According to the report, a rogue trader lost approximately $128 million US through an unauthorised transaction. This rogue trader apparently entered into an index arbitrage transaction without “fully completing the appropriate corresponding hedge” (University Record: 1995).

On 7 February 2002 the BBC reported that Allied Irish Banks (AIB) discovered a loss of approximately $750 million US due to the fraudulent activities of a rogue trader. Apparently, this foreign currency trader executed a large number of transactions where Japanese yen were bought and US dollars were sold. Part of these transactions were immediate or spot transactions, while others were forward contracts, where agreements were entered into to buy and sell the two currencies at a predetermined exchange rate at a specified future date. If your view is that the Japanese yen will strengthen against the US dollar, this is a very smart move. If your view, however, turns out to be wrong, you could lose your shirt. To avoid losing your shirt, the common practice is to buy a little protection through hedging your positions. Hedging essentially entails using an instrument like an options contract to take an opposite position to your main bet. If your view turns out to be right, your option contracts will expire worthless and you will lose the cost of the option contracts. If your view turns out to be wrong, you will exercise your options and the profit you will make can be used to offset some of the losses you made on your main positions.

In the case of ABI, management claimed that false hedge positions were entered into their systems obscuring the un-hedged positions (from their eagle-eyed supervision). Explanations for this event ranged from the concealment of earlier losses to the outright theft of the option fees, by the trader. When Nick Leeson was asked for comment on the ABI event he reportedly asked why the middle and senior management did not intervene earlier. According to the same BBC report of 7 February 2002, Leeson said “The checks that should be in place to stop this sort of thing from happening are extremely basic”. He placed the blame on the

"incompetence and negligence within the middle and senior management" (BBC: 2002).

Few people did more for the image of the rogue trader than Nick Leeson, the man who single-handedly destroyed one of the oldest and most respected financial institutions in the world, Barings Bank. In the early and middle 1990s Leeson was a trader for Barings bank. In what he termed was a well-intentioned attempt to hide the losses in a client's account, he lost Barings Bank $1,2 billion US, causing the collapse of the bank. Leeson was sentenced to jail for his acts (BBC: 2002). What makes the information thus far very worrying are the findings of the 2003 report by the Centre for the Study of Financial Innovation (CSFI). This annual survey regarding the risks that are facing the international banking industry, reported in their 2003 report that out of thirty possible risks that face the banking industry, the rogue trader was ranked as 23rd, while it was 24th in 2002 (CSFI 2003: 23). Since 1996 the rogue trader was ranked 4th in ´96, 3rd in ´97 and not under the top ten since (CSFI 2003: 8).

The CSFI report does, however, find as their number one potential risk in 2003, up from no. 4 in 2002, the use of complex financial instruments (CSFI 2003: 9). One of the respondents quoted by the CSFI report highlights the fact that the market is driven by "complex financial instruments not understood by top management" (2003: 9). My question is simple, how on earth can the management of companies allow their institutions, and obviously their staff, to use instruments they don't understand? If this is in fact the case, maybe Nick Leeson does have a point in blaming poor management for creating an environment where it

is possible for traders to become rogue traders. One possible explanation why people who don't understand complex financial instruments allow their companies to use them is offered by another respondent quoted in the CSFI report, "yet because they appeal to our need for sophistication, they are greeted with admiration" (2003: 9). Walter D Hops, the treasurer of large chemical firm Ciba-Geigy, captured the essence of this dissertation in a quote published in the Business Week of October 31 in 1994: "Derivatives are nothing more than a set of tools. And just as a saw can build your house, it can cut of your arm if it isn't used properly" (Federal Observer: 3). A clear illustration of this happening was the $1,6 billion US loss suffered by Orange County in December of 1994. This loss was ascribed to the use of leveraged repurchase agreements; in par 5.3.6 this dissertation will show that this view is once again a massive oversimplification.

5.3.6 The Orange County Incident – 1994

One of the best-known cases of financial disaster connected to securities lending is the loss incurred by Orange County in 1994. In this year the county reported losses amounting to approximately $1,6 billion US, due to leveraged repurchase agreements (Chance 1998). On closer inspection this is, however, not even close to the full story.

Robert Citron, the treasurer of Orange County California, had an enviable track record of achieving above-average returns on the investment pool under his control, as is clearly illustrated in figure 9. Under the supposed supervision of a five-person board of supervisors, Citron used the fund's assets to raise cash by using the repurchase mechanism. This was the

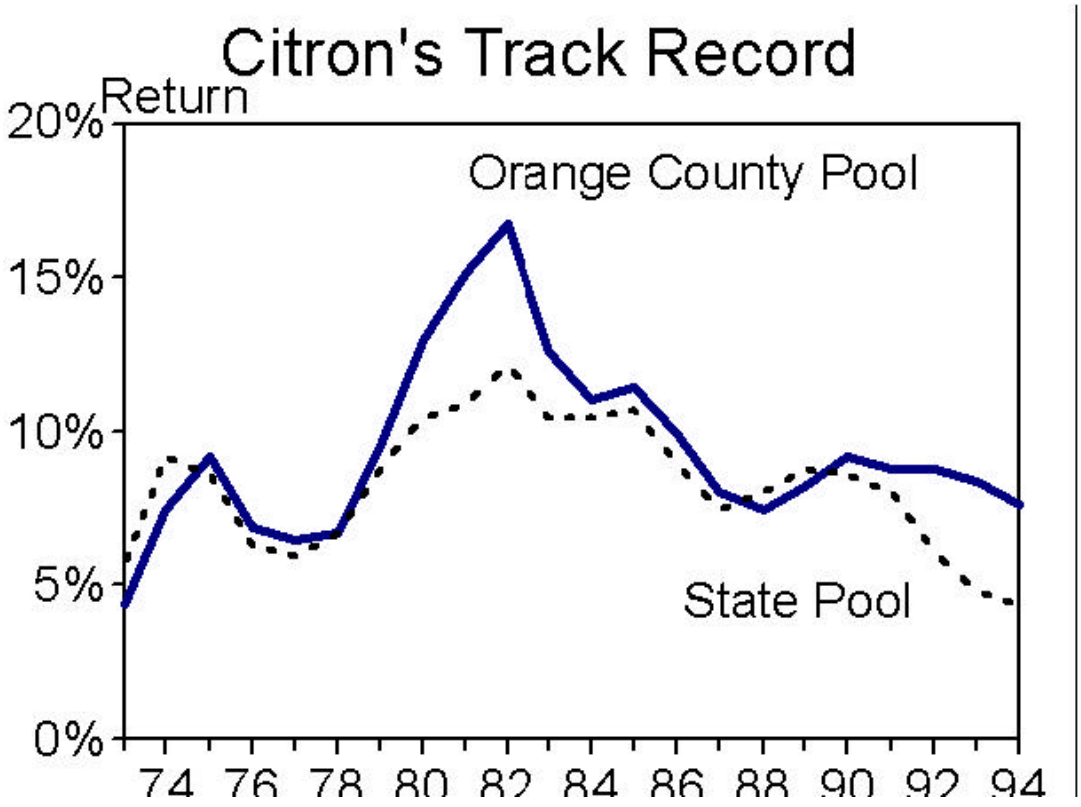
beginning and the end of the role of securities lending as a source of risk in the Orange County disaster.

The treasurer of Orange County used this cash and he invested the money in structured notes. In essence, he took a view on the future direction of interest rates. In a lawsuit that followed the disaster, the Orange County officials claimed that they were misled by the chief economist of Merril Lynch. According to them, this economist told them that at that time the likelihood was very slim that interest rates in the US would rise dramatically in the short term (Burton 1996: 5). Based on this assurance, the Orange County officials claimed they made the investment. Interest rates, however, did exactly the opposite of what the economist and the Orange County officials expected. Orange County and a number of other counties and funds that were eager to share the lucrative returns of the fund managed by Robert Citron, lost the proverbial bundle.

Robert Citron was of the opinion that medium-term interest bearing securities would go up in value, or at least maintain their value. In order to maximise his potential profit, Citron entered into a number of reverse repurchase transactions whereby he used the fund's existing securities as collateral to borrow more cash (Jameson 2001:1-4). In turn this cash was invested in, amongst others, collateralised mortgage obligations (CMOs), index amortising notes and inverse floaters, which are notes whose coupon falls as interest rates rise and vice versa. What Citron was doing was to take a county portfolio that normally invests in low-yielding, but safe, securities and he supercharged it. The net effect was that his $7,5 billion US portfolio became a $20 billion US portfolio. The direct investment risks were the following: if the value of his collateral

decreased he would have to top it up, probably in cash; if he was using securities like government and other bonds, their value normally decreases as interest rise and vice versa. The inverse floaters he invested in would definitely decrease in value as interest rates rise and so would the rest of his investments if he was confident that interest rates would drop or at worst remain stable. This brings us to the claims that Citron and his overseers did not understand the intricacies of derivatives. As Burton pointed out, the potential for risk is fairly straightforward: if interest rates rise you will lose money. The only excuse Citron may have had was that he didn't grasp the magnitude of potential losses. Citron was, however, no novice at this game; he had been treasurer since 1972 and, as we can see from the graph in figure 6, he had quite an impressive track record. If we assume that Citron and those who were responsible to oversee his activities knew how much they wanted to make, we have to assume that they must have had some idea of the magnitude of potential losses.

Figure 9: Citron Performance



5.3.6.1 What went wrong?

The trigger for the Orange County disaster was the decision of the Federal Reserve Board early in 1994 to raise interest rates in the USA in an effort to bring rising inflation under control. This strategy continued and, as interest rates rose by more than 2,5% in the course of 1994, two things happened: investments that depended on decreasing or low interest rates reduced in value and any interest rate sensitive securities, like US government bonds and other fixed interest instruments used by Orange County as collateral in repurchase transactions, also lost value, triggering the normal margin calls.

According to an article published by Erisk.com in June 2001 it appears that Citron tried to calm his investors in September 1994 who, by that time, probably became aware of the fund's problems. Only in November 1994, nearly a year after the initial interest rate hike, did auditors find that the fund suffered serious losses. In the same month investors in the fund threatened to pull their money out of the fund and counter parties holding Orange County collateral were preparing to liquidate literally billions of dollars of collateral. On the first of December 1994 Robert Citron confirmed that the fund had lost around 20% of its value, more than $1,6 billion US and on the third of December 1994 he resigned. On the 9th of December, as the due date for a number of repurchase transaction was in December and counter parties were preparing to sell off Orange County collateral, the Orange County of California filed for Chapter 9 protection, in an effort to protect the remainder of the fund. By doing that it became the largest municipality in the history of the United States to declare bankruptcy.

5.3.6.2 Who is to Blame?

A number of culprits have been identified over time, and there is no question that a number of factors played a role in the events that led up to the bankruptcy of Orange County. The most obvious culprit was Robert Citron, with his board of supervisors a close second. The board of supervisors claimed that, although they knew broadly what Citron was doing, he didn't communicate the full extent of the risks they were exposed to. If this was true, why did they ignore warnings by the county auditor, who pointed out the potential risks associated with the returns they were enjoying while interest rates were falling? John Moorlach, who ran for treasurer in 1994, but was defeated by Citron, repeatedly warned publicly that the investment strategy of the pool was risky. Investors into Citron's fund used a similar excuse, even though some cities and school districts issued their own derivative instruments, in the form of short-term taxable notes, to raise more money to invest in Citron's fund. To do this without taking independent outside advice is difficult to comprehend, as they were essentially multiplying risk by leveraging an already leveraged position. Their defence was that Citron had an excellent track record and Orange County was the biggest investor in their own fund.

Another possible source of risk that surfaced in later court cases, was the role of political corruption, in the form of campaign contributions, made to Orange County officials. What is known from reports is that, since 1987, Merril Lynch made at least $80 000 US available to Orange County officials and state legislators. The income generated by Merril Lynch

from their transactions with Orange County was quoted in similar reports at approximately $80 million US.

On 2 June 1995 a landmark settlement was reached with Merril Lynch who, without admitting any wrongdoing, agreed to pay $400 million US to Orange County. Merril Lynch was, however, not alone and more than thirty other institutions, which included securities houses, law and accounting firms were held partly accountable for the losses. On February 25th 2000 nearly $900 million US was paid to around 200 investors that suffered from the collapse. Citron himself received a fine of $100 000 US and a one-year sentence. From the outside, it looks as if all the culprits were punished and probably learned their lesson, or was the true source of risk not revealed? As we will see in the next chapter, there are a number of crucial structural factors that lie at the root of many financial collapses and losses.

