

Implementing the operational risk framework of Basel II at a Swedish financial institution – A case study

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Abstract

Basel II is a framework for determining the capital requirement ratio of banks and other financial institutions. On the 1st of January 2007 it was introduced in 25 European countries, and national supervisory authorities are currently implementing the framework. One new addition to Basel II is the measure of operational risk, which looks at how well a financial institution is being operated.

This thesis is a case study of how the operational risk framework of Basel II was implemented in a medium sized Swedish financial company. The objective of the thesis is to: 1) understand what critical design choices the company made when implementing the operational risk framework of Basel II, 2) what the main challenges were during the implementation process, and 3) understand whether any direct benefits could be identified for the company from going through the implementation process.

The main choice when implementing the framework was to make the Basel II implementation the number one priority in the company, and the most critical design choice based on this was to involve a large part of the company employees directly or through workshops covering all core processes, as well as all main supporting functions. The company used internal resources instead of consultants and appointed a full time project leader who was supported by part time resources. Fairly simple, excel-based tools were used for tracking and documentation of risks and related actions. The company also limited action setting and tracking to cover only the top ten risks identified for each process, from the many risks identified.

The main challenges encountered were linked to the large scale and geographical spread of the organization. The use of part time resources in the initial phase of the project created co-ordination problems and slowed progress. The tools and material used were initially difficult to grasp and not refined enough when measuring and evaluating the risks. The size of the project made it difficult for top management to track the project.

The direct benefit from the project was an improved understanding in the organization, especially among the large number of participants, of the company processes and related risks. This allowed corrective actions to be rapidly implemented, leading to, among other things, better fraud prevention, one of the single largest sources of financial loss today.

For future implementations this thesis concludes with some key take a ways based on the company's implementation of the Basel II operational risk frame work: use internal resources rather than consultants, since the investment in time is compensated for by the buy in from the organization and the ability to follow up actions in the risk elimination process. Use full time staff in the core team, rather than part time resources, to speed up the process. Spend significant time up front on the project design, detailed templates design, and on simple but thought through tools, since the project involves many people, and good design eliminates later confusion. Finally and most importantly, take the chance to improve the company's operations, rather than seeing the implementation as a compliance project. Basel II can save money for a company, if properly implemented.

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1 Introduction

1.1 From Barings Bank to Basel II

With the crash of Barings Bank in 1995, it is fair to say that the financial market was shook at its very foundation. Baring Bank was one of the market's oldest financial institutions, with 233 years of history. How could one sole trader, the now infamous Nick Leeson, bring down the banking empire that had funded the Napoleonic Wars? The answer is that the bank was not aware of what was happening, due to failing internal control. Barings wrongly believed that it wasn't exposed to any losses simply because Leeson claimed that he had been executing purchase orders on behalf of a client. The company was not aware of the error account 88888, where Leeson hid all his, or rather the bank's, losses. This balance account had initially been set up to cover up a small mistake made by an inexperienced member of Leeson's team, which led to a loss of £20,000. Leeson started to use this account to cover his own mounting losses. As the losses grew, Leeson requested extra funds from Barings in London to continue trading; hoping to extricate himself from the mess by doing more deals, and yet more deals. Over three months he bought more than 20,000 futures contracts worth about \$180,000 each in a vain attempt to move the market. When the story ended, and the Barings executives finally discovered what had happened, the work of one man, together with the unforeseen Kobe earthquake, had led to \$1.3 billion dollars of liabilities. Nick Leeson had managed to run up more than the entire capital and reserves of the bank, and the executives had to inform the Bank of England that Barings effectively was bust.

This could happen only because Barings lacked the proper accounting safeguards together with the internal controls and processes that combined should ensure such a thing never happens. The risks Barings was exposed to are, using the vocabulary of Basel II, referred to as operational risks. This is a group of risks defined as "*The risk of loss resulting from inadequate or failed processes or systems, human factors or external events*"¹, and the definition includes legal risk but excludes strategic and reputation risk. Operational risks thus consist of a very broad range of risks, which differ across companies depending on what systems and processes the company has. These differences mean that operational risks are hard to regulate and measure in a standardised way.

However, regulating the financial sector is necessary. The potential financial rewards for institutions and even individuals working within the institutions, of gambling on risk are too high. Combined with the importance to society of a well functioning financial sector this warrants regulation. There is also a positive side to regulating and improving risk management. Basic principles in finance state that "*the opportunity cost of capital depends on the risk of the project*" (Brealey & Myers, 1996). A good company should be able to compete and win in the market by being better at managing risk, if only the correct risk exposure is transparent and communicated to investors and customers. This has not always been the case, since the costs of enforcing proper risk control are not always captured by increased profits or diminished credit losses, at least not in the short run. Good companies can thus have a higher cost structure than poorer ones, leading temporarily to unequal terms for competition. Regulating the capital requirements is a first step to creating a more level playing field.

¹ Company internal definition, based on information from www.bis.org

The strong focus on capital requirements in regulations has a very simple explanation. It is the best guarantee found so far against so-called systemic risk, i.e. the risk for uncontrolled spread of a crisis throughout the financial system. The capital buffer, or the needed level of equity for banks, should be able to absorb a temporary market crisis. This level of equity is what is being regulated by the capital requirement regulations. All banks are thus required to carry a minimum level of capital; today the minimum level is set to 8%.

The importance of regulations, together with the increasingly global nature of the financial market, early on drove demand for standardization of these regulations across countries and markets. In Europe the work to standardize the regulations has been performed mainly by the Bank of International Settlement (BIS) through the Basel Committee on Banking Supervision (The Basel Committee). Already in 1988 the first Basel Capital Accord, often referred to as Basel I, was issued. The initial focus was on regulating the capital requirements for exposure to credit risk, later to be followed by an amendment to also incorporate market risk. Basel I has been implemented by most advanced countries, but since 1988 the financial markets have become more sophisticated, both in handling credit and market risk. Through Value at Risk-methods, and credit risk modelling methods, aggregating and managing risk across geography and product lines has been made possible, as well as the active trading of credit risks through various credit instruments. Due to this evolution, with more sophisticated software tools and instruments on the credit and market risk side, existing regulations are seen as too crude. It is also clear that operational risk cannot be neglected, illustrated by the case of Barings Bank. The current regulations are simply too unsophisticated, and do not properly take into account whether a bank or financial institution is well or poorly managed.

This is about to change. Significant work and dialogue between supervising authorities across Europe and the banking sector has resulted in a revision of the capital requirement regulations. The results are collected in “The New Basel Capital Accord”, commonly referred to as Basel II, now on its way to be introduced in 25 countries, among them Sweden. A successful implementation of Basel II will allow a good bank or financial institution to get a more just picture of its credit and market risks, while having improved control and management of its operational risks. However, implementing the Basel II framework is far from straight forward and the Basel II text gives only rough guidelines, open for interpretation by the local supervising authorities. Implementing Basel II is new ground, and the work and resources invested into the process are significant across the banking sector, making it an interesting topic to follow.

1.2 Objective

This thesis is a case study of the implementation of the operational risk framework of Basel II in a medium sized financial company, with special focus on the Swedish regulations.

The objective is to answer the following research questions:

1. What were the critical design choices when implementing the operational risk framework of Basel II for the company?
2. What were the main challenges for the company during the implementation process?
3. Were there any direct benefits for the company from going through the implementation process?

2 Methodology

2.1 Data collection

This thesis draws its conclusions from two separate sources of information: information related to the understanding of the general Basel II framework, and information regarding its implementation in the company.

The information-gathering phase, between January and May 2006, formed a pre-study phase during which the research questions were defined. During the pre-study phase company internal Basel II project leaders were interviewed and hearings by Finansinspektionen attended. The method used for these interviews was the semi-structured interview form². It was used as a means to create a good basic understanding on the different aspects of the Basel II process. The method used for recording was that of concentration³ (Kvale, 1997), these as many of the initial interviews were of a more general nature.

The implementation process of Basel II at the company was then studied in the second phase, the study phase of the thesis, and the method chosen for observation was the case study method. The author works at the company, and was part of the original Basel II implementation team. I was as a team member, responsible for driving the initial implementation process for two of the six main areas/processes and two of the four supporting areas/processes. Through this she has had the ability to be actively involved in the implementation work and has had significant insight into the process. The implementation process started in March 2006 and its most active phase ended in September 2006. The author's observation period stretches from January 2006 to October 2006. During this period the author has actively accumulated material and knowledge related to the research questions. This was complemented with discussions with other persons involved in the implementation process to understand if problems and key learnings identified were common across the group.

2.2 Reliability and validity of results

This study applies a qualitative research approach. A qualitative approach is the appropriate when the overall picture is of greater interest than the individual parts (Christensen, 1998), which is the case for this thesis' research questions. The method is recommended if the area is unexplored (Yin, 1994). The main weakness of this method is the difficulty in generalizing from the results.

Within the qualitative research tradition, it is often difficult to repeat a study and achieve the exact same results, especially when implementing a process such as Basel II, where the aim is to change the way the company works. Even so, it is believed that the reliability of the study is high, but it will be very hard to test it.

I believe the data gathered on the requirements for Basel II and the main implementations steps should be valid for most Basel II implementations. The challenges and benefits encountered when actually implementing these step at a company are naturally to some

² The semi-structured form of interviewing is governed by the use of a selected number of research questions, and start with more general questions or topics. The number of respondents is not the most important, but rather each person's individual ability to contribute to the understanding of the problem.

³ Concentration means simply that what is said is formulated short and to the point, thus condensing the answers somewhat.

extent unique to the company itself, which impacts the validity of the conclusions for other companies.

