LAPPEENRANTA UNIVERSITY OF TECHNOLOGY
School of Business
Accounting

Mikael Siljanen

THE EVOLUTION OF SECURITIES LENDING AND RISK MITIGATION: A FINNISH MARKET CASE STUDY

Supervisor/ Examiners: Professor Matti Niemi
Examiner: D.Sc. Helena Sjögrén

ABSTRACT

Author: Siljanen, Mikael

Title: The Evolution of Securities Lending and Risk Mitigation: a Finnish Market Case Study

Faculty: LUT, School of Business

Major: Accounting / Master´s Degree Program in Accounting

Year: 2012

Master´s Thesis: Lappeenranta University of Technology
87 pages, 9 figures, 1 table

Examiners: prof. Matti Niemi
Helena Sjögrén

Keywords: securities lending, collateral management, risk management, case study, financial crisis

Although securities lending is an important function of the financial markets, it has not received that much academic attention. This study examines the evolution of European securities lending and risk management with an emphasis on the development of collateral management, the function responsible for reducing credit risk. The effects of the recent financial instabilities are also considered. The evolution of the Finnish securities lending market is examined in more detail through a case-study.

This study can be classified as a constructive qualitative case study. The initial practical knowledge comes from the author's own experience and additional insight and theoretical background is acquired through a literature review. The case study is based on research, semi-structured interviews and a brief analysis of numerical data.

The main observation of this study was that securities lending is now recognized as more of an investment management discipline than an operational support function. The recent financial instabilities have resulted in an increased focus on risk and transparency. In securities lending this is directly reflected in collateral management guidelines and procedures. Collateral management has become increasingly technologically developed and automated. Collateral optimization

initiatives have been started to make the process more efficient, liquid, and cost effective. Although securities lending is generally an OTC-market with no standard market place, centralized exchange-like models have been introduced. Finnish securities lending has now shifted towards the more common global OTC model. Although the Finnish securities lending industry has developed, and the main laws governing it (tax legislation) have changed, there is still need for development. There are still not many Finnish participants involved and due to legal issues most securities loans are collateralized with cash and not securities (e.g. government bonds).

TIIVISTELMÄ

Tekijä: Siljanen, Mikael

Tutkielman nimi: The Evolution of Securities Lending and Risk Mitigation: a Finnish Market Case Study

Tiedekunta: Kauppatieteellinen tiedekunta
Pääaine: Laskentatoimi
Vuosi: 2012
Pro gradu -tutkielma: Lappeenrannan teknillinen yliopisto
87 sivua, 9 kuvaa, 1 taulukko
Tarkastajat: prof. Matti Niemi
Helena Sjögrén

Hakusanat: arvopaperilainaus, vakuudenhallinta, riskienhallinta, case-tutkimus, finanssikriisi

Keywords: securities lending, collateral management, risk management, case study, financial crisis

Vaikka arvopaperilainaus on oleellinen osa rahoitusmarkkinoiden toimintaa, se ei ole saanut riittävää määrää akateemista huomiota. Tämä tutkielma analysoi Euroopan arvopaperilainamarkkinoiden ja sen riskienhallinnan viime vuosien kehitystä. Tutkimus keskittyy arvopaperilainauksen tärkeimmän riskityökalun, vakuudenhallinnan, kehitykseen. Vakuudenhallinnalla pyritään minimoimaan vastapuolten luottoriskiä. Finanssikriisien vaikutusta toimialan kehitykseen on myös pohdittu ja tutkielman empiirisessä osassa tarkastellaan Suomen arvopaperilainamarkkinoiden tilaa tapaustutkimuksen kautta.

Tutkimus voidaan luokitella konstruktiivis-kvalitatiiviseksi tapaustutkimukseksi. Alustava aiheeseen perehtyminen tulee tekijän työkokemuksesta ja syvempää ymmärrystä ja tietoa on haettu kirjallisuuskatsauksen kautta. Tapaustutkimus perustuu kirjallisuuskatsaukseen, puolistrukturoituihin haastatteluihin sekä lyhyeen numeerisen markkinadatan analyysiin.

Tutkimuksen päähavaintona on, että arvopaperilainausta pidetään nykyään enemmänkin sijoitusstrategiana kuin operatiivisena tukifunktiona.

Viimeaikojen taloudellinen epävakaus on johtanut riskienhallinnan ja toiminnan läpinäkyvyyden tärkeyden lisääntymiseen, niin yrityksissä kuin valvontaelimissä. Arvopaperilainauksessa riskien lisääntynyt tärkeys näkyy suoraan vakuudenhallinnan sopimusehtojen ja toimintatapojen muutoksissa. Vakuudenhallinta on myös kehittynyt teknologisesti ja muuttuu jatkuvasti automaattisemmaksi. Erilaisia vakuudenhallinnan optimointihankkeita on aloitettu, jotta prosessia voidaan kehittää tehokkaammaksi, likvidimmäksi ja kustannustehokkaammaksi. Arvopaperilainaustoimintaa ei ole vakioitu eikä sille ole standardia markkinapaikkaa. Uusia keskitettyjä, pörssimäisiä malleja on ehdotettu nykyisten OTC-markkinoiden tilalle läpinäkyvyyden ja kontrollin lisäämiseksi.

Suomen arvopaperilainamarkkinat ovat kehittyneet globaalin OTC-mallin mukaiseksi. Toimiala on kehittynyt paljon niin toimintatapojen kuin lainsäädännön (verolainsäädäntö) osalta, mutta kehittämisenvaraa vielä on. Markkinoilla ei ole edelleenkään monia suomalaisia toimijoita ja suuri osa arvopaperilainoista on suojattu rahavakuuksilla arvopapereiden sijaan verolainsäädännön rajoitteista johtuen.

ACKNOWLEDGMENTS

I would like to thank everyone who has helped me during my studies and while working on this Master's Thesis. First of all, I would like to thank all my friends, both in and out of university, who made this whole experience easier and more enjoyable.

Secondly, I would like to thank all my colleagues from France, who introduced me to securities lending and taught me how to keep all the accounts covered. I would especially like to thank my friend Randolph Burth, the man who taught me something new every day and showed me what it's really like to work in finance. I would also like to thank all the people from the Finnish securities lending industry, who took part in the case-study.

Finally, and most importantly, I would like to thank my family, who encouraged me to go on and supported me during my studies.

Helsinki 15th of August 2012,

Mikael Siljanen

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

GLOSSARY

Agent: An entity (e.g. custodian) that acts on behalf of a client in a securities loan transaction. The agent negotiates the terms of the loan, but does not typically take in risk in a transaction.

Basis point (bp): One one-hundredth of a percentage (0.01%)

Beneficial owner: A party that is entitled to the rights of ownership of property. In the context of securities lending - the owner of securities portfolios (i.e. lender), who is entitled to coupon payments or dividends for example.

Collateral: Securities or cash delivered by a borrower to cover the securities loan transaction. Collateral arrangements may take different legal forms.

Collateral exposure: A party's credit exposure due to one party having a transaction settled before the other, or resulting from daily mark-to-market. E.g. securities loan settled, but the delivery of collateral is pending and vice versa.

Custodian: An entity, usually a bank that holds securities of any type for investors, effecting receipts and deliveries, and providing appropriate reporting. Custodians may offer various other services including clearing and settlement, cash management, foreign exchange and securities lending.

Fail (failed transaction/delivery): A failure to settle a cash or securities transaction on the contractual settlement date.

Haircut: A percentage subtracted from the market value of a security to give its value when used as collateral (collateral valued at 92-95%). The haircut is intended to protect a lender from losses from declines in collateral values. See margin.

Indemnification/ indemnity: A form of guarantee or insurance, frequently offered by lending agents to compensate for damage or loss.

Intermediary: A party in securities lending that borrows a security in order to re-deliver it to a client, rather than borrowing it for its own needs.

Margin: The amount or percentage by which the collateral value exceeds the value of the securities loans (e.g. 102% or 105%). Initial margin is deposited at the start of the transaction and variation margin is called to be deposited after revaluation (mark-to-market).

Margin call: A lender's demand for additional collateral, following the mark-to-market of a securities lending transaction, if the market value of the underlying collateral falls below a certain level relative to the loaned asset. Similarly, if the value of collateral exceeds the agreed margin, the borrower can make a margin call for collateral to be returned.

Mark-to-market: The practice of revaluing securities on loan and the collateral to current market values. Standard practice is to mark-to-market daily.

Market value: The value of lent securities and collateral as determined using the last (or latest available) sale price on the principal exchange where the instrument is traded.

Over-the-counter (OTC): A method of trading that does not involve an exchange. In the OTC market, participants trade directly, sometimes through brokers, with each other.

Pledge: A delivery of property to secure the performance of an obligation owed by one party (borrower) to another (lender). E.g. collateral pledge

Principal: A party to a securities loan transaction that acts on its own behalf. When acting as a principal, a firm is lending/ borrowing from its own account for position and risk, expecting to make a profit.

Recall: A demand by a securities lender for the return of securities from the borrower when they are lent on an open basis. The term can be used in collateral transactions as well (collateral recall).

Return: The return of securities from borrower to lender.

Securities loan/ securities lending: A loan of specific securities to a borrower, usually against collateral (cash/securities).

Settlement: The completion of a transaction, where one party delivers securities or cash to another.

Settlement interval: The amount of time between a trade date (T) and the settlement date typically measured relative to the trade date (e.g. T+3).

Tri-party: The provision of collateral management services, including marking to market, repricing and delivery, by third party, such as a custodian bank.

1. INTRODUCTION

1.1 Background

Securities lending involves a transfer of securities (e.g. shares or bonds) from the lender to the borrower, who provides the lender with collateral for the securities loan in the form of cash, bonds or other stocks. Although securities lending is an important function of the financial markets, it is not such a popular topic of discussion or research especially in the academic community. Securities lending has two main benefits: firstly, it provides investors with additional low risk profits and secondly, it provides liquidity to the broader financial markets by reducing trade delivery problems. Institutional investors, such as pension plans or mutual funds, may enhance their performance over time by using these low risk returns to reduce the costs of portfolio management or administrative expenses. According to conservative estimates, European investors earned €1 billion in securities lending revenues during 2011 (ISLA 2012, 3). On the borrowing side, the higher levels of settlement efficiency and liquidity allow investment firms to make markets in a wider range of securities, and facilitate hedging investment positions or engaging in various trading strategies.

The inspiration for this study comes from working for eight months as a securities lending collateral manager in France. The study is carried out from a risk management perspective and the effects of the recent market instabilities on the evolution of the securities lending industry are also considered. The thesis starts off with an overview of the securities lending markets – participants, mechanics and legislation. After this it takes a closer look at securities lending risk management, especially collateral management. Following the literature review, a case-study of the Finnish securities lending market is introduced.

1.2 Objectives of the study

This study aims to examine how securities lending and its risk management functions have evolved in the past years. More specifically this study aims to determine how collateral management, the function responsible for reducing counterparty credit risk, has transformed into a more complex, global and essential risk management tool. The study will concentrate on the European securities financing markets and examine the Finnish securities lending market in more detail through a case study. The main research problem is:

How have the global financial crisis and the European sovereign debt crisis led to a change to more secured operations in securities lending?

The secondary research questions, used to provide the understanding required to answer the main research problem, are:

1. How have securities lending collateral management terms, conditions and procedures changed as a result of the crises?
2. Has the change been more operational or technological (new system investments)?
3. What is the current state of the Finnish securities lending markets?

1.3 Methodology

The study will be performed using constructive qualitative research. The study proceeds through the constructive approach presented by Kasanen et al. (1993) in their study on the constructive approach in management accounting. The constructive approach emphasizes creativity, innovative methods, and heuristics. This study can be classified as a constructive qualitative case study.

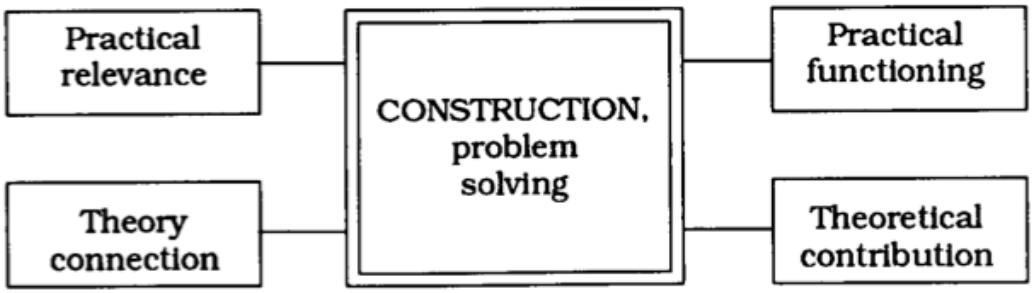

Figure 1. Elements of constructive research (Kasanen et al. 1993, 246)

Collateral is used mostly as bilateral insurance in over the counter financial transactions, for example derivative deals and business-to-business loans. One focus of this study is the collateralization of securities lending transactions. The initial practical knowledge arises from my own experience in this field as a collateral manager. Additional insight and theoretical background is acquired through a literature review. Unfortunately there was not that much academic research available on the topic and a large part of the sources are industry publications, such as guides or news-focused sources.

The qualitative analysis of the publications is carried out through thematization, starting with broad themes such as securities lending – risk

management – collateral management, and finishing with specific operational issues (e.g. intermediary arrangements, collateral management procedures). Next the practical functioning and practical relevance of the theoretical framework is examined through a case study. The case study is based on research, semi-structured interviews and a brief analysis of numerical data. The interviewees are representatives of organizations participating in the Finnish securities lending markets. The numerical data is Finnish market data provided by Data Explorers. Finally this interactive research approach is used to construct a solution to the research problem and answers to the research questions.

1.4 Structure

This study is composed of six main chapters. In chapter one a short introduction and background to securities lending is introduced, the objectives and research questions of the study are defined, the research methodology is described and the study structure is presented. The following chapter examines the securities lending markets starting from the basics - definitions, motivations, governing laws, and finishing off with descriptions of the standard lending models, agreements and parties involved.

The third chapter is focused on risk management. Chapter three begins with defining the traditional concepts of financial risk and then goes on to examine what specific risks are related to securities lending. Finally chapter three presents the mechanics, procedures and future outlooks of the most important securities lending risk mitigation tool: collateral management.

In chapter four a case study of the Finnish securities lending market is presented. Chapter four describes how the case study was conducted and provides an initial overview of the Finnish securities lending market. Chapter five presents the empirical observations and findings through further analysis of the Finnish market. Chapter six consists of the discussion and conclusions of the study.

2. SECURITIES LENDING MARKETS

The securities financing markets consist of two main instruments: repo and securities loan transactions. Repos or repurchase agreements are key products for market participants in search of liquidity or specific securities. They are an alternative to unsecured loans or issuing short-term securities. Repos are also used by central banks to manage their open-market operations in the implementation of monetary policy. Securities lending, on the other hand, provides lenders of the securities a low-risk yield to their investment portfolios. It also enables borrowers to, for example, cover failed trades or short positions. Although the economic considerations of the instruments are similar, they both have their own specific legal, accounting and regulatory characteristics. This study will concentrate on analyzing the securities lending markets, but comparisons to the repo markets will be made. This chapter will provide an overview of the securities lending markets and examine the main players involved and their arrangements to facilitate securities lending.

2.1 Overview of the markets

The early roots of the securities lending are in the development of stock trading, which began in Amsterdam in 1602 (Burke & Martello 1997, 1). Back then the shipping industry had high risks, but also high rewards. Shares were used to spread the costs of financing these ventures. From trading shares, the practice of short selling arose and consequently securities lending. In more recent history, securities lending first appeared in the United Kingdom in the 1960's. The United States is where the securities lending and repo business really developed in the 1960's before spreading to Europe in the 1980's (Bianconi et al. 2010, 18). In the last

two decades securities lending has expanded rapidly into a global 24-hour activity.

In terms of geographical market size and features, the United States global lending market is a very large mature market. The American equity lending market used to be the biggest in the world and the treasuries/bonds market is also significant (Bianconi et al 2010, 3). In Europe, France and Germany are the most active equity lending markets. German bonds are also desirable as they are considered high quality and liquid collateral. The European repo market is much larger than the securities lending market, even larger than its American equivalent. This study, however, will concentrate on the European securities lending markets. In the Risk Management Association (RMA) Quarterly Aggregate Data Survey (Q3 2011), the European equities lendable assets reached €882,830 MM and the European bonds lendable assets reached €211,487 MM (Risk Management Association 2011).

2.1.1 Definitions and main characteristics

The term securities loan refers to a transaction in which one party (the lender) transfers securities (shares or bonds) to another party (the borrower), often against the transfer of collateral (shares, bonds or cash). Simultaneously an agreement is made for the borrower to transfer the lender equivalent securities (loan return) on a fixed date or on demand (open trade), against the transfer of equivalent collateral (collateral return). The borrower pays a fee each month for the loan and is contractually obliged to return equivalent securities. The borrower also passes any dividends/interest payments or corporate actions that may arise over to the lender. In essence, the lender retains all key rights they would have if they had not lent the securities, except that they have to make special

arrangements if they want to vote on the shares. (Bianconi et al. 2010, 13; ISLA 2010a, 2)

In both repo and securities lending markets, a distinction can be made between securities-driven transactions and cash-driven transactions. In securities-driven transactions parties seek to gain temporary access to securities against collateral. This demand could be related to ensuring trade settlement or short selling. In cash-driven transactions parties seek to post securities as collateral to obtain secured cash financing. In general repos are more likely to be cash-driven whereas securities loans are securities-driven. As securities loans transactions are generally free-of-payment trades between the lender and borrower, repo transactions involve a short-term sale of securities by a seller (cash-taker) and a transfer of cash by a buyer (cash-giver), with the seller simultaneously agreeing to repurchase the same or similar securities at a future date or on demand at an agreed upon price.