There are, however, those who believe that the Orange County disaster was merely the culmination of events that were set in motion many years prior to 1994. The fiscal policies of the state of California, argues Howard Ryan (1995: 1-5), is the place one needs to start looking for the source of risk. The former boom state of the cold war years suffered when its aerospace and defence industries felt the effects of the Gorbachev era. With less defence spending, fewer jobs and the downturn in real estate prices during a national recession, everybody was strapped for cash. While the sources of tax on national and local levels dwindled, the needs of those who were unemployed and needy grew, placing a heavy burden on authorities. In 1978 the voters of the state of California passed “Proposition 13”, a law that reduced property taxes by half and

curtailed the ability of government to raise new taxes. With the centralisation of fiscal and political power in the capital of California, the state also squeezed the local government structures to meet its own growing demands. Another factor that played an important role was the effect of a low-interest recessionary environment on the returns offered by traditional low-risk investment products, such as US government bonds and negotiable certificates of deposit (NCDs) offered by the banks. With an urgent need for sources of revenue, the returns offered by the Orange County Fund must have seemed like manna from heaven. Ryan quotes three articles published in the Los Angeles Times on the 7th, 10th and 14th of December 1994 to illustrate the attractiveness of the Orange County Fund, which offered 3-4% more than other state funds. In a low interest rate environment this was a substantial carrot, explaining the reason why counties like Santa Barbara entrusted their money to Robert Citron.

In order to allow local government some chance to meet their obligations without raising taxes, the state legislature of California passed sixteen bills from 1979 to deregulate controls over the ability of local treasurers to make their own investment decisions. Do we once again, as in the LTCM incident and the Asian crises, have government policies as a major source of risk? Its crucial role, often through inaction, in the creation of an environment conducive to the thriving of extreme opportunism will be thoroughly investigated in the next chapter.

In summary, there is little doubt that Robert Citron was not qualified for his position in a regulative environment where he could make his own investment decisions. There is also little doubt that the marketers from

Wall Street enforced his belief that he really was an investment guru. What is difficult to comprehend is that hundreds of people in positions of authority, such as treasurers and boards of supervisors of more than 200 institutions, all believed they could make extraordinary returns without risk. However, if one looks at the credentials and qualifications of the LTCM shareholders, directors and more importantly those who invested in the fund, then I assume they do have a strong case when pleading ignorance. Very important for the purposes of this dissertation is the fact that securities lending was fortunately not banned or curtailed, as it is clear that the use of the repurchase mechanism by Citron was not a risk generator or the source of risk. People who are ignorant or believe they are infallible do not need securities lending to overplay their hands, especially in an environment that is conducive to the development and maintenance of extreme opportunism.

5.4 Summary

This chapter clearly identified the fact that the threat that so-called intricate financial instruments hold for the stability of the banking sector, had more to do with the decisions and the social controls that guide and influence the decisions made by those who control and manage the institutions at risk, than the products as such. This doesn't detract from the indisputable fact that any form of leverage will exaggerate the impact of any high-risk strategy and, in a situation where securities lending is used to achieve leverage, it will magnify the eventual outcome. Our analysis of the incidences of default demonstrates a striking resemblance to the source of risk in the banking sector at large. Human behaviour was the source of risk. If the social controls (like the set of sanctions, positive

and negative) that are designed to guide their behaviour, encourage or even demand high-risk strategies, therein lies the source of risk. In Chapter 7 we will investigate and isolate the structural factors that shape and condition the behaviour of humans in the financial markets.

CHAPTER 6

The Role of Securities Lending in the Events That Led Up to the LTCM Collapse

6.1 Introduction

This chapter will analyse the factors that caused the demise of LTCM, one of the largest hedge funds in the world. The aim is to determine which factors were responsible for this incident. This is crucial for any study of the risks associated with securities lending, as securities lending are often singled out as a cause of financial crises, due to the perceived risks associated with the activity. By analysing a wide spectrum of research from a sociological perspective, we are in a position to start seeing the proverbial trees from the forest.

6.2 Long Term Capital Management (LTCM)

6.2.1 Background to the LTCM incident

LTCM was one of the largest hedge funds in the US and was managed by some of the brightest minds in the business. In 1998 the fund came under severe pressure and only heavy-handed intervention by the Federal Reserve prevented a serious meltdown. Before we look at some of the research focussing on the causes of the incident, it is important for the reader to be familiar with the financial culture of the US. On a macro level, the US is a Capitalist society of note; the pursuit of profit is part of

the nation's fibre, as is the value placed on individual freedom and rights. It is, therefore, not unexpected to find that the tax, legal and regulatory regimes are designed to promote the entrepreneurial spirit and the taking of risks. US bankruptcy legislation, for example, prevents creditors from attaching a debtor's own residence in the event that he files for bankruptcy. The period that preceded the events of 1998 was one of the most prosperous periods in the history of the US. Under the Clinton administration the US had a budget surplus for the first time in many years, and the crash of 1987 seemed ages ago.

The people who founded and managed LTCM were also not your run-of-the-mill mix of individuals (Warde 1998: 1-3). The founder was John Meriwether, a legendary trader who previously made a fortune at Salomon Brothers, two Nobel Prize laureates, Myron Sholes and Robert Merton, and a host of doctors and professors from the fields of finance, mathematics and physics. Scholes and Merton were risk experts and were highly regarded for their work in that field. LTCM had the right pedigrees and it performed spectacularly. Net returns for 1995 were 42,8%, in 1996 they posted 40,8% and in1997, during the Asian crises, they still managed a very respectable 17,1%. Of great importance to this dissertation is the list of investors in LTCM. Their clients included David Komansky, chairman of Merril Lynch, and Donald Marron, the chairman of Paine Webber, two of the largest financial services firms in the US, who invested their private money into the fund. There is no question about the fact that these two individuals would have had access to the most comprehensive research capacity in the US, if not the world. They were joined by, among others, the Chinese and Italian central banks as co- investors. As a hedge fund, LTCM were virtually free from

regulation, save for the fact that their investors were strictly limited to people who should have known what they were letting themselves in for, i.e. the very rich, who can afford the best possible advice, and sophisticated institutions like big banks, who must surely know their way around financial products.

6.2.2. The Role of Widespread Imitation

Donald MacKenzie wrote an important paper on the causes of the demise of LTCM. Although he recognizes the role that Repo Transactions played in making possible the level of leverage necessary to build a portfolio the size of LTCM, MacKenzie digs deeper and comes to another conclusion. The ultimate cause, he says, was the "indirect and unanticipated consequences of the widespread conscious and unconscious imitation of its strategies" (MacKenzie 2002: 22). By using a sociological approach, MacKenzie was able to focus on the market processes that surrounded the failures of LTCM. In Chapters 2 and 3 of this dissertation, attention given to the specifics of the securities lending process, together with further research analysed later in this chapter on the LTCM incident, clearly point at operational and regulative ineffectiveness also playing a very important role.

Interestingly, MacKenzie points out Meriwether's appreciation of non-mathematical influences on his business. According to MacKenzie, Meriwether rated "understanding of the institutional structure of the Market" gained by experience more important than mathematical models. He also reflected this view when selecting staff to manage LTCM's overseas offices. Meriwether believed that an understanding of the

culture of the foreign country you deal in is more valuable than the mere grasp of quantitive knowledge (2002: 9-10).

6.2.3 The Role of External Events Unrelated to LTCM?

A chain of events that were unrelated eventually converged in a massive move to safety, causing a "run on the bank", i.e. LTCM (MacKenzie: 2002). The first factor was the closure of the arbitrage desk at Saloman Brothers in July 1998. Ironically this was where a number of the LTCM principals learned their trade. Although this was done as a mere business decision, it inadvertently resulted in a situation where the individuals tasked with the responsibility to liquidate the positions, were not held responsible for losses incurred in the process; it was, therefore, done faster than normal. This caused losses and inadvertently anyone with similar positions suffered similar losses.

The problem was that few had pockets as deep as Travellers or Saloman Brothers and nobody had positions the size of LTCM.

The second totally unrelated factor was a decision by the Russian government to default on debt denominated in domestic currency, rather than hard currency, as everyone would have expected. LTCM itself had limited exposure to Russia; Credit Suisse, however, incurred losses of around USD 1,3 billion. Another hedge fund called High-Risk Opportunities was forced into bankruptcy, owing large sums of money to Bankers Trust, Credit Suisse and Lehman Brothers, who were rumoured to go bankrupt itself, causing its shares to trade at a 37% discount to net asset value (NAV) at the time.

This triggered a "flight to quality" causing the price of the US long bond to rise to such an extent that its yield dropped to the lowest in three decades. (The yield of a bond is a factor of its coupon relative to its price; if the price rises, the yield drops and vice versa.)

This in itself was expected; however, what was not was a continuous move out of positions not only by investors, but also the managers of hedge funds. Although the LTCM investors were locked in for three years, investors in most other funds were not. This factor allowed investors in other funds to withdraw their money, forcing these funds to liquidate their positions. This fuelled the panic in the market and affected many of the institutions holding similar positions to LTCM, as well as many of LTCM's counter parties.

By the weekend after the Russian default LTCM were down 40% for the year. At that point, the rats started jumping ship and the proverbial "run on the bank" was in full swing. As mentioned above, LTCM's "run" was not from their investors, as they were locked in. Their problem was, the banks they did repos with were demanding more collateral, and they had to pay margin to counter parties on swaps and futures contracts that moved against them.

The LTCM counter parties, who did repos with them for years with minimum or no collateral, now demanded as much collateral as possible by putting a low valuation on the collateral it was holding. This outflow of collateral pushed the LTCM fund to the brink of bankruptcy. On 20 September 1998, less than three months after the decision was taken by Salomon Brothers to close its arbitrage desk, LTCM was in big trouble (MacKenzie 2002: 1 – 47). False rumours overstating the extent of

LTCM's problems also started doing the rounds, adding fuel to the growing panic.

The crucial factors in the analysis of this incident are twofold. Firstly, arbitrageurs are people and, contrary to the contention of the Shleifer-Vishney model that they are not influenced by one another, it is quite clear that they not only imitate one another's portfolios, they also fled as a group like all other investors (MacKenzie 2002: 35). I believe there is ample evidence to suggest that the market is not a perfect abstract space driven by mathematical models and equations. An institution created by humans, driven to a large extent by perceptions, may be much closer to the truth. The more holistic sociological approach is, therefore, clearly relevant and provides the framework for a much more thorough analysis of market events.

6.2.4 Could this have happened without securities lending?

In terms of whether or not securities lending is the cause of all ills, one also needs to apply the causality principle. In short, I believe one should ask the question: could the same have happened without securities lending and, more specifically, repo transactions? The answer is a qualified yes. Theoretically, similar levels of gearing could have been achieved by using OTC (over the counter) futures contracts, if the writers of these contracts allowed no, or minimal, margin payments as LTCM were allowed to do. The problem with the LTCM repo transactions was the lack or absence of appropriate haircuts and not the mechanism per se. One of the excuses commonly used to defend those firms that transacted with LTCM without haircuts is the fact that LTCM were very secretive

about their trades (MacKenzie 2002: 20) and the use of OTC transactions that are fairly unregulated. This ignorance was, however, to a large extent due to their own negligence, as the annual reports provided to them by LTCM covered the full extent of the fund's massive liabilities (Mayer 2003: 23).

Mayer summed up the whole causality principle: "Derivatives are not a cause of fragility, any more than guns are the cause of murder. There are many more derivatives written to lessen the risks of leveraged positions elsewhere on the books, than there are risk creators. But, it is easier for aggressive people to kill people if they have guns, and it is easier for aggressive traders to blow up themselves and others – including some innocent civilians far away – when they get their hands on derivatives" (Mayer 2003: 16). Can we place the blame on the instrument, or should we focus on the user? In most societies, sanctions are in place to control aggressive people; we do not consider banning motor vehicles or even high performance vehicles because some people abuse vehicles. The social controls necessary to ensure that this does not happen is where our attention should be focussed.

6.2.5 The Role of the LTCM Management

We do, however, need to ask ourselves if the LTCM incident can totally be ascribed to an unfortunate turn of events. In an unauthorised history of the LTCM failure by Roger Lovenstein, very important information appears. Lovenstein identifies a number of important operational and cultural issues that undoubtedly had an influence on the LTCM incident. It seems that LTCM, or its counter parties, did not adhere to traditional

risk management or market practices. It is also clear that LTCM and others were aware of the possible risks inherent in the LTCM model. "Mertons' perfect-arbitrage assumption was an essential building block in Long Term's (and many other firms) hedging strategies. The partners, of course, had worked with the same risk assumptions at Salomon Brothers and had racked up phenomenal profits – albeit with the occasional nasty loss" (Lovenstein 2002: 69).