2.3 Model for analyzing data – the 7-S model

An organizational framework is needed to structure the implementation's different aspects. There are a number of such frameworks, and one is the 7-S model (Pascale & Athos, 1981). The 7-S model is sufficiently detailed to identify organizational issues by looking at several facets of an organization. The 7-S model divides an organization's issues into seven areas:

- **Shared values.** Simple, agreed upon principles that reflect what is important
- **Institutional skills.** The skills needed for critical activities
- **Strategy.** The integrated set of actions that set out the future direction.
- **Organizational structure.** The system to determine who reports to who and how tasks are divided and integrated
- **Staff.** The people in the organization in terms of their capabilities and experience
- **Management systems.** The processes, methods, tools, and procedures that are used for day-to-day activities
- **Leadership style.** The way leaders focus their time and attention, and the personal tone the set

The first three of these are, taken together, often said to form the organization's vision or winning formula. The remaining four areas are said to be the design levers that guide the behaviour of the team that are to deliver the result. This model is used when analysing how the operational risk framework of Basel II has been implemented in the company.

3 Basel II - the evolution of a standard for capital requirements

3.1 Why is a standard for capital requirements needed?⁴⁵

There are a number of risks facing the financial system and its participants, which unless controlled could hamper the financial stability of the economy. Proper regulation of the financial sector is necessary, and helps in controlling a number of the major risks affecting the system. By regulating the environment and setting the ground rules for the individual companies operating within the financial system, a good regulatory system contributes to financial stability and is as such fundamental to the growth and evolution of the economy. It is believed by the author that the regulatory system itself is very important, since its implications could be seen as fundamental not only to the financial sector but to the society as a whole.

It is critical to limit the effect of disturbances in the financial system. Disturbances within a sub market or a company should not be able to spread in a systematic way that would hamper the whole system. Such risk, so called system risk, must be minimized. The capital requirement regulation limits the total risk exposure in the system by putting a ceiling to how much each individual bank can leverage its capital base. Through leveraging its capital base banks and financial institutions manage to achieve a decent return on equity, and the level of debt versus equity is thus important for the ultimate profitability of these companies. Too high leverage would have far reaching implications in the case of market disturbances, and contribute to increased instability in the financial system. Capital requirements are needed, since they constitute one of the most effective measures against system risk.

The increasingly global nature of the financial markets has led to a need for standardization of the capital requirements. Many banks operate across a number of geographies and markets, and there is a need for a common multinational regulation to remove the competitive inequality, which arises from differences in national capital requirements. Some argue that unless standardized, it becomes very hard to aggregate risks and give a true picture of the total risks in any larger corporation. Enabling transparency of the risk exposure is another driver behind the regulations.

The conclusion is that a standardization of the capital requirements form one of the most efficient measures to ensure financial stability. It limits the spread of disturbances within the system - this regardless of where a bank is operating. This is the reason for the strong focus within the banking sector on implementing these requirements.

3.2 How was the standard for capital requirements developed?

3.2.1 Forming of the Basel Committee⁶

The importance of regulating the capital requirements was recognised in Europe by the Bank of International Settlement (BIS), through their Basel Committee on Banking Supervision (the Basel Committee) almost 30 years ago. BIS is an international organization, based in Switzerland, aiming at fostering international monetary and financial

⁴ “Operational risk transfer across financial sectors”, <http://www.bis.org/publ/joint06.pdf>

⁵ “International Convergence of Capital Measurement and Capital Standards”, <http://www.bis.org/publ/bcbs107.pdf>

⁶ “History of the Basel Committee and its Membership”, <http://www.bis.org/bcbs/history.pdf>

co-operation, and it also serves as a bank for central banks. The Basel Committee was founded by ten European central banks as a response to the significant troubles the international banking and currency markets experienced in the mid 1970s. In the early 1980s, the Committee became very concerned, since the capital ratios of the main international banks were deteriorating and at the same time international risks were growing, especially those vis-à-vis heavily indebted countries. BIS describe this sense as: *"There was a strong recognition within the Committee of the overriding need for a multinational accord to strengthen the stability of the international banking system and to remove a source of competitive inequality arising from differences in national capital requirements."* The members of the Committee decided to halt the erosion of the capital standards in their own banking systems and to work together towards greater convergence in the measurement of capital adequacy.

BIS was originally formed as a forum with European member countries, but today the members come from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, United Kingdom and United States and thus contain both European and non-European members. The forum's overall goal is to improve supervisory understanding and the quality of banking supervision worldwide, through formulating broad guidelines and recommending best practice to national authorities. It states: *"The Committee does not possess any formal supranational supervisory authority. Its conclusions do not have, and were never intended to have, legal force. Rather, it formulates broad supervisory standards and guidelines and recommends statements of best practice in the expectation that individual authorities will take steps to implement them through detailed arrangements – statutory or otherwise – which are best suited to their own national systems."* So, instead of centralized legal enforcement, local authorities are expected to take the necessary actions in order to drive the more detailed implementation of the guidelines in the way that works best with each country's national system. Since the early eighties, most of the Committee's time has been devoted to the capital requirements.

3.2.2 Introducing Basel I for handling credit risk

Historically the main focus for banks and regulators has been on how to reserve for credit risk, or the risk of counterparty failure. In 1988 Basel I was published, regulating the credit risk. Its main feature was the introduction of a minimum capital ratio, defined as the relationship between capital to risk-weighted assets, and the minimum level was set to 8 percent. Since its introduction in 1988, the credit risk framework has been introduced not only in the Basel Committee member countries but also in virtually all other countries, with active international banks.

During the nineties risk control improved significantly, much due to the evolution of new and improved credit risk tools. Most banks have started to quantify, aggregate and manage their credit risk in more sophisticated ways, across geography and various product lines. The improved control and understanding of credit risk has led to lower capital requirement needs for managing the credit risk exposure.

3.2.3 Amending Basel I to account for market risk exposure^{7,8}

Over time other risks emerged as the financial market became more sophisticated, and especially the explosive growth and evolution in the securities market led to new challenges and risk exposures. The first major refinement of the framework came in 1996, when the Committee introduced the Market Risk Amendment, which became effective in the end of

⁷ "Amendment to the Capital Accord to incorporate market risks" <http://www.bis.org/publ/bcbs119.pdf>

⁸ "Proposal to issue a Supplement to the Basle Capital Accord to cover market risks", <http://www.bis.org/publ/bcbs16.pdf>

1997. It was designed to introduce capital requirements for market risks, defined as “*the risk of losses in on and off-balance sheet positions arising from movements in market prices. The risks subject to this requirement are: the risks pertaining to interest rate related instruments and equities in the trading book; foreign exchange risk and commodities risk throughout the bank*”. The question of how to measure these risks became a serious discussion topic, since it was obvious that the rapid innovation in the banking and financial market meant that the banks themselves were best suited to measure their own risk exposure. The amendment allowed, as an alternative to a standardised measurement method, the banks to use internal value-at-risk models as the basis for measuring their market risk exposure, as the rapid pace of change within the industry called for this solution.

3.3 Need for a new framework resulting in Basel II⁹¹⁰

Even with the addition of the Market Risk Amendment, the capital regulations were seen as rather crude, not properly reflecting the risk exposure of the individual banks. Already in 1999, the Basel Committee issued a proposal for a new capital adequacy framework to replace Basel I. This proposal resulted 2004 in the release of Basel II.

The basis for the new framework consists of three pillars¹¹:

1. **Minimum Capital Requirements - Capital requirements based on standardised rules¹²**: Pillar 1 equals today's capital requirements, with the addition of an operational risk framework, and describes the basis for the capital requirements calculation. The focus is on refining the way credit risk is calculated and accounted for and looks over the portfolio risk rating, while ensuring the new operational risk requirements are implemented and finally that a proper measurement system for these risks is created.
2. **Supervisory Review Process - Review of an institution's processes related to capital adequacy and internal assessment¹³**: Pillar 2 focuses on the Supervisory review, where the supervisor assess whether any additional capital requirements are needed. Companies are required to prepare an Internal Capital Adequacy Process (ICCAP) document, where processes etc. are described to the supervisor. The supervisory authority review and approve the ICAAP, which is the basis for the risk calculation, and decides whether any additional capital requirements are needed. A central part of Basel II is that it is the institution itself that drives and designs its own ICAAP. Regulatory input is given on the principles and the end result, but it is the Board and Senior Management that is responsible for the exact design of the process and implementation.
3. **Market Discipline - Disclosure of relevant information and practises¹⁴**: Pillar 3 focuses on the information that should be disclosed to the market. This information should enable transparency of the risk exposure, and form the basis for the external view on the company's risk processes.

⁹ "Riskmätning och kapitalkrav I och II", http://www.fi.se/upload/20_Publicerat/30_Sagt_och_utrett/10_Rapporter/2002/rapport2002_8.pdf

¹⁰ "Riskmätning och kapitalkrav – en vägledning I och II", http://www.fi.se/upload/20_Publicerat/30_Sagt_och_utrett/10_Rapporter/2001/rapport2001_1.pdf

¹¹ Interpretation based on company internal material

¹² "Part 2: The First Pillar - Minimum Capital Requirements", <http://www.bis.org/bcbs/cp3part2.pdf>