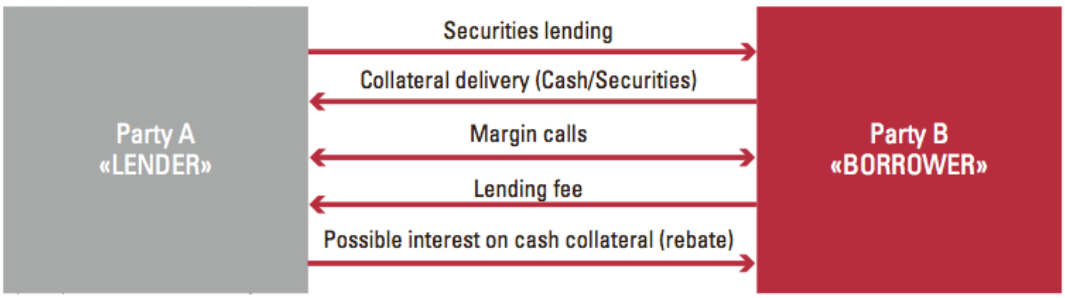

Figure 2. Standard securities lending transaction (Bianconi et al. 2010, 13)

The diagram above (Figure 2) illustrates the main characteristics and flows of a standard securities lending transaction. Party B borrows an agreed quantity of shares or bonds from Party A. At the same time or before Party A releases the loan (depending on the agreement) Party B delivers an

agreed market value of eligible shares, bonds or cash as collateral for the loan. During the duration of the loan, the market values of both the lent securities and collateral will fluctuate. When the collateral value drops under the agreed margin (e.g. 105 %) a margin call will be made by Party A for more collateral. This works both ways: when the market value of the loan drops and/or collateral market value rises above the margin, the borrower can make a margin call for his excess collateral. The lender receives fees depending on the duration of the loan and interest may possibly be paid to the borrower in the case of cash collateral.

Generally securities loans have no fixed maturity and either party can close the loan (transactions: loan return – collateral return) on demand (ISLA 2009, 4). This is known as an “open” trade. The lender remains exposed to the price risk on the lent securities, since the borrower will be returning an agreed quantity of the security rather than an agreed market value, basically returning them at an agreed price. Normally the lent securities stay on the balance sheet. For example in Finland, neither the lender nor borrower considers the securities loan a business transaction in their accounting (Rahoitustarkastus 2005, 22). The borrower compensates the lender for any dividends or similar benefits received by “manufacturing” equivalent payments. In the case of cash collateral, usually the lender makes interest payments to the borrower and reinvests the cash at a higher rate, earning a spread. In some cases, for example lending within the same banking group, “flat cash” collateral agreements are made and no interest is paid.

Beneficial owners (the original owners/lenders) have various possible routes to enter the securities lending markets. In a direct lending model, the lender runs its own securities lending program and is responsible for revenue generation, risk management and operations (Bianconi et al. 2010, 32). This requires having the necessary infrastructure in-house in

place with sophisticated risk management operations and a broad range of counterparties. This can generally be seen in large funds that have the interest of controlling all the activity and can afford the costs. In intermediated models, beneficial owners use their custodian bank or third party providers to enter the securities lending markets (ISLA 2010a, 6). The whole activity or only parts of the operations can be outsourced.

There can be many layers of intermediaries in the securities lending markets. Generally speaking, there are two different types of intermediary securities lending arrangements: the principal and the agency model. In the principal model the intermediary becomes a principal lender and a direct party in the lending agreement, therefore bearing most of the risk. Basically the beneficial owner is lending its assets to the intermediary and entrusting them with all the lending activity. In the agency model the intermediary acts as an agent between the lender and borrower. The agent might be arranging all the trading and collateral activity as in the principal model, but the beneficial owner ultimately carries the risk. In agency lending departments, there can be stricter and more varied eligibility and other operational requirements as they have many clients with different risk profiles. In both principal and agency lending the beneficial owners choose to outsource their lending programs to reduce their own operational workload and gain from the agents' efficiencies and economies of scale as well as their established relationships with securities borrowers. Both operating models not only facilitate the securities lending, but are also important risk management practices from the investor’s point of view.

The securities lenders are usually large-scale institutional investors, such as pension funds, insurance companies, collective investment schemes, and sovereign wealth funds. These lenders either employ an agency lender (e.g. custodian bank), or entrust their assets to a principal agent to

arrange, manage and report on the lending activity. The most active borrowers are typically large financial institutions, such as investment banks, broker-dealers, prime brokers and market makers. Hedge funds are among the biggest borrowers of securities, but they often borrow through an investment bank and not directly from the investors. Since 2008, the borrower landscape has transformed dramatically, with the disappearance of such major players as the Lehman Brothers and Bear Stearns. The supply and demand of securities lending and the motivations of both lenders and borrowers is discussed in the following chapter. (ISLA 2010a, 3; Bianconi et al. 2010, 31)

2.1.2 Motivations for securities lending

Theoretically lending can take place directly between the beneficial owners (lenders) and borrowers. In practice there are several layers of intermediaries involved (cf. Figure 3). This large number of intermediaries partly indicates that securities lending is not always the core activity of the lender or the borrower. However, continuous growing demand can still be seen. In general investors lend their securities strictly for an additional low risk profit. In the case of intermediaries such as a broker-dealer, the borrower is often acquiring the securities for the exact same reason, strictly for profit from lending them to the final borrower. The final borrower's motivations may vary. They may simply need that particular security, because of a delivery obligation and problems in acquiring the security another way. Other motivations include raising collateral for cash financing transactions or for implementing any trading strategy that involves a short position.

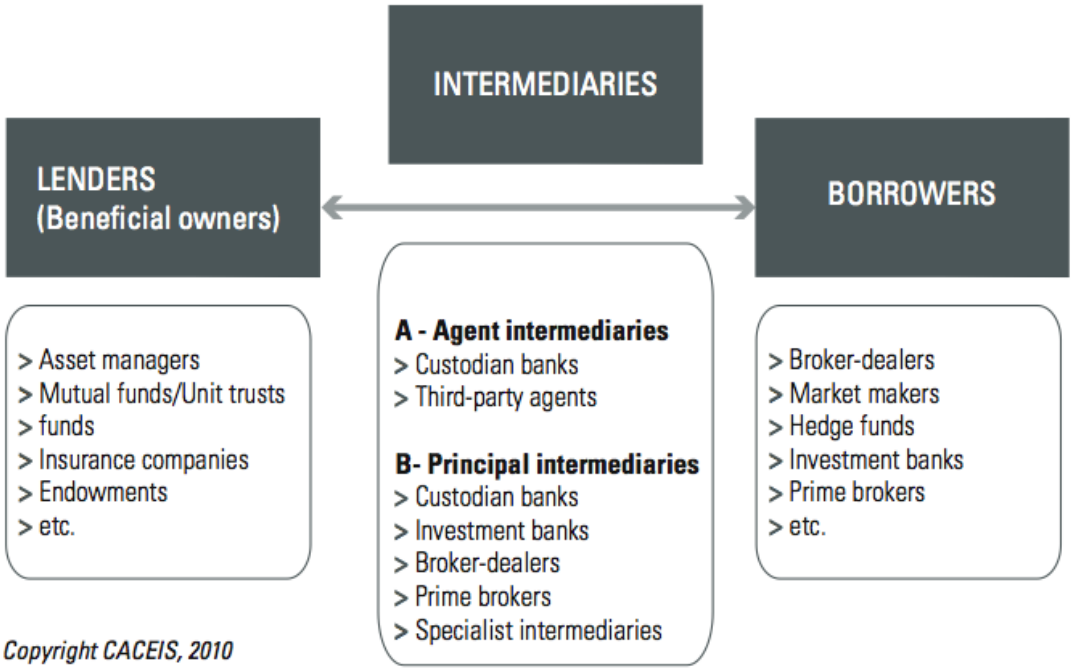

Figure 3. Main players involved in securities lending transactions (Bianconi et al. 2010, 31)

Motivations for borrowers

Principal borrowers actually have no obligation to tell the lenders or their agents why they are borrowing securities, but essentially the borrowing happens for one of two reasons. The first is a security-driven motivation, where a broker is borrowing to address an administrative problem. In this scenario, a trader with a delivery obligation but insufficient shares to complete the trade needs to borrow the shares to complete the delivery. In the most basic settlement failure situation, it is in the trader's interest to facilitate trade settlement through securities lending to avoid any counterparty claims from late delivery. The second scenario involves borrowing securities as an element of what can be quite a complex trading strategy (Luhr 1995, 7). These different trading strategies relying on securities borrowing will be discussed later on in this chapter.

In essence, securities are borrowed either to ensure the settlement of trades or facilitate market making and other trading activities (trading strategies). The bottom line is that the securities borrowers seek to borrow securities in circumstances where they do not currently have possession of those securities. This could occur when they need to cover a failed trade, when they have a put option on a short position, when they need to deliver securities they have not yet purchased against the exercise of a derivatives contract, or when they want to raise specific collateral, possibly for another securities lending transaction (Bianconi et al. 2010, 33). The borrower does not gain rights to dividends for example; instead any proceeds of the securities have to be paid to the beneficial owner. The borrowers just need those specific securities to complete another financial transaction: ensuring the settlement of a sale, borrowing securities to be used as collateral in another transaction, or borrowing securities to facilitate a trading strategy involving short positions.

Borrowing securities as a part of a trading strategy can be straightforward, as in the case of a pure short sale. With the recent regulatory developments to reduce abusive market speculation, for example the proposed European Union financial transaction tax, it is important to define what we are actually talking about. In a basic short sale, the trader sells stocks which it does not own and borrows the stock to satisfy the sale (Luhr 1995, 7). Here the trader hopes that the price of that security will go down so he will be able to repurchase it at a lower price and make a profit. When commenting on the abusive use of short selling and how it can contribute to disorderly markets, amplify price falls, and have an adverse effect on financial stability, regulators usually refer to “naked” or uncovered short selling (Arnesen 2010a, 55). In a naked short sale, a short sale is made without first borrowing the security or making sure it can be borrowed. From a regulatory viewpoint, it is important to consider the failure to deliver percentages and not just short selling when talking about possibly abusive trading strategies.

The basic short selling strategy, with the aim of realizing a profit from an expected price fall in the security price, can be called a directional short selling strategy (Bianconi et al. 2010, 33). In a market-neutral short selling strategy the objective is to profit from the relative price movements of specific securities irrespective of broader market movements. An example of a market-neutral short selling strategy is pairs trading, where traders seek profit in any market conditions by the performance monitoring and trading of two historically correlated securities (Faulkner 2006, 43). Even though directional short selling is often believed to be the main driver behind the demand for borrowing stock, this cannot logically be the absolute truth. If the purpose of borrowing was to help drive down the price of a stock, it would be foolish for a fund manager (lender) to assist in that process (Luhr 1995, 7-8). While borrowing does support short trading, the high-risk nature of such trading limits the degree to which it affects securities lending demand. For the trader short selling has a limited upside profit and unlimited downside loss – the maximum profit of the sale occurs when the price of the sold security falls to zero. The losses, on the other hand, occur when the price of the sold security rises and theoretically this price rise can be unlimited.

The motivation for securities borrowing can also stem from other strategies requiring short positions. These trading strategies relate to profit opportunities in market-neutral trading and arbitrage or alternatively play a defensive role in hedging market exposures. In arbitrage strategies the goal is to exploit a price difference between two instruments, which should have identical values. An example of an arbitrage strategy is buying a security at a low price in one market and simultaneously shorting the same security in another market at a higher price. Common forms of arbitrage strategies involving securities borrowing are convertible bond arbitrage, index arbitrage or yield enhancement (Bianconi et al. 2010, 33). In hedging strategies securities are borrowed as a defensive measure

against market movements. An example could be using short positions to gain protection against long exposures.

Motivations for lenders

Why should an investor lend their assets? The direct logical conclusion is: for profit. The main motivation for securities lenders is to gain additional revenue at relatively low risks on assets that would normally lay dormant in their securities accounts. Securities lending provides the lender with a way to make additional profit from their otherwise passive investment portfolios without losing any benefits, such as dividends or coupon payments. The securities lending agreements are usually made so that the beneficial owner retains all key rights to the securities and can recall the loans when needed. The only rights a lender loses are the loaned securities' voting rights. Asset management firms and investment funds are common securities lenders. Any additional revenue is welcome in the highly competitive field of fund management where small differences in performance can significantly affect the performance ranking (ISLA 2009, 6). On the other hand, the additional income can be used to cover custody charges or other expenses of the fund, when their lending agent is their custodian. In the case of cash collateral, lenders can use securities loans as financing transactions as well. This means that instead of doing a repo transaction (seller vs. buyer, cash-taker vs. cash-provider), the securities are loaned out against cash collateral. From a lender’s point of view, this is a kind of cash-driven inverse securities loan as the main goal of the transaction is to receive cash financing.

Normally the investor can only realize the profits gained from market value growth by selling the securities. During the ownership the investor traditionally makes profits only through dividends, interest payments or other beneficial corporate actions. By taking part in securities lending, the beneficial owner receives additional profit without having to sell any

securities. This profit is market-neutral, as it does not directly depend on market movements. Securities lending is a worthwhile choice for investors following a passive investment strategy.

Returns from securities lending programs increase in proportion to both the interaction of supply and demand and the amount of risk the lender is willing to assume (ISLA 2009, 6). Demand for any given security varies from time to time. For “general collateral” securities, for which there is little demand and excess supply, the lender returns are lower. Securities with higher demand (specials or “hot” securities) offer higher returns. From a risk point of view, lenders willing to take wider range of collateral than, for example, just the safest G10 issued bonds or triple A rated bonds, will have higher lending balances and therefore higher revenue. Cautious approaches to counterparty selection can also limit lending volumes. By accepting cash as collateral, a lender can also earn additional income from reinvesting in the money markets.

2.1.3 Governing laws and standard agreements

The securities lending market is governed by a number of different regulatory regimes, the applicability of which is determined by the nature of the relevant participants in the securities lending transaction. No single “law of securities lending” applies to securities lending transactions (Zambrowicz et al. 2010, 27). As with any financial institution in a lending transaction, securities lenders are subject to the risk of borrower insolvency (credit risk). This means there are special procedures applicable for borrowers in bankruptcy. As securities lending is a global activity, local financial laws are often in a supranational legal framework.

In the European Union the legislative framework for securities lending transactions comes from the directives of the European Parliament and of the Council. There are some directives that affect the securities lending activity directly and they have just recently been amended. In May 2009, the European Parliament and Council adopted Directive 2009/44/EC (the "Amending Directive"), which amends Directive 98/26/EC on settlement finality in payment and securities arrangements systems (the "SFD") and Directive 2002/47/EC on financial collateral arrangements (the "FCD"). The SFD provides protection to both payment and securities settlement systems in case of default of a participant of such a system, therefore seeking to minimize systemic risk, whereas the FCD regulates and facilitates the cross-border use of collateral (European Commission 2008). Both directives were evaluated in 2005 and 2006, and following extensive consultation it was concluded that they work well and that Member States, market participants and other stakeholders strongly support them. This is why it was decided to simply amend them in order to bring them in line with regulatory and market developments. Member states had until December 2010 to adopt and publish their implementing measures and apply them from June 2011.

The securities lending markets face supervision and regulation from the European Securities and Markets Authority (ESMA). ESMA is a European Union financial regulatory institution and a European Supervision Authority that replaced the Committee of European Security Regulators (CESR) in 2011. An example of a recent action affecting the securities lending markets was the introduction of short-selling bans in 2011. ESMA acts as a financial supervisor and also takes part in standard setting and securities legislation (ESMA 2011, 3-4). ESMA works closely with the other European Supervision Authorities – the European Banking Authority (EBA) as well as the European Insurance and Occupational Pensions Authority (EIOPA).

The main standard agreement governing the international securities lending industry is the Global Master Securities Lending Agreement (GMSLA), issued by the International Securities Lending Association (ISLA). ISLA is an independent trade association established in 1989 to represent the common interests of participants in the securities lending industry. ISLA works closely with European regulators. In the repo industry the main standard agreement is the Global Master Repurchase Agreement (GMRA), jointly produced by the International Securities Market Association (ISMA) and The Bond Market Association (TBMA). In Europe, it is also possible to use the European Master Agreement (EMA) for both repo and securities loan transactions. In order to minimize legal risks, it is highly recommended for market participants to sign such standard agreements.

The General Master Securities Lending Agreement

In 2000 the GMSLA unified and replaced the previous standard lending agreements: the Overseas Securities Lender's Agreement (OSLA), the Master Gilt Edged Stock Lending Agreement (GESLA) and the Master Equity and Fixed Interest Stock Lending Agreement (MEFISLA). Many market participants in Europe and Asia have adopted the GMSLA. The GMSLA is signed between the lender and the borrower. It defines the terms and conditions governing the securities lending transactions between both parties throughout the contract lifecycle:

- Loans of securities
- Delivery
- Collateral
- Distributions and corporate actions
- Rates applicable to loaned securities and cash collateral
- Delivery of equivalent securities
- Failure to deliver
- Events of default and consequences

- Taxes
- Lender's and borrower's warranties
- Interest on outstanding payments
- Termination of the agreement

(ISLA 2010b, 2)

In the past years these types of standard contracts have demonstrated their value and have proven to be robust when enforced in a real default scenario (e.g. Lehman default). As a result of the Lehman default, the GMSLA was amended in July 2009. Key changes were introduced to the techniques in valuing securities post-default and solutions to a party's failure to re-deliver (return) securities loans or collateral were discussed. Other changes reflected various law, tax and market practice issues. The language used was also aligned, where appropriate, with the GMRA. Further minor amendments were made in 2010 as a response to concerns voiced in the market. (Bianconi et al. 2010, 21-22)

Following a counterparty failure, a lender is only exposed to the loss if the value of the collateral held is less than the value of the open loan, meaning the collateral value is insufficient to cover the repurchase of the lent securities (together with any dividend or corporate action proceeds). As one can see, collateral management plays a big role in the regulation of the securities lending markets. In a counterparty default situation, collateral exposure could occur because of large market movements between the lenders last margin call and the point at which the lender is able to liquidate the collateral. Lenders may also be exposed if the markets for either the collateral or the lent securities are illiquid at the time of the default. To minimize these risks, counterparts define their eligible collateral parameters to ensure liquidity. "Haircuts" on collateral or margins on loans are employed to ensure that a buffer of collateral is held over and above the market value of the loan.

The European Master Agreement

The Banking Federation of the European Union in cooperation with the European Savings Bank Group originally produced the EMA in 1999. The EMA is a multi-jurisdictional and multi-product agreement. It originally aimed to consolidate various euro zone master agreements (particularly for repo and securities lending) into a single set of harmonized documents (Bianconi et al. 2010, 23). Parties to the EMA are able to implement it on a national level and choose the applicable law, jurisdiction and contractual language. It also allows participants to document potentially all trading transactions under a single master agreement. The structure of the agreement is open for new product annexes to be added in order to broaden the scope of the agreement to include other financial transactions, such as derivatives for example. Regarding securities lending, the EMA covers similar matters as the GMSLA but in a narrower fashion. The EMA's main points are deliveries and returns, distribution, subscription rights, lending fees and margin provisions (Banking Federation of the European Union 2001, 1-3).

