Risk Management at the Strategic and Operational Levels of Swiss Banks: Current Status and Lessons Learned from the Subprime Crisis

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and

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St Gallen, October 29, 2012

The President:

Prof. Dr. Thomas Bieger
To my parents
Acknowledgements

I would like to express my gratitude to my supervisors Prof. Dr. Roland Müller and Prof. Dr. Martin Hilb for providing me with this special opportunity and supporting my academic development. Without their advice, expert guidance, and patience completion of this thesis would not be possible.

Above all, I am truly grateful to my parents, Milan and Milka Oblakovic, people who inspired me the most. Love, support, and encouragement of my parents and my sister Ana are invaluable.

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Thank you all for making this exciting and fulfilling journey possible.

January 2013

Goran Oblakovic
Abstract

Risks management became a highly discussed topic in recent years, as news about numerous bank failures and bailouts keep dominating the media. Although banks and insurance companies have always been leaders in implementation of the most extensive and efficient risk management models, numerous weaknesses of risk management were exposed during the subprime crisis. Regulatory changes have been the main driver and influence on risk management practices ever since.

This study reviews theories and models on operational and strategic risk management, as well as the main frameworks and regulations on risk management. The study focused on all Swiss banks and the results were conclusive that risk management in Swiss banks changed significantly since the crisis. Banks implemented significant structural changes - which were different based on the size and activity of a bank - while behavioral changes seem to be taking longer.

The evidence shows that Corporate Risk Management (CRM) is becoming more holistic, more independent, less dependent on models and more integrated since the crisis. The study confirms that there is a clear shift from CRM by numbers to holistic CRM. That is obvious as banks of all sizes are considering all risks (including non-quantifiable risks), and adopting a more systematic and strategic view of risks.

The results indicate that a fully integrated model of Corporate Risk Management, which includes integration with corporate governance and other dimension, has been implemented in the biggest banks. The study concludes that risk management is becoming an integral part of strategy formulation. Finally, how to implement a risk management culture remain to be the most significant issue, but also the most significant improvement opportunity in the field of risk management.