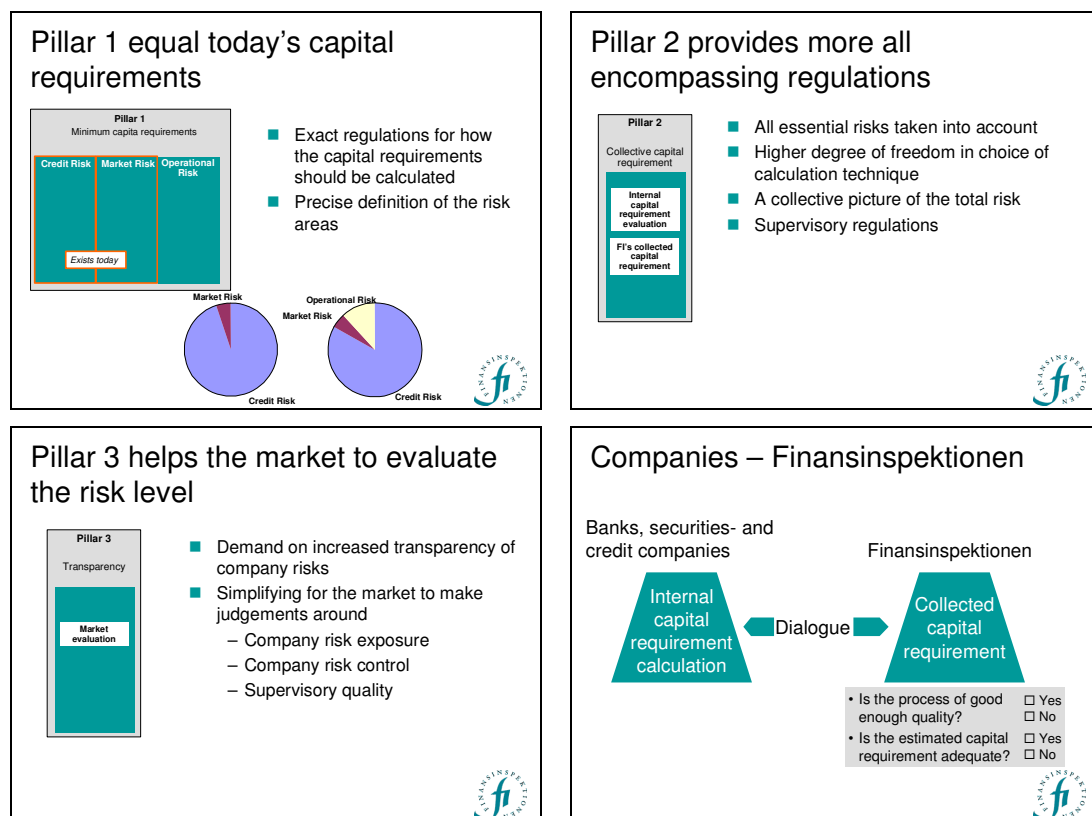
¹³ "Part 3: The Second Pillar – Supervisory Review Process", <http://www.bis.org/bcbs/cp3part3.pdf>

¹⁴ "Part 4: The Third Pillar – Market Discipline", <http://www.bis.org/bcbs/cp3part4.pdf>

These three pillars form what the Committee believes are the three essential pieces of an effective capital framework. Basel II is believed to significantly improve the way regulatory capital requirements reflect underlying risks, and also to better capture the financial innovation, which has taken place over the past years. It aims at rewarding improvements in risk measurement and control and provides incentives for such improvements to continue. By introducing the recommendations around review and disclosure, i.e. pillar 2 and 3, the Committee also has expanded the scope of the previous framework.

The ambition with Basel II is not to suffocate companies with more regulations and complexity, but to create a more risk sensitive system and improve the capital allocation within the financial sector. By improving transparency, it allows market participants to make more informed decisions when choosing financial institution, and through this create incitements for the institutions to improve their risk management. As an example, for the top Swedish banks, up to 20% less capital is estimated to be required¹⁵. If these first estimates hold to be true, the work spent on implementing Basel II can prove to be a worthwhile investment.

Descriptive overview of Basel II's three pillars¹⁶:



3.4 The adoption process for Basel II

Following the release of the Basel II framework, national authorities in the G10 countries are now working to adopt the framework through national rule making and approval processes. On the 1st of January 2007¹⁷ it was introduced in 25 European countries. As with

¹⁵ DI, "Nya regler ger svenska banker miljarder", <http://di.se/Index/Nyheter/2006/08/26/198835.htm?src=xlink>

¹⁶ http://www.fi.se/upload/30_Regler/50_Kapitaltackning/060928/presentation.ppt

¹⁷ "Förordningen och kartläggning av nya kapitaltäckningsregler för kreditinstitut, värdepappersbolag och finansiella företagsgrupper", http://www.fi.se/upload/30_Regler/50_Kapitaltackning/10_Kreditrisk/040413brev.pdf

Basel I, Basel II will be converted both into EU directives and Swedish legislation. For Basel II the EU directives were passed in July 2006, through The Committee of European Banking Supervisors (CEBS), which plays an important role in enabling harmonisation among the European national regulatory bodies. Through the work of the regulatory body Finansinspektionen (FI), the Swedish legislation became effective in January 2007, as in the other European countries.

For a Swedish institution it is therefore a combination of the European and the Swedish interpretation of the Basel II framework that governs the implementation process.

3.5 Operational risk within Basel II¹⁸

3.5.1 Governing principles behind the operational risk framework

The addition of an explicit capital requirement for operational risk in pillar 1 is one of the largest changes when comparing Basel I and Basel II. Operational risk is a major risk area, usually standing for 15-20 % of all losses a company is facing. It is designed so it should include all risks for losses following failed processes, human errors, failed systems, and external events as well as legal risk, fraud, unethical or risky behavior, staff exceeding their authority, failure of IT systems, or consequences of fire or other disasters¹⁹. While it is relatively straightforward for an organization to set and observe specific, measurable levels of market risk and credit risk it is by contrast relatively difficult to do so for operational risk. Historically organizations have simply accepted operational risk as an unavoidable cost of doing business.

This laissez-faire approach towards operational risks is now on its way to be abandoned, and it is required that these risks also need to be assessed and quantified. How then do you quantify operational risks? The Basel II framework acknowledges that it is hard to directly quantify them, and takes into account that historically part of the supervision of operational risk has been managed by internal audits, authority levels and processes - a new framework should thus take these into account and build on them rather than build something completely new and different. What is required however by the Committee, is that the risk management process is more holistic²⁰ than audits and internal control systems and require that there in addition should be a systematic approach to how a company works with eliminating and controlling its operational risks. The approach is shaped by the fact that the Committee believes that the main responsibility to manage, understand and ultimately control operational risk resides with the Board and Senior Management of each institution. It is believed that operational risk management is most effective when an institution's culture stresses strong ethical behaviour at all levels, both in words and in actual actions, starting at the top.

Five major requirements govern the Operational Risk Management framework:

- **Comprehensive framework linked to management.** A framework that explicitly monitor, manage and reports on operational risks should be established in each institution, above and beyond internal control and audit processes

¹⁸ "Företagens interna kapitalutvärdering – att bedöma kapitalbehovet under Basel II", http://www.fi.se/upload/20_Publicerat/30_Sagt_och_utrett/10_Rapporter/2005/Rapport2005_8.pdf

¹⁹ "Operational risk management", <http://www.bis.org/publ/bcbs42.htm>

²⁰ *Holistic*: the idea that all the properties of a given system cannot be determined or explained by the sum of its component parts alone. Instead, the system as a whole determines in an important way how the parts behave.

- **Board and Senior management responsible and tightly involved.** It is the responsibility of the Board and Senior Management to assure that the framework is implemented and managed effectively, and to actively follow results
- **Internally audited.** This framework should be periodically internally audited by internal, but operationally independent, staff
- **Supervised by a regulatory body.** Regulatory supervisors should conduct regular evaluations of an institution's policies, procedures and practices related to operational risks
- **Under public scrutiny.** The Institutions should make sufficient public disclosure to allow the market to assess their approach to operational risk management

3.5.2 Calculating operational risk

Going from general principles, at some point an assessment of operational risks needs to result in an estimation of an actual capital requirement to cater for these risks. Finansinspektionen has set forward the following three recommendations on how operational risk should be calculated, listed in order of increasing sophistication:

1. **Basic Indicator Approach:** A simple calculation based on the annual revenue of the Financial Institution
2. **Standardised Approach:** Slightly more advanced method, based on the annual revenue, here split into the broad business lines of the Financial Institution with different risk weightings applied
3. **Advanced Measurement Approaches (AMA):** Based on the internally developed risk measurement framework of the bank (methods include IMA, LDA, Scenario-based, Scorecard etc.)

The simpler approaches are targeting banks with less significant risk exposures using standardized measures and the advanced approach is the preferred for most banks and institutions with more significant operational risk exposure. A bank will be permitted to use the Basic Indicator or Standardised Approach for some parts of its operations and an AMA for others provided certain minimum criteria are met²¹. Each method is described in more detail below.

The Basic Indicator Approach²²: The Basic Indicator Approach links the capital demand for operational risk to the institution's operating income. It sets the capital demand for operational risk to 15% of the average operating income. The average operating income is defined as the average of the last three years operating income, taking only positive yearly operating income into account. Here, the operating income is defined as net interest, net leasing, net financial transactions, dividend received, and other operating income. The Basic Indicator Approach, the default approach, requires no permission from FI and should be used by parties, which have not been give permission to use another method.

$$K_{BLA} = \left[\sum (GI_{1,...,n} \times \alpha) \right] / n$$

where:

²¹ For more information on the criteria for Partial Use, see § 680-683, "Part 2: The First Pillar – Minimum Capital Requirements", <http://www.bis.org/publ/bcbs128b.pdf>

²² p. 134, "Part 2: The First Pillar – Minimum Capital Requirements", <http://www.bis.org/publ/bcbs128b.pdf>

K_{BLA} = the capital charge under the Basic Indicator Approach

GI = annual gross income, where positive over the previous three years²³

n = number of the previous three years for which gross income is positive

α = 15%, which is set by the Committee, relating the industry wide level of required capital to the industry wide level of the indicator

Included in Gross Income ²⁴	Excluded from Gross Income
1. Interest and leasing income	1. Leasing costs for leasing that is not part of the leasing business
2. Interest and leasing costs	2. Dividends from associated and group companies
3. Dividends	3. Realised profit/loss from selling of assets in "other business"
4. Income from commissions (including provisions from the selling of insurance products)	4. Income from insurance
5. Costs for commissions	5. Fees from outsourced services supplied by a third party which is not the mother company or subsidiary to a mother company which is also the mother company of the institute
6. Net result from financial transactions	
7. Other income	

An example.