In addition to these standard agreements, it is highly recommended for counterparties to sign an operating memorandum between the beneficial owner and intermediary in agency or principal agreements. These documents should describe all processes from the negotiation to the termination of the transaction. For example the arrangements to be followed in the case of corporate actions (e.g. rights issue, dividend) should be clearly established by both parties and should take into account the local market rules, practices and any deadlines imposed by other parties such as local agents or custodians. An important point is that the borrower obtains the voting rights of the securities. Borrowing securities for the specific purpose of influencing a shareholder vote is not regarded as an acceptable market practice. The financial authorities have actually

discussed enforcing disclosure requirements on firms borrowing significant amounts of securities right before an annual general meeting.

2.2 The main players and arrangements

As previously established, although securities lending can theoretically take place directly between the beneficial owner and borrower, there are often many layers of intermediaries involved. In the 90's, the biggest securities lenders on the markets were global custodians (Luhr 1995, 7). Even today, beneficial owners mostly do their lending through their custodian banks. This chapter will discuss both agent and principal intermediaries in more detail as well as bilateral and tri-party models in both securities lending and collateral management.

2.2.1 Lenders, borrowers and intermediaries

The beneficial owners are primarily large institutional investors owning a long-term basis of securities portfolios of a sufficient size. Common examples of lenders are asset managers, mutual funds and pension funds. Intermediaries play a big role in the operations and a good example of this is the membership list of ISLA. The membership list provides a good overview of the organizations in the industry. ISLA has more than a hundred full and associate members consisting of insurance companies, pension funds, asset managers, banks, securities dealers and service providers (ISLA 2012 Official website).

Because of the level of sophistication and the infrastructure required, the direct lending model, where the beneficial owner lends directly to the borrower, can be too expensive for the smaller players. Securities lending

involves a wide range of complex administrative, operational, accounting and risk management activities, including credit evaluation and cash management. Specialists in securities financing may be better at handling especially credit evaluation and cash management. The values of securities loan transactions often exceed €250,000 and can easily be in the millions. Lenders with smaller holdings are of limited appeal to direct borrowers. Small size holdings are best deployed through intermediaries who can pool these holdings with their other inventories. All these reasons can drive beneficial owners to use intermediaries in their lending business. The different types of intermediaries will be discussed next.

Agent intermediaries

As previously stated, in agency lending models there is an intermediary (e.g. custodian bank) lending securities on behalf of the beneficial owner, along with providing other services to these clients. In an agency lending model the intermediary agent facilitates the securities lending on behalf of the beneficial owner. Essential services provided are trading (lending activity), collateral management and settlement services. The agent is responsible for revenue generation, risk management and operations, but not counterparty risk (Bianconi et al. 2010, 34). Agent lenders typically deal with many borrowers, giving access to larger pools of demand and diversifying counterparty risk. Typical agent lender activities include evaluating potential borrowers, negotiating rates, monitoring loans, providing daily mark-to-market evaluations and margin calls to ensure full collateral coverage, collecting fees from the borrowers, monitoring client accounts for sale activities, and providing reporting on outstanding loans and revenue earnings on portfolios (ISLA 2009, 5).

The beneficial owner retains full rights and responsibility for deciding to which borrowers the securities may be lent to. The beneficial owner may place limitations as to which counterparties may borrow securities and

what types of collateral agreements are in place. Most agent lenders can provide indemnities against borrower default (ISLA 2009, 5). These arrangements typically provide for either the full return of lent securities to the lender or an equivalent value of cash in the case of a default. In these indemnity arrangements, exposure from counterparty default risk shifts more on the lending agent's shoulders, making their collateral management practices even more important.

Bianconi et al. (2010) have listed the benefits of the agency lending model to the beneficial owners who use it:

- The scale of the agent's lending business gives them advantages compared to direct lending models.
- The efficiency of the agent's systems makes even small, short-term or poorly compensated loans worthwhile.
- Agents have established relationships to borrowers and access to brokers who know of a borrower for any particular security.
- The agent's specialized market knowledge means they are more likely to know the true value of any particular security.
- Custodian agents may have late access to settlement systems, enabling them to provide last-resort loans late in the day at emergency rates.
- Agents can offer anonymity for lenders who do not wish to reveal their identity (e.g. sovereign institutions, central banks).

(Bianconi et al. 2010, 35)

Custodian banks are at a distinctive advantage and an ideal position to intermediate the lending of securities because they often hold the large and varied portfolios of institutional investors (Rich & Moore 2002, 61). Some of the biggest banks offering custodian services are the Bank of New York Mellon Corporation, J.P. Morgan Chase & Company, and State

Street Corporation. In Europe most of the large custodian banks, such as HSBC, Credit Suisse, UBS, Deutsche Bank, and BNP Paribas, are active in securities lending. As these banks can mobilize large pools of lendable securities, most of them have integrated securities lending to their core businesses with either agency or principal lending models. The revenues are split between the owners and custodian agents. Often many other services are sold to the owner and securities lending is part of a much larger relationship. In these cases the securities lending revenue split negotiation can be part of a bundled approach to pricing a wide range of services. From the investor's point of view a very important factor in agency lending models is the custodian's capability to provide indemnities.

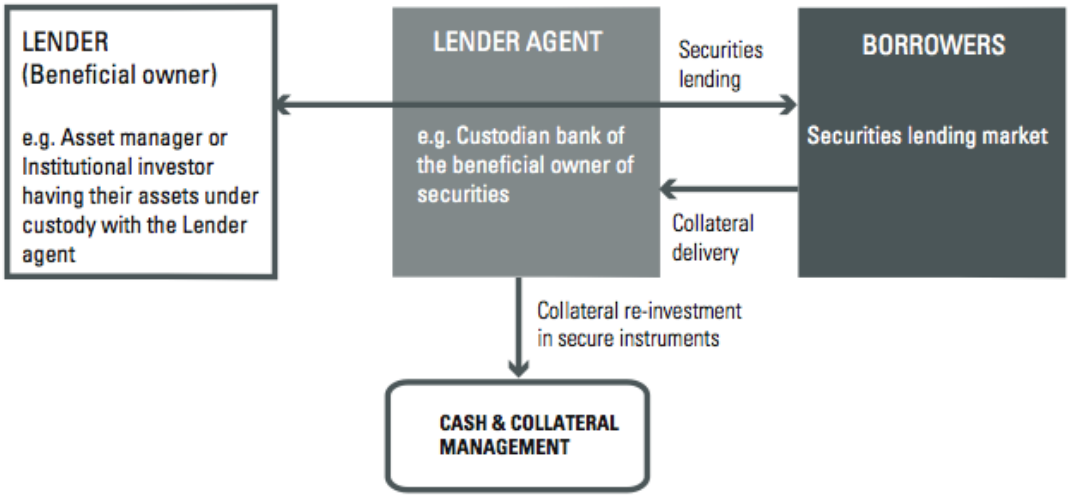

Figure 4. Typical agency lending model (Bianconi et al. 2010, 34)

In Figure 4 an illustration of a typical agency-lending model can be seen. The securities loan transaction is between the beneficial owner and the borrower via the lending agent. The collateral transaction, on the other hand, is between the borrower and the agent. The custodian bank operates here only as an intermediary, lending the securities on behalf of the beneficial owner. The beneficial owner defines the eligible borrowers

and also carries all the market and regulatory risks involved in the transaction.

While custodian banks have taken part in securities lending by adding the function to their other services, third party agency lenders specialize in providing securities lending services and have established themselves as an alternative to custodian banks. Advances in technology and operational efficiency have made it possible to separate the administration of securities lending from the provision of basic custody services. The market share for third party agents is growing from a relatively small base. Third party agents are often flexible because of their focus on securities lending and the ability to deploy new technology without reference to older systems. (Faulkner 2006, 31).

Principal intermediaries

Another route to the securities lending market is through a principal intermediary. In contrast to agent intermediaries, they can take principal risk, offer credit intermediation and take positions in the securities they borrow. Basically the principal agent first borrows the securities from the beneficial owner and then lends them, instead of lending directly from the owner's accounts as in the agency model. The three broad categories of principal intermediaries are: broker-dealers, specialist intermediaries, and prime brokers (Faulkner 2006, 32). Distinctions between these categories are blurred and many firms would fall into all three. Also custodian banks and investment banks can act as principal intermediaries.

In agency lending, the beneficial owner carries the counterparty credit risk. In many cases, lenders (e.g. insurance companies, pension plans) are unwilling to take on credit exposures to borrowers that are not very well recognized, regulated or do not have a good credit rating. These

limitations can exclude many potential borrowers, for example hedge funds. In these circumstances the principal intermediary performs a credit intermediation service by taking a principal position between the beneficial owner and the borrower (Faulkner 2006, 33). These principal agents intermediate between lenders and borrowers, but also use the market to finance their own wider securities trading activities and may seek higher returns by additional risks (collateral risk, counterparty risk, credit risk, liquidity risk) (Bianconi et al. 2010, 37). In many cases, as well as serving the needs of their own traders, principal intermediaries provide a service to the market in matching the supply of beneficial owners that have large stable portfolios with borrowers that have high demand.

One role of the principal intermediaries is to take liquidity risk (Faulkner 2006, 33). Typically they will borrow from the beneficial owners on an open basis, giving them the option to recall the underlying securities if they want to sell them or recall them for other reasons. Lending to counterparties is done on a term basis, thus offering the certainty that they will be able to cover short positions. When the beneficial owner recalls open loans, the principal agent is left exposed to liquidity risk if the securities on loan are on a term basis (with the final borrower). A critical tool to mitigating this “recall risk” is efficient inventory management. This can require a significant technological investment as many securities lending desks act as central clearers of inventory within their organizations, only borrowing externally, when the netting of in-house positions is complete. Other ways of reducing recall risk include arrangements to borrow securities from other investment management firms and bidding for exclusive access to securities from other lenders.

Broker-dealers are important intermediaries in the securities lending markets. Firstly, they act as principal intermediaries between the ultimate borrowers and the beneficial owners of funds or securities. Secondly,

broker-dealers offer exclusive securities lending programs or agency lending services to institutional investors, similar to those provided by custodian banks. Broker-dealers may borrow securities for market making purposes, to support proprietary trading or on behalf of their clients. They may combine their securities lending services with their prime brokerage operation (the business of servicing the broad requirements of hedge funds and other alternative investment managers). These types of arrangements can bring significant efficiency and cost benefits. (Faulkner 2006, 33-34; Bianconi et al. 2010, 37)

Prime brokers can also act as principal intermediaries. Prime brokers serve the needs of hedge funds and other alternative investment managers. The business was once viewed as consisting of six distinct services: securities lending, leverage of financing provision, trade execution, clearance, custody and reporting (Faulkner 2006, 34). The first three can be identified as profitable activities and the last as parts of the costs of being in business. Many other services such as capital introduction, risk management, fund accounting and start-up assistance have now been added to prime brokerage. Securities lending is one of the central components of prime brokerage, with its scale depending on the strategies of the hedge funds for which the prime broker acts. Both long/short equity and convertible bond arbitrage strategies rely heavily on securities borrowing. Long/short equity strategies involve buying long equities that are expected to increase in value and selling short equities that are expected to decrease in value. In convertible bond arbitrage the aim is to capitalize on the mispricing between the convertible bond and its underlying stock.

Historically there were not many global intermediaries due to regulatory controls on participation in the securities lending markets. Some specialist intermediaries regulated the transactions between market makers and

stock lenders for example (Faulkner 2006, 34). With the deregulation of the stock lending markets, many of these specialized intermediaries have disappeared. Some of them are now part of larger financial organizations. Others have moved to parent companies that have allowed them to expand their range of activities to proprietary trading.

Beneficial owners and market entry

Beneficial owners with securities portfolios of sufficient size may include pension funds, insurance companies, mutual funds, endowments etc. The characteristics of these organizations and their securities portfolios will now be discussed. In addition, their different possible routes to the securities lending markets will be summarized.

In the lending organization, the management motivation must be distinguished. Will the securities be lent solely to offset custody and administrative costs or is it for the purpose of seeking significant revenue? The managers also have to decide whether or not to invest in a technological infrastructure supporting securities lending. The less they invest, the more they will have to rely on outsourcing services. Another important characteristic is the organization’s credit risk appetite. The securities lending market consists of organizations with a wide range of credit quality and collateral capabilities. A cautious approach to counterparty selection and restrictive collateral guidelines will limit revenue opportunities.

The beneficial owner's portfolio has to be of sufficient size to make securities lending worthwhile. Borrowers prefer large portfolios and securities loan transactions are generally of significant value. Because of the size of these transactions, holdings less than €250,000 are probably best deployed through an agency lender, who can pool the assets with

other inventories. The investment strategy of the beneficial owner can also make a difference. Active investment strategies increase the likelihood of recalls, making them less attractive than passive portfolios. Borrowers often look for liquidity and there are certain markets that are particularly in demand from time to time and certain portfolios that have a geographic or asset class focus. The diversification level of a portfolio affects its attractiveness to borrowers. The inventory in general is a critical factor. Of course “hot” portfolios with special securities to lend will have higher returns from lending it. The lenders tax jurisdiction may also have an effect on demand as the borrowers have to manufacture all the benefits of ownership such as dividends or coupons. If the cost of manufacturing dividends or coupon payments to the lender is small, then its assets will be in greater demand.

Faulkner (2006) has summarized the possible routes to the securities lending markets to six main points: 1. Using a custodian agent, 2. Using a third party agent, 3. Auctioning a portfolio, 4. Selecting one principal borrower, 5. Lending directly to proprietary principals, 6. Using a combination of all of these (Faulkner 2006, 36-37). Using a custodian agent is often the least demanding option for a beneficial owner. They will likely have an appropriate custodian in mind and can enter the markets with little barriers. When an outsourcing decision has been made, a beneficial owner may decide to hire a third party specialist to manage the securities lending. This route may mean getting to know and understand the service provided before starting operations.

When auctioning a portfolio for securities lending, borrowers bid for a lender’s portfolio by offering guaranteed returns in exchange for exclusive access. This phenomenon has gained a higher profile in some markets in the recent years. A key issue for a beneficial owner is the level of operational support that the auctioned portfolio will require and who will

provide it. Many borrowers act as wholesale intermediaries and have developed global franchises in serving beneficial owners and generating spreads between two principals that remain unknown to each other. Acting as a principal lender instead of an agent lender allows these intermediaries to do business with organizations that the beneficial owner would normally avoid for credit reasons (e.g. hedge funds). After long periods of activity with the same intermediary, large enough beneficial owners may explore the possibility of establishing a business in-house, lending directly to a selection of borrowers that are the end-users of their securities. Often the lending activity is carried out through a combination of different models across their portfolios and the various markets. A beneficial owner might be using a wholesale custodian intermediary in the United States, lending Asian assets through a third party specialist and European assets directly to a range of proprietary borrowers. (Faulkner 2006, 37-38)

2.2.2 Bilateral and tri-party arrangements

In addition to providing agency or principal lending programs for clients with securities already held in custody in-house, custodians can act as third party agents for portfolios not under custody. A good example of this is the framework of tri-party collateral management. In tri-party collateral arrangements a specialist agent, typically a large custodian bank or international central securities depository, will receive only eligible collateral from the borrower and hold it in a segregated account to the order of the lender (Faulkner 2006, 23). The tri-party agent also marks this collateral to market automatically, with information distributed to both the lender and borrower. Typically the borrower pays a fee to the tri-party agent.

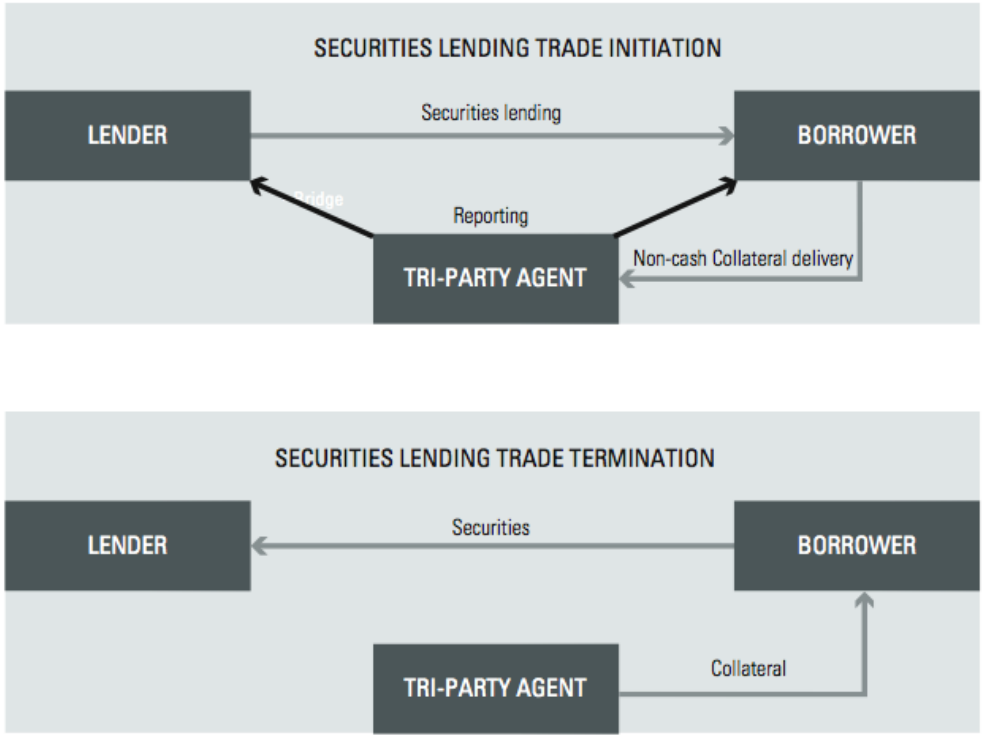

Figure 5. Tri-party collateral management arrangement (Bianconi et al. 2010, 36)

In a typical bilateral securities loan transaction the lent securities and collateral are transferred between two parties – the lender and the borrower. Figure 5 demonstrates how loans are opened and closed in a tri-party relationship. The borrower receives the securities from the lender just like in bilateral transactions, but the collateral is delivered to the tri-party agent. In tri-party relationships the total sum (total open loan value) is checked daily and agreed between the lender and borrower. Both parties then report this value to the tri-party provider and eligible collateral is transferred automatically from the borrower's account to the lender's account. The tri-party systems automatically inform the borrower of insufficient or excess collateral in their accounts.

When wanting to outsource the legal and technical management of securities lending, tri-party relationships can be very useful. The strongest

case for using tri-party is systematic efficiency and cost saving (Kochan 2006, 2). The main point in tri-party is reducing collateral transactions between the lenders and borrowers. Both parties just have one big custody position at the tri-party provider and assets are transferred automatically according to predetermined margin and eligibility parameters. From the borrower side, the difference is between agreeing and making several collateral deliveries to different lenders, or just agreeing the figures and covering the positions through a simple book-entry system with the tri-party provider. Through tri-party systems, the collateral management process becomes highly automated. Currently the biggest tri-party providers in the European markets are: The Bank of New York Mellon, Euroclear Bank and J.P. Morgan Chase.