Secondly, they knew that markets could be unpredictable. "In 1987, so-called portfolio insurance was marketed (with absurd ballyhoo) to institutional investors, as a technique of limiting losses via continuous selling when markets fall. These portfolio insurers helped to exacerbate a market crash that was later dubbed Black Monday. That day, the market was highly *discontinues*. Portfolio insurers who had counted on nimbly limiting their losses could not keep pace with the panic that broke out on Wall Street and, indeed, lost their shirts" (Lovenstein 2002: 68, 69).

The partners were, however, no longer working for Salomon or teaching at universities. Although their models were designed to manage risk, there was a risk they did not take into consideration. "For all its attention to risk, Long-Term's management had a serious flaw. Unlike banks, where independent risk managers watch over traders, Long-Term's partners monitored themselves" (Lovenstein 2002: 58). Other participants in the hedge fund industry also noticed the particular risks that LTCM were exposing themselves to. Seth Klarman, a general partner of Baufort Group, a group of small hedge funds, warned his investors against LTCM and said in a letter to them that, due to the projected levels of leverage, "…even a single serious mistake would put a

'major dent' in the fund's capital. Two major errors at the same time, of course, would be catastrophic" (Lovenstein 2002: 59 – 60). Further proof of the fact that the LTCM management was aware of the extent of the risks their traders were exposing them to can be found in their handling of a transaction involving Italian government debt. "At first Long-Term hedged the entire position, taking out a rather expensive Italian default insurance policy (it even took out a second policy, in case the insurer went broke). But, as the Italian position got bigger, Long-Term couldn't afford to keep buying more insurance, and it simply took a chance. An insider judged that, had Italy gone bust, the fund would have lost half of its capital" (Lovenstein 2002: 57). One wonders if the decision to cancel the portfolio insurance was taken before or after the Italian central bank became an investor in LTCM.

6.2.6 The Role of the Banks and other Counter Parties

The banks that LTCM was dealing with all had internal risk management procedures. Why did it all fail, or was it just not applied? Could it have anything to do with the fact that some of the most senior officials in control of these banks had their personal money invested in the fund? Normally, when a bond is repoed, the lender demands a small amount of extra collateral to protect itself against a drop in the price of the bond. This margin is called a "haircut". The riskier the bond or the borrower, the larger the haircut. This extra collateral acts as a natural check to limit the amount of trade one can do. If one could avoid paying the haircut, the amount of repo transactions one could enter into are limitless. LTCM was, however, allowed by virtually everybody they dealt with, other than Paine Webber, not to post initial margin. This decision by Paine Webber

stands to their credit, as their chairman was an LTCM investor, or maybe Marron appreciated the risks associated with achieving the type of returns that LTCM managed. Among the firms that waived the payment of haircuts were Goldman Sacks, J P Morgan and Morgan Stanley, to name a few. The question that needs to be asked is: why would some of the largest banks in the world waive some of their most basic risk management requirements?

Firstly, the banks saw LTCM "as a luminous firm of celebrated scholars and brilliant traders, something like the New Age "financial intermediary conjured up by Merton". The banks further believed that LTCM had the benefit of "superior, virtually fail-safe technology". The banks could also rationalise the easy credit terms. LTCM had more than 5 billion USD of shareholders capital behind it. "Only if Long-Term lost money with unthinkable suddenness – only if, say, it was forced to dump the majority of its assets all at once and into an illiquid market – would the value of the bankers' collateral be threatened and would the banks themselves be exposed to losses."

Lastly, and perhaps most importantly, the bankers believed they would get something more valuable than the protection of the margin. "…Long Term's real selling point was its connections to other powerful traders around the world. A firm that did business with Long-Term might gain valuable inside knowledge – totally legal in the bond world – about the flow of markets" (Lovenstein 2002: 45 – 48).

6.2.7 Can We Prevent another LTCM?

Mayer sets out a number of principles necessary if one wants to prevent a liquidity crunch at a bank to turn into a systemic collapse.

- "The markets do not create the legal order, the legal order enables the markets.
- The authorities will always have a less secure grip on borrowers than they have on lenders. (Capital requirements, imposed risk weightings, and margin requirements.)
- The purpose of rules should be to enforce the recognition of realities.
- Though the governments of the developed countries acting together do have the 'power' to control market behaviour, it is doubtful that they have or will have the competence to do so. The governments cannot design a new architecture, but given the certainty that the private sector's risk control models will fail at some point, they can demand some earthquake bracing."

Mayer summarises by concluding that a trade-off needs to be found between efficiency and safety (2003: 23-25). It is clear to see from Mayer's proposed remedies that structural conditions like limited formal and informal regulation need to be addressed.

6.3 Summary

What is very clear from this chapter, is the fact that the decision of the Federal Reserve in 1998, to stop imposing margin requirements on non-

Treasury paper, made it easier for LTCM to achieve maximum leverage (2003:19). What is also clear is that the decision by most of LTCM's counter parties not to require margin payments were a serious error in judgement. The argument that market participants can regulate themselves appears to be on very shaky ground and the need for disclosure, transparency, regulation and enforcement should no longer be a matter for debate.

CHAPTER 7

Securities Lending in the Context of the Social Structure of Behaviour

7.1 Introduction

In the previous chapters we assessed a number of incidences where losses were attributed to securities lending in one form or the other. These incidences and underlying transactions did not take place in a vacuum. In order to place it into perspective, a sociological analysis of the factors that shaped the behaviour of role players in the relevant markets will be used, in order to identify the underlying structural determinants present that created environments that conditioned the behaviour of the Milkens, Leesons and Citroens of the time. This chapter will be initiated by a recoup and expansion of the sociological foundation as set out in Chapter 1.

The sociologist, says Neil Smelser, is interested in the social aspects of behaviour, in other words how people are orientated towards other persons, groups or institutions. As early as the mid-1920s investigators identified the importance of human factors such as receiving status or the fostering of high morale and productivity in, for instance, a business (1976: 26). This social aspect can be viewed from a group or social structure point of view. A collectivity of people with similar or common orientations or goals is called a group. Through the study of such groups, the sociologist aims to explain why people join groups in the first

instance, how they interact in such groups and how individual behaviour is influenced by the group they belong to.

An alternative lens through which the social aspect of behaviour may be viewed is the social structure of behaviour. When two or more people interact repeatedly in a certain way, a social structure exists, says Smelser (1976: 36-45). A social structure is not made up of individuals, it is constituted from certain aspects of interaction among people. One example relevant to this dissertation would be the roles of investment manager and investor. The term "social structure", therefore, refers to identifiable patterns of behaviour called roles that are organised around the execution of a social function or activity. Once a social structure has been identified, we can start the process of identifying why it has been structured in a particular way, and what the results or benefits are that can be expected from conformity. We can also determine when and what type of deviance from structured behaviour can most likely be expected under certain circumstances. Smelser summarises the concept of social structure as relations among roles. This implies the possibility of conflict among roles. An example of such would be the trader or asset manager who must make money for his clients, as well as for his firm. If such a trader receives a large sell order from a client, for securities that his firm is long in, what is he to do? Must he execute the order and drive the price of his firm's holding down, or should he first sell his firm's holding and then sell his client's securities, after his own sale reduced the price that his client may get?

This brings us to those factors that operate with varying degrees of success as social controls over the decision that such a trader will make.

Smelser identifies three very important types of such controls, namely values, norms and sanctions (1976:38). Values legitimise the existence and importance of specific social structures, as well as the kinds of behaviour that transpire in a given social structure. One would, therefore, find that the value of free enterprise endorses the organising of a business (like a bank) around the institution of private property owned by shareholders who are engaging in the pursuit of private profit, i.e. to increase their personal wealth. Without the value of free enterprise, businesses owned by shareholders for the purpose of increasing their personal wealth would not be possible. Norms, on the other hand, are standards of conduct that regulate the interaction among individuals. An example would be the interaction among traders or hedge fund managers and their clients/investors. The norms of contract, property law and the laws that govern securities exchanges set obligations and prohibitions on the agents, i.e. trader and client, in economic transactions, i.e. buying and selling of securities. If a client instructs a broker to buy securities on his behalf, the client is obliged to pay the broker within a predetermined period. The broker, for his part, is obliged to buy the securities at the best possible price. If the broker sells his own securities to his client at a price higher than what he can buy it for in the open market, such an act would be regarded as deviant and, if detected, should trigger certain sanctions. Sanctions can be described as the use of social resources to control the behaviour of role players in social structures. Aspects of this control would be the inducement of individuals to assume and perform certain roles. If you want an individual to buy securities on your behalf, you have to pay him. A broking firm that wants to make sure their traders always put their firm's interests first, will structure his remuneration in such a way that he gets paid based on how much money he makes for the

firm and not on how much money he makes for his clients. Sanctions are also used to control deviance from expected role performance and may be positive, i.e. bonus payments, praise and status, or negative, i.e. ridicule, coercion and shunning or dismissal.

If these social controls are absent or not functioning optimally, disequilibrium or strain can develop in a system like a financial market. Causes of strain are, for example, ambiguity in role expectations, i.e. whether I am working for my client or my firm; conflict between roles, i.e. a broker who transacts with his client for his own account; and conflicts of value in a system. Reactions to strain may vary from discomfort and expressions of discomfort to the total collapse of the system. Measures to control and minimize strain may include the institutionalising of priorities and the application of sanctions through agencies of social control, i.e. the police and the courts. A practical example would be rules against trading against your client – if you break that rule, the police will arrest you and, if the courts find you guilty, you will be punished.

Mithel Y Abolafia used a cultural approach to study the activities of bond traders on Wall Street. The period of study included the 1987 crash and its aftermath, increasing its relevance for this dissertation (Abolafia 2002: 95). By viewing markets as cultures, the consequences of repeated interaction can be analysed. Markets are constituted by participants through rules and roles. The market is a reflection of ongoing competition between market participants. This competition is, in turn, shaped by the political, economic and regulatory environment of the market. The market cultures enacted by market participants are,

therefore, shaped by internal and external pressures. The rules and roles may be constitutive or regulative in nature. A regulative rule would, for instance, be a rule that governs the pursuit of self-interest, while a constitutive rule would be, for example, one that determines how the market should be constructed. Although many constitutive rules are based on norms and values of what is appropriate, some are based on institutionalised scripts that are taken for granted and are seldom challenged by members of a bond trading or investment banking culture, to name two. In addition to constitutive rules traders, asset managers and investment bankers also constructed colourful social identities that define the behaviour of role players and how they should interact with one another. These social identities are constructed from a toolkit of strategies that are used to reduce uncertainty and risk in their respective environments in an effort to enhance their probability of survival. Abolafia identifies some of these strategies, i.e. self-reliance, emotional control, risk taking, heightened materialism and opportunism (1998: 68-73).

According to Abolafia, traders do not arrive on Wall Street in a ready-made condition, nor do they walk into a cultural vacuum (2002: 103). They arrive in a well-established institutional order. Before a trader will be allowed to touch a trading terminal, he must learn the rules of this new social order. Institutions claim authority over the individual in the same way the military institution claims authority over its new recruits. Institutional rules may be general and/or specific in nature. General rules are, for example, those rules that determine the nature of the firm's business: is it a bond, equity or futures trading operation? Similarly, it would also determine the method of trading: over the counter (OTC) or

exchange traded. General rules would also prescribe acceptable methods of calculating compound interest, yields and yield to maturity, to name a few.

The deeper, more specific rules Abolafia refers to are what I would like to refer to as “walking the walk and talking the talk” rules. Among the most significant institutional rules is the rule that prescribes self-reliance and the pursuit of money above all else. The pursuit of material things is good in this culture of entrepreneurship. Traders learn that they can trust few, if anyone, and opportunism is a quality to be pursued with vigour and revered in others. Risk is something that must be embraced and not feared. It must be calculated and rationalised to strip away the uncertainties that cause and accompany it. You must also learn to develop your sixth sense or “gut feel” in order to be more successful.

The trading floor version of self-reliance is, however, not your average “Boy Scout” version. Bond traders’ perception of self-reliance is aggressive opportunism. The calculation of risk is manifested as hyper rational gaming and making a million is a start, not a goal. The trainee will learn his firm’s particular interpretation of rationality, pursuit of money and levels of risk tolerance. Traders learn from their seniors and other successful traders by looking and listening and imitation. With the rapid growth in the markets, the trainee phase has become shorter and shorter; with the advent of derivatives and more complex instruments, one often finds that very inexperienced traders are acting as role models for recruits.

Abolafia identifies important structural conditions that are important influences on the shaping of a culture. These structural conditions are, however, also affected and influenced by chances, as these strategies are used and adapted over time (2002: 106). Without these structural conditions it would not be possible for the typical opportunistic bond trader culture to develop.