Let's assume we have a company where the only income is leasing income of 100 in 2004, a leasing loss of 50 in 2005 and leasing income of 200 in 2006 (all amounts in million SEK), and no other income or costs for the period. This gives the following input into the capital requirement calculation:

$$GI_{2004}=100; \quad GI_{2005}=-50; \quad GI_{2006}=200$$

$$GI = 100+200 = 300$$

$$N = 2$$

$$K_{BLA} = \frac{\left| \sum_{2004}^{2006} (GI_{1,...,n} \times 15\%) \right|}{2} = \frac{100 \times 15\% + 200 \times 15\%}{2} = \frac{15 + 30}{2} = 22,5$$

The capital charge for the year 2007 for operational risks is thus 22,5 million SEK.

The Standardised Approach²⁵: The Standardised Approach improves the granularity of the analysis. The institution's business is divided into eight pre-defined business areas. For each of these areas an income indicator and a percentage level are determined. The total capital requirement is the sum of the product between the income indicator and the percentage level over the eight business areas. The income indicator is based on the Operating Income for the business area and is calculated in the same manner as in the Basic Indicator Approach. The Standardised Approach requires approval from FI, and approval is based on overall work with operational risk and development of income indicators per business area. The business areas and percentage levels are given in the table below:

$$K_{TSA} = \left\{ \sum_{years 1-3} \max \left[\sum (GI_{1-8} \times \beta_{1-8}), 0 \right] \right\} / 3$$

where:

²³ If a substantial part of the business area has been closed, and the income indicator due to this do not give an appropriate picture of the business, the institute can apply for calculating the capital requirement based on a different indicator during a transition period.

²⁴ §3, "Operativa risker", http://www.fi.se/upload/30_Regler/50_Kapitaltackning/060531/operativ_risk.pdf

²⁵ p. 136, "Part 2: The First Pillar – Minimum Capital Requirements", <http://www.bis.org/publ/bcbs128b.pdf>

K_{TSA} = the capital charge under the Standardised Approach

GI_{1-8} = annual gross income in a given year, as defined above in the Basic Indicator Approach, for each of the eight business lines

β_{1-8} = a fixed percentage, set by the Committee, relating the level of required capital to the level of the gross income for each of the eight business lines. The values of the betas are detailed below.

Business area	Percentage level
Corporate finance (β_1)	18%
Trading and Sales (β_2)	18%
Retail Banking (β_3)	12%
Commercial Banking (β_4)	15%
Payment and Settlement (β_5)	18%
Agency Services (β_6)	15%
Asset Management (β_7)	12%
Retail Brokerage (β_8)	12%

An institute may, after approval is given by FI, use a combination of the basic and the standardised method in certain cases. One example can be when for example acquiring a business - then a combination of the two methods can be used for a limited time.

Advanced Measurement Approach: In order to qualify for using the AMA a bank must ensure its supervisor that, at a minimum:

- Its board of directors and senior management, as appropriate, are actively involved in the oversight of the operational risk management framework;
- It has an operational risk management system that is conceptually sound and is implemented with integrity; and
- It has sufficient resources in the use of the approach in the major business lines as well as the control and audit areas.

The bank's measurement system must also be capable of supporting an allocation of economic capital for operational risk across business lines in a manner that creates incentives to improve business line operational risk management. In essence however, banks are allowed considerable freedom in implementing their own method for assessing their exposure to operational risk, as long as it is sufficiently comprehensive and systematic.

4 Empirical study

The empirical study will start with introducing the company where the case study took place, then move into describing the steps taken in the implementation process of the Basel II operational risk framework, describe the organizational structure and the tools and methods used to implement the framework and finally show how the operational risk framework of Basel II will impact or has changed the risk management process in the company.

4.1 Company background

4.1.1 The business

The case study was conducted at a medium sized financial company (the Company), providing equipment financing and other related services to commercial customers of all sizes. The Company is part of a European group, employing approximately 3000 people and managing more than USD 14 billion worth of assets. The European group is part of the financial division in one of the world's largest corporations, listed in the United States. The Company covered in this study consists of the Nordic entities with approximately 300 employees and managing between USD 1-2 billion worth of assets, with a Swedish mother company and subsidiaries or affiliate companies in the other Nordic countries. Leasing of assets is the most common service provided, comprising approximately 99% of the business. The Company finance asset such as copy machines, industrial machines, construction equipment, trucks and airplane fleets, thus ranging from very large to many smaller transactions. This is often done through so called vendor financing, where the Company acts as the financing arm of a vendor or manufacturer of equipment.

In a leasing transaction three or more parties are involved:

1. **Lessor:** The financing company and owner of the equipment
2. **Vendor (or Manufacturer):** The vendor of the equipment who receives money for the sold equipment from the lessor
3. **Lessee:** The user of the equipment, who receives the equipment from the vendor after having entered a leasing contract with the lessor. Often the lessee is less credit worthy than the lessor (who often has a very strong credit rating), and this is the main driver behind the transaction

In a leasing contract the lessor, on negotiated terms for a fixed or indefinite period of time, gives the lessee the right to exclusively use or occupy personal or real estate property, in exchange for paying a fixed or determinable payment to the lessor²⁶. The value of the asset in combination with the credit worthiness of the lessee serves as a guarantee that the lessor will recover at least part of the value of the financing amount in the case of default of the lessee.

4.1.2 The processes

The Company has six main processes:

- **Sales and Pricing:** In the Sales and Pricing process the financing transaction enters the Company and customer terms are negotiated and the transaction either

²⁶ Redovisningsrådets rekommendation 6:99, Definitioner 4

lost or won. For smaller transactions, an automated process is used, where the credit application together with the equipment information is entered via an on-line extranet to which the vendors of equipment have access. Vendors have negotiated a standard pricelist, based on the risk of the equipment and the volume they generate, and contracts can be printed by the vendor and signed by the customer immediately without any involvement from the Company. For larger transactions the financing process is entirely manual.

- **Underwriting:** Refers to the risk evaluation process. First, when a new vendor wants to do business with the Company, potentially selling a new type of equipment, the equipment and vendor risk is evaluated, and it is decided whether the Company can finance the vendor's equipment at all. Then, on a deal by deal basis, the customer risk is evaluated, and it is decided whether the credit application is approved, rejected or whether further information/security is needed, such as a personal guarantee etc. The outcome of the underwriting process flows back into the Sales and Pricing process, and ultimately decides whether a credit is accepted or rejected. As mentioned in the Sales & Pricing process, for many of the deals the underwriting process is automated and all information is entered via an extranet.
- **Book & Fund:** In the Book & Fund process, all payment streams in the Company are handled. They consist of two major streams: the vendor of equipment is paid and the lessee invoiced for the period negotiated in the contract. Cash flow is often very important for the vendors of equipment, and one of the main drivers for outsourcing the process to professional financing companies. This means that the speed of this process is very important.
- **Documentation:** In the Documentation process, contracts are administrated. All contracts are checked for accuracy and it is ensured that everything is correctly booked in the administrative systems. In order to be able to repossess equipment, it is very important that everything is entirely in order in the documentation process. When not, it becomes very difficult to prove ownership of an assets in the case a customer defaults.
- **Collection:** In the Collection process the recovery of assets when a customer defaults or do not pay in time is handled.
- **Asset Management:** Asset management handles the termination of contracts. They ensure the Company can make money from old and used equipment, the area where banks and leasing companies differ the most. Creating functioning distribution channels and understanding the market value of the equipment are responsibilities of Asset Management.

These processes are the core processes in handling the business flow in a leasing company, and were as such covered in the operational risk work. Some of these processes have been centralised to Sweden, and handle the processes for the entire Nordic platform, while other processes such as Sales, Underwriting and Documentation are entirely local.

A number of other processes support the business. Those covered by the operational risk project are mentioned here:

- **IT:** Handles the IT systems, networks and development
- **Finance:** Responsible for budgeting and planning processes, accounting and reporting
- **Human Resources:** Handles recruitment, payroll and corporate staff policies

- **Legal:** Responsible for regulatory contacts, legal documentation and contracts etc.

These processes are spread out in the company, and many processes operate rather independently.

4.2 Implementation strategy

4.2.1 Lessons learnt from earlier implementations

France was the first platform to implement Basel II within the company. Several design choices were made, which proved to be mistakes, and these affected the choices made in the Nordic implementation process. In France a large number of consultants were involved, which proved to be very costly. Also, influenced by consultants, the wrong method was chosen for the credit risk framework. The most advanced method was chosen without having the right internal processes enabling compliance with the framework, due to not properly understanding the requirements of the framework. After close to two years of having a number of consultants working within the company, it was discovered that the existing internal rating models were not Basel II compliant, and the approach had to be changed and a less advanced model used.

In the Nordics, it was therefore decided to use significant internal resources for implementing both the credit and operational risk framework in the Company, and consultants were used only for a minor part of the project.

4.2.2 Method chosen for compliance with the operational risk requirements

The Advanced Measurement method (AMA) was chosen, since the Company decided it could meet the three criteria required for being allowed to use the AMA method. This was based on the explicit mission with the Basel II project in the Company being to create a dynamic operational risk framework, which would meet the Basel II standards. Top management and the rest of the organization was also actively involved in the risk management process - almost one third of the company participated in workshops, meaning that the prerequisites for the AMA method were fulfilled.