Tri-party collateral management systems all rely on preset parameters. Lenders can reach higher trading volumes and become much more diversified in the type of collateral they accept when using a tri-party agent. While bilateral deals often limit the acceptable assets to fewer types of collateral, automated tri-party collateral management enables both parties to work with a more diverse portfolio (Kochan 2006, 3). Lenders may accept lower rated collateral because they can define sophisticated sets of concentration limits per rating or security type. When migrating funds to a tri-party system it is important to define and set all the collateral eligibility and margin schedules in line with all the relevant contractual documentation.

Tri-party collateral management also allows for the “rehypothecation” of collateral. Rehypothecation is a word meaning the secondary re-use of collateral. The Financial Times Lexicon defines the word as: *“the practice of using the assets held as collateral for one client in transactions for another.”* Basically a borrower pledges hypothecated (already received in as a collateral pledge) securities as collateral for another loan transaction.

In bilateral models, it would seem that this would result in the risk of double-committing collateral or not being able to receive back the collateral when needed. These factors have affected the evolution of tri-party collateral management, but then again asset managers have become more cautious with rehypothecation after the Lehman Brothers. Modern tri-party collateral management allows for collateralization on a net portfolio level. Generally speaking, tri-party collateral management systems allow for higher volumes but with less collateral management man-hours. Although this sounds very effective, it is not always possible. In agency lending, for example, the beneficial owner might not allow their custodian agent to use tri-party collateral management, because of some legal or contractual reasons.

3. SECURITIES LENDING RISK MANAGEMENT

This chapter will discuss securities lending risk management in more detail. First different types of financial risks will be discussed – starting with an introduction to traditional concepts of financial risk, followed by a more specific look into the risks involved in securities lending activity. As collateral management plays a very big role in securities lending risk mitigation, its mechanics and procedures will also be discussed. In the end of this chapter the future outlook of collateral management will be examined.

3.1 Types of risk

This study falls into the field of financial risk management. In many cases this term is related to managing and valuating market risks, such as interest rate, currency, equity price and commodity price risks. All these risks are present in the securities financing markets, but the main risk in securities lending is that the borrower becomes insolvent and the value of collateral falls below the cost of replacing the lent securities. This risk of loss stemming from a borrower's failure to pay is called credit risk. There are other risks as well including operational risk, systemic risk and liquidity risk. All these risks and their relation to securities lending will be discussed next.

3.1.1 Traditional concepts of financial risk

Managing financial institutions has never been an easy task, but it has become even more difficult in the recent years with the global financial crisis and the European sovereign debt crisis. New regulation such as the

Basel III and EU emergency measures, the European Financial Stability Facility (EFSF) and the European Financial Stabilization Mechanism (EFSM), have been introduced and risk management practices have become crucial core activities in the markets. This chapter will examine different financial risks starting off with market risks, then operational, systemic and liquidity risks and finally credit risk.

Market risks

When talking about market risks in finance, we usually mean the four standard market risks: interest rate risk, currency risk, equity price risk and commodity price risk. In investment banking the market risk is that the value of the portfolio will decrease due to changes in these different market variables. In securities lending these risks are mostly related to loan and collateral market values, daily mark to market and have a direct effect on margin calls and an indirect effect on final collateral exposure.

Interest rate risk can be more difficult to manage than the risk arising from the other market variables – currency, equity price and commodity price. One complication is that there are several different interest rates used in finance in any given currency (central bank reference rates, interbank borrowing and lending rates, mortgage rates, deposit rates, prime borrowing rates, and so on). Although these rates usually move together, they are not perfectly correlated. The interest rate environment can sometimes be difficult to model and more than a single number is needed to describe it. A function describing the variation of the rate with maturity is known as the interest rate term structure, or the yield curve (Hull 2010, 135). Considering yield curves is important, for example, in the case of a bond trader with a portfolio of different government bonds with different maturities. The trader has to consider all the different ways in which the yield curves can change their shape through time. On the derivative markets interest rate swaps and forward rate agreements are common

tools in dealing with interest rate risks. In securities lending interest rate risks affect, for example, bond valuation. Loan and collateral portfolio market values are calculated based on “dirty prices” for bonds, which include accrued interest. Another important area in terms of interest rates is the use of cash collateral and its reinvestment decisions.

Currency risks refer to the risks that arise from the potential changes in the exchange rate of one currency in comparison to another. Exchange rates are important because they affect the relative price of domestic and foreign goods. Currency risk is important for international firms active in foreign investment and the foreign exchange OTC markets are very competitive. In the derivatives markets foreign exchange forwards and futures are very common. In securities lending currency risks mostly affect portfolio valuation. It could be difficult, for example, to agree an exposure with a counterparty when there are a lot of foreign securities in the book. The lender and borrower might have different price feeds and could be using a different price or different exchange rate for a particular security. In these cases the collateral managers need to quickly reconcile the books either automatically or manually.

Equity price risks simply refer to the effect of stock market dynamics. In a traditional investment situation, a trader would be concerned with the depreciation of his portfolio due to drops in the market. Of course equity risks can be managed through derivative contracts and the approach depends on the specific trading strategy. In securities lending the effect is again on valuation and collateral exposure, but the effect is in a way inverse. If the value of the stocks on loan increases, the lender is exposed and the borrower will need to post additional collateral to cover the margin. On the other hand, if the value of possible equity collateral decreases, it may also result in collateral exposure.

Often a financial institution's portfolio depends on hundreds or even thousands of market variables. Financial institutions use value-at-risk (VaR) calculations to measure the size of the potential losses on a trading portfolio. The VaR measure, developed by J.P Morgan, has become widely used by corporate treasurers and fund managers (Hull 2010, 158). It is an attempt to provide a single number that summarizes the total risk in a portfolio. It is a function of two parameters: the time horizon (T) and the confidence level (X %). It is the loss level during a time period T that we are X % certain will not be exceeded (Hull 2010, 157). This threshold value, or risk measure, can be calculated every trading day to make sure that portfolio risk is at acceptable levels.

Operational risks

Operational risk as a term can cover a wide area of risks depending on how it is defined. A distinction can be made between internal and external risks. Internal risks are the risks over which the company has control and external risks cover the effect of external events. This study is more concerned with the internal operational risks a company faces. The company chooses its employees, what computer systems it uses, what controls are in place etc. In their working paper on the regulatory treatment of operational risk, the Basel Committee on Banking Supervision (2001, 2) defines operational risk as "*the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events."* This definition is from a rather regulatory point of view as it includes external events e.g. natural disasters in the definition. In financial institutions, some operational risks may result in increases in operating cost or decreases in revenue. Other operational risks may interact with market and credit risk. In securities lending there are definitely operational risks tied in with managing the daily credit risk. Specific day-to-day operational risks in securities lending will be discussed later on.

Systemic risk

Systemic risk is associated with the risk of collapse of an entire financial system or market. It can be defined as the risk that a default by one financial institution will lead to defaults by other financial institutions (Hull 2010, 529). It is a major concern of governments and financial regulators. Recently OTC-transactions have been looked at carefully when examining systemic risk. The worst-case scenario is that a default of one financial institution creates a “ripple effect” through huge losses to other banks on their transactions. Derivatives trading exposures have been of substantial concern (Howieson & Zimmerhansl 2010, 19-20). Systemic risk is naturally also considered in securities lending. The Lehman Brothers collapse provided a good example of securities lending risk measures. On the morning of 15 September 2008, most securities lenders immediately declared an event of default. Most lending agents took the approach of selling collateral to buy back lent securities, and given the margin requirements on collateral, most lenders were actually left with a surplus (even after costs) and then owed this amount to Lehman administrators (ISLA 2009, 13).

Liquidity risk

Liquidity deals with how a company can make their cash payments as they become due. Liquidity risk in financial transactions comes in two forms: asset liquidity risk and funding liquidity risk. Asset liquidity risk is sometimes referred to as trading liquidity risk. It refers to the ability to sell holdings easily at a decent market price (Hull 2010, 385-386). Liquidity funding risk is the ability of a financial institution to meet its cash needs as they arise (Hull 2010, 391). This can refer to the capacity to raise finance or to move around short-term debt, for example, through the repo markets. It is important to distinguish liquidity from solvency. Solvency has to do with the amount of debt a firm has. It refers to the degree to which a firm’s assets exceed its liabilities.

In a liquidity crisis, even a solvent bank can fail. A good example of this is the British bank – Northern Rock. Northern Rock relied for about 75 % of its funding on debt instruments, and following the subprime crisis, the bank found it hard to replace maturing instruments (Hull 2010, 392). Institutional investors had become cautious about lending to banks that were heavily involved in the mortgage business. The bank was solvent, but had troubles funding itself. When the bank requested emergency support from the Bank of England, thousands of people lined up to withdraw their funds. Finally the bank was taken into state ownership. In times of crisis liquidity is a very important issue. In 2008, for instance, liquidity instantly drained from securities firms as clients abandoned anything that seemed too risky. In March 2008, Bear Stearns saw its pool of cash and liquid assets shrink by 90 % and after the collapse of Lehman Brothers, Morgan Stanley experienced a total of $43 billion in withdrawals in a single day (The Economist 2010, 11-14).

After a decade of almost neglecting liquidity risks, international regulators have finally addressed financial institutions' liquidity requirements (cf. Basel Committee on Banking Supervision 2008). Some banks have responded and stated that new liquidity buffer rules are too restrictive and would reduce their room for maneuver in a crisis. Reforms have been suggested to the repo and securities lending markets as well. Some hedge funds had problems in retrieving rehypothecated collateral from their brokers, and some securities lenders have had problems in repaying cash collateral, because they had invested it in instruments that had turned illiquid (The Economist 2010, 13-14). These problems have resulted in stricter collateral requirements and limited the rehypothecation of collateral.

Credit risk

Credit risk can be defined as the risk arising from the possibility that the borrower will default (Mishkin & Eakins 2012, 445). Unfortunately adverse selection occurs in loan markets. The companies with bad credit risks are the ones who usually line up for loans. In addition, moral hazards exist in loan markets because borrowers may have incentives to take part in activities that could be undesirable from a lender's point of view – making them more likely to be subjected to the hazard of default (Mishkin & Eakins 2012, 609). Naturally borrowers taking part in high-risk high-return investments are less likely to be able to pay back the loan. Of course screening and monitoring measures are taken to control this risk. Credit risk is of significant importance in securities lending operations. It is dealt with by using strict collateral arrangements, the mechanics of which will be discussed in chapter 3.2 Collateral management. Next the more specific risks related to securities lending will be examined.

3.1.2 Risks in securities lending

There are several specific risks involved in securities lending activity and they should not be over- or underestimated. A key outcome of the global financial crisis was the realization that risks need to be identified, understood and controlled. The different risks related to securities lending will now be examined by splitting them into three categories: market related risks, operational risks and legal risks.

Market related risks

As stated before, the most important risk in securities lending is counterparty or credit risk. It is sometimes referred to as borrower risk as well – the risk that the borrower defaults on the loan. All the other risks are related to covering credit risk, but there are initial steps that can be taken

to mitigate this risk. The lender must consider who they are willing to lend to and how much. This analysis can include counterparty credit evaluation before starting the lending activity and ongoing monitoring of borrowers later on. The lender can also take an indemnification insurance against borrower default (Bianconi et al. 2010, 56). Obviously collateral management plays a big part in mitigating counterparty risk. Following a counterparty default, under a robust agreement such as the GMSLA, a lender is only exposed to loss if the value of the collateral held is insufficient to cover the repurchase of the lent securities (ISLA 2009, 10).

It is important to consider the congruency of the collateral and lent portfolios. If they were identical, there would be no market risks affecting their values and collateral coverage. The risk that the collateral value falls below the replacement cost of lent securities is called mismatch risk or collateral risk (Faulkner 2006, 56; ISLA 2010a, 4). Establishing rules to govern collateral can be quite complex. The lender's collateral policy will affect the returns that are achievable. A first step to controlling collateral risk is comprehensive legal documentation including collateral schedule, re-pricing and default processes (Bianconi et al. 2010, 56). Lenders have to consider what types of collateral they are willing to accept and how much of one type of collateral should be accepted. Lenders can impose strict collateral eligibility criteria. These collateral acceptability parameters should be determined according to their risk thresholds. A lender may decide to accept both G-10 government debt and equities from approved indices, but only up to certain concentration limits to ensure collateral diversity. The likelihood of a collateral shortfall depends on the volatility of the value of open loans, the volatility of collateral taken, and the correlation between these two (ISLA 2009, 11). Therefore, the level of covariance between these two should also be examined. Daily mark to market (loans and collateral), timely margin calls, continuous monitoring of collateral coverage and ensured collateral settlement are essential in managing mismatch risk.

The level of overcollateralization should also be determined, which means adding margins on loan values or imposing haircuts on collateral values (e.g. loans valued at 102-110 % of market values or collateral valued at 90-98 % of market values). These practices protect the lenders against the possibility that collateral value will drop relative to the open loans in the period between counterparty default and the repurchase of lent securities. These haircuts should be set according to liquidity, volatility and co-variance parameters (ISLA 2009, 11-12). Haircuts are also important in managing liquidity risk. From a collateral perspective, liquidity risk concerns realization of collateral securities. Illiquid securities are more likely to be realized at a lower price than valuated. Haircuts should be determined according to the proportions of the total security issue held (the larger the position, the greater the haircut), the average daily traded volume of the security (the lower the volume, the greater the haircut), and the volatility of the security (the higher the volatility, the greater the haircut) (Faulkner 2006, 56).

From the borrower's point of view, liquidity risk relates to the return of collateral and therefore is affected by collateral reinvestment risk. Because of its ease of management and wide acceptability, cash can be highly appropriate collateral. As previously mentioned, the lender normally pays an interest on cash collateral and therefore, the cash must be reinvested at a higher rate to make a profit. Cash collateral risk can be defined as the risk that a lender suffers a loss on the reinvestment of cash collateral (ISLA 2010a, 5). A lender must ensure that cash collateral investment guidelines are fully understood and provide an acceptable level of risk and return.

Typically, the reinvestment is delegated to lending agents, but without indemnity on reinvestment losses (Faulkner 2006, 56). This causes the

reinvestment risk to be retained by the beneficial owner, while the agent is paid part of the return. Cash collateral may be invested in a separately managed account or a mixed investment pool. Agent lenders typically offer a number of pooled reinvestment funds with defined investment parameters and guidelines, thus offering beneficial owners a range of risk and return profiles to suit their risk appetite (ISLA 2009, 16). Quantitative and risk-based approaches may be taken in controlling reinvestment, such as calculating the VaR in relation to different expected returns from alternative investment profiles. Taking other securities as collateral instead of cash is a way of avoiding cash collateral risk, but that also has its own risks, which will be examined shortly with operational risks.

On the other hand, liquidity risk can also refer to problems that the borrowing counterparty has with completing deliveries. From this viewpoint, it can be defined as the risk that a counterparty cannot settle an obligation when it is due, for any reason (Bianconi et al. 2010, 56). A counterparty may have problems in returning large quantities of borrowed securities because of simply not having them or due to market system or settlement issues. Problems may also arise, for example, during dividend seasons when large quantities of collateral securities need to be recalled and swapped for other eligible collateral to avoid corporate action issues. If the collateral eligibility requirements are strict and the positions to be returned are large, the borrower may have difficulties in acquiring suitable collateral for the swaps.

Operational risks

A common operational risk in securities lending is delivery risk. This can occur when securities have been lent, but collateral has not been received at the same time or before releasing the loan. This can also be referred to as settlement risk, as the assumption is that collateral has been agreed and a collateral trade has been booked, but for some reason it is not

settling on the market. Pre-pay arrangements can be made where loan trades are released only when the collateral has settled (ISLA 2009, 15). For markets with early cut off times or for important large loans, the collateral can be agreed the day before to make sure the loan will be released and will settle the next day. In pre-pay arrangements, collateral is returned only when the loan return has settled. This pre-delivery does, however, leave the borrower exposed to settlement risks. In some cases, collateral may accidentally be returned before the loan return has settled on the market, leaving the lender exposed. In the case of collateral recalls or swaps, a miscalculation on the part of the lender may result in returning too much collateral, again leaving the lender exposed.

In addition to pre-pay arrangements, lenders can use settlement in a delivery-versus-payment (DVP) system or use a delivery-versus-delivery (DVD) process (ISLA 2009, 15; Bianconi et al. 2010, 56). In these settlement models title to an asset and payment are exchanged simultaneously, thus enabling automatic processing and reducing settlement risk. A borrower might prefer to use a DVP system instead of pre-pay collateral arrangements to limit their exposure to settlement risk. An example of these types of arrangements is delivery-by-value (DBV) trades in CREST, the securities settlement system for British equity and gilts. This functionality enables members to give and receive packages of securities as collateral, usually against the creation of a payment or free-of-payment (CRESTCo Ltd 2004, 13). This is useful in cases where, for example, a borrowing counterparty covers an account in cash during the day and in securities overnight. In these cases the amounts traded may be in the hundreds of millions of pounds, and using DBVs allows for safe and simultaneous settlement for both counterparties.

Using tri-party collateral arrangements can also reduce delivery risk. As long as you agree the total exposure and input it in the system, you should

be covered. In the case of disputes and late agreement, tri-party agents might be able to cover the accounts later than standard bond or equity market cut-offs, if the borrower holds sufficient assets in their tri-party account. Another tool for mitigating settlement risk is Straight Through Processing (STP) (Bianconi et al. 2010, 56). STP services can free up resources by automated trade services. An example of offered STP services is BondLend, a securities finance platform released less than a year ago for the fixed income lending and repo community (Securities Lending Times 2011a, 3).

Mispricing is a regular problem in securities lending. Mispricing risk can be defined as the risk that the lender will be exposed if either collateral securities have been overvalued or lent securities have been undervalued (Faulkner 2006, 56). As the participating counterparties might have several different price information providers according to which they do their daily mark to market, there are bound to be some price differences every day. Collateral managers have to check and reconcile each other's books and find the significant differences to be able to agree exposure. A common problem is currency issues. There can easily be a break, if the bonds or equities are priced in a foreign currency and a wrong exchange rate or no exchange rate at all is used. Actual price differences may arise when dealing with equities listed on multiple markets. Usually the differences are with valuing bonds and this depends on how you calculate the dirty price. This is dependent on what day count method is used for calculating the accrued interest. Even very small differences can cause a disagreement in collateral exposure because the positions on a particular security can be very large. New automated collateral management systems may have a built in reconciliation function for standard format portfolios. This makes a collateral manager's job much easier.