7.2. Structural Conditions

7.2.1 Short-term incentives

The first structural condition necessary to increase the probability for extreme opportunistic action is what can be described as extraordinary short-term incentives. Not unlike currency trading, investment banking and asset management, the compensation or payment structure of bond traders is essentially based on how much money you make for the firm that pays your salary. The conflict between the role of advisor for a client and the role of making money for one's employer is obvious. The culture of these types of institutions is such that most of the traders' remuneration is in the form of performance bonuses and very little value is attached to loyalty to the firm, hard work and client service. An example of the extent of such incentives would be the case of a currency trader called Andy Krieger. In 1988 he worked as a trader for George Soros, for whom he made $42 million US in that year. His cut was 10% of this fee. At that point Krieger had made sufficient money that he resigned from Soros without taking his bonus of $4,2million US. Similarly, Martin Sieger, an investment banker who worked for Kidder Peabody, received a bonus of $2 million in 1986 (Partnoy 2003: 17).

A very important factor is for traders to believe that their employers condone and even encourage their aggressive behaviour. This faith is normally well justified, although employers vehemently denied such encouragement after an incident where money was lost. The chairman of Bankers Trust overtly encouraged his traders to speculate with the bank's capital, according to Frank Partnoy (2003: 23). He apparently gave Andy Krieger (who later went on to work for George Soros) $700 million US to speculate with. At the time, Krieger was 29 years of age. This type of speculation does, however, have the potential of creating a moral dilemma: what happens if the trader loses a substantial amount of money on a trade, does the bank absorb the trade, or is the trade booked to the accounts of their clients? There are, however, also strong negative sanctions, not least of which is assured dismissal if you fail to make money for the company.

One commentator who investigated the phenomenon of rogue traders, Prof Jerry W Markham, noted, according to Partnoy (2003: 183), that traders were motivated to expose their firms to as much risk as possible in order to maximize their personal earnings potential. He further warns that there is little motivation for them to protect their firm's capital, and this extreme motivation lends itself to the use of improper and sometimes illegal practices in order to maximize their earnings.

7.2.2 Information

The second structural condition that underlies opportunistic behaviour is what Abolafia calls "opportunities for information impactedness". What he refers to is a competitive advantage (albeit unfair) due to superior

information derived from his position as a trader. In the first instance, the bond trader would know his own firm's holdings, positions and views and, secondly, he would know the holdings, views, likes and dislikes of his clients. The larger the firm he is working for and the larger his client base, the larger his potential advantage. Abuse of this type of knowledge often manifests itself in the practice of "front running". A trader who receives a large buy or sell order from a client can make his firm a lot of money if he transacts for his firm's account before he executes his client's order.

I do believe one can argue that the use of complex financial instruments has the potential to create similar advantages to the originators. By using complex financial instruments, the trader, banker or asset manager can create a position where those he is selling his product to are at a disadvantage, as they would find it virtually impossible to accurately price the product. As we have seen in research done by the Centre for the Study of Financial Innovation, individuals and companies often buy these complex instruments because it is fashionable or because their apparent sophistication appeals to the users (CSFI : 2003 9-10). Another competitive advantage offered by many derivative products is that they are often unregulated, something that appeals to a range of investors, especially those in highly regulated environments like banks. One of the ironies of these products is that the back-offices of the firms that sell and buy them often do not know how to price and account for these products. One of the most classic examples is the case of Joseph Jett (Partnoy 2003: 177-181). After being fired by First Boston, after an equally short spell at Morgan Stanley, Jett started working for Kidder Peabody, a securities firm and subsidiary of General Electric.

By manipulating the firm's accounting system, Jett managed to create fictitious profits and hide losses costing the firm $350 million US. After the event, his boss Melvin Mullen, who had a Ph.D. in mathematics, claimed that he didn't understand the transactions that Jett was doing. Very similar to the Leeson incident at Barings bank, the fact that Jett showed fictitious profits totalling $151 million US in 1993 (nearly a quarter of the firm's total profits) didn't prompt his superiors to even try and find out how he was making his profits. An indication of the lack of negative sanctions that should have followed his dismissal is reflected in the fact that, since 2003, Jett has been the chief investment officer of a multimillion dollar offshore investment fund (Partnoy 2003: 183).

7.2.3 Informal restraint

The third structural prerequisite for extreme opportunism is limited informal restraint. According to Abolafia, the lack of personal relationships and contact between traders and their clients allows for limited opportunities in which trust can develop from continuing relationships. This lack of trust allows traders to take an impersonal view of their counter parties. The advent of electronic screen trading on a global basis will exacerbate this phenomenon. An indication of the level of informal restraint one can expect to find at an investment bank on Wall Street can be gauged from the purported comment made by a Bankers Trust employee. According to Partnoy, the employee described the derivative business as "funny business, you know? Lure people into that calm and then just totally fuck 'em."(2003: 163).

7.2.4 Formal restraint

In the fourth place, Abolafia identifies limited formal restraint as a further key prerequisite for extreme opportunism to exist. In order to place this concept in perspective, it is important to identify the dynamics of power and influence at play in a market (1998:77). At the lowest level one would find the individual trader, banker or asset manager. As we mentioned above, these individuals are culturally embedded in a system of rules and roles spawned from their interaction with one another. These rules and roles are drawn from the proverbial "toolkit" that defines what behaviour is acceptable and what isn't. On the next level one would find informal and formal self-regulation imposed by reputational networks, industry and trade groups that may be restricted to one company or may be regional, national or even international. Examples of such bodies in South Africa would be the Institute of Financial Markets and the South African Securities Lending Association, which are both voluntary organisations aimed at self-regulation. In the final instance, we find the institution with the most power, i.e. governments. The power of governments to institute formal restraint is largely dependent on what can be termed the political will. According to John Kenneth Galbraith (1992:206), governments do have the tools to prevent and control speculative orgies; the important factor is their determination and willingness to use such tools. In his book "The Great Crash 1929" that was first published in 1954, he identifies the struggle between those who believe that markets can regulate themselves and those holding the view that large scale speculation needs to be controlled. He also identifies the fact that, although not directly responsible for the crash, the US economy was not fundamentally sound in 1929. Galbraith singles out five

weaknesses that had a bearing on the crash: uneven income distribution, lack of corporate governance, ineffective banking structure, levels of foreign debt and poor economic intelligence (1992: 194-204). I believe that, other than perhaps uneven income distribution, the other weaknesses could and must be addressed by formal regulation in some or other way.

Abolafia identifies the influence that a changing regulatory environment had on the financial community (2002:107-108). It is clear that the financial community interpreted a number of steps instituted by the Reagan administration as a general policy of the relaxation of formal restraints and a promotion of self-regulation. This relaxation was justified with the argument that little formal regulation is necessary when bond traders are only dealing with other bond traders and institutions that should know what they are doing. A similar argument is made with regard to the status of hedge funds, where investors are limited to "high net worth" individuals and corporations that, once again, should know what they let themselves in for.

The problem with this policy lies in the fact that products like credit derivatives allow the transfer of risk to institutions that do not have the expertise to manage the risks they buy. Similarly, the use of excessive leverage, through the use of marginless repurchase transactions and futures, could put systemic strain on a financial system at large.

One of the earliest steps taken by the Reagan administration was the appointment of an executive of a broking firm as the head of the Securities and Exchange Commission (SEC). The vigour and level of aggression with which the SEC was enforcing rules and regulations were also reduced. The self-regulating body of the bond market took their key

from the government and focussed their attention on the protection of the so-called widows and orphans, or areas where brokers interact directly with members of the public. This was done at least in part because they knew that incidents involving these groups would most likely attract SEC or even Congressional attention. As I mentioned above, the rationale is that, if two brokers rip one another off, they must sort it out among themselves; if a broker rips off a widow, the SEC and/or Congress needs to step in. This trend was, however, continued under the Clinton administration when a former stockbroker, Arthur Levitt Jr., was appointed as chairman of the SEC (Partnoy2003: 141-155). Levitt apparently made six-figure contributions to a number of presidential hopefuls during the 1992 presidential campaign and, in particular, he helped to raise $3,5 million US for William Jefferson Clinton, who became president. A few days before Clinton took office, the outgoing chairlady of the Commodity Futures Trading Commission (CFTC) signed an order exempting most over the counter (OTC) derivatives from federal regulation. This order was based on a 1992 law that empowers the CFTC to exclude from regulation any swaps negotiated individually by sophisticated parties. The argument underlying this was, once again, that the parties are sophisticated and should know what they are doing, or should be able to afford suitable counsel and, secondly, because it was a private transaction not reflected on any exchange. This CFTC exemption did, however, include standardised swap contracts that are often used by less sophisticated parties and are often referred to as low-risk vanilla swaps. The new CFTC chairlady, Sheila Bair, kept this exemption in place and publicly expressed her department's affinity for derivatives. A few months later, the outgoing CFTC chairlady, Wendy Gramm, was

appointed as a director of one of the most active traders of energy and natural gas derivatives, ENRON.

Not everybody was, however, convinced that derivatives should be free from federal regulation (Partnoy 2003:147-148). One notable exception was Jim Leach, a leading Republican who sat on the banking committee of the US Congress. Leach appeared to be immune to the pressures brought to bear by lobbyists, probably because he refused to accept contributions from political action groups like the financial industry. Largely due to his efforts, the House Banking Committee staff issued a 900-page report in November of 1993 in which grave concerns were expressed regarding the unregulated use of derivatives. In May of 1994 the General Accounting Office released a 195-page report that took nearly two years to complete. Even though the GAO was a known supporter of the free market, they detected serious shortcomings relating to risks associated with the accounting for and the regulation of derivatives. This compelled them to recommend that all regulations regarding derivatives need to be re-looked at, including the regulation of OTC transactions (2003: 150). The battle in the US raged on, and in 1995 the Private Securities Litigation Reform Act of 1995 was passed, which left many with the impression that the government had no intention of promoting criminal and civil prosecution of financial fraud (Partnoy 2003: 173). In December 2000 the derivatives industry was granted permanent exemption from federal regulation by the United States Congress; this left their own moral values and reputational risk as the only constraints limiting the activities of a trillion dollar industry.

7.3 The Extent of Extreme Opportunism

One can easily fall into the trap of blaming the use of derivatives and other complex products for the world's financial ills. Similarly, the traders of such products are also an obvious target as the cause of our ills. Extreme opportunism is a phenomenon that manifests from time to time, affecting populations at large. Events like the gold rush in the US in the 1830s, as well as the large-scale speculation that led up to the 1929 stock market collapse, are examples of such extreme opportunism. What we will show is that such extreme opportunism is not limited to financial services specialists like bond and derivative traders – it also affects individuals and corporate executives. As we have seen in par 2, there are certain structural conditions necessary for this condition to develop.

7.3.1 Extreme Opportunism and Joe Soap

John Galbraith refers to "the mood of the twenties and the conviction that God intended the American middle class to be rich."(2003: 35). He also identifies in the American people "an inordinate desire to get rich quickly with a minimum of physical effort" (2003:32). A classic example was the Florida property boom of 1925. Underlying this boom was what Galbraith calls the "indispensable element of substance" (2003: 32). The weather in Florida was and still is great and, with a greater number of Americans owning cars, it was now also accessible. The fact that Florida, as we have seen in 2004, has the occasionally hurricane, was far from everyone's mind. Another attractive element of Florida property was the fact that it was sold in small lots and could be purchased by putting down a 10% deposit. As the demand grew for Florida beachfront property, lots

were divided and plots were sold further and further from the sea. This practice is clearly demonstrated even today in so-called coastal resorts on the Costa del Sol in Spain, where some resorts are a hundred kilometres from the closest beach. The further you buy from the sea, the less you pay, but the risk of the property not increasing in value also increases. This principle was also demonstrated in the "Junk Bond" era of the 1980s. In 1926, however, the stream of steady buyers became a mere trickle and, despite substantial marketing campaigns, stayed a trickle. The proverbial coup de grace was delivered by two hurricanes that hit Florida in late 1926.

In the same period, the US stock market started a steady rise and by 1928 was fuelled by the predictions of those "in the know", ranging from politicians to industrialists and academics. The euphoria, Galbraith says, continued until September 1929. On 5 September Roger Babson, a jack-of-all-trades economist/statistician, predicted that the Florida experience would be repeated in the stock market and the results might be severe. The collapse was not immediate. The demise, however, gained momentum over the next few weeks and, on Tuesday 29 October 1929, the New York stock market experienced what was regarded by many as its worst day in history (2003: 133). An interesting point made by Galbraith is the fact that observers often overestimated the number of people involved in the stock market speculation of 1929; to him the crucial element was the fact that, although only a bit more than fifty thousand people participated in speculation through the use of margin accounts, i.e. putting down a deposit and borrowing against the shares they bought, the act of speculation became central to the American culture.