4.2.3 Implementation steps for operational risk framework

Since the BIS standards were formulated as guidelines, rather than rigid processes, considerable freedom on interpreting the guidelines existed for the Company. Since the Company had the freedom to design its own operational risk management process, the following basic principles were considered, when creating the internal framework²⁷:

Fundamental as described in Basel text	Implementation implication in the Company
1. Board level involvement (definition of operational risk, policies and principles)	The board of the Company were the first to be presented with the project plan, and were also updated on progress on a regular basis during the project.
2. Review by Internal Audit	The controller, who was also in charge of Sarbanes Oxley compliance, led the operational risk process, so the internal

²⁷ "Sound practices for the management and supervision of operational risk" – Bank for International Settlements February 2003

	audit process was closely involved.
3. Responsibility of senior management in implementing the operational risk framework	The senior management were chosen or had to assign a Basel II champion, resulting in 10 champions being chosen, one for each Company process.
4. Identification of risk for all material activities:	The Company choose to have Basel II facilitators responsible for making sure the risks were identified in a consistent manner across the Company. These champions were trained in the methods and tools used in the project, which were common across the Company (the risk identification process will be looked into in more detail below).
5. Collection and reporting to Board and senior management of all material operational risks:	All risks were classified in a consistent manner, and the top 10 risks together with actions to reduce or eliminate the risks were reported to the Board and senior management, once the collection was complete.
6. Risk exposures (in particular loss data collection, risk indicators):	A loss data tool was developed, for enabling the operational loss data to be captured, i.e. a website. An estimate of the loss for any risk event that had occurred was also calculated. This also served as the basis for choosing the top 10 risks for each process presented to the senior management team.
7. Processes and procedures in place to control and mitigate operational risk:	It was decided that one person in the Company would lead the follow up and continuous design of processes for controlling operational risks, preferably someone with good knowledge of the whole business and with significant experience from working in a cross-Nordic setting.
8. Effective business continuity plan for all material activities	For all tasks crucial to the Company more than one person have to know how to perform the activity and the activity needs to be properly documented. Backup of data is also essential. Especially for IT, this is one of the focus areas of SOX, where all major risks need to be properly controlled.
9. Supervisors ensure institutions have a robust operational risk management framework	Finansinspektionen will review the operational risk framework in 2007, and it will then be decided if the processes and controls are sufficient.
10. Supervisors conduct regular reviews	Finansinspektionen can perform a review at any point in time, since the Company should continuously follow up on operational risks. The ICAAP document is the basis for the review, and it should be updated at least annually. The ICAAP used in Sweden can be used in the other Nordic countries, since regulations across the Nordics are fairly similar.
11. Appropriate public disclosure is made	Since the corporation is listed in the U.S., all disclosures on risks will be made in the U.S. for the corporation. In Sweden the ICAAP is not to be disclosed publicly, only to the FI.

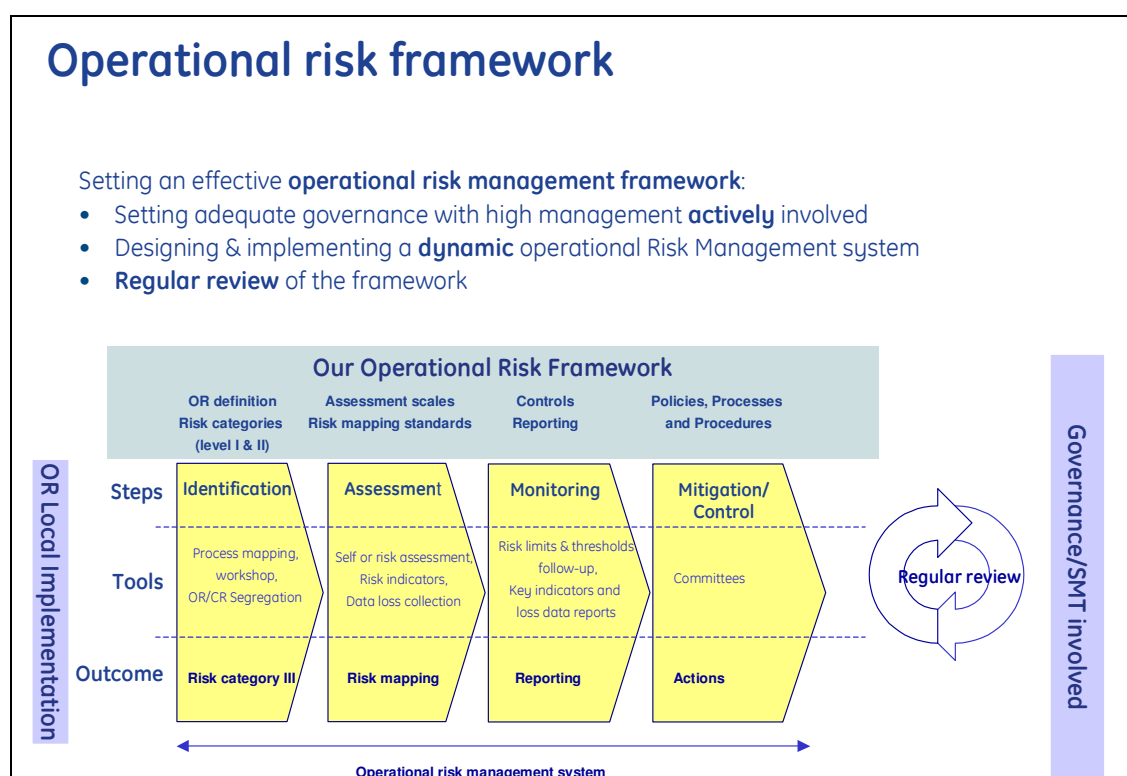
While the above steps served as the foundation for the process design, the Company choose to communicate the process as consisting of four logical steps:

- **Identification:** Firstly, the risk profile of the entity is to be defined and the operational risks in each of the Company's processes identified and quantified.
- **Assessment:** The risks identified are evaluated and compared against each other, and historical data collected to the extent possible. Also, indicators or warning signs are identified.
- **Monitoring:** Tracking of the operational losses, and continuously following the key indicators, part of ongoing activities.

- **Mitigation/Control:** All major risks are eliminated, or actively managed through a number of actions, which are ongoing activities and regularly reviewed.

Every employee in the Company was given at least one presentation of the scope of the Basel II project and informed of its purpose: *“The goal is to reduce losses, by identifying and taking actions to reducing operational risks which have a direct impact on the organization. Through regulatory review, the ambition is to see a reduction in the capital we need to carry, and by reducing it this Company will be more competitive.”*²⁸. The vision was to reduce the capital that had to be tied to operational risks in its entirety, meaning a reduction of between 15-20%.

The implementations started approximately 12 months before the regulations came into effect, in the beginning of 2006. After 7 months, the first three steps were completed, i.e. identification, assessment and monitoring, but not the mitigation/control.²⁹



4.3 Staffing, skill set and organisation - the Company's Basel II implementation team

In order to implement such a large project as Basel II, a company need to invest significant time and resources into the project. For the Company, with 300 employees, an overall operational risk leader was appointed at a Nordic level, responsible for leading the operational risk management mechanism. Four half time project leaders, so called project facilitators (the author's function in the project), were also appointed, each responsible for mapping and analysing the risks in 3-4 processes or functions. The facilitators role was to ensure that the Basel II framework was being followed, the tools and methods applied correctly and all functions and countries properly represented, and in order to do this in a consistent manner, training was provided by the French operational risk project leader (who had already completed the French process for operational risk working full time with

²⁸ Company internal presentation

²⁹ For full overview of project steps, see Appendix D

the project). The facilitators were responsible for the first step of the process of the project, i.e. identification of the risks and the assessment of the risks together with the appointed operational risk champions. The operational risk champions were managers leading the processes or functions covered by the Basel II project. Their role was to implement the agreed changes, and contribute to creating the right solution.

The table below details the typical position, background and profile of the persons involved.

	Typical position	Profile
Overall project leaders	Controller	Expert on controllership and regulations
Project facilitators	N/A	Project leaders, ability to communicate well and lead workshops
Operational Risk Champions	Managers leading a process or function	Experts in the process or functions, ability to enforce follow up on actions
Participants in workshops	Subject matter experts or managers	Experts in the sub-process, with long experience from working in the Company

The responsibility of the leaders, facilitators and champions are detailed in the table below.

Operational risk leader (and facilitators – F)	Operational risk champion
<ul style="list-style-type: none"> Monitoring the introduction of action plans decided by the Operational Risk Committee Producing the management report (mapping and indicators) Contact with the supervisory authorities on operational risk problems and with Senior Management for operational risk control activities co-ordination Calculation of the capital requirement related to operational risks Training and informing all personnel on operational risk matters (F) Identification, assessment and supervision of risks (F) Management of the identification and analysis mechanisms and production of a history of incidents and losses (risk base) (F) Contact with other internal control structures (quality, SOX 404, internal auditing, Corporate Audit Staff) (F) Definition of risk monitoring and control procedures (F) 	<ul style="list-style-type: none"> Leading the operational risk management mechanism Implementation and monitoring of the data sheet collection process Reporting on data sheet collection and monitoring the risks assessment Update the Risk Matrix every year Implementation of action plans and their follow-up by the dedicated functions Validation of the effectiveness of the risk mitigation system within the framework of operational risk reporting Attending monthly meetings with the Operational Risk Leader

4.4 Management system

4.4.1 Tools and methods used

As part of a very large corporation, many of the tools and processes were defined at group corporate level in order to standardise the work across the corporation, this to simplify the aggregation of the risks.

In order to identify, assess and develop ways to monitor and control the identified risks, the following steps were taken by the facilitators (including the author) for each process and function.

- **Review existing process maps:** The starting point was to look at the process mapping for the processes the facilitator was responsible for. Most of the processes were already mapped, since the Sarbanes-Oxley Act³⁰ (SOX) requires this. The project “Operational Risk” was to use all existing document sources, e.g. SOX, Internal audits or updated Quality documentation. Before each interview, all of this documentation had to be indexed and synthesized.
- **Interviews:** All process champions were interviewed, following a standard questionnaire (see Appendix A). If the process champion was not responsible for the entire process, or did not have in-depth knowledge of the whole process; a complementary interview was performed with the person in charge of the sub-process. The author interviewed a total of 8 people, two per process. Usually the interview took one hour, and was followed up with additional questions over email and telephone. Based on these interviews, participants for the Process Workshops were selected. These were usually key people within the organization, who had been with the organization long enough to have in-depth knowledge of the risks.
- **Preparatory meetings and mini workshops:** Preparatory workshops were arranged to prepare material for the Process Workshops, and to explain the content of the Basel II project more in detail to the participants. All Nordic countries were split between the facilitators (one country each). A meeting was scheduled with all participants for the Process Workshop. Some of the process leaders also conducted mini workshops with their entire team, in order to do a first mapping of risks, as a preparation for the cross company workshops. When process leaders themselves conducted mini workshops, this was just a preparatory step, and did not replace but simply complement the cross company workshops.
- **Process Workshop:** In order to conduct the workshop, and ensure adherence to the Basel II methodology, one of the facilitators served as Scribe (i.e. Secretary) and one as Facilitator (i.e. leading the workshop and ensuring it reached the set out goal). In each workshop there were between 8 and 16 participants. It was in the workshops the risks were identified and evaluated by all functions with insight into the process and risk. A consensus was reached on the frequency and severity of each risk during the workshop.