Other operational risks may arise from deficiencies in information systems, manual processes or internal controls (Bianconi et al. 2010, 56). For example, an agent lender recalling sold shares too late could cause unexpected losses or lead to penalties. Problems may also arise with corporate action processing. A lender or its agent may fail to claim for dividends or other entitlements. Of course there are always risks of human error. When trading with several counterparties on different accounts, a collateral manager may miss an exposure and not make a margin call. In the case of agency lending, it is important that the beneficial owner understands whether or not the agent takes responsibility for operational risks and in what circumstances.

Legal risks

The most important legal risk is that the lender's legal agreement does not provide full protection in the event that the borrower defaults (ISLA 2010a, 5). Legal agreements should be reviewed carefully and the use of standard agreements, such as the GMSLA is encouraged. These standard agreements address the various legal aspects of securities lending and clarify the roles and responsibilities of the participants, as well as the legal framework in a particular jurisdiction. Because of the global nature of securities lending and the large amounts of cross-border trades, it is very important to ensure compliance with the laws and regulation of the counterparty's, asset, or intermediary's jurisdictions. Another legal risk is the risk of loss due to unexpected application of a law or regulation.

Table 1. Risks in securities lending and means of mitigation (Bianconi et al. 2010, 56; Faulkner 2006, 55-60; ISLA 2010, 4-5)

	Risks	Risk mitigation practices
Market related risks	**Credit risk** that can arise from a counterparty defaulting on its obligations.	- Credit evaluation, careful analysis and selection - Indemnification insurance for borrower default - Effective collateral management (eligibility, procedures, control systems) and use of robust standard legal agreements
	Liquidity risk that the counterparty cannot settle an obligation for the full value when it's due. Related to collateral returns for borrowers (e.g. cash reinvestment risks) and loan returns and additional collateral (margin calls, collateral swaps) for lenders.	- Overcollateralization: maintenance of sufficient margin levels and collateral types depending on the assets on loan. - Daily mark to market, timely margin calls - Credit quality, maturity and liquidity diversification of eligible collateral
	Cash collateral risk is the risk that a lender suffers a loss on the reinvestment collateral.	- Controlled reinvestment: collateral reinvestment guidelines reflecting the beneficial owner's risk and reward objectives - VaR analysis
	Mismatch risk related to the congruency of collateral and lent portfolios (e.g. loan market values increase, but collateral value falls)	- Loan and collateral correlation - Collateral eligibility defined depending on the covariance of the collateral and the lent securities, and the volatility of collateral.
Operational risks	**Delivery/settlement risks** related to settlement failure (e.g. loan settled, but collateral pending/ or collateral being returned, but the loan return is pending).	- Delivery Versus Payment (DVP) or Delivery Versus Delivery (DVD) processes - Pre-pay arrangements (pre-collateralization) - Use of tri-party agents - Straight Through Processing (STP)
	Mispricing risk: possible exposure from undervalued or overvalued securities.	- Use of reliable price sources - Reconciliation (manual/automated)
	Other operational risks arising from deficiencies in information	- Clear and defined procedures for any daily activity

	systems, manual processes or internal controls.	- Use of intermediaries with the right infrastructure, high levels of automation and efficient processes (e.g. processing corporate actions, recalls, swaps)
Legal risks	**Risk of loss** resulting from an unexpected application of a law or regulation **Risk of non-compliance** with the laws or regulation of a counterparty's jurisdiction (cross-border trades).	- Written contracts in the form of standard master agreements, addressing the relevant legal aspects of the lending activity and clarifying the roles and responsibilities of each participant, as well as the legal framework in a particular jurisdiction (e.g. GMSLA)

As previously mentioned, one key outcome of the recent financial instabilities from a risk management point of view is the realization that risks need to be identified, understood and controlled. As can be seen in Table 1 many specific risks can be identified in securities lending. These risks should not be under-, or over-estimated. Most of the risks are quantifiable and manageable, when they are properly understood and monitored. The next chapter will provide a more practical view on how these risks can be controlled by presenting the mechanics and daily routines of collateral management.

3.2 Collateral management

Collateral management is the most important risk management tool in securities lending. It protects the lender from counterparty credit risk and is a kind of insurance against borrower default. The field of collateral management has evolved a great deal in the past decade, but pressures from recent market instabilities have led to even more pressures in improving risk management. Many custodian banks have had to invest in new technology to answer to the growing demand on real-time views of exposure and collateral (Crosman 2008). There have also been changes in acceptable collateral, haircuts and margin call procedures. This chapter

will first present the mechanics of collateral management, after which the new trend of collateral optimization will be addressed.

Mechanics of collateral management

It is important to remember that collateral management does not completely remove counterparty credit risk; it just improves the rate of recovery from counterparty default. Collateral is not a substitute for a full counterparty risk analysis. Collateral can be defined as legally watertight, valuable liquid property supporting risk (Harding & Johnson 2002, 3). It has to be legally watertight so it can be enforced; liquid, so it can be sold; and property, so it can be owned and controlled. As can be seen, there are many factors to be considered in collateral management.

Securities lending can imply working with a wide range of counterparties. This involves processing and checking transactions, managing securities collateral or cash collateral efficiently with frequent margin calls or collateral swaps, reinvesting cash collateral, recalling securities on loan, processing corporate actions and measuring exposures and risks. The collateral management team of a lender carries out a large portion of this work. The team makes calculations on spreadsheets and collateral management software, issues and receives margin calls and ensures that all the accounts are covered by the end-of-day. On a daily basis, the whole process begins with having up-to-date data in order to calculate the new collateral exposure. This means capturing and combining all the available data: the static counterparty data, the legal agreements and their terms and conditions, and live market data. The loan and collateral portfolios are marked to market according to the previous day's closing prices. A collateral management system with preset parameters for margins on each account is then able to present up-to-date exposures. After this the collateral managers can start their margin calls. Their main job is to ensure that all the margin calls are answered and exposures are

covered according to agreed upon collateral guidelines. Other daily tasks include reporting, solving collateral disputes and taking care of daily collateral trading.

A key development in collateral management has been the evolution of collateral management systems. The most recent developments in collateral management systems and collateral optimization will be discussed in chapter 3.3 Future of collateral management. Collateral management has developed a great deal from spreadsheet calculations to complete, more automatic, collateral management systems. The collateral management workflow can be divided into seven main parts: **collation, allocation, calculation, evaluation, communication, reconciliation,** and **mitigation** (Chandrashekar 2003, 9). Collation refers to the collateral agreements and documentation – acceptable collateral, haircuts, margin calls, mark to market, and close-out and rehypothecation clauses. This data is needed to set up a collateral management system. The allocation of collateral is a complex process that involves evaluating the collateral based on the documentation. The allocation is based on the agreements: eligibility, margins, rating requirements, concentration limits and so on.

The collateral management system then calculates the exposures – the allocated collateral against the appropriate loans on the appropriate accounts. The required amount of collateral is calculated based on margins or haircuts that determine the amount of over-collateralization needed for each loan. Depending on the agreement, these may vary with the size and term of the transaction, the securities type (loans and collateral) and maturity, as well as with counterparty creditworthiness (Bianconi et al. 2010, 52). A collateral management system is usually linked to a real time market data feed, such as Reuters or Bloomberg. This allows for the real-time mark to market and updated exposure figures for margin calls. Collateral evaluation refers to collateral optimization of the

system to enable more secured and efficient allocation of collateral. An example could be straight-through-processing systems or managing and allocating collateral across different asset classes (cf. Strongin Dodds 2011, 4-5).

An essential feature in a collateral management system is the ability to communicate effectively with all counterparties. In relation to transactions this refers to financial messages facilitating these transactions such as SWIFT (Society of Worldwide Interbank Financial Telecommunication) – messages. It can also refer to automated margin calls for example. Many market participants have moved to automated margin calls instead of phone-calls, emails or faxes. Of course following up on that margin call may require traditional methods of communication. Another important aspect of communication is reporting. Especially in agency lending relationships, compliance reporting to the managers, the front office and beneficial owners can be a daily activity. A good collateral management system should be able to produce accurate reports with up-to-date positions and exposures. Reconciliation, in a collateral management system, is the process where the system checks that the collateral cycle has been successfully completed (Chandrashekar 2003, 11). This means checking a position before running the cycle, and then verifying that the transferred collateral matches the pre-conditions. This is essential for a collateral management system; otherwise it cannot be sure the allocation has been done according to all criteria. In daily operations, reconciliation can refer to checking and comparing a counterparty's books in the case of a dispute. This can be done manually on spreadsheets, or possibly automatically by the collateral management system. Usually all the open positions in different portfolios are also compared to actual market settlement data on a regular basis.

Usually collateral is managed in a pool. In this case a global margin call is made for all loans to each counterpart. Depending on the contractual arrangements, the margin call may be a global total exposure figure, or exposures for several segregated accounts. Agent lenders might have more segregated accounts due to several beneficial owners and their contractual requirements. In these cases, there is a need for more account and settlement set-up. A collateral manager always has to make sure the counterparties have the correct standard settlement instructions (SSIs) for each segregated account to reduce settlement risk. In many cases, the collateral management team is responsible for collateral trade settlement. This means that even though there is a separate settlement office, they could only be taking care of loan settlement and not collateral settlement. From a risk management point of view, it is not only important that collateral is agreed and a trade is booked. Even if the trade is matched on the market, the lender is not covered until the trade settles. A collateral manager has to keep an eye on all of his trades and make sure they settle as fast as possible, before the relevant market cut-off times.

As already mentioned, securities lending transactions can be collateralized by both cash or other securities. Non-cash collateral usually consists of: government bonds, corporate bonds, convertible bonds, equities of specific indices (mainly large cap), letters of credit from banks of a specified credit quality, certificates of deposit of institutions of a specified credit quality, or other money market instruments (Bianconi et al. 2010, 54). The major part of non-cash collateral is made of highly rated government bonds, such as German Bunds, French OAT, UK Gilts or US Treasury bonds. There may be limitations on the rating of the specific bonds or issuing country. For example the recent Standard and Poor’s downgrade of the U.S.A credit rating from AAA to AA+ could have limited the acceptance of treasury bonds as collateral for lenders with very strict collateral requirements. The instabilities in Greece and Portugal last year caused some lenders to make Greek and Portuguese debt unacceptable

as collateral. In some collateral arrangements, a reference to a list of acceptable collateral by a central bank can be made. A lender may, for example, take in European Central Bank (ECB) approved collateral. The ECB maintains and publishes a list of eligible marketable collateral assets for its Euro system credit operations (European Central Bank 2012). The list is updated daily, and the eligibility of an asset can be checked quickly online. Just recently the ECB suspended the use of Greek government bonds as collateral (The Telegraph 2012). This means that lenders using the ECB acceptable collateral list as a reference in their collateral schedules will not be able to accept Greek bonds as collateral for their securities loans. This list is perhaps not a good reference for a collateral schedule, as it also includes “own-use” bonds that are created solely for the purpose of collateralizing new lending. Examples of such “homemade collateral” are the recent bonds Greek banks use to collateralize their transactions (Hurri 2012).

From the point of view of collateral and loan portfolio congruency, using equity collateral can reduce mismatch risk. Particularly blue-chip stocks in indices account for a growing value of non-cash collateral, due to their advantages of liquidity, transparency and ready available price information. Equity collateral may offer good correlation with the securities lent. The variability of collateral types used has increased in the past years. This was also reflected in the new regulation. The Amending Directive 2009/44/EC updated the definition of “collateral security” to cover credit claims (The European Commission 2008, 1-2). Broadly speaking this means loans can be used as collateral. By including credit claims in the Amending Directive, the collateral taker gains certain protections against the insolvency of a collateral provider, without various formalities as a precondition for taking credit claims as collateral. This increases the pool of available collateral, which may increase competition and availability of loans. The Directive 2009/44/EC is still not fully implemented in all member states. For example in Finland the Directive was

implemented, but existing tax laws were not amended to facilitate the use of non-cash collateral. The Finnish securities lending market and its legal issues will be examined in more detail in the empirical portion of the thesis.

3.3 Future of collateral management

A recent buzzword in the collateral management field has been “collateral optimization”. Collateral management is no longer seen as an arcane operational back office function, but a critical tool for risk mitigation. Collateral optimization refers to making the collateral management process more efficient, liquid, cost effective, automated and so on. Collateral optimization can mean fine-tuning the process through changes in collateral schedules or procedures, but it can also mean larger changes, such as automated collateral management, tri-party collateral management, cross-product netting, or the use of central counterparties (Strongin Dodds 2011, 4-5). This chapter will discuss the future outlooks of collateral management starting with an examination of the use of central clearing counterparties. In the following chapter 3.3.2 Collateral optimization, the different methods used in collateral optimization will be discussed.

3.3.1 Central clearing counterparties

In the past few years there has been a lot of talk of using central clearing counterparties (CCPs) in securities lending (cf. Arnesen 2010b; Kentouris 2010). This talk has been directly linked to electronic trading platform initiatives. As securities lending is mostly an OTC business, this simply means a change to a more regulated stock-market-like approach to securities lending. There is no question that the securities lending market

has expanded into a global market with linkages to both securities and derivatives markets worldwide. In the end of 2011, lendable European government bonds were estimated at $1 042 540.66 million, with an estimated $401 152.11 million on loan (Securities Lending Review 2011, 28). Although the use of CCPs intuitively seem like a natural evolution to more centralized and regulated markets, there are varied opinions and fierce debate on the necessity of such systems.

In securities lending CCP use is still in its infancy, but in equity, repo and derivative markets it may be considered standard practice and an optimal market arrangement. The demand for a change in the securities lending industry has been accelerated by the recent market developments. The credit crisis has caused a reappraisal of risks and rewards and beneficial owners are increasingly focused on maximizing the intrinsic value of earnings from securities lending and minimizing the risks inherent to large volumes of lending. There is also an increased focus on counterparty risk and systemic risk in financial markets, particularly in OTC transactions. From a regulatory point of view, CCPs could provide a framework for more effective regulatory supervision.

A CCP serves two primary functions: first the centralization and mitigation of counterparty risk and second, the improvement of operational efficiency in post-trade processes (Howieson & Zimmerhansl 2010, 7). To achieve these functions the CCP interposes itself between the lender and the borrower, becoming the lender to every borrower and the borrower to every lender. This means that instead of lending securities on a bilateral basis to a large number of counterparties, lending is conducted on an electronic trading platform that links to a central counterparty. Access to the CCPs is via membership of varying degrees of status, but will be made up of the same participants that lend and borrow on a bilateral basis. In the European context, CCPs typically offer three classes of membership:

general clearing members, direct clearing members and non-clearing members (Howieson & Zimmerhansl 2010, 7-8). General clearing members are able to clear their own or client trades and offer services to non-clearing members. Direct clearing members only clear their own or client trades and non-clearing members clear through the services of a general clearing member.

In a securities lending context, an agent lender or possibly a beneficial owner has to decide whether or not become a member and a counterparty of the CCP instead of doing direct bilateral transactions with its borrowers. As all the participants have to be in the same system, an individual analysis of the relevant beneficial owners, lenders and borrowers is required. The current non-standardization of securities lending and collateral management poses a significant barrier for the use of CCPs (Bianconi et al. 2010, 42). Not only is the migration to such systems very demanding, but it could also bring complications from an operational perspective. The risk mitigation benefit is usually the first argument for the use of CCPs. There are many opinions on this matter and the different arguments for and against the use of CCPs in securities lending will be analyzed next.

In their white paper on the use of CCPs in securities lending, two industry consultants Roy Zimmerhansl and Andrew Howieson (2010) start the discussion by defining five recognized deficiencies in the securities lending markets:

1. The lack of transparency
2. The concentration of counterparty exposure in bilateral trading
3. High operational and technology costs due to a lack of a central market place

4. Limited regulatory oversight due to OTC trading
5. Decreased business volumes

(Howieson & Zimmerhansl 2010, 5)

Howieson and Zimmerhansl (2010) argue that the absence of a central order book and of centralized transaction reporting leads to a lack of transparency affecting both beneficial owners and end borrowers. The authors also state that the bilateral trading focus of the current securities lending market results in a concentration of counterparty exposure among a limited number of major prime brokers and agent lenders. The lack of diversification and the almost oligopolistic nature of the market are of increasing regulatory concern. The series of parallel processing environments in bilateral trading instead of just one is seen as a cause of high operational and technological costs. The authors argue that operational functions such as collateral valuation and maintenance, administration of recalls and returns, monitoring and processing of corporate actions can be much more cost-efficient in a centralized market. The OTC nature of the diffused securities lending market is seen as limiting the possibilities of regulatory oversight. The authors suggest that difficulties in monitoring securities lending activities have contributed to the recent decisions to impose restrictions on short selling. The recent market fluctuations have caused a substantial decrease in business volumes and have contributed to the focus of many firms to cut back rather than invest for the future. The traditional bilateral model is not seen as allowing for sufficient growth without placing significant operational and technical burdens on a firm. (Howieson & Zimmerhansl 2010, 4-6)

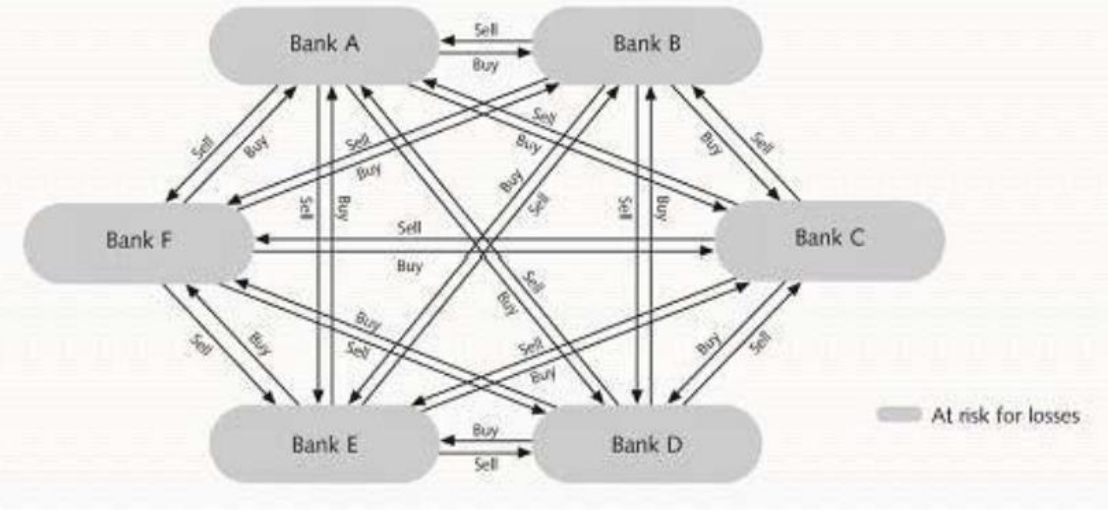

Figure 6. Counterparty risk in bilateral settlement (Howieson & Zimmerhansl 2010, 9)

The key arguments for the use of CCPs are reduced counterparty risk, reduced operational and technology costs, and reduced regulatory capital requirements. By becoming the counterparty to each member firm's transaction, a CCP offsets all of a member firms lend and borrow transactions, effectively netting all the positions that would arise in a bilateral netting arrangement. Figure 6 presents the "buy" and "sell" or "lend" and "borrow" transactions and the distribution of counterparty risk in a bilateral OTC arrangement. Clearly all the parties are at risk for losses and the effect of a potential loss would be distributed to all connected trading counterparties. In a CCP model, a lender would eliminate exposures to the multiple borrowers to which they currently lend and effectively just have one counterparty (cf. Figure 7).