7.3.2 The Role of the Federal Reserve

As I indicated in 7.2.4, the political leadership was, due to their inaction, largely responsible for the extent of the 1929 speculative bubble (Galbraith 2003: 58-59). The Federal Reserve was helpless only because they chose to be helpless. This inaction we will observe in the 1990s in the US, as well as in some Asian countries in the era before the Asian Crises. An increase in margins, or even the threat thereof, could have calmed the speculative spirit in many small investors. The power to do so was, in actual fact, given to the Federal Reserve Board in 1934. As we saw in Chapter 6, the Federal Reserve Board imposed margin requirements on everything except Treasury paper, thereby limiting the level of pyramid building (Mayer 2003: 19). By abolishing this requirement, the door was opened for the likes of LTCM to build a massive leveraged portfolio. Galbraith argues further that in 1929 even the denunciation of speculation or stern warning of a fall in prices of stocks by someone in authority might have been sufficient to arrest the madness. As we have seen in the case of traders and other investment professionals, the approval, tacit or explicit, of their activities seems to be an important factor in the creation of an environment where extreme opportunism can flourish. It appears that such approval from leaders, or those in a position of authority or perceived wisdom, plays a similar role in the creation of an environment where the public at large will speculate. In view of this, one must ask if there is any possibility that an overtly corrupt government will not have a detrimental influence.

6.3.3 Analysts and Other Wise Men

As we have seen in the events that surrounded the 1929 crash and the development of extreme opportunism in general, the influence of authority figures or "those in the know" is an important facet of speculative behaviour. For a long time, many saw analysts as the protectors of the truth. As gatekeepers of the truth, securities analysts had a very important function. Due to their supposed in-depth knowledge of how firms make their money, they should be the first ones to smell a rat and should then shout "fire, fire", thereby alerting all mere mortals that something untoward was afoot. The reaction from investors would be to sell the stock, thereby driving the price down; this would, in turn, teach those in positions of authority not to mess with the market. This was, unfortunately, in many instances the theory. In practice, Portnoy points out to us, the analyst has often been corrupted by the exact same forces that corrupted Abolafia's bond traders, bankers and even accountants. Conflict of interest between the interests of the firm they worked for and the best interests of their clients, limitations on their liability through the actions of the regulators and pressure from corporate executives, both internally and externally, created the environment conducive to their corruption (2003; 277).

A number of high profile incidents after 1990 exposed securities analysts as mere mortals, and they lost a lot of the respect they used to command (2003: 285). Securities analysts at investment banks, especially those whose banks acted for clients who just issued stocks in an Initial Public Offering (IPO), would issue excessively optimistic reports on the recently issued stock. The motivation behind this would be quite simple.

Legislation prohibits corporate insiders from selling their shares within the first six months after a listing/IPO. The aim of the legislator was to prevent executives from listing a melon and dumping their shares on the first day, leaving investors high and dry. With the help of the gatekeepers, however, this was now possible even six months after a listing. The relationship between analysts and their clients was not only a one-way street. Analysts received inside information from companies that allowed them to accurately predict corporate earnings announcements. This ability to "see into the future" enhanced the status and earnings potential of analysts. In return for artificially high ratings, a company obviously had to place a certain amount of business with the bank that employed the analyst. The higher the status of the analysts punting your stock, the more money could be made by those dumping stock. The beauty of the scheme is that analysts were regarded by many as honest and independent. The companies and banks found somebody to lie on their behalf (2003: 285). Once again, we find that the federal regulators had little or no interest in regulating or prosecuting analysts. It took an ambitious attorney general of New York to uncover the web of deceit around analysts employed by some of Wall Street's most prestigious banks like Merrill Lynch (2003: 288).

7.3.4 The Role of Corporate Executives

Corporate executives, according to Partnoy, were in 1999 similar to their predecessors in the sense that they were still responding to the incentive structure created by the rules and regulations at the time. Rules that guided their compensation encouraged stock-option grants and legislation limited their liability. This limited liability to a certain extent provided a

degree of insulation, not only to the executives, but also their accountants and bankers. The stage was set for extreme opportunism to flourish. In their pursuit of substantial and often extreme short-term financial gains, they often sacrificed the long-term viability of their companies (2003:291).

The list of executives that enriched themselves or at least tried to is long. As early as the late nineteen eighties the executives of RJR Nabisco nearly destroyed their company in their efforts to do a leveraged buyout (Burrough & Helyar 2001). Few companies, however, had the impact of the rise and eventual fall of ENRON, a US energy company. Kenneth Lay, Jeffrey Skilling and Andrew Fastow managed to take a small natural gas producer and convert it into one of the largest companies in the US. The reason why ENRON is important is because it could only have happened if certain structural requirements were present. ENRON was made possible because of three fundamental issues. The spread, popularity and demand for financial innovation, loss of control and the deregulation of the financial markets (Partnoy 2003: 296-298). ENRON is important because they managed to take it to the next level; their thinking was out of the box. They combined the high-risk/high-return strategies of the best of Wall Street with the dubious practices of certain corporate executives and the assistance of accountants, rating agencies and analysts, and they managed to create a scenario where Abolafia's traders who where working for ENRON were perceived as the only upstanding citizens in the mix.

Relative to many of its contemporaries, ENRON was a profitable, well-managed and law-abiding company. As the magician can deceive its

audience, ENRON was not what it seemed. First and foremost, it was not an energy firm. It made its money from trading derivatives and this, in turn, made it more volatile than most Wall Street investment banks that were volatile in their own right. This fact eluded investors and, apparently, the analysts who were suppose to guide them. From its core business ENRON was highly profitable. It collapsed because the important role players, such as institutional investors and the credit rating agencies, never understood how they made their money and started running or punishing the firm when they realised that the inherent risk in the firm was masked through the use of derivatives. Another fact that would baffle many of us is the fact that, to a large extent, most ENRON transactions followed the letter of the law in the strictest sense. In essence, ENRON investors were deceived because they didn't want to read the documents provided by ENRON, or they didn't want to know. This "ostrich" tactic of not wanting to know was most certainly matched by the ability of ENRON's accountants and bankers in their efforts to hide or postpone losses and to inflate or expedite the reflection of profits.

If it is possible to look past the media hype, one quickly realises that ENRON was merely a reflection of the impact of structural changes in law and culture that managed to justify and condone behaviour previously frowned upon.

7.4 Summary

In this chapter we have placed the behaviour of "extreme opportunists" into perspective. Through the use of a cultural approach, we investigated the reasons why such behaviour, or should we say culture, develops and

how it is maintained. Many, if not most, of the people involved in financial collapses and scandal were highly intelligent people. We can ask: are these events modern phenomena? The answer is no, we saw similar incidents in 1927 in the US, and even the gold rush of 1938 in the US had elements of extreme opportunism.

Values, norms and sanctions are key determinants of human behaviour. If these social controls are not functioning optimally, the climate for the development of a crisis exists. By using Abolafia's cultural approach, we determine that internal and external pressures shape market cultures enacted by market participants. The most important influences that shape a culture are structural conditions.

Abolafia identifies a number of these structural conditions necessary for extreme opportunism to develop and exist. In the first instance, he identified extraordinary short-term incentives. Gold, money, power and prestige are all up for grabs in extreme quantities in a short space of time. A real or imaginary competitive advantage is also necessary. This may range from inside information to a perception of access to special knowledge or even a perception of special knowledge of how to make money through gold, property or complex financial instruments. Limited informal restraint is another important factor necessary for extreme opportunism to develop. It takes a special kind of individual to sell a worthless piece of swampland or a worthless security or a highly volatile financial product to a friend or someone with whom he has built a special relationship based on trust. In the final instance, Abolafia identifies a lack of or limited formal restraint as a key factor. These formal restraints start from the rules and regulations that govern behaviour in the smaller

groups to those imposed by central governments. Very importantly, Kenneth Galbraith identified the fact that governments do have the power to institute and enforce formal restraint on financial markets. The question is whether or not they have the political will to do so. A steady deregulation of financial markets across the world created an environment where self-regulation was promoted. If such deregulation is coupled with an apparent lack of will to enforce those regulations that do exist, i.e. laws against theft and fraud, a culture of tolerance enhances the development of extreme opportunism.

With these structural factors present, we see that extreme opportunism was not limited to those trading in securities. As we saw in the gold rush and the speculative property boom of 1925, ordinary people got in on the act to make a quick buck.

This extreme opportunism achieved new heights for those with special skills, power and influence. Analysts, accountants and Corporate Executives were all mesmerised by the glitter of gold to such an extent that, in the case of ENRON, the derivative traders were actually the good guys. In the next chapter, we will see how a highly respected group of well-educated academics and asset managers nearly managed to bring the whole US financial system to its knees.

CHAPTER 8

Securities Lending and Systemic Risk

8.1 Introduction

Much has been made of the role of securities lending as a contributor or source of systemic risk. To find some form of perspective, this dissertation will draw a comparison between securities lending and the purported influence of computer driven trading systems, the Internet and other technological innovations, on systemic risk. Does the fact that technological innovations like automated settlement systems and the Internet allow investors to sell (dump) shares and other securities with overwhelming ease, contribute to a potential for systemic risk? The answer is an irrefutable yes. Should we now go out and ban these technological innovations? The answer is an absolute no. Should it be properly regulated and continuously monitored? Without question.

One of the most common mistakes that are made is to confuse cause with symptoms or effect. As we have seen in previous chapters, the failure of a large financial institution most definitely has systemic implications. The size of the institution and the extent of its representation and interests geographically are just two of a number of factors that play a role in the possible impact its failure may have on the larger financial system. If a big bank fails, the systemic implications are big, if a big hedge fund fails, the systemic implications are big. When a large energy company or dairy company fails, we have big systemic implications. I doubt if anyone would disagree that the policies and practices of the directors and

management at ENRON (a US energy company) and Parmalat (an international dairy conglomerate) deserve some attention when one is serious about identifying the source of risk that led to their demise.

The fact that the Russian government decided to default on a portion of its debt had massive systemic influence. Because of technological developments, this news was carried with amazing speed across the world, something that would have taken months in 1820. Those affected were hedge funds, pension funds, unit trust funds, banks and a host of other institutions and products. The source of the risk had very little to do with financial products, services or computer systems; the source of the risk fell into the realm of the policies and practices of the Russian Government and their predecessors. Similarly, our research clearly shows that the Asian crises had very little, if anything, to do with financial products. Once again, the quality of government, their policies and ability to manage were the crucial factors at play.

When we shift our attention to individual companies like LTCM, Orange County, Drysdale Securities and MJK Clearing, to name a few, we once again find that management, their policies and practices were crucial as sources of risk. The systemic influence of the failure of these institutions had much to do with their sheer size and areas of involvement. The fact that many were highly exposed to derivative products was not the cause of their problems. It was merely a reflection or symptom of other problems. Are credit derivatives truly the major source of risk that face major banks, and were those labeled as rogue traders really rogues? As we have seen in Chapter 7, the policies and practices of management and shareholders and the structural factors that created the climate necessary

for these policies and practices to develop and thrive, is the true source of risk.

In this short chapter we will analyse the influence that securities lending has on systemic risk. The need for upgraded reporting requirements regarding assets committed as collateral in securities lending transactions, and the inherent dangers associated with the uncontrolled use of leverage will be addressed in this chapter.

In the final instance, the results of a statistical analysis conducted by Genesis Analytics of a particularly volatile period experienced by the South African financial markets will be assessed. The relevance of statistical analysis in this context is important for the purposes of this chapter. What the Genesis report will determine is whether or not there is any statistical evidence, over the period investigated, that points to securities lending as the source of market volatility or speculative bubbles. Their findings would provide strong evidence on whether or not efforts to place securities lending central to market instability are justified, or whether or not we should use the framework provided to us by sociology, to assist us in discovering the source of risks that lead to market instability, giving us the opportunity to prevent market crashes or at least the earthquake bracing demanded by Martin Mayer in Chapter 6.

8.2 The components of systemic risk

The Bank of International Settlements (B.I.S.) identifies three components of systemic risk, in order to assess the potential effect of securities lending on it.

Firstly, they ask what the probability is of a shock occurring; secondly, through which channels are shocks transmitted; and lastly, what is the possible impact these shocks could have on the financial system, once it is transmitted.