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<table>
<thead>
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<th>Acronym</th>
<th>Full Form</th>
</tr>
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<tbody>
<tr>
<td>AC</td>
<td>Audit Committee</td>
</tr>
<tr>
<td>AIG</td>
<td>American International Group, Inc.</td>
</tr>
<tr>
<td>AIRMIC</td>
<td>Association of Insurance and Risk Managers in Industry and Commerce</td>
</tr>
<tr>
<td>Art.</td>
<td>Article</td>
</tr>
<tr>
<td>AS/NZS</td>
<td>Joint Australian/New Zealand Standard</td>
</tr>
<tr>
<td>BBO</td>
<td>Bank Bankruptcy Ordinance</td>
</tr>
<tr>
<td>BC</td>
<td>Before Christ</td>
</tr>
<tr>
<td>BHC</td>
<td>Bank Holding Companies</td>
</tr>
<tr>
<td>BIS</td>
<td>Bank for International Settlements</td>
</tr>
<tr>
<td>BoD</td>
<td>Board of Directors</td>
</tr>
<tr>
<td>BoFRS</td>
<td>Board of Governors of the Federal Reserve System</td>
</tr>
<tr>
<td>BTOF</td>
<td>Behavioral Theory of the Firm</td>
</tr>
<tr>
<td>CAN/CSA</td>
<td>Canada/Canadian Standard Association</td>
</tr>
<tr>
<td>CAO</td>
<td>Capital Adequacy Ordinance</td>
</tr>
<tr>
<td>CCEPP</td>
<td>Cambridge Center for Economic and Public Policy</td>
</tr>
<tr>
<td>CDO</td>
<td>Collateralized Debt Obligations</td>
</tr>
<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
</tr>
<tr>
<td>CFO</td>
<td>Chief Financial Officer</td>
</tr>
<tr>
<td>CHF</td>
<td>Swiss Franks</td>
</tr>
<tr>
<td>Citi</td>
<td>Citi Group</td>
</tr>
<tr>
<td>CG</td>
<td>Corporate Governance</td>
</tr>
<tr>
<td>CO</td>
<td>Swiss Code of Obligations</td>
</tr>
<tr>
<td>CoCo</td>
<td>Criteria of Control model</td>
</tr>
<tr>
<td>COO</td>
<td>Chief Operating Officer</td>
</tr>
<tr>
<td>CORO</td>
<td>Chief Operating Risk Officer</td>
</tr>
<tr>
<td>COSO</td>
<td>Committee of Sponsoring Organizations of the Treadway Commission</td>
</tr>
<tr>
<td>CRO</td>
<td>Chief Risk Officer</td>
</tr>
<tr>
<td>CRM</td>
<td>Corporate Risk Management</td>
</tr>
<tr>
<td>CS</td>
<td>Credit Suisse</td>
</tr>
<tr>
<td>CSG</td>
<td>Credit Suisse Group</td>
</tr>
<tr>
<td>EAD</td>
<td>Exposure at Default</td>
</tr>
<tr>
<td>EaR</td>
<td>Earnings-at-Risk</td>
</tr>
<tr>
<td>EBITDA</td>
<td>Earnings Before Income, Taxes, Depreciation, and Amortization</td>
</tr>
<tr>
<td>ECIIA</td>
<td>European Confederation of Institutes of Internal Auditors</td>
</tr>
<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>--------------</td>
<td>-----------</td>
</tr>
<tr>
<td>LCBO</td>
<td>Large Complex Banking Organization</td>
</tr>
<tr>
<td>LCR</td>
<td>Liquidity Coverage Ratio</td>
</tr>
<tr>
<td>LDC</td>
<td>Less Developed Countries</td>
</tr>
<tr>
<td>LGD</td>
<td>Loss Given Default</td>
</tr>
<tr>
<td>MiFID</td>
<td>Markets in Financial Instruments Directive</td>
</tr>
<tr>
<td>MRC</td>
<td>Market Risk Control</td>
</tr>
<tr>
<td>MVV</td>
<td>Mission, Values, and Vision</td>
</tr>
<tr>
<td>n</td>
<td>Number (in a portion of a sample)</td>
</tr>
<tr>
<td>NASDAQ</td>
<td>NASDAQ Stock Market</td>
</tr>
<tr>
<td>NC</td>
<td>North Carolina</td>
</tr>
<tr>
<td>NCG</td>
<td>New Corporate Governance</td>
</tr>
<tr>
<td>NSFR</td>
<td>Net Stable Funding Ratio</td>
</tr>
<tr>
<td>NPR</td>
<td>Notice of Proposed Rulemaking</td>
</tr>
<tr>
<td>NYSE</td>
<td>New York Stock Exchange</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
</tr>
<tr>
<td>OFHEO</td>
<td>Office of Federal Housing Enterprise Oversight</td>
</tr>
<tr>
<td>OR</td>
<td>Swiss Code of Obligations</td>
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<tr>
<td>p.</td>
<td>Page</td>
</tr>
<tr>
<td>Par.</td>
<td>Paragraph</td>
</tr>
<tr>
<td>PCAOB</td>
<td>Public Company Accounting Oversight Board</td>
</tr>
<tr>
<td>PD</td>
<td>Probability of Default</td>
</tr>
<tr>
<td>PhD</td>
<td>Doctor of Philosophy</td>
</tr>
<tr>
<td>PMI</td>
<td>Project Management Institute</td>
</tr>
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<td>pp.</td>
<td>Pages</td>
</tr>
<tr>
<td>PwC</td>
<td>PricewaterhouseCoopers</td>
</tr>
<tr>
<td>RBS</td>
<td>Royal Bank of Scotland</td>
</tr>
<tr>
<td>RMC</td>
<td>Risk Management Committee</td>
</tr>
<tr>
<td>RPN</td>
<td>Risk Priority Number</td>
</tr>
<tr>
<td>RWA</td>
<td>Risk weighted assets</td>
</tr>
<tr>
<td>SBA</td>
<td>Swiss Bankers Association</td>
</tr>
<tr>
<td>Sec.</td>
<td>Section</td>
</tr>
<tr>
<td>SEC</td>
<td>Securities and Exchange Commission</td>
</tr>
<tr>
<td>SECO</td>
<td>State Secretariat for Economic Affairs</td>
</tr>
<tr>
<td>SESTA</td>
<td>Exchange and Securities Trading Act</td>
</tr>
<tr>
<td>SESTO</td>
<td>Exchange and Securities Trading Ordinance</td>
</tr>
</tbody>
</table>
PART ONE: INTRODUCTION