As you can see in Figure 7, in a CCP transaction the CCP absorbs the counterparty default risk. CCPs require highly structured risk management programs that include margin and guarantee fund requirements. In a CCP cleared transaction there is no margin on the collateral posted by the borrower as in bilateral lending (Arnesen 2010b, 50). Membership to the CCP requires an initial margin to be posted to cover risk under normal

market conditions. Variation margins, calculated on a daily basis, are used to cover market movements relating to loan positions and related collateral. Margin requirements are applied against all accepted transactions, meaning that the CCP guarantees both return of the loaned securities and the related collateral (Howieson & Zimmerhansl 2010, 10). CCP members are also required to make individual contributions to a guarantee fund. This fund is used to cover significant exposure that is beyond a defaulting member's available margin collateral.

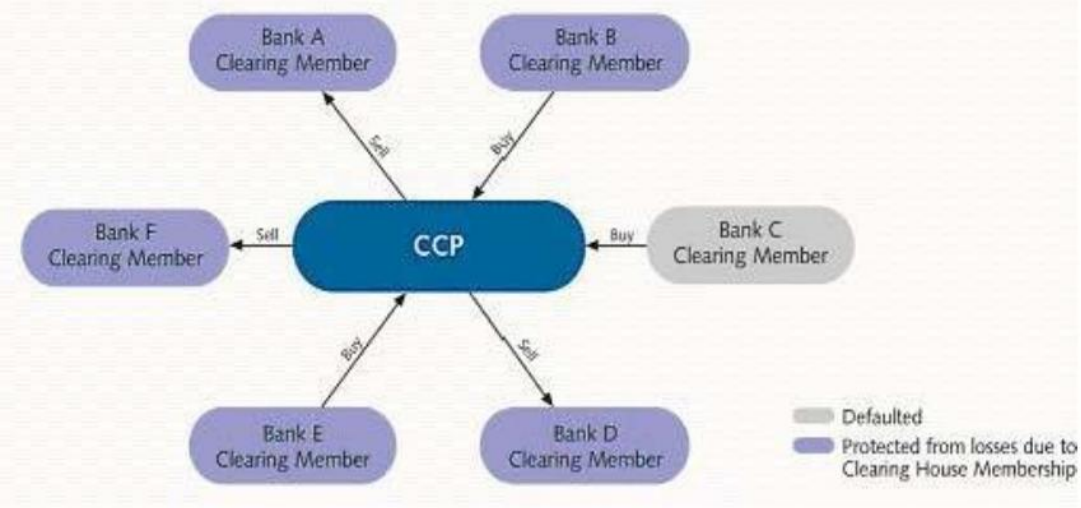

Figure 7. Counterparty risk in central clearing (Howieson & Zimmerhansl 2010, 9)

Some industry professionals have voiced their concern about CCPs and said it could actually increase counterparty risk, especially from a lender's point of view (Kentouris 2010). In a CCP there will be more borrowers rather than fewer and the risk will be "mutualized" among the participants. This is done through the margin and guarantee fund requirements. In an unfortunate case of counterparty default, the CCP might have to tap into not only the collateral put up by that borrower, but collateral put up by other borrowers and lenders as well. Howieson and Zimmerhansl (2010, 16-17) state that agent lenders that are not clearing members will have no exposure to losses within the CCP and that there are multiple levels of

support to be used before a mutualized loss occurs. However, from a beneficial owner's point of view, even the concept of a mutualized loss sounds off-putting. Why would beneficial owners concentrate all their risk into one single entity when they are comfortable lending to a number of highly rated institutions and receiving indemnification against their insolvency? In the use of a CCP, all the bilateral counterparty credit risk would be replaced by with the equivalent of AAA risk for all clearing member exposures. There are already widely used models for reduced counterparty risk, such as delivery-versus-payment trades, where the assets are exchanged simultaneously.

Another argument for the use of CCPs is the decreasing operational and technological costs. The introduction of CCPs to securities lending is seen to provide a significant opportunity to address costs from the maintenance of parallel but differing counterparty activity. CCPs are positioned to offer cost-effective straight through processing and provide net settlement through linkages to Central Securities Depositories and International Securities Depositories (Howieson & Zimmerhansl 2010, 21). Post trade operational functions such as loan and collateral mark to market, corporate action processing and billing of fees and rebates could be more efficiently handled in a CCP environment. For significant cost cutting results, this would require a large enough portion of the lending activity to be migrated into a CCP environment.

In some cases, however, using a CCP could increase operational and technological costs. Josh Galper, managing principal of Finadium consultancy, says that the use of a CCP does not reduce middle and back office costs for lenders (Kentouris 2010). This is because they will have to hire a clearing member to participate in the clearinghouse and also communicate and reconcile their books with this member. Lenders would also pay CCP clearing fees, put up their own margin, and worry about

whether the margin will be segregated by the clearinghouse or the clearing member firm. Agency lenders, such as custodian banks, will have to decide whether to become a clearing member or rely on clearing firms, which are borrowing their securities. When relying on a clearing firm that is the lender's own borrowing counterparty, the borrower will have an in-depth knowledge of all the lending firm’s activities. Even if the new CCP fees and new operational and technological charges are not necessarily insurmountable, the segregation of assets is a valid concern for agency lenders.

Under the proposed Basel III Accord, financial firms will be subject to a higher capital charge. They will have to set aside more capital for exposures from derivatives, repos and other securities financing activities, if these transactions are done bilaterally (Basel Committee on Banking Supervision 2011, 3-4). Regulators want to see as much bilateral exposure as possible moved to CCP environments and the Basel III proposals support this objective (Howieson & Zimmerhansl, 17). For a lender, it is not a simple task to just start CCP activity and directly benefit of reduced regulatory capital requirements. To benefit from decreased, or completely eliminated, bilateral exposure, a firm must be a direct clearing member of a clearinghouse (Kentouris 2010). Beneficial owners would not benefit from reduced capital requirements, as most of them are not part of the same regulatory oversight. Agent lenders would only benefit if they were clearing members. In some cases, it could be that only the borrowing broker-dealers would benefit from CCP activity.

Other suggested benefits of CCP activity include: improvements in market transparency, improved price formation, reduced systemic risk, and more market liquidity (Howieson & Zimmerhansl, 16-23). Conceptually these all sound like good developments, but the fact is, it is a radical change compared to current arrangements and should be examined more from

the supply side - beneficial owners, lenders (Arnesen 2010b, 50). Neither beneficial owners nor their agent banks are eager to make the necessary technological nor contractual changes required to accommodate CCP services. For agent lenders it would require detailed discussions and analysis with beneficial owners to identify, address, and make changes to their bilateral documentation in order to participate in CCPs. This is not an easy task as large agent lenders may have many clients from different countries and legal jurisdictions with different margining and operating requirements.

So far there are not many CCP services being offered for securities lending deals. One is Quadriserv in the United States with their AQS-platform. A European CCP trading platform SecFinex was launched just recently, but it stopped operating in December 2011. SecFinex's authorization was removed from the FSA register on January 6, 2012 (FSA 2012). Eurex Clearing, a leading European clearing house, announced in June 2011 that it will launch a CCP service for securities lending (Eurex 2011). As the European securities lending activity is spread across many markets with many counterparties in different legal jurisdictions, the CCP environment becomes more fragmented and complex. Dividend processing and other corporate actions processing may vary depending on the country. Traditional collateral profiles are much more variable across European bilateral transactions than in American securities lending. For now CCP use in Europe is at a low level because of these issues slowing down CCP market penetration. European markets could benefit from wider CCP usage in securities lending, but these CCPs would have to be able to adapt and take into account the different market variables present in this fragmented lending environment.

3.3.2 Collateral optimization

The daily routines of collateral management (mark-to-market, margin calls etc.) can be heavy and time-consuming. Collateral management is more than just checking that all the accounts are covered. The collateral manager also has to have an appropriate perception of risk. Both collateral and risk management capabilities are needed. When the work depends on too many manual procedures, the collateral manager may have problems seeing the big picture and taking the appropriate measures in risky situations. Many new ways of optimizing firm-wide collateral management have been introduced lately. This chapter will examine some of them.

One view is that there will be a mass migration from OTC-products onto exchanges and CCP-based systems. Regulators are certainly pushing for CCP-based markets, as it would, for example, provide more transparency and monitoring for derivative deals. For securities lending, especially in Europe, this change may not be in the near future. However, this kind of change would result in a significant increase in the use of collateral. CCPs will require independent (up-front) collateral in addition to a variation margin. Regulators may also impose more rigorous margin and capital requirements for non-centrally cleared trades to discourage bilateral collateral relationships (Securities Lending Times 2011b, 18). Collateral optimization can mean different things to different people. It could mean rebalancing assets on a daily basis, or simply fine-tuning the movement of collateral across different transactions or structures to make better use of the collateral (Strongin Dodds 2011, 4). The increased need to collateralize will pressure the providers to use the collateral inventory as efficiently as possible to avoid constraints on the balance sheet. In practice this means employing stricter collateral eligibility requirements to ensure the collateral received can be re-used easily. Firms may also wish to analyze the inventory more regularly to make sure the most optimal

assets are used to meet various obligations and avoid funding additional/excess collateral, which can prove to be expensive.

Many industry participants believe that a cross-silo view will be one of the keys to better collateral management and optimization. This refers to consolidating collateral management across the business instead of operating on a silo basis for each business area. This kind of consolidated collateral program may require a leap of faith to implement, but has potential for far greater efficiency. The idea is that listed futures and options, derivatives, repo and securities lending, all with different agreements, different collateral requirements and different teams, are brought together under the same collateral management program. By allowing the netting of positions this would reduce capital requirements as well as margin requirements and related collateral funding costs (Wilkie 2011, 6). Technology plays a large part in optimization and a centralized model would of course require further automation and sophisticated collateral management systems. A more automated collateral management system can calculate the optimum collateral to pledge for a specific client, based on configurable rules and parameters such as cost, efficiency and client acceptability (Securities Lending Times 2011b, 14).

Technology and automation are critical aspects in keeping in step with regulatory and client demand changes. Particularly electronic messaging has an important role in the future of collateral management. Implementing STP in a collateral management system could free up resources through automation. Instant benefits of such a system focus on the reduction of manual effort in the margin call process, removing the dependency on timely phone and email communications as well as manual processing of margin events through systems (Securities Lending Times 2011c, 24). This automation could reduce operational and delivery risk dramatically. It allows for margin calls and collateral exchanges to be

agreed early in the working day, and would allow for the industry to evolve from T+1 settlement to same day settlement, and possible further intraday settlements in case of late collateral exposure. The collateral relationships would be established on the electronic messaging platforms, which would allow for each party to confirm agreement parameters from a common place and avoid miscommunications concerning threshold, eligible collateral and so on.

Tri-party collateral management agents are continuously broadening their offered services. These agents are attempting to make it as easy as possible for clients to outsource their collateral management needs for multiple types of transactions. This seems like a natural place for developing centralized collateral management, as the same tri-party agents often provide services for repo and securities lending activities, as well as services for open market operations with central banks and derivatives. Many industry professionals believe that optimization of collateral allocation on a daily and inter-day basis is increasingly important (Strongin Dodds 2011, 5). This is one of the attractions of the tri-party arrangement, as it allows for firms to optimize inventory multiple times a day and very quickly.

As one can see, collateral management has been developed continuously and even more so in the aftermath of the Global Financial Crisis. Regulators are pushing for more transparency and monitoring through central clearing models and collateral management is becoming more and more automated and efficient through advances in technology. It is important to keep in mind that collateral management should always reduce risk not increase it. Exposure calculations and collateralization depend on large volumes of time-critical, location-specific data from both inside and outside of the firm’s boundaries, some of it even from third party providers and sources. Even after calculating and issuing the margin

call before the deadline, the collateral manager's job is only partly done. Implementing new procedures or migrating into new trading systems should always be a careful step-by-step process, keeping in mind the broader picture of stakeholder risk mitigation. During the past two years, we have seen that everything has a risk. As all the CCPs are quite thinly capitalized relative to the value of business transacted and do not benefit from definitive lender-of-last-resort or support from any nation state, some experts believe that regulators and authorities are creating a framework with the potential for a systemic perfect storm (cf. Harland 2011, 11). It will be interesting to see how the securities lending industry evolves in the current crisis environment.

4. CASE STUDY: THE FINNISH SECURITIES LENDING MARKET

The empirical part of the research consists of a case study of the Finnish securities lending market. Although Finnish securities are lent and borrowed globally, the securities lending actually taking place in Finland is still rather small scale and developing. After looking at the Finnish securities lending industry more closely and talking to market participants, a decision was made to study the Finnish market as a whole, instead of the evolution of one organization's securities lending operations. The study was carried out in Helsinki in the spring of 2012. The aim was to find out the current status of Finnish securities lending through direct discussions with different market participants as well as an analysis of the legal framework and market data. This chapter describes how the case study was conducted and provides an initial overview of the Finnish securities lending market and its legal framework. The next chapter, Empirical observations and findings, will present further analysis of the state and challenges of the Finnish market.

4.1 Research methods

The case study was carried out through several discussions and two formal semi-structured interviews with industry professionals. The questions of the interview were divided into three themes: background, lending activity, and risk management. The questions were provided to the interviewees in advance, so that they could prepare for the interview beforehand. The idea behind this was that the question sheet would serve as an initial structure for a more open discussion. The first interview (Appendix 1) was of a bank operating as a principal lender/borrower intermediary. Both a front office representative and legal counsel were

present. The second interview (Appendix 2) was conducted with a Finnish asset management company in order to gain a beneficial owner/lender view of the Finnish securities lending market. Both interviews were recorded, transcribed and then analyzed through the same themes as discussed earlier in the literature review (background, lending activity, and risk management). Based on specific legal challenges that arose relating to securities lending in Finland, an analysis of the Finnish legal framework was also carried out. In addition, market data provided by Data Explorers from the last eight years was analyzed.

4.2 The Finnish securities lending market

Finnish securities lending activity started in the late 90's and began as an exchange-based standard model instead of OTC-lending that was already common practice in Central Europe. The Finnish LEX-stock lending program was a product of the Helsinki Stock Exchange. Due to Finnish transfer tax law, the exchange had a monopolistic advantage and LEX-stock lending was made very expensive to the borrower. LEX-lending was safe for the lender as the exchange was the only counterparty, but high collateral requirements and fees made it less attracting to potential foreign borrowers. Finnish stock lending was designed mainly to help with settlement and delivery problems. Originally the time period of a stock loan was limited to ten days in the Finnish tax legislation. This was later changed to one year.

Currently the Finnish securities lending has evolved more towards the OTC lending of Central Europe, but it is still a relatively small industry. There are still only a few local players and the main lenders/borrowers are large multinational Swedish banks. These banks act as intermediaries and lend the securities mostly to foreign broker-dealers, who in turn lend to

hedge funds for example. As in any trading activity, a lot of Finnish stocks and bonds are lent and borrowed abroad. When describing the Finnish securities lending market, we can talk about securities lending happening in Finland or the lending/borrowing of Finnish securities anywhere in the world. It is hard to measure the extent of such a global financial activity on a local level. Between June 2004 and December 2011, Finnish total lendable equity has varied between $10 and almost $50 billion (Data Explorers 2012). Finnish securities lending is mainly regulated through tax legislation. The main law dictating the terms of tax-exempt transfer of securities in the form of a securities loan is the Finnish corporate tax law (Laki elinkeinotulon verottamisesta). It is not possible for a private person to lend securities and most of the Finnish beneficial owners are asset management firms or pension funds.

Legal framework

In addition to the corporate tax law, the laws directly affecting Finnish securities lending are the securities markets law (Arvopaperimarkkinalaki) and the transfer tax law (Varainsiirtoverolaki). The law concerning the use of financial collateral (Rahoitusvakuuslaki), which implements the previously mentioned EC Directives (2009/44/EC), is not yet applicable in this context, as the needed amendments in the tax legislation have not been made. From a beneficial owner's point of view, the law regulating investment funds – the Act on Common Funds (Sijoitusrahastolaki) – is an important consideration. The main issue in the Finnish legislation has been the transfer of ownership of securities and possible capital gains and their taxation. In 1997 a Government Bill (HE 128/1997) was made concerning repo and securities lending taxation. Before this bill was passed securities lending was considered a transfer of securities, which had to be taxed as if the lender was making a profit from selling shares. In 1996 the Supreme Administrative Court ruled that a securities loan is a taxable transfer of securities, which should be taxed according to its fair

market value (KHO 1996: 1266). This provided an extra push for the needed law reform.

The corporate tax law was amended and securities loans are now considered as tax-exempt transfers of securities. The corporate tax law (Laki elinkeinotulon verottamisesta 6 §) defines what constitutes as a tax-exempt securities loan or repurchase agreement:

1. The securities in question are publicly traded
2. Any profits have to be transferred to the beneficial owner
3. The repayment is not dependent on the value of the securities
4. The securities are returned to the beneficial owner within a year of the transfer
5. The trades have to be cleared in a European Economic Area clearing house
6. The transfer has not been booked as a disposition in the lender's bookkeeping

(Laki elinkeinotulon verottamisesta 6 §, summarized and translated).

This law facilitates the lending of publicly traded stocks, bonds and ETFs and makes sure the beneficial owner retains all rights and possible profits from the securities. Any dividends or coupon payments are transferred to the beneficial owner, and the only right they lose during the loan is voting, as it is not considered good practice to vote when the shares are out on loan. Point three refers to the idea that the lender has agreed a quantity of securities to be lent and expects the same quantity to be returned regardless of the market value. The next point limits the length of the loan to one year. This is a development from the original ten-day rule and the year limit is most likely put in place to avoid continuous long-term loans and holding arrangements. The last two points have to do with reliability and transparency, as well as making sure that the accounting practices

are standardized. The lender is only taxed for the lending fees and the borrower can deduct these fees from its taxes.