Securities lending may contribute to systemic risk in a number of ways. The use of securities portfolios or cash as collateral reduces the pool of assets of an institution, for example a bank. In the event of a bankruptcy, unsecured creditors will be able to lay claim to a much smaller pool of assets than what they may have thought. The need for greater transparency through more in-depth reporting regarding assets committed as collateral in securities lending transactions is obvious. Large shocks in securities markets i.e. stock market crashes or a government's defaulting on debt, can result in under-collateralisation. The subsequent rise in margin calls quickly drains cash or quality securities out of the market. Even the failure of a settlement system could result in massive defaults and a shortage of cash, as many institutions are dependent on repos for their cash requirements and on scrip loans for settlement purposes.

Leverage is probably one of the results of repo transactions that can make the largest contributions to greater systemic risk. As we have seen with LTCM, excessive leverage resultant from legislative and regulative inefficiencies or weaknesses, exacerbated by poor or nonexistent risk management and counter party discipline, increased the potential for large institutions to fail. This, in return, has systemic risk implications (B.I.S. 1999: 27 – 28). It is very important to realise that the source of risk is not inherent to securities lending, but is rather a factor of how, by whom, and in what environment it is used. It is, therefore, not possible to assess the

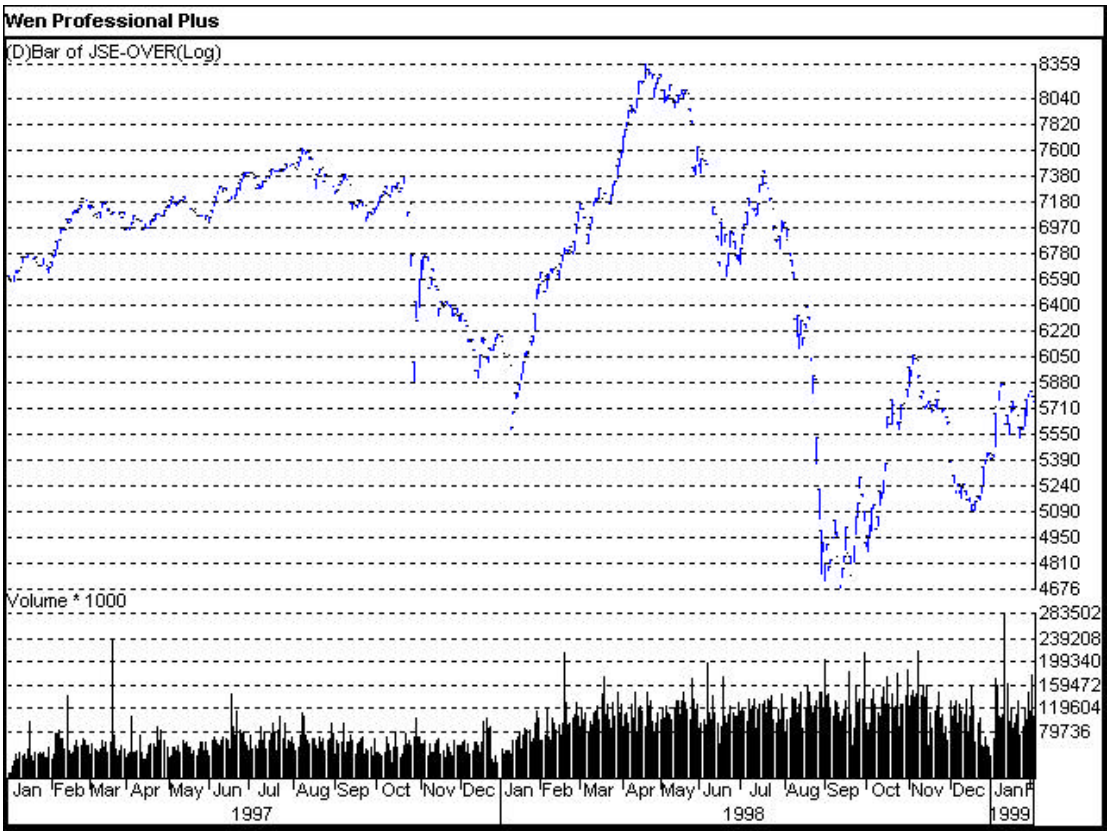
risk associated with securities lending in isolation. If we do not understand the inherent social origin of risks that affect financial markets, it is easy to try and cure the symptoms instead of the disease.

8.3 The influence of securities lending on financial markets

Investors normally assume that the spot prices of illiquid securities cannot be accepted at face value. A share needs to trade regularly and in sufficient volumes to be regarded as liquid. In a tightly held market like South Africa, securities lending makes an invaluable contribution to liquidity. Too much liquidity, however, will have the artificial effect of an oversupply. It is, therefore, possible that during times of panic, when mass sell-offs do occur, the artificial oversupply of shares will create a distortion in the price of a security. In such circumstances, the spot price of a security will normally lead the futures prices. In other words, the spot price of a share will react before the price of the relevant future reacts and, due to the inherent gearing in futures transactions, this will create massive exposure for participants in the futures market.

In 1999 the Financial Services Board, the regulator of financial services in South Africa, appointed an independent research company, Genesis Analytics, to investigate the securities lending industry in South Africa. One can only assume that their motivation was related to the fact that the South African financial markets experienced a number of incidences of severe turbulence in the period October 1997 to October 1998, as can be clearly seen in figure 10.

Figure 10: JSE All-Share Jan ’97 to Jan ’99



(Source: Wen Professional)

The findings of Genesis Analytics (1999: 6-9) were published in a report and confirmed the fact that securities lending does contribute to liquidity on the Johannesburg Stock Exchange (JSE). In some instances, up to 41% of the liquidity of some of the largest 40 shares (ALSI40) are derived from securities lending. Without adequate liquidity, the spot prices or trade prices of securities listed on the JSE can easily become distorted. The question must, however, also be asked: does securities lending contribute to unnecessary volatility? To determine this, one needs to identify the seat of price discovery. According to the statistical research conducted by Genesis, price discovery in South Africa, as is the case with most countries with advanced financial markets, takes place in

the futures market. In practice, this means that a change in the price of a futures contract will only be reflected somewhat later in the price of the underlying security listed on the JSE. In some instances, a delay of up to 40 minutes is possible. What is crucial for the purposes of this dissertation is the fact that this pattern remained constant even during the crisis periods of October 1997, May – June 1998 and October of 1998. If securities lending and index arbitrage were responsible for creating a vicious circle of falling prices in times of crisis, there had to be feedback from the spot prices on the JSE to the futures prices on the South African Futures Exchange (SAFEX). No evidence was found of such feedback. On the contrary, the research found that, over the period analysed, index arbitrage (normally facilitated by securities lending) led to a convergence of SAFEX and JSE (spot) prices. No positive link could be found between securities lending activity and market volatility over the period investigated. In reality, the research indicated that lending for bear sale purposes led to a dampening of high levels of volatility (Genesis 1999: 41- 56).

8.4 Summary

Although the findings of the Genesis research, like this dissertation, is by no means the definitive work on the influence of securities lending on financial markets, it provides sufficient evidence to justify our view that other avenues need to be investigated, in our search for the causes of market volatility and speculative bubbles. The influence of structural factors, as set out in Chapter 6, are at the root of market instability. The banning of securities lending would normally result in less liquidity, which would, in turn, have a detrimental effect on the efficiency of price

discovery, not to mention the impact on efficient settlement systems. As we have seen in the LTCM incident, securities lending transaction can have implications for systemic risk. As a source of capital, repurchase markets do have linkages with other short-term financial markets and securities markets. Securities lending collateralised with cash can tie up large amounts of cash and shares lent out; it could create a sense of false liquidity, as the beneficial owner has no intention to actually sell the shares. Due to its linkages with other financial and securities markets, securities lending markets are, therefore, also affected by events and risks associated with other financial products and markets. It is, therefore, imperative to determine the risk level in related products and markets. As we have seen in the previous chapter, securities lending is very dependent on the stability of the banking sector, which is, in turn, largely influenced by socio-political and other cultural influences. Is it rational to blame securities lending for the fact that financial institutions use the repurchase mechanism to raise money, and then lose that money or blow themselves up in the process by buying risk that they often do not fully understand or posses the ability to price? Is it rational and scientific to blame securities lending for financial losses caused by management that participates in fraudulent activity or officials trying to please their political masters, as illustrated in Chapter 7?

CONCLUSION

In this dissertation we have seen that financial markets are a reflection of those forces that operate as social controls over behaviour. Market movements are largely determined by structural and cultural influences. The importance of the soundness of government policies that determine, among other things, budget deficits, money supply and interest rates, as well as the quality of management at corporate levels cannot be over-emphasised. This is in line with the view that social factors are the cause of market instability and crashes. The importance of the political legal regulation of money and exchange, identified by Max Weber, has stood the test of time and is today more relevant than ever. Values determine legitimacy, norms are responsible for standards of conduct and regulate our interaction and sanctions provide the stick or carrot incentives to ensure we tow the line. These patterns of learned behaviour are constantly changing and are shared with one another as members of society. This is what we generally refer to as culture. These social or cultural forces shape the actions and transactions of financial markets. Through the constitutive rules that construct the market and the regulative rules that tell us what is morally correct, order in markets is created. The political cultural approach asks these very questions: what rules and structure will provide stability, what is the role of the government and what is the role of corporate governance. They need to create an environment where trust is possible, because without trust there will be no participation. The Bank for International Settlements refers to structural features and market practices necessary for sound and efficient

markets. This is where we should focus if we are serious about understanding and managing risk.

In this dissertation we also shed light on the activities generally referred to as securities lending. In essence, securities lending is the practice whereby the holder of a security makes it available to another party, on condition that equivalent securities are returned to the lender at a future date. Repurchase transactions are shown to be widely used methods of raising capital against collateral at very favourable rates in many instances. The repurchase mechanism is also widely used by central banks as a tool to regulate their money supply and as an indicator of appropriate interest rate levels. From a risk point of view, a repurchase transaction with the reserve bank of a country like the US or Britain is to all intents and purposes risk free, while a repurchase transaction where low quality corporate paper is used as collateral to borrow cash may have much more potential risk attached to it. Equity or scrip lending are similar in economic effect to repurchase transactions and are normally executed to get specific securities for short periods of time. The uses of such lending vary from those desirous of entering into a short sale, i.e. sell a share that you don't have, because you believe its price will drop in future, when you can buy it back for delivery at a lower price than your sale price, to clearing houses that borrow securities to settle transactions. What is abundantly clear is that securities lending is an integral part of efficient modern financial markets. The types and roles of intermediaries active in the securities lending markets are also discussed, and show the benefits and risks attached to each. While small boutique lenders often have the ability to provide tailor-made transactions, large clearing houses usually offer a less personalised but very safe service. The importance of

a match between the expectations and requirements of the lender and the capabilities and the resources of the intermediary is of crucial importance to minimize the potential for risk. Only once we have a firm grasp of what securities lending entails, as well as how, by whom and why it is done, will we have the basis to start assessing the risks associated with it.

What are risks? Risks are those factors that inhibit the development of trust. The risk management methods applied by practitioners of securities lending are all aimed at enhancing or maintaining the levels of at least rational trust in that environment. We distinguish between so-called individual risk and systemic risk, that refers to the probability that the failure or illiquidity of one institution or country may lead to similar problems in another. It is clear from the research conducted that the risks associated with securities lending are not unique or restricted to securities lending, clearly showing that the sources of risk lie outside the activity. By comparing the risks faced by all participants, we realise that depositors at a bank are exposed to a very similar set of risks as those participating in securities lending transactions. We also find that the risk management methods, albeit very prominent in securities lending transactions, are not dissimilar to those that should be present in other professionally managed financial services companies. The role of management is especially prominent in our assessment of the true nature of failures that were attributed to the activities of rogue traders. Once again, we clearly show the importance of the environment in which all financial services transactions are conducted. Weaknesses, or the absence of important factors that had to act as social controls, are clearly exposed. Similarly, we find in our study of risk management procedures, that the

MJK Clearing incident showed clear signs of failure or lack of these social controls in virtually all the companies associated with the incident.

One of the important functions of regulators and managers associated with financial services is risk management. The quantification of the actual risk exposure is a very important facet of this function. In this dissertation we clearly showed the importance of taking social factors into consideration when assumptions are made regarding the extent of possible losses due to borrower default. The importance the regulatory environment, the existence and adherence of generally accepted market practices and the relevance of reputational risk are all crucial determinants in any effort to quantify risk as accurately as possible. The influence of political decisions and policies was also clearly illustrated by the A2 banking crises and the events of 12 August 2004 when the ZAR lost 4% of its value in less than half an hour.