I. PROBLEM ANALYSIS

A. Relevance

In recent years, much has been written about the subprime crisis and its aftermath. The actual losses resulting from the crisis might never be known, but the available estimates are startling. For example, the International Monetary Fund (IMF) estimated total global write-downs to be around $3.4 trillion\(^1\) or 45 percent\(^2\) of world’s wealth. As of early 2012, even more concerning was a realization that the financial market stabilization will take longer than previously envisioned, even though strong efforts were made by many policymakers.\(^3\) Frequently, banking crises are followed by currency and sovereign debt crisis, and that seems to be a present case.\(^4\) Table 1: Write-downs vs. capital infusions in banks illustrates the staggering effects\(^5\) of the crisis on different financial groups, including Swiss ones (please see the following page).

Although there are 312 banks\(^6\) operating in Switzerland as of 2011, the two largest, UBS and Credit Suisse, hold more than 52 percent\(^7\) of total assets; therefore, losses realized by these two banks alone were enough to affect the industry.\(^8\) Subsequently, immediately after banks became illiquid and insolvent, the crisis spilled over to other sectors and most economies in the world.\(^9\) Value destruction in Switzerland was quite significant and economic growth was hampered. “The State Secretariat for Economic Affairs (SECO) reported a moderate GDP growth of 1.8% for 2008, but the

---

\(^1\) International Monetary Fund [IMF] (2009a:5).

\(^2\) Davies & Siew (2009).

\(^3\) Global prospects suffered major setbacks in 2011, and further volatility in the financial sector is a result of the subsequent euro area crisis (IMF, 2012:xv). The more prominent policies include: monetary easing, fiscal stimulus, direct support to financial sector, and special housing markets initiative (Crowe, Dell’Ariccia, Igan, & Rabanal, 2012:5).

\(^4\) See Laeven & Valencia (2012:12) and Reinhart & Rogoff (2011).

\(^5\) Citi Inc., the bank that took the most US government aid during the crisis, was among four banks that failed the stress test performed in March 2012; hence, illustrating the full recovery under new stricter rules is still not achieved as of 2012 (Torres, Hopkins, & Katz, 2012).

\(^6\) Swiss Bankers Association [SBA] (2012:3). There were 325 banks operating in Switzerland in 2009, and the two largest held more than 54 percent of total assets.

\(^7\) SBA (2010:3).

\(^8\) The financial sector accounts for almost 11% of value added in Switzerland. (SBA, 2010:2). Surprisingly, Swiss state owned banks performed better during the crisis (Dietrich & Wanzenried, 2011:307).

\(^9\) Emerging and developing economies were least impacted and they continued to grow at the slower pace than previously envisioned (IMF, 2008:1). Many of those financial markets, for instance Chinese, were not fully liberalized during the crisis (and they are still not), so effects of the financial crisis were far less severe and economies were not affected as much as the western ones.
development in certain industries turned negative especially from the third quarter on. In 2009 the overall economy caved in and the GDP contracted by 1.5%, marking the most severe annual decline since 1975. Notably, the export trade, which is of great importance to the Swiss national economy, was hard hit and exports fell by 12.6% in 2009.10

Table 1: Write-downs vs. Capital Infusions in Banks

<table>
<thead>
<tr>
<th>Bank</th>
<th>Total write-downs and losses</th>
<th>Total capital raised</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citi</td>
<td>40.8</td>
<td>44.1</td>
</tr>
<tr>
<td>UBS</td>
<td>38.1</td>
<td>27.7</td>
</tr>
<tr>
<td>Merrill Lynch</td>
<td>31.7</td>
<td>16.1</td>
</tr>
<tr>
<td>AIG</td>
<td>20</td>
<td>12.5</td>
</tr>
<tr>
<td>Bank of America</td>
<td>14.9</td>
<td>17</td>
</tr>
<tr>
<td>RBS</td>
<td>14.7</td>
<td>23.7</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>12.6</td>
<td>5</td>
</tr>
<tr>
<td>HSBC</td>
<td>12.5</td>
<td>2.2</td>
</tr>
<tr>
<td>JPMorgan</td>
<td>9.8</td>
<td>7.8</td>
</tr>
<tr>
<td>Credit Suisse</td>
<td>9.6</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Source: Guerrera & White (2008:1)