The transfer tax law (Varainsiirtoverolaki 15 a §) determines what trades are transfer tax exempt. Normally the transfer tax is 1.6 % of the market value of the securities, except for publicly traded securities. As the publicity of the securities was a precondition in the corporate tax law, all the securities loans are done through an exchange and are transfer tax-exempt. For a beneficial owner, such as an asset management company, the Finnish Act on Common Funds does allow securities lending, but only 25 % of the fund's market value unless the loan can be recalled so that the securities are returned by the next banking day (Sijoitusrahastolaki 81 §). This means that a fund manager can lend more than 25 % of his portfolio, if he is sure he can recall the shares quickly (T+1) when needed. The law also stresses the importance of daily collateral mark-to-market, margin calls and monitoring.

The Finnish financial collateral law (Rahoitusvakuuslaki) was put into effect in January 2004. The law was made to implement the European Commission's Directive 2002/47/EC on financial collateral arrangements and later on the "Amending Directive" 2009/44/EC. The law does allow the use of non-cash collateral, but because this would involve a transfer of ownership, it would result in tax issues. This is why most Finnish securities lending transactions are covered with cash collateral. Amendments are needed to exclude such collateral as outlined in the financial collateral law from the corporate tax and transfer tax law. Currently non-cash collateral can only be used in special pledge arrangements (panttaus), where there is no transfer of ownership, but the securities are in the borrower's name, yet pledged to the lender on a "locked" account and cannot be reused.

The Finnish Financial Supervisory Authority (FIVA) supervises securities lenders and borrowers. FIVA also regulates the financial and insurance sector by setting standards. Standard 3.1 on financial statements and reporting mentions securities lending. It states that securities lending should not be considered as a business transaction either in the lender's or the borrower's accounting. If the borrower delivers the securities onward during the period of the loan, the delivery price received is recognized in the borrower's balance sheet as assets and as a liability of the same size to the lender. If, during the loan, the borrower acquires the same securities to be returned to the lender, the acquisition price of the securities is not recognized as assets in the borrower's balance sheet, but is amortized from the liability to the lender. The difference between the acquisition price of the securities and the carrying amount of the liability are recognized as income or expenses for the period during which the securities to be returned have been acquired. The European Securities and Markets Authority (ESMA), as well as the International Securities Lending Association (ISLA) also affect Finnish securities lending through recommendations on good market practice. (Rahoitustarkastus 2005, 22-23)

5. EMPIRICAL OBSERVATIONS AND FINDINGS

This chapter presents further analysis of the Finnish securities lending market based on the interviews and the numerical data provided by Data Explorers. First the interviews are examined through a detailed study of the transcribed interviews, starting off with the interview of the principal lender/borrower intermediary and then the interview of a beneficial owner. The discussions are broken down through the initial question structure, which follows the same themes as the literature review to ensure a thorough and comparable analysis. Finally this chapter will take a look at the numerical data and examine the lending/borrowing of Finnish securities worldwide.

Interview 1. Principal lender/borrower

The first interview was with a bank that acted as a principal lender/borrower intermediary. The interview was conducted in Helsinki on 16.3.2012 and it lasted around two hours. There were several meetings and discussions before the official interview, in which a front office representative and the department's legal counsel were present. This proved to be a good idea, as both technical or operational lending issues as well as legislative issues could be discussed in great detail. The interview followed these three themes: background, lending activity, and risk management.

The bank in question was a large Scandinavian bank. They had started their securities lending activity in the 90's in Sweden, from where it spread to Finland. The securities lending department has around 100 active counterparties with roughly €2 billion in open loans. The lending activity is done through a principal model, where they borrow securities from

beneficial owners and then lend them on to other parties. The biggest volumes come from asset management firms and pension funds, which have large portfolios of dormant securities and wish to make an extra profit. The most common end-users borrowing securities from the bank are London based broker-dealers. All the bank's securities loans go through its Swedish parent company, meaning that they are operating according to Swedish legislation and are supervised by Finansinspektionen – the Swedish Financial Supervisory Authority. Of course they are also supervised by FIVA and the previously mentioned Finnish laws are considered, for example, when dealing with Finnish beneficial owners.

The bank's securities lending activity is mainly conducted as a bilateral OTC business with a few tri-party collateral arrangements. Acceptable borrowers are chosen after detailed credit risk evaluations. As an intermediary the bank makes its profit by adding a premium to the securities lending fee. The daily borrowing and lending fees are monitored and possibly re-rated to ensure transaction profitability. The bank uses mostly cash collateral, which is often reused to cover transactions with other counterparties. The bank's treasury department does all the further management/reinvestment of cash collateral. Standard 105 % margins are used for the securities loans with daily mark to market and margin calls. Minimum collateral transfer amounts are used depending on the counterparty. Pre-pay arrangements are used for reverse securities loans – cash is not delivered before the securities have settled, and securities are not returned before the cash is returned. For regular securities-driven transactions the securities are often delivered before the cash collateral. All bookings are monitored continuously and client reporting is available at a daily frequency. The GMSLA is used with an annex that makes it applicable in Finland and takes into account the Finnish tax legislation.

The recent market instabilities and regulatory reforms have had some effect on the bank's securities lending activity. For example in the aftermath of the Lehman bankruptcy, many European countries set restrictions on short selling. Finland and Sweden were part of the few countries, which did not have any short selling restrictions. During this time securities lending volumes increased substantially especially in Sweden. In terms of implementing Basel III, one main effect is on calculating the liquidity coverage ratio (LCR). In the calculation, securities loans are included in the cash outflows of secured funding. The run-off rate is set at 0 %, 15 %, 25 %, or 100 % depending on the collateral and the counterparty (Basel Committee on Banking Supervision 2010, 43-44). Regarding possible migration to a CCP system in securities lending, the bank will consider it if becomes more common in the London market, although it is currently not possible.

Interview 2. Beneficial owner/lender

The second interview was with a Finnish asset management company. The interview was with one of the firm's portfolio managers in Helsinki on 27.3.2012. The interview lasted almost an hour and followed the same themes as the first interview with slightly different questions. The company started its securities lending activity in 2002 strictly for the purposes of additional low-risk yield. The company follows a passive investment strategy and manages several passive index funds and fixed interest funds. Securities lending is a good source of extra return for the fund shareholders, as many of their funds have large quantities of dormant securities, due to their buy and hold investment strategy. The company only has one counterparty to which they lend. They have a long history with this bank and have minimized their counterparty risk by only lending to them. The company lends mostly main index equities from their index funds and has between 10-20 % of a fund continuously out on loan.

The company’s securities lending activity is very cautious. Their single borrowing counterparty is also their custodian bank. Other options are considered continuously, but their custodian is currently their best choice for a borrowing counterparty. The collateral management is done through a third party pledge arrangement (“panttaus”). The borrowing bank has an account with a third party that is pledged to the lending company, but with no transfer of ownership. This allows the use of non-cash collateral and all collateral is accepted case by case. The preferred collateral is highly rated Euro government bonds (e.g. Finnish government bonds). 105 % margins are used with no exposure thresholds or minimum transfer amounts. The pledged account provides universal coverage for all their loans and collateral exposure is monitored on a daily basis. The borrowing bank does all the borrowing within the limits of the pooled collateral account’s market value, often preferring over-collateralization with no need for daily collateral movements. The GMSLA is used, but with some additional remarks.

As this is a custodian relationship, the borrowing counterparty has the right, with certain limitations, to borrow securities directly from the company’s accounts. This is very much like the previously discussed traditional agency lending relationship, where an agency lender custodian conducts securities lending directly from its clients' accounts, although in this relationship, the transaction (loan and collateral) is between the company and the borrowing bank (their custodian), making this a principal lending arrangement. The company’s only risk is to their one counterparty, which is minimized with high collateral eligibility requirements and daily monitoring. Cash collateral is avoided in order to eliminate cash reinvestment risk and using stocks as collateral is considered too risky.

The securities lending activity is not conducted as a source of direct extra profit to the company, all profits are to the fund shareholders. Although the

fees are not substantial, they can be used to cover costs. In the best cases they have managed to cover large portions of fund management fees through securities lending profits. The fund shareholders are informed of securities lending in fund rules as well as different publications, which provide more specific information concerning securities lending profits, fees, risks etc. Their principal intermediary provides a daily report on loan values, loan returns, fees etc. Especially collateral coverage (105 %) and total loan values (25 % of fund value) are monitored. The borrowing bank takes 25 % of fees earned, and the remaining 75 % is for the fund shareholders. Thus the more the bank generates lending profits, the more they earn as well. The company trusts that their borrower is maximizing profits, and does not actively follow what stocks should be lent but instead entrusts their principal borrower with this activity.

The recent instabilities have not really had an effect on the company's lending activity. They have kept their conservative strategy and continue to do so. Naturally some steep drops in the stock market may activate short sellers and increase borrowing demand, but other than that the lending activity has been steady. In the Finnish Act on Common Funds (Sijoitusrahastolaki) the T+1 recall exception to the 25 % lending limit was just recently introduced (29.12.2011/1490). Before this the rule was rather unclear, and lending over 25 % of a fund's market value was allowed only if the loans could be recalled *"immediately"*. Regulators and officials could not specify if this meant T+2, T+1 or daylight settlement. Now that the law has been made clear and amended to T+1, lending over 25 % of a fund's value is possible. With only one borrowing counterparty and a long trusting relationship this is a good prospect, and the company's securities lending activity may well increase in the future due to this amendment in the legislation.

Market statistics

The numerical data used in this case study was acquired from Data Explorers. Data Explorers provides global securities finance data, tracking short selling and institutional fund activity. The company collects stock loan trading information from over 100 participants and approximately 85 % of the OTC securities lending market. Their clients must contribute stock lending/borrowing transactions to the Data Explorers data collection in order to gain access to this service. Information is delivered on a daily basis at a security level, covering more than 3 million intraday transactions and spanning $12 trillion of securities in the lending programs of over 20,000 institutional funds. All the data is sourced directly from prime brokers, custodians, asset managers and hedge funds.

The data used in this research was market statistics calculated from the Data Explorers Securities Finance Data Feed. The data was six-month averages by asset class (Finland Equity, Finland Government Bonds) of lendable assets (the total value of assets available for lending), total balance (the total value of assets on loan), utilization rate % (the total value of assets on loan over the total value of holdings) and fees (the weighted average securities lending fee of the total value of assets on loan expressed in basis points) from June 2004 to December 2011. The data was analyzed in spreadsheet form to get an idea of the supply and demand of Finnish securities. It was then graphed to see the evolution and possible trends from the past years.

The lendable assets can be considered as the securities lending supply and the total balance as demand. As can be seen from Figure 8, Finnish lendable equity has fluctuated between $10 and almost $50 billion between 2004 and 2011. The Finnish equity on loan has varied between $1.4 billion and $8.8 billion with an average utilization rate of 12.95 %. At the end of March 2012, Finnish lendable equity was at $23,487.85 million

with HEX25 stocks accounting for most of the supply ($21,779.99 million). During the first quarter of 2012, the value of Finnish stock on loan almost doubled from 2011. The total balance of equity loans was $5,609.91 million at the end of March 2012. Naturally Finnish equity lending activity rises and falls throughout the year, but overall there is clearly a growing trend in both supply and demand during the whole observation period.

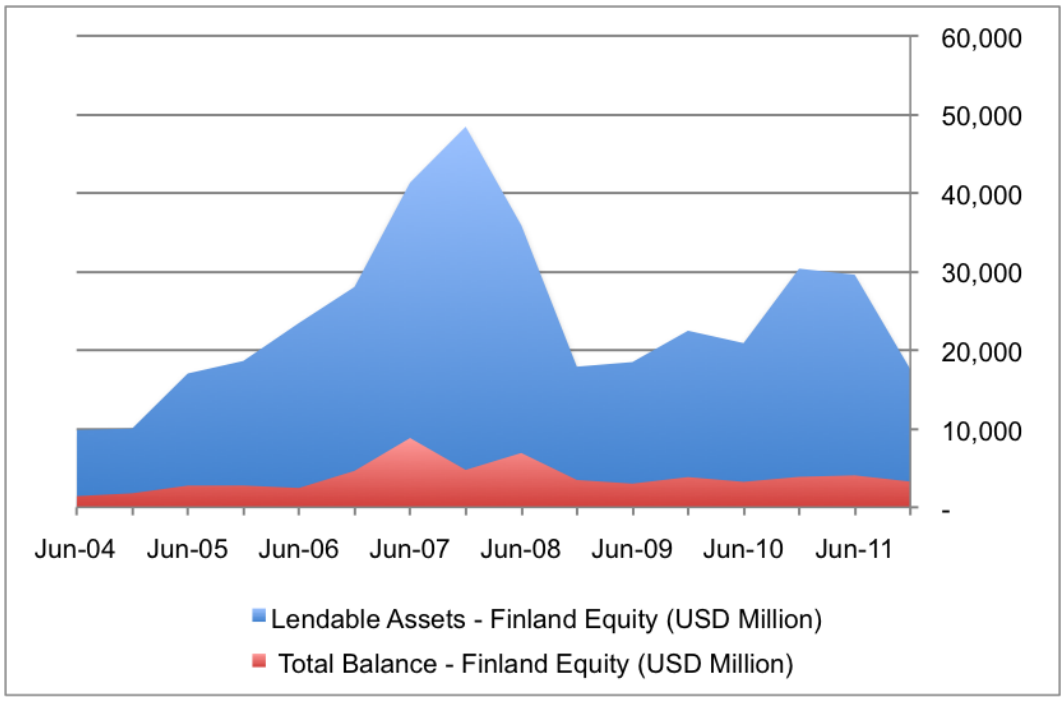

Figure 8. Finnish equity – lendable assets & total balance (Data Explorers 2012)

Total lendable Finnish government bonds, on the other hand, have grown from $6 billion to around $14 billion since 2004 (Figure 9). The total balance on loan has varied between $1.5 and $5.2 billion between 2004 and 2011, with an average utilization rate of 31.33 %. At the end of March 2012, the value of Finnish lendable government bonds was $14,092.58 million with a total of $4,893.54 million in open loans. There has been a significant evolution in the lending fees of Finnish government bonds. The

end of year average fee has risen from 4.48 bps in 2004 to 18.62 bps in 2011.

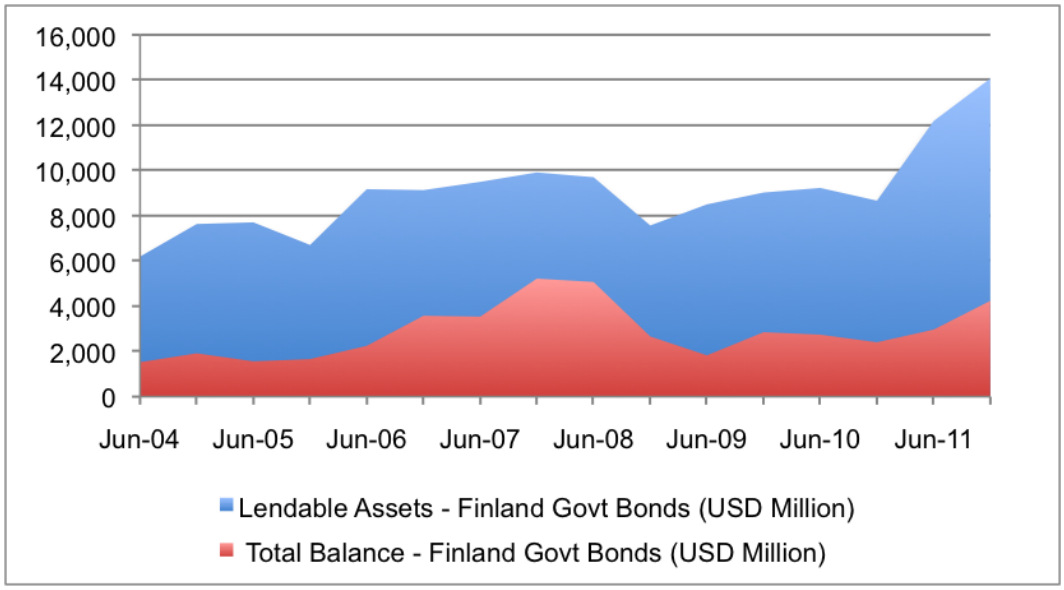

Figure 9. Finnish government bonds – lendable assets & total balance (Data Explorers 2012)

A clear growing trend in both lending supply and demand can be seen in the few years leading to the worst collapses of the global financial crisis in the fall of 2008. The growing supply can simply be explained by the growing demand (borrowing). The growing demand of Finnish securities made it more profitable for beneficial owners to make the securities available to the market. This can also be seen in the lending fees – the equity lending fee more than doubled from 28.93 bps in 2006 to 64.05 bps in 2007. Explaining the growing demand is more difficult as there are many market participants with different motives. One reason of growing equity lending demand could be hedge funds correctly anticipating market drops and increased short selling. The government bond average lending fee rose from 4.19 bps in 2007 to 9.37 bps in 2009. The increase in Finnish government bonds lending demand could be explained by investors preferring highly rated Finnish bonds as collateral in the

securities financing markets right before and during the crisis. An example of this could be a hedge fund raising cash with repos or reverse securities loans to meet investor redemptions and using Finnish government bonds as collateral.

After 2008 lending demand and supply leveled out for both bonds and equity. Clearly the credit and liquidity crisis had an effect on both borrowers and beneficial owners. The drop in demand was a result of deleveraging by hedge funds and broker-dealers, driven by the need to reduce balance sheets and raise cash, as previously mentioned. Beneficial owners also had a reduction in their supply. Increased government intervention in the financial markets and the increased attention on risk and transparency probably contributed to the decreased lending activity as well. Some beneficial owners may have limited the counterparties to which they were willing to lend to and tightened their collateral requirements. Reduced risk also reduced the returns and the overall lending activity. Of course the general downturn of the markets caused the market value of securities on loan to fall during the crisis, which directly affects these figures. In the aftermath of the global financial crisis and now during the European sovereign debt crisis, Finnish equity lending has not really increased. Finnish government bond lending, on the other hand, has just recently increased. With many European countries being downgraded, Finnish government bonds with their triple-A rating seem like a good choice for collateral.