In view of the research up to this point, the logical next step was to seek the origins of risk that affect financial services, including securities lending. In line with our philosophy of assessing the environment in which an activity is conducted, we utilised existing research that identified the risks that face the international banking industry. Top of their list was credit derivatives, which are inherently simple transactions, but are labelled as complex instruments. Crucial to this dissertation is the fact that a wide spectrum of respondents share the view that financial services companies like banks and insurers are exposing their institutions and clients to products they claim they do not understand. The risk is not in the product but in the management. To test this statement, a number of incidents of default and failures attributed to securities lending were

analysed. In all the incidents analysed, the failure of social controls was clearly identifiable. From the Drysdale securities incident in 1982 to the most recent incidents resulting from the failure of ENRON, the debacle that resulted can be attributed to the failure of social controls.

The failure of Long Term Capital Management (LTCM), a large US hedge fund, is another incident that is often associated with securities lending. In the case of LTCM the repurchase mechanism was used extensively as a tool to leverage the funds necessary for the execution of the fund's investment strategy. What is clear from this research is that the regulators in the US set the scene for uncontrolled leverage by removing the requirement for margins on non-Treasury paper in 1998. We have also seen that the risks associated with the LTCM investment strategy should have been clear to the management of the firm, as well as those who invested with the firm and those who transacted with them. We clearly show that, not only was the risk apparent to outside observers like Seth Klarman, someone like John Meriwether had practical experience of the risks associated with their investment strategy. In the Orange County incident the risks associated with the investment strategy were also visible to outsiders. Social controls like operational and other risk management techniques were not applied optimally by at least the management of LTCM and most of their counter parties. The importance of the role that group behaviour plays in times of crisis is also clear from our analysis of the LTCM incident. Investors in general, even the sophisticated ones like arbitrageurs, demonstrate herd behaviour confirming the fact that they do influence each other's behaviour. Martin Mayer summarises by saying a balance between efficiency and safety is essential. To achieve this, he focuses on the important role of

governments and the legal order in order to ensure that rules can enforce the recognition of realities and the tempering of extreme opportunism.

In Chapter 7 we saw that securities lending is not practised in a vacuum. It is practised by humans who interact with one another in the process of executing a transaction. When this occurs repeatedly, a social structure exists. We also saw the important role of values, norms and sanctions as social controls over behaviour that transpires in social structures. If these social controls do not function optimally, strain normally develops. Mitchel Y Abolafia used a cultural approach to study the activities of bond traders on Wall Street. This approach was applied to a much wider group. Abolafia identified a number of structural conditions necessary for what he terms a culture of extreme opportunism to develop. Extreme short-term profits, rewards and encouragement by those in positions of authority and high stature, as well as the existence of a competitive edge, real or imaginary, are identified as necessary structural conditions. This could also include the use of intricate products that are often used to gain prestige. The absence or lack of informal and formal restraint is also an important factor that creates an environment where clients are seen as targets and service providers see themselves as hunters.

Since the early 1900s the role of governments is a vital component in any explanation of the existence of opportunism. The political will to impose formal restraint, and its role in the development of a culture of extreme opportunism is identified from 1927 until today. To a large extent, the financial community viewed this inaction as at least tacit approval of their behaviour. Extreme opportunism affected even those held in high esteem. We saw that corporate executives, accountants and even

analysts, who were regarded by many as gatekeepers, succumbed to what Partnoy termed “infectious greed”. With massive incentives and limited sanctions, coupled with the encouragement of authority figures, the development of speculative bubbles and the proverbial lemming run that follows, is virtually unavoidable.

In the final analysis, the role of securities lending as generator of systemic risk was investigated. Similar to settlement systems, securities lending can, under certain circumstances, transmit and enhance systemic risk. Incidences such as governments defaulting on debt, and the collapse of major financial and other institutions, place strain on financial markets and this strain can be transmitted though securities lending. If a major bank ceded or pledged a large percentage of its assets as collateral in securities lending transactions, unsecured creditors would be able to lay claim to a smaller pool in the event of default. Greater transparency and more in-depth reporting are simple measures to remedy this problem. Another source of risk often attributed to securities lending, especially repurchase transactions, is that of excessive leverage. The risk factor here is excessive leverage. It must always be borne in mind that securities lending transactions are virtually always collateralised to a similar or higher value than the amount borrowed. This factor makes unsecured leverage a much greater source of potential risk.

The influence of securities lending on financial markets and its role as a source of excessive volatility and cause of market collapses was also investigated. Research conducted in South Africa analysing price behaviour over crisis periods found no evidence linking securities lending and market volatility. The research also found no evidence to suggest

that securities lending or index arbitrage were responsible for creating a vicious circle of downward pressure in the crisis periods analysed. This, however, does not detract from the fact that securities lending has the potential to amplify the effects of any incident of market instability if it is used excessively and uncontrolled. As long as humans are driven by fear and greed, there will be a need for control and regulation.

In this dissertation we have shown that, although there are a number of risks, individual and systemic, that are associated with financial transactions like securities lending, an array of risk management procedures and practices are available to keep these risks at acceptable levels. These practices and procedures are, however, only relevant in an environment where conditions are conducive for the existence of at least rational trust.

Through the use of a cultural approach, we see that securities lending is not practised in a vacuum and that values, norms and sanctions are crucial in their role as social controls over behaviour that transpires in social structures. Failure of these controls creates an environment conducive to the development and existence of a culture of extreme opportunism, which we have shown as the greatest source of risk to those participating in financial transactions like securities lending. For extreme opportunism to develop and exist, a number of structural conditions are necessary. These would include extreme short-term rewards and profits, the existence of a real or imaginary competitive edge, sometimes through the use of intricate financial products that are often used to gain prestige and, most importantly, a lack of informal and formal restraints. Under these circumstances a culture can develop and exist where clients are seen as

prey by their service providers; in such an environment the simplest financial transaction can become extremely risky.

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Glossary of Terms

Accrued Interest: Coupon interest that is earned on a bond from the last coupon date to the present date.

Agent: A party to a loan transaction that acts on behalf of a client. The Agent typically does not take risk in a transaction.

All-in Price: Market price of a bond, plus accrued interest. Generally rounded to the nearest 0,01. Also known as “dirty price”.

Assured Payment: Payment generated by irrevocable instructions simultaneously with the movement of securities between accounts in the CREST settlement system.

Basis Point: One one-hundredth of a per cent, or 0,01%.

Bearer Securities: Securities that are not registered to any particular party on the books of the issuing company and hence are payable to the party that is in possession of them.

Buy-in: The practice whereby a lender of securities enters the open market to buy securities to replace those that have not been returned by a borrower. Strict market practices govern buy-ins.

Buy/Sell-Sell/Buy: Types of bond transactions that, in economic substance, replicate reverse repos and repos, respectively. These transactions consist of a purchase (or sale) of a security versus cash with a forward commitment to

sell back (or buy back) the securities. Used as an alternative to repos/reverses. These transactions are often undocumented and the transaction structure does not allow for variation margining.

Callover: In gilt repo, when the seller of gilts of value exceeding £25 000 informs the counterpart of the details of the transactions which are to be settled forward.

Carry: Difference between interest return on securities held and financing costs. Negative carry: Net cost incurred when financing cost exceeds yield on securities that are being financed. Positive carry: Net gain earned when financing cost is less than yield on financed securities.

Cash-oriented Repo: Transaction motivated by the need of one counterpart to invest cash and the other to obtain it.

Cash Trade: A non-financing purchase or sale of securities.

Clear: To complete a trade, i.e. when the seller delivers securities and the buyer delivers funds in correct form. A trade fails when proper delivery requirements are not satisfied.

Collateral: Securities or cash delivered by a borrower to a lender to support a loan of securities or cash.

Conduit Borrower: A party that borrows a security in order to on-deliver it to a client, rather than borrowing it for its own in-house needs.

Custodian: An entity that holds securities of any type for investors, effects receipts and deliveries, and supplies appropriate reporting.

Deliver-out Repo: “Standard” two-party repo, where the party receiving cash delivers bonds to the cash provider.

Delivery by Value (DBV): A mechanism in some settlement systems (including CREST) whereby a member may borrow or lend cash versus overnight collateral. The system automatically selects and delivers securities and retrieves them the following day over the term of the transaction.

Distributions: Entitlements arising on securities that are loaned out, e.g. dividends, interest, and non-cash distributions.

DVP: Delivery versus payment, or the simultaneous delivery of securities against the payment of funds.

ERISA: The Employee Retirement Income Security Act, a US law governing private US pension plan activity, introduced in 1974 and amended in 1981 to permit plans to lend securities in accordance with specific guidelines.

Escrow / Triparty: The provision of collateral management services by a third party. This may include custody, marking to market, margin calls and delivery.

Fail: The failure to deliver cash or collateral in time for the settlement of a transaction.

General Collateral (GC): Securities that are not “special” (see definition below) in the market and may be used, typically, simply to collateralise cash borrowings. Also known as “stock collateral”.

Gilt-edged Securities (Gilts): Government bonds issued by the United Kingdom.

Global Master Securities Lending Agreement (GMSLA): A market standard legal agreement drafted with a view to compliance with English law. An English law opinion has been obtained on the agreement

Gross-paying Securities: Securities on which interest or other distributions are paid without any taxes being withheld.

Haircut: Initial margin on a repo transaction. Generally expressed as a percentage of the market price.

Hedge Fund: A specialist leveraged investment fund that engages in trading and hedging strategies, frequently using leverage.

Hold in Custody (HIC) Repo: Repo whereby the borrower of cash segregates collateral in a specific internal account for the cash lender, rather than delivering out collateral.

Hot/Hard Stock: A particular security that is in high demand relative to its

availability in the market and is thus difficult to borrow.

Icing/Putting Stock on Hold: The practice whereby a lender holds securities at a borrower's request in anticipation of that borrower taking delivery.

Interdealer Broker: Agent or intermediary that is paid a commission to bring buyers and sellers together. The broker's commission may be paid either by the initiator of the transaction or by both counter parties.

ISLA: International Securities Lenders Association, the trade association for securities lenders.

ISMA: The International Securities Market Association, an organisation of international securities dealers, maintains offices in Zurich. ISMA is an industry group that sets standards of business conduct in the global securities markets, advises regulators on market practices and provides educational opportunities for industry participants.

LIBA: London Investment Banking Association, the principal trade association in the UK for firms active in the investment banking and securities industry. LIBA members are generally borrowers and intermediaries in the stock lending market.

Manufactured Dividends: When securities that have been lent out pay a cash dividend, the borrower of the securities is generally contractually obligated to pass on the distribution to the lender of the securities. This payment "pass-through" is known as a manufactured dividend.

Margin, Initial: Refers to the excess of cash over securities or securities over cash in a repo/reverse repo, sell/buy-buy/sell, or securities lending transaction. One party may require an initial margin due to the perceived credit risk of the counterpart. No initial margin is typically expected in fixed-income transactions, but where it does occur, it normally ranges from 1% to 3%.

Margin, Variation: Once a repo or securities lending transaction has settled, the variation margin refers to the band within which the value of the security used as collateral may fluctuate before triggering a margin call. Variation margin may be expressed either in percentage or absolute currency terms. The GMRA states that all legitimate requests for variation margin must be honoured.

Margin Call: A request by one party in a transaction for the initial margin to be reinstated or to restore the original cash/securities ratio to parity.

Mark-to-Market: The act of revaluing the securities collateral in a repo or securities lending transaction to current market values. This may be done daily or at a suitable interval agreed upon by the parties to a transaction.

Market Value: The value of loan securities or collateral as determined using the last (or latest available) sale price on the principal exchange where the instrument was traded or, if not so traded, using the most recent bid or offered prices.

Matched/Mismatched Book: Refers to the interest rate arbitrage book that a

repo trader may run. By matching or mismatching maturities, rates, currencies, or margins, the repo trader generates a P&L.

Net Paying Securities: Securities on which interest or other distributions are paid net of withholding taxes.

Open Transactions: Trades done with no fixed maturity date.

Pairoff: The netting of cash and securities in the settlement of two trades in the same security for the same value date. Pairing off allows for settlement of net differences.

Pay for Hold: The practice of paying a fee to the lender to hold securities for a particular borrower until the borrower is able to take delivery.

Prime Brokerage: A service offered to clients by securities houses to support clients' trading, investment and hedging activities. The service consists of clearing, custody, securities lending, and financing arrangements.

Principal: A party to a loan transaction that acts on its own behalf or substitutes its own risk for that of its client when trading.

Proprietary Trading: Trading activity conducted by a securities firm for its own account rather than for its clients.

PSA: The Public Securities Association is a US-based industry organisation of participants involved in certain sectors of the bond markets. The PSA

establishes non-binding standards of business conduct in the fixed income securities markets and advises regulators and others on market practices.

PSA/ISMA Global Master Repurchase Agreement (GMRA): The market-standard document used for trading repo in instruments other than US Treasuries. The GMRA is based on the US PSA Master Repurchase Agreement, was introduced in November 1992 and revised in November 1995.