From the beginning of the crisis academics, practitioners, and media quickly started digesting all of the possible reasons that led to the crisis. Somewhat surprisingly, a failure of risk management11 and corporate governance12 in banks were among the top picks on most lists. In fact, numerous weaknesses of enterprise risk management used in banks around the world were exposed; needless to say the same transpired in Swiss banks. This is surprising because many companies focused on risk management in the last decade. At the turn of the century, numerous corporate crises (Enron, WorldCom, etc.) and catastrophes (natural disasters, terrorist attacks) triggered the revival of risk management and the birth of Corporate Risk Management (CRM).13

10 SBA (2010:2).
11 Mikes (2010:72); Davis (2009:2); Beasley, Branson & Hancock (2010); The Senior Supervisors Group [SSG] (2008:1); etc.
12 OECD (2010); Kirckpatrick (2009).
13 Also known as Enterprise Risk Management (ERM) in various literature. This researcher choose CRM designation to stress importance of the next step in risk management evolution, which including all dimensions of risk management including corporate governance and internal controls. Necessity to distinguish a new phase of risk management with new terminology is documented in literature, yet all attempts to define a new phase are sporadic at
B. Practical Background

Banks and insurance companies were pioneers in the CRM implementation. Companies in the financial service industry spent the most resources on implementation and developed some of the most comprehensive CRM systems available to date. However, although enterprise wide risk management was highly adopted in the industry, banks suffered hundreds of millions in losses during 2007-2008, “stemming from risks that few executives understood.”

This sentiment, conveying the lack of understanding, is wide spread among professionals in the financial industry, as established through numerous articles in practitioner oriented journals and reports issued by professional risk associations. For instance the 2009 survey by the Economist Intelligence Unit (EIU) highlights several areas of weakness in risk management: complacency in institutions’ internal culture, lack of joined-up risk management across business units, lack of transparency, and inadequate methods and levels of data management and assessment.

Similarly, the Senior Supervisors Group (SSG) noted that the major 11 banks failed to anticipate the severity of the crisis. The SSG further reported some differences among banks depending on the senior management and risk management structures, but general lessons are as follows:

- For the most part companies did not understand the inherent risk associated with structured financial instruments (i.e. collateralized debt obligations (CDOs)), and failed to take appropriate steps to control and mitigate those risks.
- Mainly there was lack of understanding and inadequate control over the growth of off-balance-sheet vehicles and liquidity needs.
- Institutions that avoided these problems employed the more comprehensive and adaptive risk management processes that relied on the faster reaction time to reflect on changing circumstances. In such institutions the management employed a wider range of measures to gather different perspectives on the same risks, and engaged in more ef-

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14 Mikes (2010:75).
15 The survey drew 334 participants from the financial service industry (Davis, 2009:2).
16 Davis (2009:2-3).
17 The seven supervisory agencies participating in this project are the French Banking Commission, the German Federal Financial Supervisory Authority, the Swiss Federal Banking Commission, the U.K. Financial Services Authority, and, in the United States, the Office of the Comptroller of the Currency, the Securities and Exchange Commission, and the Federal Reserve.
18 SSG (2008:1).
19 Also see Pirson (2011:460).
20 The tools, processes, and measures were not adjusted to reflect new circumstances (SSG, 2008:14-16).
effective dialogue\textsuperscript{21} across the management team, and between senior management, business segments and boards.

- Companies with more comprehensive and coordinated approaches to enterprise risk management had more proactive control of off-balance sheet instruments and proved to be more successful in managing capital and liquidity. Treasury and internal control functions were more closely aligned with risk management processes.

The group additionally emphasized vast differences in the risk management approaches, particularly in the design and scope of assessment, control, and reporting practices. Likewise, the 2009 COSO report “Strengthening Enterprise Risk Management for Strategic Advantage” advocates enhancement of board oversight activities for better understanding of risk management practices, especially the strategic ones.\textsuperscript{22}

Needless to say, the Swiss banking industry was facing some serious problems. Federal Government and the Swiss National Bank (SNB) jointly worked out a set of measures, which included the urgent bail-out for UBS, which was “too-big-to-fail”. In December 2008, an urgency bill was passed to increase investor protection. Two key measures were taken to support UBS: the bank’s capital base was strengthened with CHF 6 billion, and illiquid assets of USD 38.7 billion were transferred to a special-purpose entity of the SNB\textsuperscript{23} (\textit{SNB StabFund}).\textsuperscript{24}