4.4.2 Systems used for evaluation and leadership involvement

The mapping and evaluation of the collected operational risks were done in Excel, in a standardised template. All risks were classified (see Appendix B for overview of system) into risk events, which were aggregated into seven categories³¹:

- **Internal Fraud:** Losses due to acts of a type intended to defraud, misappropriate property or circumvent regulations, the law or company policy, excluding diversity/discrimination events
- **External Fraud:** Losses due to acts of a type intended to defraud, misappropriate property or circumvent the law by a third party

³⁰ All US listed companies are obliged to follow the Sarbanes-Oxley Act, which came into effect after the Enron scandal. It requires a company to document its processes, with special focus on financial and IT processes.

³¹ The Company’s own risk categories, based on the Basel II standard categories in “Sound Practices for the Management and Supervision of Operational Risk”, (<http://www.bis.org/publ/bcbs96.pdf>)

- **Employment practices and workplace safety:** Losses arising from acts inconsistent with employment, health or safety laws or agreement from payment of personal injury claims, or from diversity/discrimination events
- **Clients, products & Business Practices:** Losses arising from an unintentional or negligent failure to meet a professional obligation to specific clients (including fiduciary and suitability requirements), or from the nature or design of a product
- **Damage to physical assets:** Losses arising from loss or damage to physical assets from natural disaster or other events.
- **Business disruption and system failures:** Losses arising from disruption of business systems failures.
- **Execution, delivery & process management:** Losses from failed transaction processing or process management, from relations with trade counterparties and vendors.

When risk had been categorised, they were graded, in a scale ranging from 1-6 (see Appendix E), both regarding the severity, e.g. the financial cost if the risk was to happen, and the frequency of the risk, e.g. how many times per year a risk is likely to occur. An average value was used to estimate the annual likely financial impact of the risk. This impact together with a more “soft” evaluation of the importance of the risk during the workshop served as the basis for selecting the top ten risks. Limiting the number of risks was an important decision, and it was decided that the organization would not be able to implement action for no more than ten risks per process during one year. Choosing too many would increase the risk for losing track of the most important risks. Since the process of selecting risks is an iterative process, all risks will be revised annually, and new workshops will evaluate whether new risks have emerged that are more severe than the old ones. The idea is that gradually the risks the organization is facing will become more and more insignificant.

All risks that had been identified were distributed to an owner, and all risks and actions presented to the management team. The ownership meant that one person was responsible for implementing an action in order to reduce or control the risk. Progress on these actions has become a regular topic during management meetings. Management focus has proven to be the most efficient way of keeping track of progress and making the organization not lose focus on the risk elimination actions.

4.5 Management system and reporting

The company has begun to report all risk incidents directly, using a newly developed tool on a company common portal. The criteria for when to report are simple, an event or incident should have occurred; it should be related to operational risk and likely to cause a loss. The loss can be both financial and indirectly financial, (image, process-disturbance, loss of income due to occurrence of an operational risk or costs related to lost business). Examples of incidents are mishaps, regrettable events, system failures, broken processes or attempts to fraud us.

The process when someone has identify anything that does not appear to be as it should and that could lead to a potential loss, staff are required to pass this on via their functional manager, which are required to report every incident they come across and answering a number of questions. As a start, each functional manager respectively shall handle this tool and report every month with deadline at the end of the month as well as when an incident occurs. Every incident that is reported is to be followed up by functional managers,

reported on a regular basis to the management team as well as all the way up to the Nordic board of directors: The frequency of these reports is less than monthly.

4.6 Deregulation of the company

The Company has since the Basel II project started decided to be deregulated in Sweden, meaning that the Company is no longer encompassed by the Basel II regulations. This decision was affected by the compliance burden from the Basel II regulations, but also from other regulatory demands and related costs. The investment and work efforts spent on implementing the credit risk framework has thus been wasted. However, the results from working actively with operational risks has been rewarding, and the Company has decided to continue working with operational risk elimination, in the spirit of Basel II, since it is believed it will pay off in lower operational losses.

5 Analysis and conclusions

5.1 Design choices

There is considerable freedom built into Basel II, and there are many choices to make when implementing the framework. Since the 7-S model has been chosen to look at the different aspects of the implementation process, the analysis is split into the seven areas, which the model is built around.

5.1.1 Shared values and institutional skills

Shared values and institutional skills serve as the basis for the implementation process. As could be observed, a shared vision or “simple, agreed upon principles that reflect what is important of the project” was created in the company through the scope and purpose of the project being presented in a simplified version to the entire company in a number of sessions across the Nordics led by the project leader. This process was repeated when the project facilitators again presented the project more in depth to each platform. Through full backup by top management it was clear to the entire company that Basel II was the single largest and most critical project in the company at the time. However, the ambition to create shared values in part failed, since it proved to be difficult to grasp the full implication of the project in its entirety for many people, since the communication in many ways was very simplified. It is believed however that those who actively participated in the workshops, i.e. one third of the company, grasped the principles underlying the project, but the remainder of the company is believed to have a weaker understanding of Basel II and its implications.

The Company is very used to driving change projects, and have a standardised skill set for driving both change and projects. However, many of the tools used in Basel II were new to the Company. Often the full understanding of the tools came after the actual work or part of the project had been performed. Especially when structuring the outcome of risk mapping sessions the results and analysis of the outcome improved, both with the number of workshops held by facilitators, and with an improved understanding of the processes and risk areas. It could thus be said that the company initially lacked the skills needed for many of the critical activities in the beginning of the project, but this improved over time. This mainly depended on the tight time frames given, as an example only one day was spent on making sure the facilitators involved were familiar with all tools used in the project, which proved to be insufficient. For the participants in the workshop, where one workshop lasted for only 5 hours, the time was also insufficient to properly understand all the tools and methods used, which often led to the outcome being somewhat inconsistent between the workshops. Also, due to lack of experience, many decisions were made which created extra work in the process. One example is that one functional workshop was split up into two workshops, due to people’s availability. This split made it difficult to choose the top ten risks for the process, since it was not possible to get a full and instant consensus view of the total risks collected through the two workshops. This created a lot of extra work when analysing the risks and comparing them, which then fell onto the process champion for the process who had only participated in one of the workshops. Not participating in a workshop also led to difficulties in understanding the exact meaning of an identified risk when following up and deciding on proper actions to control and/or eliminate the risk. For two other processes it was decided to have one workshop covering two processes, which created extra work when deciding on who was responsible for what

action, and also led to the time for analysing and defining the risks within the frame of the workshop being insufficient.

The conclusion is that in order to create a solid basis for the project, employees must understand the implications of Basel II and its importance for the company. It is believed that through working with the risks, while also choosing a robust method and keeping it unchanged between years, the knowledge and institutional skills will develop. However, making sure the method is well defined and suits the company and its operations is important, since it takes a lot of time to properly understand any model for larger companies. Changing measurement method leads to difficulties when comparing the level of operational risk between the years, meaning that up front investment in the model is worthwhile.

5.1.2 Leadership

Design choices affected by leadership style is firstly the choice of calculation method and secondly, the way of following up on actions to eliminate or control the risks. When leadership is lacking it means that very little effort will be spent into actual actions aiming at eliminating the risks.

The choice to use the advanced AMA method is believed to have been the right choice for the company. The two simpler basic methods being used to reserve for operational risk do not impact the actual organization, but simply use a standard ratio for banks of reserving for operational risk while the AMA means companies are actively working with risk management and leads to the right capital being allocated to cater for operational risk. However, despite the AMA being the right method, the degree of top management involvement was considered to be insufficient, given the large number of processes and the number of stakeholders being affected. Only one meeting per month was held, and Basel II was only one of many topics discussed. The choice to not delegate the responsibility for follow up on actions in affected the speed of progress on the work to eliminate and control the operational risks identified. With the recent appointment of a dedicated project leader working full time with Basel II, the ability to track and progress the activities has been ensured, and top management involvement has through this also been simplified.

5.1.3 Strategy

The design choice around strategy, or the "the integrated set of actions that set out the future direction", in this case mainly consisted of two choices – what processes to include in the project and the actual timeframe needed to analyse the risks and define the actions needed, and present them. Since these choices were based on regulatory rules, very little freedom existed around this design choice.

The length of implementing the first phase of the framework, to analyse the risks and quantify them, was originally set to be 7 months - this to be ready well before year-end 2006. In the end it took close to nine months to complete the first phase of the operational risk framework. The initially narrow time frame put some strain on the organization, while on the other hand serving as a motivator to complete the process before the regulatory deadline as of beginning of 2007.

The choice to include all the Nordic entities as well as all core processes and major supporting functions, correspond to the organizational and managerial structure. It was decided to not exclude any function, since it was hard to predict exactly where risks resided, especially as a project leader without previous knowledge of the Nordic organization. To include all processes was also important strategically in order to build consensus in the organization around where to invest in order to eliminate major risk areas, since risks in all

processes were compared against each other and prioritised. The choice to not spend time on defining actions for the many hundreds of risks identified, which did not rank among the top ten risks for each core process, was also important. Otherwise it would have been difficult to focus the efforts to where they mattered the most.

5.1.4 Organizational structure and staff

The design of the organizational structure and staffing of the project proved to be one of the most crucial choices.

In the initial structure, when beginning the project, there was one central project leader together with four facilitators. The separation geographically together with only working part-time with the implementation, led to co-ordination problems, especially when arranging the workshops. For some workshops only one facilitator instead of two could attend, which caused documentation to be inconsistent since new people were brought into the team on a once-off basis. It also led to a lot of extra time being spent on sorting out what the risk identified actually was referring to. If dedicated resources had been used, conflicting priorities and co-ordination problems could have been avoided and both speed and consistency would have improved with two full time facilitators instead of four part time. Also, the quality of the results from the workshops increased with the number of workshops held, so with dedicated resources the overall quality would have improved.