6. DISCUSSION AND CONCLUSIONS

This study was conducted after becoming familiar with the topic of securities lending and collateral management. The initial knowledge derives from my own experience of working as a collateral manager in securities lending. In addition, most of the statements made in the study are based on a comprehensive literature review. Unfortunately there was not a great deal of academic literature available on the topic, so a lot of the sources are industry publications, such as guides or newsletters. These publications provided the themes for the structure of this study, and these themes were also used in designing the case study. Although not much research exists on securities lending in Finland, a similarity with this study can be found in the wider research content of securities lending and collateral management. A limitation of this study is the small number of formal interviews. Because of the relatively small size of the Finnish securities lending industry, a choice was made to study the market as a whole. Rather than studying one organization and its securities lending activities in great detail, a multi-method approach was used to provide a broader representation of the Finnish market (borrowers, lenders, legal framework, and market data). This proved to be a good idea as the Finnish market is still in a developing phase, and allowed for more cross-examination of the research topic.

Securities lending has sometimes been described as a “back-office” or operational function. This makes sense as the roots of securities lending are in minimizing trade settlement problems. Later on custodian banks organized lending programs to not only cover settlement failures but also to support investment strategies, such as short selling. These lending programs developed into key revenue generating divisions with significant resources. Securities lending is now recognized as more of an investment management discipline than an operational support function. Lending

programs are tailor-made to fit a beneficial owner's specific investment objectives and disciplines. There still is no standard marketplace for securities lending – it comprises of a series of bilateral relationships and is generally an OTC-market, although centralized exchange-like models have been introduced.

The last years have been challenging for the securities lending industry. An unprecedented global financial crisis with bankruptcies, impaired liquidity and increased scrutiny from regulators has affected the financial markets worldwide. The global financial crisis and the current European sovereign debt crisis have created uncertainty and resulted in an increased focus on risk. Increased risk awareness is seen especially on the lender/ beneficial owner side. Securities lending allows large institutional investors to put their dormant securities to use and make a profit. For the lender this is one investment strategy among others and they often follow very strict investment guidelines. The recent market instabilities have caused these investors to pay more attention to their securities lending activity. Many lenders have re-evaluated their collateral management and risk management guidelines. This can mean limitations in acceptable borrowing counterparties or stricter rules on acceptable collateral. A good example of a very cautious approach to securities lending is the Finnish beneficial owner from the case study. The asset management company in question only has one borrowing counterparty (their custodian) and accepts only highly rated European government bonds as collateral, which are agreed case by case.

As the most important risk management practice in securities lending, collateral management has developed a great deal during the past decade. Increased focus on risk, technological development and increasing demand for real-time views on collateral exposure have transformed collateral management from an operational back-office

function more towards a front/middle office activity. Collateral management has become increasingly technologically developed and automated. This development to make the collateral management process more efficient, liquid, and cost effective is called *collateral optimization*. As collateral is a scarce resource in this economy, another popular topic of discussion is cross-product collateral management. The aim is to help market participants to move securities from wherever they are held serve as collateral for securities financing transactions, central bank liquidity, CCP margins and bilateral OTC-derivative trades. This means creating an infrastructure to facilitate the transfer of collateral that is 'locked' in a particular market, entity or time zone.

Just recently Euroclear introduced what they call the 'Collateral Highway', which they hope will create the first fully open global market infrastructure to source and mobilize collateral across borders (Lavers 2012). This 'Collateral Highway' will have several collateral entry and exit points, with collateral sourced from all Euroclear central securities depositories (CSDs), agent banks, clearers and other CSDs in any time zone. From there the securities will be delivered to where they are needed (CCPs, CSDs, central banks, global and local custodians, investment and commercial banks). BNY Mellon is also launching what they call 'Global Collateral Services'. This initiative brings together BNY Mellon's existing broker-dealer collateral management, securities lending, collateral financing, liquidity and derivatives trading into one group that will focus on delivering a full range of innovative collateral management solutions (Securities Lending Times 2012, 1-2). The derivatives exchange/clearing house Eurex has now expanded their CCP activity from derivatives, repos etc., to securities lending. They offer a full securities lending CCP solution for both OTC transactions and trades concluded on electronic trading platforms (Eurex Clearing 2012). Implementing a CCP in securities lending is not as straightforward as, for example, in derivatives trading. It will be interesting to see if CCP use will become more widespread in European

securities lending and whether or not regulators will require custodians to use a CCP for securities lending.

Finnish securities lending has evolved from what it was in the beginning of the year 2000. Early on there were more incentives to regulate the securities lending markets, because the markets were still so small and undeveloped. There are still not many participants in Finland doing securities lending. This was even worse before and there were not many players, who could even facilitate securities lending operations and the risks involved. This strict legislation (e.g. only using a Finnish clearing house) was in place to make sure anyone could participate in securities lending, even those with not enough resources to act alone. The choice to run this CCP-like LEX-stock lending through the Helsinki Stock Exchange could be justified, but the high fees and collateral requirements made it less attractive to borrowers.

Finnish securities lending has now shifted towards the more common global OTC model. As the Finnish securities lending industry has developed, the main laws governing it (tax legislation) have changed, but there is still a need for development. A significant change was removing the ten-day limit to securities loans from the transfer tax law. Not having to renew the loans every ten days lowered transaction costs of OTC-lending and provided a good alternative to the expensive LEX-lending. Currently the time limit for a securities loan is one year (Laki elinkeinotulon verottamisesta 6 §). The corporate tax law has also been amended and the most significant change was defining securities lending as a tax-exempt transfer of securities (luovutusvoittovero). This law cannot be applied to private persons wishing to lend securities. A private person can, however, technically borrow securities. Not including securities lending in private persons' tax legislation could be because of limited transparency (no accounting requirements) or could relate to protecting them from the

possible risks involved in securities lending. On the other hand, this reduces the government's possible tax income from private securities lending profits. Another amendment to the corporate tax law is limiting the tax-exempt securities lending to European Economic Area clearing houses instead of Finnish clearing houses. This allows Finnish securities lenders to operate in a much wider area.

The Finnish Act on Common Funds, which regulates investment fund activity, does allow securities lending, but only 25 % of the fund's market value. This law was amended recently to clarify the conditions in which more than 25 % of a fund could be on loan. Now more than 25 % can be lent if the loans can be recalled T+1. This will most likely increase the securities lending of beneficial owners, such as our case-company, with only one borrowing counterparty and a long trusting relationship. The Finnish financial collateral law (Rahoitusvakuuslaki) is not yet applicable in securities lending. As the transfer of non-cash collateral involves a transfer of ownership it results in tax issues. An amendment could be made in the corporate tax law to make collateral securities transfers tax-exempt just like securities loans. Market participants are pushing for this reform, as it would not only allow the use of non-cash collateral in securities lending, but also, for instance, in derivatives trading. Investment funds could use their own securities as collateral when selling options for example. The tax exempt use of non-cash collateral will most likely be included in future legislation and result in an increase in the use of non-cash collateral in Finnish securities lending and also other collateralized transactions.

Of course Finnish securities can be lent and borrowed abroad. This made the analysis of the numerical data difficult, as there was no way of knowing where the Data Explorer's clients are located. Many shareholders of Finnish securities are foreign and may conduct their lending through their foreign custodian. This creates international pressure and competition in

the Finnish securities lending markets. As the Finnish industry is still not very evolved, the large Swedish banks lending the securities usually do it through their Swedish parent companies, and according to Swedish financial legislation. Finnish securities lending is, however, slowly evolving. The Finnish financial legislation is being revised and securities lenders are pushing for reform. Large institutional investors have discovered the low risk profits from putting their dormant securities to use through securities lending. In this time of tax increases and cost cutting, government officials should not logically have anything against additional tax income (from securities lending).

REFERENCES

Arnesen, J. 2010a. Regulation for regulation's sake? *Global Pensions* September 2010, 55.

Arnesen, J. 2010b. Central counterparties in securities lending. *Global Pensions* October 2010, 50.

Banking Federation of the European Union. 2001. Master Agreement for Financial Transactions – Product Annex for Securities Loans.

Basel Committee on Banking Supervision. 2001. Working Paper on the Regulatory Treatment of Operational Risk. [Internet document].[Referenced 6.2.2012]. Available at http://www.bis.org/publ/bcbs_wp8.pdf

Basel Committee on Banking Supervision. 2008. Liquidity Risk: Management and Supervisory Challenges. [Internet document]. [Referenced 10.2.2012]. Available at http://www.bis.org/publ/bcbs136.pdf

Basel Committee on Banking Supervision. 2010. Basel III: International framework for liquidity risk measurement, standards and monitoring. [Internet document]. [Referenced 18.5.2012]. Available at http://www.bis.org/publ/bcbs188.pdf

Basel Committee on Banking Supervision. 2011. Basel III: A global regulatory framework for more resilient banks and banking systems (Revised June 2011). [Internet document]. [Referenced 10.2.2012]. Available at http://www.bis.org/publ/bcbs189.pdf

Bianconi, M., Collot, N. & Knepper, G. (CACEIS) 2010. Securities Lending & Repo Markets – A Practical Guide. [Internet document]. [Referenced 5.2.2012]. Available at http://www.caceis.com/fileadmin/pdf/reference_papers_en/securities_lending.pdf

Burke, K. & Martello, G. 1997. The Evolution of Securities Lending. In: Fabozzi, F. (ed) 1997. Securities Lending and Repurchase Agreements. Pennsylvania: New Hope.

Chandrashekar, K. (WIPRO) 2003. Collateral management - An introduction. [Internet document]. [Referenced 15.3.2012]. Available at http://www.wipro.com/documents/insights/whitepaper/collateral_management_an_introduction.pdf

CRESTCo Ltd. 2004. White Book – Securities lending and collateral transfers in CREST. London: CRESTCo Ltd.

Crosman, P. 2008. Collateral damage – The quiet backwater of collateral management has been stirred up by Bear Stearns' collapse, Lehman's bankruptcy, and AIG's near-death and ongoing turmoil in the credit markets. *Wall Street & Technology* 26, 12.

Data Explorers Securities Finance Data Feed. 2012.

The Economist (unknown author). 2010. When the river runs dry. *The Economist* 394, 8669, Special section p. 11-14.

ESMA. 2011. Frequently Asked Questions – A Guide to Understanding ESMA. [Internet document]. [Referenced 7.2.2012]. Available at http://www.esma.europa.eu/system/files/2011_009.pdf

Eurex. 2011. Eurex Clearing to launch central clearing service for OTC securities lending transactions. [Internet document]. [Referenced 25.4.2012]. Available at http://www.eurexchange.com/about/press/press_750_en.html

Eurex Clearing 2012. Our CCP service for the securities lending industry. [Internet document]. [Referenced 18.7.2012]. Available at http://www.eurexclearing.com/download/documents/publications/factsheet_seclend.pdf

The European Central Bank. 2012. Collateral. [Internet document]. [Referenced 08.4.2012]. Available at http://www.ecb.int/paym/coll/html/index.en.html

The European Commission. 2008. Securities Market: Commission proposes amendments to Settlement Finality Directive and Financial Collateral Directive. [Internet document]. [Referenced 15.2.2012]. Available at

http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/636&format=HTML&aged=0&language=EN&guiLanguage=en

Faulkner, M.C. 2006. An Introduction to Securities Lending First Edition. Canada: Spitalfields Advisors.

Harding, P.C & Johnson, C.A. 2002. Mastering Collateral Management and Documentation: A Practical Guide for Negotiators. London: Pearson.

Harland, P. 2011. A critical moment for collateral management. *Securities Lending Times* - Annual Report 2011 Collateral management, 10-11.

Howieson, A. & Zimmerhansl, R. 2010. Good, Bad or Inevitable? The Introduction of CCPs in Securities Lending. London: Zimmerhansl Consulting Ltd & Howieson Consulting Ltd.

Hull, J.C. 2010. Risk management and financial institutions Second Edition. Boston (MA): Pearson.

Hurri, J. 2012. Euro leijuu tyhjän päällä yhä uhkarohkeammin. [Internet document]. [Referenced 9.5.2012]. Available at http://www.taloussanomat.fi/jan-hurri/2012/04/29/euro-leijuu-tyhjan-paalla-yha-uhkarohkeammin/201228325/170

ISLA. 2009. Securities Lending: Your Questions Answered. London: ISLA.

ISLA. 2010a. Securities Lending: An Introductory Guide. [Internet document]. [Referenced 12.2.2012]. Available at http://www.isla.co.uk/images/PDF/Publications/sl_intro_guide_9_10.pdf

ISLA. 2010b. Global Master Securities Lending Agreement (GMSLA). [Internet document]. [Referenced 17.2.2012]. Available at http://www.isla.co.uk/master-agreements/gms-la

ISLA 2012. Securities Lending – A Guide for Policymakers [Internet document]. [Referenced 1.6.2012]. Available at http://www.isla.co.uk/images/PDF/Publications/sl_intro_guide.pdf

Kasanen, E., Lukka, K. & Siitonen, A. 1993. The Constructive Approach in Management Accounting Research. *Journal of Management Accounting Research* 5, 243-264.

Kentouris, C. 2010. Clearing Up Securities Lending. *Securities Technology Monitor* [Internet document]. [Referenced 14.3.2012]. Available at http://www.securitiestechnologymonitor.com/blogs/-26075-1.html

Kochan, N. 2006. Invitation to the Tri-Party. *The Banker* June 2006.

Luhr, S. 1995. Securities Lending. *Global Investor.*

Mishkin, F.S. & Eakins, S.G. 2012. Financial Markets and Institutions – Seventh Edition. Boston (MA): Pearson.

Rahoitustarkastus. 2005. Standardi 3.1 Tilinpäätös ja toimintakertomus 3.1. [Internet document]. [Referenced 7.4.2012]. Available at http://www.finanssivalvonta.fi/fi/Saantely/Maarayskokoelma/Rahoitussektori/3_Tilinpaatos_ja_toimintakertomus/Pages/3_1.aspx

Rich, D. & Moore, J. 2002. Scope and Dynamics of the Securities Lending Industry. *The Journal of Portfolio Management* Fall 2002, 61-75.

Risk Management Association. 2010. Quarterly Aggregate Data Survey. [Internet document]. [Referenced 7.2.2012]. Available at http://www.rmahq.org/securities-lending/quarterly-aggregate-composite

Securities Lending Review. 2011. Under the Spotlight Q4 2011. [Internet document]. [Referenced 18.7.2012]. Available at http://www.dataexplorers.com/sites/default/files/QR_Q4_Final_small.pdf

Securities Lending Times. 2011a. BNP Paribas automates with BondLend. *Securities Lending Times* Issue 018, 01.02.2011, 3.

Securities Lending Times. 2011b. Panel Discussion. *Securities Lending Times* - Annual Report 2011 Collateral management, 12- 22.

Securities Lending Times. 2011c. On message – HSBC's Liam Cahill tells SLT why the future of collateral management is centred on technology. *Securities Lending Times* - Annual Report 2011 Collateral management, 24-25.

Securities Lending Times 2012. BNY Mellon Launches Global Collateral Services. *Securities Lending Times* Issue 055, 10.07.2012, 1-2.

Lavers, G. 2012. Euroclear's highway to collateral. [Internet document]. [Referenced 18.7.2012]. Available at http://www.securitieslendingtimes.com/securitieslendingnews/article.php?article_id=218217

Strongin Dodds, L. 2011. Stepping Up. *Securities Lending Times* - Annual Report 2011 Collateral management, 4-5.

The Telegraph. 2012. ECB suspends use of Greek bonds as collateral. [Internet document]. [Referenced 4.4.2012]. Available at http://www.telegraph.co.uk/finance/financialcrisis/9110493/ECB-suspends-use-of-Greek-bonds-as-collateral.html

Wilkie, B. 2011. A day in the life… *Securities Lending Times* - Annual Report 2011 Collateral management, 6.

Zambrowicz, K., Foley, T. & Foley, A. 2010. Securities Lending: What Law Governs? *The Investment Lawyer* 17, 12, 27-36.

Interviews:

Principal lender/borrower. Helsinki, 16.3.2012

Beneficial owner/lender. Helsinki, 27.3.2012

APPENDIX 1. Principal lender/borrower interview

Open/ semi-structured interview 16.3.2012
Principal lender/borrower

Background:
When did you start your securities lending activity?

What is the extent of your activity? (trade volumes, counterparties?)

Who are your lenders/beneficial owners? Is securities lending offered to existing clients at (*company name)* in a bundle of services, or are the lenders completely separate clients?

Who are your borrowers and end-users?

Could you describe the Finnish securities lending market from your point of view? (current state, supply & demand etc.)

What laws and regulation affect your securities lending activity?

How has the 2009/44/EC Directive been implemented in Finland?

How have recent regulatory reforms (e.g. Basel) or actions (short selling bans, transaction taxes) affected your securities lending activity?

What are your main governmental supervisory authorities?

Lending activity:
How do you screen and select your acceptable borrowers?

As an intermediary, how do you control and follow transaction profitability?

Is your lending activity mostly bilateral or triparty?

How have the recent market instabilities affected your lending activity?

Risk management:
What are your main risk management practices?

Do you use standardized contracts (GMSLA)? How does the Finnish legislation affect your contracts?

Collateral management:

- MTM procedure (What price feeds? reconciliation?)
- margin call procedure
- collateral eligibility?
- minimum margins?
- exposure threshold?
- daylight settlement, settlement verification?

Do you offer indemnification insurance against borrower default for beneficial owners? How about indemnity on cash reinvestment losses?

How do you manage cash collateral? (liquidity, reinvestment, profitability)

Do you use, or have you considered using: triparty, pre-collateralization/prepay, DVP settlement, STP, CCP?

Please describe your compliance monitoring and reporting.

What kind of audit process do you have?

APPENDIX 2. Beneficial owner/lender interview

Open/ semi-structured interview 27.3.2012

Beneficial owner/ lender

Background:

When did you start your securities lending activity?

What are your motivations for your securities lending activity?

What is the extent of your activity? (trade volumes, counterparties?)

Who are your borrowers and end-users?

Could you describe the Finnish securities lending market from your point of view? (current state, supply & demand etc.)

Lending activity:

Do you have direct lending or is your lending mostly done through principal or agent intermediaries?

In the case that you have an agent lender, do they offer indemnification against borrower default?

How do you screen and select your acceptable borrowers?

What securities do you mostly lend?

Around how much of a fund do you normally have out on loan? (% limits?)

How have the recent market instabilities affected your lending activity?

What kind of lending fees do you charge?

How significant is this income to the lending fund's performance?

Risk management:

What are your main risk management practices?

Do you use standardized contracts (GMSLA)? How does the Finnish legislation affect your contracts?

Collateral management:

- MTM and margin call procedure
- collateral eligibility
- minimum margins

Do you use tri-party collateral management, delivery-versus-payment trades or pre-collateralization in your lending activity?

What do you think about the use of non-cash collateral? Would you use it in the future if the Finnish laws were amended?

How do you manage cash collateral? (liquidity, reinvestment, profitability)

Please describe your compliance monitoring and reporting.

What kind of audit process do you have?