These examples clearly illustrate that the main challenges are in the strategic risk management, although the vast majority of improvement efforts were directed towards the operational aspects of risk management. There are countless other reports that could be used to further illustrate the sentiment among practitioners, but even more convincing are the actions conducted by financial institutions in a response to the crisis.\textsuperscript{25}

\textsuperscript{21} Many boards did not have access to relevant information (Pirson, 2011:460).
\textsuperscript{22} COSO (2009:1).
\textsuperscript{23} In August 2009, the Federal Government was able to sell its stake in UBS at a gain of CHF 1.2 billion (SBA, 2009:7).
\textsuperscript{24} SBA (2009:6).
\textsuperscript{25} It is worth noting that for years many institutional investors like a large pension and mutual funds have become more vocal about the need for improvement of corporate governance and CRM. Such funds are willing to pay a premium for stock issued by the CRM conscious organizations. Also, security rating agencies like Moody’s or Standard and Poor’s (S&P) continue to put more weight on an CRM system when rating companies; therefore in effect relating a firm’s value to the level of CRM implementation.
The major Swiss bank UBS quickly recognized the limitations of the risk management process in 2008 Shareholders Report on UBS’s write-downs, stating “incomplete capture of risk attributes by risk control.” In the same report UBS recognizes significance failure of governance, risk management and risk controls, risk controls, and compensation structure. UBS promptly turned their attention to redesigning the CRM process with a goal of preventing similar failures in the future.

Most of the banks around the world were facing comparable deficiencies in risk management and similarly implemented various changes. The 2010 report by EIU indicated that many financial service institutions have “reappraised their corporate governance structures, risk functions, data, information systems, business processes and procedures, and risk management now occupies a far more central position within financial services organizations across the industry.” The same report further indicates that the focus on improving the risk management process is still mainly at operational levels (54 percent), but closely followed by improvements on strategic levels (51 percent).

Somewhat regrettably, even after the crisis, the focus continues to be on the operational risk management. It is worth noting that operational focus gained such a prominent role mainly due to regulatory efforts (i.e. Basel I and II), yet it is especially concerning that the trend continues.

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26 UBS (2008a:31).
27 That manifested through failure to demand holistic risk management, failure to implement strategy, and failure to manage agenda (UBS, 2008a).
28 That included lack or risk management expertise, lack of front desk limits, failure to respond to wider industry concerns, lack of fundamental analysis, etc. (UBS, 2008a:37-38).
29 Explicitly asymmetric risk/reward compensation and insufficient incentives to protect UBS franchise long-term (UBS, 2008a:42).
30 More on these changes in later sections, but it’s worth noting that “in order to address weaknesses identified in its risk management and control organization, UBS launched an extensive remediation plan which included: the overhaul of its risk governance; significant changes to risk management and control personnel; and improvements in risk capture, risk representation and risk monitoring” (UBS, 2009:118).
31 EIU (2010:2).
32 EIU (2010:7).
33 It is worth nothing that numerous practitioners and practically oriented journals embraced a more narrow focus, usually on a single aspect of operational risk management. For instance Charles Beach, regulation and compliance partner at PricewaterhouseCoopers, focuses on reporting and claims that: “Risk reports provided to the board and senior management need to be capable of focusing on the firm’s current key risk issues rather than providing a torrent of data that cannot be realistically digested and used as a basis for effective decision-making” (EIU, 2009:9). Over 60 percent of institutions report they have a risk management strategy that is updated on a regular basis, but less that 47 percent report they are effective at providing timely and relevant risk reports to the boards (EIU, 2009:6). Presented statistics indicate that transparency in risk management is lacking, what some practitioners perceive as potentially one of the biggest remaining challenges (Grody & Hughes, 2008; Martin, 2009; etc.).
34 Basel regulations will be discussed in more detail in subsequent sections.
The growth of risk management was further fuelled with recognition that one of the biggest losers of the subprime crisis, Citigroup, had ineffective risk oversight, while Merrill Lynch had no Chief Risk Officer (CRO). Massive USD 2 billion trading losses, by UBS in 2011, and JP Morgan in 2012, only emphasized deficiencies in risk management and a need for further advancements.