The choice to not use external consultants but for the drafting of the project plan, resulted in the costs for implementing the framework were kept low, and the follow up of the risks was simplified. However, the decision to train in-house facilitators instead of bringing in external consultants together with the time spent on methodology training being insufficient, consistency in the mapping of risks was not ensured.

The choice to use workshops resulted in very high line organisation involvement, and collecting the view of the whole organization worked very well for also creating a consensus around what the major risk areas were.

Another choice was of the “Company Risk Champions”. The quality and level of understanding of the processes differed across the group of Risk Champions, which was also affected by their respective level of interest. The upfront commitment initially given, especially when the Risk Champion could not control all aspects of a process, was sometimes hard to obtain. Being a Risk Champion for some processes involved project leadership, in order to implement the actions. Over time, it also proved to be difficult for the management team to in depth follow up the efforts of the Risk Champions. Instead, at a later stage, a full time project leader 100% dedicated to Basel II, replaced the idea of Risk Champions. This has proven to be an efficient route to avoid losing momentum due to the many conflicting strategic issues competing for attention from top management. With 30% of the company being directly involved, to create local ownership and to dedicate the necessary resources, a high degree of centralization is believed to enable the focus to be kept. Since Basel II is the responsibility of the board and management, it is necessary that one person has full insight and leads the implementation effort; otherwise it is difficult for management to keep focussed.

5.1.5 Management systems

Relatively few management systems were used or needed for implementing the operational risk framework, especially compared to the credit risk framework, which heavily depends on advanced calculation tools and systems. For operational risk, the mapping tool used was very basic and consisted of a simple Excel model which proved to be sufficient for its

purpose, at least given the size of the company. Due to standard software being used, it also became easier to distribute results in a cost-efficient way.

The Company chose to standardise as much as possible, when it came to classification and analysis of the risks, since the ability to aggregate risks across the company was to be made possible. However, when analysing the results it was obvious that the interpretation of the risks depended on person, for example when categorising the risks. More time should have been spent on understanding and defining the meaning of the risk categories, especially the level 2 interpretation (see Appendix B). However, it is believed that consistency will be ensured through the appointment of a dedicated project leader, whereby individual interpretation will be avoided.

The scoring models, which were used to evaluate the risks, also proved to be rather inexact and difficult to understand. The economic impact was difficult to estimate exactly, since very little documentation existed for historical risk, which contributed in part to the wrong ranking of the risks. With proper tracking of operational risks at point of occurrence, this can also be mitigated over time.

5.2 Main challenges in the implementation

In summary, the main challenges in implementing the Operational risk framework were the below points:

- Using part time facilitators instead of dedicated resources led to conflicting priorities and co-ordination problems
- The tools and material originally used was difficult to grasp and the scoring models were not refined enough. A revision might be needed, which potentially will lead to difficulties in when comparing risk levels between years
- The insignificant time dedicated to the project, from the “Risk Champions” not taking full responsibility for driving actions to time constraints when conducting workshops, made it difficult to drive actions aiming at eliminating the risks
- The size of the project, making it difficult for top managements to track the project

5.3 Direct benefits from going through the implementation process

As one third of the company actively participated in workshops, going through the implementation effort led to positive side effects such as improved understanding of all processes in the company. Reviewing and critically looking at the processes from a new angle, a risk angle, enabled a consensus view to be created in the organization on what the main risks were. This made it easier to implement the identified actions to eliminate or lower the risk while getting the right support and commitment from the organization.

The financial impact from Basel II is still difficult to judge, and so far it has mostly meant increasing the investment in risk management. The belief is that especially the level of fraud, at the moment estimated at \$ 5,000,000 annually, is believed significantly be reduced through the active work with eliminating operational risks.

6 Summary take away when implementing the operational risk framework of Basel II

For future implementations the below would be the main take away from the Company's implementation of the Basel II Operational risk framework:

- Use internal resources rather than consultants. The benefits from working with the processes and the buy in from the organization gained outweighs time constraints
- Seek to maximise number of full time staff in core team rather than a larger number of part time resources
- Do not forget to communicate need, aim and especially progress to entire company, e.g. through a common website
- Spend time up front agreeing on the implementation steps and the process splits. Make sure you have a full mapping of all processes before involving the organization, and communicate these processes. Make sure you have the right boundaries to the processes and a methodical approach when analysing the risks within the process
- Spend significant time up front with templates and project design, decide on what model to use and how it should be used, and also gain a consensus view on what the risk classifications stand for in the team
- Take the opportunity to improve operations rather than just compliance, then a reporting burden can be turned into a value creator for the company
- Support effort with simple tools, which do not need training, since many people are involved in the project
- Assign enough time when you assemble many people in the company, for example for workshops etc. Follow up with more than 10 people and making sure that you get to the right conclusions is time-consuming

7 Final remarks and further research

Corporate governance scandals such as for example Enron and Barings Bank, have fuelled many changes being implemented in both the corporate and financial markets. This thesis made a deep-dive into one company's Basel II implementation process. Basel II will in one way or another touch many people working in the finance industry. Its impact is far reaching, and its effects will change the way risks are managed and communicated going forward. Corporate governance is expected to become increasingly important, but any such far-reaching change comes at a price. There are significant costs related to this new way of working and it is today difficult to predict what results for example Basel II will deliver.

There are a number of interesting aspects related to capital requirements to be explored; such as the impact on the actual capital structure the new capital requirements will have on Swedish financial institutions. At a later stage it would be interesting to follow up if Basel II has had any impact on for example the product offering, the pricing of products and the competitive situation. Looking into what effects increased transparency around risk have on the market participants and how operational risk information is communicated are other interesting topics. A comparison of the total cost of implementing Basel II for market participants in combination with an understanding of whether the market feel Basel II is delivering the promised benefits would also be interesting to read.

Basel II is new ground, and little analysis has been done in this area which I am sure will change going forward. This is the frontline in risk management and what companies and supervising authorities are focusing on. I hope this thesis sparks the interest to explore the subject further.

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Interviews

2006-03-30 Temporary HR Manager

2006-03-30 Partner Support Leader

2006-04-07 Remarketing and Returns Leader

2006-04-07 Asset Manager

2006-04-07 Asset Specialist

2006-04-07 IT Leader

2006-04-24 Collections Leader Finland

2006-04-24 Operations Leader Finland

2006-04-24 Partner Support Associate

2006-05-03 Legal Associate

2006-05-03 Pricing Leader

2006-06-16 Collections Leader Nordic

2006-07-19 HR Manager

2006-07-14 IT Sarbanes-Oxley Compliance Leader

Appendix A - General Questionnaire

Identification of the risks related to the process analysis

Analysis of the conduct of the process: The aim is to identify risks related to the conduct of the process

Procedure:

1. Are there any written procedures relating to the activity? Are they exhaustive? Are they regularly updated? How often? In particular, are there any changes in regulations built into the procedures? Is someone in charge of taking these developments into account? Are they distributed/communicated? Where are they stored? From your point of view, are these procedures correctly applied?
2. Are the procedures shared with other departments? Which ones? Is the transfer of responsibility and information from one department to another properly provided for by the procedure and above all correctly applied?
3. What are the critical (particularly in terms of added value) and sensitive (particularly in terms of Group regulations or rules) tasks of the activity? Are they subject to particular attention in terms of control?

Volumes and staffing

1. Have employees been trained in the products or dossiers they are dealing with? Have they expressed the need for training? Are these needs listened to and satisfied?
2. What volume of transactions etc. do employees deal with every day/week/month? Are these volumes increasing compared with last year? Do employees have to carry out one-off tasks other than operational tasks? Has the reduction in working hours been accompanied by an increase in staffing? Is the current staffing adequate? Do you use fixed term contracts/temps/consultants (as what proportion of your staffing)?
3. Is the know-how of each activity mastered by at least two people in the department? Is there a back-up for critical tasks in the event of sickness or absence? Does the smooth running of the process depend on key resources to be protected?

Controls and errors

1. Is there a list of checks to be carried out for each activity? Are these checks formalised (signature, checked off)? Are these checks carried out routinely?
2. Is there a provision for routinely keeping the execution and validation of sensitive tasks separate and is it applied? Do computer application provide system logic control (request for confirmation before validation)?
3. What is the level of automation of the tasks? Do the various applications require personal authorisations? Have you already encountered any problems of inappropriate parameterisation or data integrity?
4. Are data regularly saved internally and off-site?

Analysis of the process context: The aim is to identify risks related to the process's external environment

1. What are the most critical points of dependence on other processes (quality of information received, inter-departmental communication, IT systems maintenance)? Is the activity dependent on an outside service provider (IT sub-contracting, form of consultants...)?
2. What events in the external environment render the process vulnerable (change in regulations)? Is there sufficient reactivity in relation to those constraints? Does the process have sufficient resources to confront external constraints and regulatory requirements (for example, does it have sufficient information to produce the declaration requested by the supervisory body)? Is there any risk of financial sanction in the event of failing to or delaying submitting a regulatory report?
3. Are there provisions of the business continuation plan known to employees? Do they have a copy of the business continuation plan at home/in the office?
4. Is the workplace safe? Are there safety rules known and adhered to (evacuation in the event of a fire...)?

Analysis of monitoring and guidance indicators used by personnel involved in the process: The aim is to make a list of the monitoring and guidance indicators introduced and used by the personnel involved, enabling risks, which have already been identified to be integrated into the process.