Rebate Rate: The interest paid on the cash side of a securities lending transaction. A rebate rate of interest implies a fee for the loan of securities.

Recall: A request by a lender for the return of securities from a borrower.

Repo: Transaction whereby one party sells securities to another party and agrees to repurchase the securities at a future date at a fixed price.

Repo Rate: The interest rate paid on the cash side of a repo/reverse transaction.

Repo (or Reverse) to Maturity: A repo or reverse repo that matures on the maturity date of the security repoed.

Repricing: Occurs when the market value of a security in a repo or securities lending transaction changes and the parties to the transaction agree to adjust the amount of securities or cash in a transaction to the correct margin level.

Return: Occurs when the borrower of securities returns them to the lender.

Reval: See “Repricing”.

Reverse Repo: Transaction whereby one party purchases securities from another party and agrees to resell the securities at a future date at a fixed price.

Roll: To renew a trade at its maturity.

Stock Lending and Repo Committee (SLRC): A UK-based committee of international repo and securities lending market practitioners, chaired by the Bank of England and administered by the London Stock Exchange.

Securities-oriented Repo Trade: Transaction motivated by the need of one counterpart to borrow securities and of the other to lend them.

Specials: Securities that for several reasons are sought-after in the market by borrowers. Holders of special securities will be able to earn incremental income on the securities by lending them out via repo, sell/buy, or securities lending transactions.

Spot: Standard non-dollar repo settlement two business days forward. A money market convention.

Substitution: The ability of a lender of general collateral to recall securities from a borrower and replace them with other securities of the same value.

Term Transactions: Trades with a fixed maturity date.

Third-party Lending: System whereby an institution lends directly to a borrower and retains decision-making power, while all administration (settlement collateral monitoring, and so on) is handled by a third party, such as a global custodian.

Triparty Repo: Repo used for funding/investment purposes in which bonds and cash are delivered by the trading counterparts to an independent custodian bank or clearing house (the "Triparty Custodian") that is responsible for ensuring the maintenance of adequate collateral value, both at the outset of a trade and over its term. The Triparty Custodian marks the collateral to market daily and makes margin calls on either counterpart, as required. Triparty repo reduces the operational/systems barriers to participating in the repo markets.

Source: Securities Finance International Limited. (SFI)

The University Record, July 10, 1995

Endowment not affected by Common Fund losses

The University may face up to a $1.5 million reduction in return on its investments due to unauthorized transactions by a money manager for The Common Fund.

The Common Fund is a nonprofit membership consortium devoted exclusively to enhancing the financial resources of educational institutions through its investment programs. The University is a charter member of the fund, which was founded in 1971. It has 1,421 participating member institutions.

In making investments for its member institutions, The Common Fund offers its clients 35 separate investment funds, hiring professional money managers to run the portfolios

The University was notified on June 30 by The Common Fund that overall returns on The Common Fund's investments would be reduced by as much as $128 million because of actions by a rogue trader at First Capital Strategists, a firm hired by The Common Fund to manage its security lending and arbitrage program.

That program has been run by First Capital Strategists since 1981. The losses are attributed to a First Capital trader engaging in unauthorized transactions involving the execution of an index arbitrage transaction without fully completing the appropriate corresponding hedge.

In an arbitrage transaction, a trader takes advantage of a difference in prices in different markets. As a simplified example, gold may be selling at $400 in London and $404 in New York. The object is to buy in London and sell in New York at the same time. The First Capital trader did not do this, resulting in the losses.

The University has approximately $745 million invested with The Common Fund, according to Executive Vice President and Chief Financial Officer Farris W. Womack. "The University endowment fund is not affected. Our exposure is limited to that portion of the operating revenues that is invested in The Common Fund's Intermediate Cash Fund. This investment was $114 million on June 30.

"We expect to see our investment return on the Intermediate Cash Fund lowered by 1.3 percentage points for the fiscal year ending June 30. At

the end of May, the investment return on our $114 million in the Intermediate Cash Fund for 11 months net of the loss was 6.9 percent." Womack says.

"If there were no loss, the investment return would have been 8.2 percent for the period. This difference in returns results in an estimated $1.5 million reduction in investment return."

Womack adds that The Common Fund "intends to pursue aggressively the interests of its members in this matter."

The Common Fund has selected Goldman, Sachs to control the management of the portfolio. It also has retained the law firm of Cravath, Swaine & Moore, with the accounting firm of Price, Waterhouse assisting.

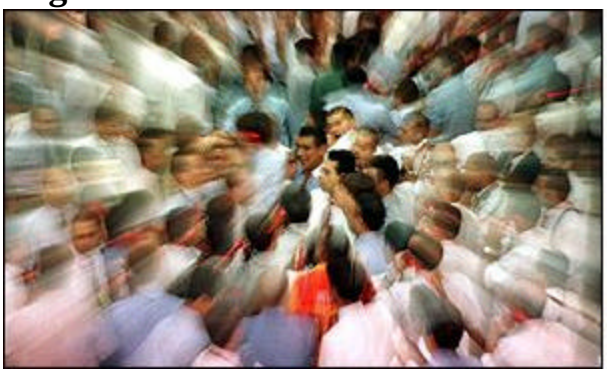
The loss has been reported to the Securities and Exchange Commission and the Commodities Futures Trading Commission.

Annexure B

BBC NEWS

Wednesday, 6 February, 2002, 13:24 GMT

Rogue traders of our time



Under such pressure, slips and swindles are common

By BBC News Online's James Arnold

Ah, the wonders of modern technology.

The increasing computerisation and sophistication of financial markets these days means that losing hundreds of millions of pounds can be as easy as pressing a button.

Little wonder, then that rogue traders - whether honest blunderers or outright fraudsters - seem to have been cropping up ever more frequently of late.

And as markets have become increasingly nervous and dangerous places in the past few months, the chances of yet more slips or swindles look high.

Leeson leads the way

Unsurprisingly, dodgy dealing on the financial markets seems to attract column inches in direct proportion to the amounts of money involved.

Nick Leeson: The original rogue trader

Over the past few years, there have been only three cases on a scale to rival this week's suspected fraud at Allied Irish Banks.

The most famous - and the one most often referred to in coverage of AIB - was the case of Nick Leeson, jailed for fraud following the collapse of Barings Bank in 1995.

He went into the red by a whopping £850m ($1.2bn) by trading on Asian markets, after what he claimed was a well-intentioned attempt to cover up losses in a client's account.

Metals and make-up

Less well-known, but financially even bigger was the £1.3bn blown away by Yasuo Hamanaka, a metals trader at Japanese conglomerate Sumitomo.

Mr Young was not fit to stand trial...

Mr Hamanaka, known as Mr Five Percent on account of his share of the world copper market, was jailed for eight years

in 1996 after admitting to a 10-year career of unauthorised dealing.

Smaller but spicier was the case of Peter Young, a fund manager at City bank Morgan Grenfell, later acquired by Deutsche Bank.

In 1996, Mr Young was revealed to have bilked £220m from the funds he ran, thanks to a series of unauthorised investments he concealed.

The case returned to the headlines when Mr Young appeared at City of London Magistrates' Court wearing a woman's jumper and dress - and was eventually found unfit to stand trial.

Smaller potatoes

But for the most part, dodgy dealing is a more mundane affair - a few million here, a few million there.

There is hardly a major City name that has not been hit by some sort of trading scandal in the past few years, and most sail through unscathed.

... while Mr Five Percent got eight years

In 2000, for example, NatWest was slapped with a six-figure fine by City watchdogs, after admitting that two of its traders had run up losses of £90.5m.

In the same year, commodities broker Peter Leonard brought down his employers, the Muirpace group, after costing it £32m in trading losses.

And John Ho Park did the same for Griffin Trading, losing £6.2m in a day's trading.

Last year, Merrill Lynch sacked two senior executives for failing to supervise a currency dealer who diverted some £7m in profits to favoured clients.

And so on and so forth.

To err is human...

Even more common, but even more rarely reported, are the cock-ups.

Since the average dealer now sits at a desk straight out of the Space Shuttle - and in many cases is relatively inexperienced and working under considerable pressure - mistakes are inevitable.

In May last year, London's FTSE 100 index dropped by more than 2%, after a trader typed £300m, instead of £30m, while selling a parcel of shares.

In 1998, in the biggest incident of its kind ever, a Salomon Brothers trader mistakenly sold £850m-worth of French government bonds, when he carelessly leaned on his keyboard.

And at the end of 2001, shares in Exodus, a bankrupt internet firm, jumped by 59,000% when a rogue trader accidentally bid $100 for its shares, at a time when its value was 17 cents.

... and increasingly common

All these cases rarely cause the collapse of a firm.

Turbulent times breed fraud and failures

Even Sumitomo, worst hit of them all, survived.

But the bad news is that such incidents could become even more common.

Times of crisis or uncertainty are fertile breeding grounds for fraud and cock-ups: nervous traders make mistakes, and loss-making traders become fraudsters to cover their own tracks.

Ever since the spring of 2001, when the long hi-tech boom came to an end, financial markets of all kinds have behaved with alarming volatility.

Losing money, it seems, just keeps on getting easier.

Annexure C

BBC NEWS

Thursday, 7 February, 2002, 08:20 GMT

Leeson blames chiefs for trader's losses

AIB reminds Nick Leeson of his Singapore days

Nick Leeson, the former Barings Bank trader who brought down the

bank, has questioned the role of the managers of the rogue trader who is being investigated over $750m (£517m) losses at an Allied Irish Banks subsidiary in the US.

The checks that should be in place to stop this sort of thing happening are extremely basic

Nick Leeson

In an interview on BBC television, Mr Leeson said:

"The... fundamental question is; why didn't some of the middle and senior managers of the bank stop him earlier?

"The similarities with the Barings case seem to be very striking."

'Very, very frightening'

Mr Leeson, who was himself jailed in Singapore during the middle of the 1990s after losing about £850m of his bank's money, said it seemed as if the AIB subsidiary's trader had taken ever bigger risks to recover losses.

"I find it very, very frightening that such a thing can happen again [after Barings].

"It means that the same levels of incompetence and negligence within the mid- and senior management of the bank are still there.

"The checks that should be in place to stop this sort of thing happening are extremely basic, and people haven't been doing them," he said.

"The problems that were endemic at Barings are still there at AIB, and I find that frightening."

Annexure D

You are in: **Business**

Thursday, 7 February, 2002, 18:00 GMT

The fraud step-by-step

Allied Irish Banks has described the $750m hole it discovered in the accounts of its US subsidiary as resulting from a complex and determined fraud. Details of the precise nature of the fraud have yet to be disclosed. Both the FBI and the bank itself are investigating.

BBC News Online has this step-by-step guide to the fraud, according to what is known so far.

Step One:

A currency trader executes a large number of foreign exchange transactions.

Allied Irish has confirmed these deals involved buying and selling Japanese yen and US dollars.

These were both "spot" contracts, involving on-the-spot deals and "forwards", which are agreements to purchase foreign exchange at a specified date in the future at a specified exchange rate.

Step Two:

The trader appears to offset the risk involved in these transactions by taking out "options" contracts.

These give the holder the option to buy or sell a specified quantity of a commodity,

currency or security - in this case a currency - at a specified date at a specified price.

Taking out options is routine among currency traders. The contracts are used to make a bet in the opposite direction, thereby providing "insurance" in case markets move in a way not anticipated in earlier transactions.

Step Three:

Most observers assume, though it has yet to be categorically stated by AIB, that the original forex deals proved bad, causing big losses.

The most likely scenario is that the trader built up big bets that the yen would strengthen against the dollar. Instead, it has weakened considerably over the past 12 months - the period in question.

Step Four:

The bank discovers that the losses have not been offset by profits from the options deals.

What has happened is that the purchase orders have been entered into the bank's system "artificially". That is, it was made to appear as if options contracts had been bought when, in fact, they hadn't.

AIB is describing them as "fictitious".

This act or acts appears to be the fraud at the heart of the case.

What has to be clarified:

It remains unclear why the options contracts were not bought.

One theory is that the fraud was a

retrospective attempt to conceal losses that occured on transactions in the past. This still wouldn't explain why the options were not bought.

Another theory is that an individual or individuals skimmed the fees that appeared to have been paid for options, instead taking them.

Open questions:

A myriad of other questions remain, chief among them:

- Was the fraud a one-person operation or did it involve others inside or outside the bank?
- Did any individual or individuals profit from the fraud or was it "just" an attempt to conceal losses - what AIB describes as a "right royal mess"?
- Finally and most importantly, why did the bank's internal controls fail to spot the fraud? In light of the warning given by the collapse of British bank Barings in 1995, it is this question which is giving most concern to banks and investors around the world.