C. Theoretical Background

The corporate risk management is a very recent oversight process in business and an exceedingly immature theoretical field. Academic research of risk management followed the same development cycle as the practice, and explored the business environment that “experienced an unprecedented series of issues, surprises, and negative events that have increased the focus on the adequacy of organizations' governance, risk, and control activities.” The rapid growth of the CRM research transpired in two phases, originally at the turn of the century (see Figure 1: Articles Referencing ERM and CROs on the next page) and recently in the aftermath of the subprime crisis, as a reaction to the failure of risk management and more generally a failure of corporate governance. Academics “are pointing to failures in the overall risk oversight processes, including unaware boards, overreliance on sophisticated models, and under reliance on sound judgment.”

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36 Finch, Martinuzzi & Moshinsky (2012).
37 Keoun (2012).
38 The 2011 survey conducted in cooperation by AICPA and NC State University indicates that 48.2% of 455 respondents describe the sophistication of their risk oversight processes as “very immature” to “developing” (Beasley, Branson & Hancock, 2011:5).
39 Mikes (2009:19) states “we know little on how enterprise risk management works in action.”
41 Yet, only a limited number of published articles in the last ten years are purely academic ones, i.e. focusing on statistically testing one or more academically motivated hypothesis and being supported by empirical data. Even more shocking is that only small percentage of the existing research is motivated by earlier studies of risk management (Iyer, Rogers & Simkins, 2010:420).
42 Power (2004) postulates that any performance measurement process (including CRM) is a cyclical recursive process that only intensifies in the face of crisis. The same author also warns against overexpansion, as such expansion is “at best ambivalent and at worst dysfunctional” (Power, 2004:771).
Other sources of knowledge include practitioners, regulators, and the most notably emerging risk management organizations. These “meta organizations” have unprecedented influence on the field of risk management; their guidelines along with regulations are the major driving force behind the development of a risk management body of knowledge. With the abundance of emerging literature on CRM, the biggest remaining challenge is aligning and making sense of all these developments.

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44 In their work Lieberger & Hoyt use the term “Enterprise Risk Management (ERM)”; hence, terminology is in its original form.

45 Since risk gained a worldwide recognition, numerous organizations have been created at the “world level” to “provide coordination and direction for risk managers”, such as the Basel Committee on Banking Supervision, COSO, etc. These organizations “…provide collective guidance and standards for the management of risk”, and act as “new arenas for the production for risk management knowledge and have managed to acquire de facto world status”. The most influential are usually meta-organizations, composed of members of other organizations, which usually come from diverse backgrounds and include policy makers, academics, practitioners, politicians, etc. (Scheytt, Soin, Sahlin-Andersson & Power, 2006:1332). Consequently, it is not surprising that these established guidelines of risk management are the basis for most regulations in the field, i.e. the recommendations of COSO are used in the US as key components of the Securities and Exchange Commission (SEC) regulations. The same influence is exerted on the academic field.

46 Among the more recognized frameworks developed by the professional organizations are: the Joint Australian/New Zealand Standard for Risk Management (AZ/NZS), the Committee of Sponsoring Organizations of the Treadway Commission (COSO) framework, the Cadbury report in the United Kingdom, the Group of Thirty report in the United States, the Criteria of Control model (CoCo) report developed by the Canadian Institute of Chartered Accountants, the International Standards Organization’s (ISO) 31000 Risk Management-Principles and Guidelines, and so forth. Major regulatory influences include the New York Stock Exchange (NYSE) listing standards, the Sarbanes-Oxley Act of 2002, Swiss Code of Obligations (CO), just to name the few. Depending on jurisdiction case laws are influential as well, i.e. in the U.S., interpretation of the recent Delaware Case laws on fiduciary duties of the Boards also changed the course of CRM development. A review is presented in the second part of this thesis.
While the literature indicates that majority of the published academic studies on CRM cover a wide variety of topics,\(^{47}\) the general message that CRM should be improved in the wake of crisis is well established. At the same time the direction of the efforts is dependent on the way the crisis is interpreted, how blame is assigned, and how remedies are conceptualized. For instance, when considering what went wrong during the crisis at the decision process level, Alessandri (2008)\(^{48}\) says it is insufficiencies in monitoring and controls of the decision process.\(^{48}\) Naturally, several broad themes and conflicts in the risk management literature can be identified.