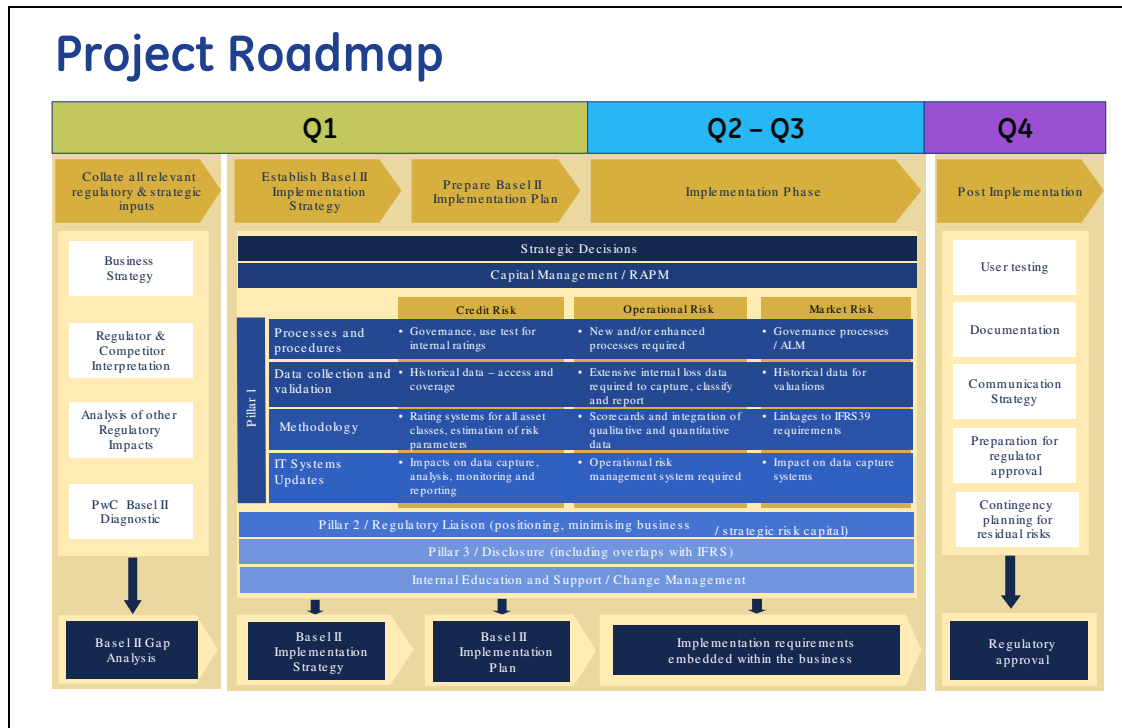
Appendix B – Risk categorisation

N°	Category (Level 1)	Sous-category (Level 2)	Risk event (Level 3) Examples provided by Basel To personalise
1	Internal Fraude	Unauthorized Activity	Transactions not reported (intentional)
2	Internal Fraude	Unauthorized Activity	Transactions type unauthorised (w/monetary loss)
3	Internal Fraude	Unauthorized Activity	Misrouting of position (intentional)
4	Internal Fraude	Theft and Fraud Internal	Fraude/ credit fraud/worthless deposits
5	Internal Fraude	Theft and Fraud Internal	Theft/ extortion/ embezzlement/robbery
6	Internal Fraude	Theft and Fraud Internal	Misappropriation of assets
7	Internal Fraude	Theft and Fraud Internal	Malicious destruction of assets
8	Internal Fraude	Theft and Fraud Internal	Forgery
9	Internal Fraude	Theft and Fraud Internal	Check kiting
10	Internal Fraude	Theft and Fraud Internal	Smuggling
11	Internal Fraude	Theft and Fraud Internal	Account take-over/impersonation/etc
12	Internal Fraude	Theft and Fraud Internal	Tax non-compliance/ evasion(willful)
13	Internal Fraude	Theft and Fraud Internal	Bribes/ kickbacks
14	Internal Fraude	Theft and Fraud Internal	Insider trading (not on firm's account)
15	External Fraude	Theft and Fraud External	Theft/ Robbery
16	External Fraude	Theft and Fraud External	Forgery
17	External Fraude	Theft and Fraud External	Check kiting
18	External Fraude	System Security	Hacking damage
19	External Fraude	System Security	Theft of information (w/monetary loss)
20	Employment practices and workplace safety	Employee Relations	Compensation, benefit, termination issues
21	Employment practices and workplace safety	Employee Relations	Organised labour activity
22	Employment practices and workplace safety	Safe Environment	General liability (slip and fall, etc)
23	Employment practices and workplace safety	Safe Environment	Employee health & safety rules events
24	Employment practices and workplace safety	Safe Environment	Workers compensation
25	Employment practices and workplace safety	Diversity & Discrimination	All discrimination types
26	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Fiduciary breaches/ guideline violations
27	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Suitability/ disclosure issues (KYC, etc)
28	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Retail customer disclosure violations
29	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Breach of privacy
30	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Aggressive sales
31	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Account churning
32	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Misuse of confidential information
33	Clients, products & Business Practices	Suitability, Disclosure & Fiduciary	Lender liability
34	Clients, products & Business Practices	Improper business or market practices	Antitrust
35	Clients, products & Business Practices	Improper business or market practices	Improper trade/market practices
36	Clients, products & Business Practices	Improper business or market practices	Market manipulation
37	Clients, products & Business Practices	Improper business or market practices	Insider trading (not on firm's account)
38	Clients, products & Business Practices	Improper business or market practices	Unlicensed activity
39	Clients, products & Business Practices	Improper business or market practices	Money laundering
40	Clients, products & Business Practices	Product flaws	Product defects (unauthorised, etc.)
41	Clients, products & Business Practices	Product flaws	Model errors
42	Clients, products & Business Practices	Selection, Sponsorship & Exposure	Failure to investigate client per guidelines
43	Clients, products & Business Practices	Selection, Sponsorship & Exposure	Exceeding client exposure limits
44	Clients, products & Business Practices	Advisory activities	Disputes over performance of advisory activities
45	Damage to physical assets	Disaster and other events	Natural disaster losses
46	Damage to physical assets	Disaster and other events	Human losses from external sources (terrorism, vandalism)
47	Business disruption and system failures	Systems	Hardware
48	Business disruption and system failures	Systems	Software
49	Business disruption and system failures	Systems	Telecommunications
50	Business disruption and system failures	Systems	Utility outage/disruptions
51	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Miscommunication
52	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Data entry, maintenance or loading error
53	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Missed deadline or responsibility
54	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Model/system misoperation
55	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Accounting error/entity attribution error
56	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Other task misperformance
57	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Delivery failure
58	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Collateral management failure
59	Execution, delivery & process management	Transaction Capture, Execution & Maintenance	Reference Data Maintenance

Appendix C – Steps taken for each risk identified

Year under review of the evaluation	Please choose the year under review of the evaluation event
Source of document	Please choose the origin of information
Risk event	<u>Initial assessment, without previously defined event list:</u> Identify possible operational faults at each stage of the process (possibility of using process mapping), by referring to levels 1 and 2 risk categories defined by Basle and drawing inspiration fr
Risk event description	Describe the event in detail
Cause	What are the causes of the fault?
Basel sub-category (level 2)	Associate the event to a level 2 Basel typology
Basel category (level 1)	Association to level 1 Basel typology (automatic)
Event applies to current process?	Does this risk event always apply to the analysed process?
Proven or potential loss?	Answer Proven if the losses associated with this risk have been identified Answer Potential if it is a potential risk
Collected loss	Indicate the amount of identified losses (Keuros)
Date collected loss	Indicate the date of identified losses
Event GROSS Frequency	How many times is the event repeated or could be repeated without the existing controls. Assess on a scale of “very low” to “very high” (see “scales” tab).
Event GROSS Severity	What is the potential/proven financial impact without controls? Assess on a scale of “very low” to “very high” (see “scales” tab).
Controls	What are the existing controls and procedures that prevent the cause or failure mode?
Event NET frequency	How many times is the event repeated or could be repeated, taking into account the existing control environment. Assess on a scale of “very low” to “very high” (see “scales” tab). This new mark enables the efficiency of the control to be assessed
Event NET Severity	What is the potential/proven financial impact taking into account the existing control environment? Assess on a scale of “very low” to “very high” (see “scales” tab)
Risk Indicators	What indicators enable/would faults to be detected?
Assesser commentary	Give any useful information to support this assessment, e.g. specify the procedure (based on indicators or historical data...), actions which could reduce the frequency and severity of the risk
Approval	Indicate whether the assessment is approved or not
Approver commentary	Indicate the reasons why the assessment is not approved (lack of data, new risk event, ...)

Appendix D - Project Roadmap



Appendix E – Measurement system

Impact	Scale	Description	Financial Impacts
Very high (6)	6	- Immediate financial impact, cost of resumption of an activity or loss of opportunity representing more than 1,000,000 € - Ban on conducting an activity, threat to the continuity of activities	> 1 000 000 €
High (5)	5	- Direct financial impact, cost of resumption of an activity or loss of opportunity between 100,000 € and 1,000,000 €- - Business interrupted for a long period	Between 100 000 € & 1 000 000 €
Fairly high (4)	4	- Direct financial impact, cost of resumption of an activity or loss of opportunity between 10,000 € and 100,000 €- - Temporary interruption of the activity	Between 10 000 € & 100 000 €
Moderate (3)	3	- Direct financial impact, cost of resumption of an activity or loss of opportunity between 3,000 € and 10,000 € - Low impact in terms of continuity of the activity	Between 3 000€ & 10 000 €
Low (2)	2	- Direct financial impact, cost of resumption of an activity or loss of opportunity between 1,500 € and 3,000 €	Between 1 500€ & 3 000 €
Very low (1)	1	- Direct financial impact, cost of resumption of an activity less than 1,500 €	< 1 500 €

Impact	Scale	No. of occurrences over 1 year	Description
Very high (6)	6	365 and over	Occurs during the working day
High (5)	5	52 to 365	May occur during the week
Fairly high (4)	4	12 to 52	May occur at end of month
Moderate (3)	3	1 to 12	May occur during the year
Low (2)	2	0,2 to 1	May occur in the next five years
Very low (1)	1	< 0,2	Less than once every five years