The relatively recent literature recognizes the conception of two alternative risk models: “one driven by strong shareholders value (RM by the numbers\(^ {49}\)), and other corresponding to the risk-based internal control imperative (holistic CRM\(^ {50}\)).”\(^ {51}\) Prior to crisis RM by the numbers was a more popular approach, and overwhelming support for this model is rooted in numerous accounting/audit centric regulations,\(^ {52}\) i.e. SOX in the US,\(^ {53}\) Law on Financial Security (LAS) in France, etc. Proponents of the stream argue that their approach “…builds on established audit methodologies by combining governance and risk management principles.”\(^ {54}\) Although this perspective might be accepta-

\(^{47}\) Topics such as: what is CRM, measurement of CRM implementation across industries, the major implementation factors, determinants of CRM, the effect of CRM implementation on business market values, and the interaction of CRM on the overall business objectives (Iyer et al., 2010:421).

\(^{48}\) The author chose to utilize “one of the most prevalent theoretical perspectives in the risk literature”, the behavioral theory of the firm (BTOF), to show that the decision process is largely influenced by the perception of risk (Also see Wiseman & Bromiley, 2011; Greve, 2003a; Greve, 2003b; Miller & Bromiley, 1990), so that increases in perceived risk result in increasing levels of procedural rationality. More importantly for this thesis is the opposite, stating that in times of prosperity, when excess resources or financial resources exist, managers place less emphasis on information gathering and analysis, which usually leads to more lax controls and monitoring, and more slack (both absorbed and potential). As a response, Alessandri proposes advocating for more diligence in monitoring and controls of the decision process. This thesis aims to make a contribution exactly on the last argument and build on the internal controls aspect of risk management. NOTE: To avoid oversimplification of Alessandri’s research, it is worth noting that Alessandri extended behavioral theory to include the decision process, and showed that several variances of these general premises exist under specific conditions; nevertheless, the author’s findings are consistent with the BTOF research stream (see Argote & H. R. Greve, 2007; March & Shapira, 1987; etc).

\(^{49}\) This approach is very influenced by auditing and compliance, so often it’s called “auditing/compliance approach” to risk management.

\(^{50}\) This model is usually characterized by independence of other functions, it integrates all risk dimensions, views risk as centralized function, etc. More on this in later sections.

\(^{51}\) Mikes (2009:18).

\(^{52}\) Somewhat unfortunately, the COSO ERM framework came out at the same time as SOX. Most companies were overwhelmed with the SOX implementation, and due to limited resources placed very little attention to the COSO ERM framework. The SOX did not require or even address ERM, and more significance was given to the COSO Internal Control Framework that is completely different framework (Frigo & Anderson, 2011:82). Hence, in many companies implementation of internal controls and SOX suddenly became a substitution or possibly even an equivalent to ERM implementation.

\(^{53}\) Section 404 requires management to take ownership of internal control over financial reporting.

\(^{54}\) Ziegenfuss (2008:92).
ble for other industries it should not be applied to banking, for several reasons. Many companies are swamped with responsibilities introduced by the Sarbanes-Oxley (SOX) and other legislations; therefore, they adopt check-the-box mentality and apply SOX section 404 as a one-time project, instead of as an ongoing practice. “For example, in Europe, and particularly in France, internal control failures severely impacted Airbus Industrie in 2006 and Societe Generale particularly because internal controls and overall risk management were treated as a one-time projects. Even worst, in many cases auditors are implementing only internal controls without risk management, but we know that effective ICS without risk management is not possible. Further, the effectiveness of audit based risk management is elusive, as auditors are historically willing to give an opinion on management processes, but remain hesitant about reporting on internal controls and risk management due to liability concerns. Finally, there is an obvious conflict of interest if an auditing department is responsible for designing, implementation, and control of all reporting and most of the company. On the other hand, the benefits of the independent risk management (holistic CRM) function headed by CRO are numerous, including reduced information asymmetry between current and expected risk profile, reduced volatility, added value through better decision making and higher profitability, reduction of downside risk, reducing the expected cost of external capital, reducing regulatory scrutiny, and so forth. To this end this study contends towards the independent risk management function, and argues that independence is a key component of effective CRM and effective ICS in banks. This logic is an extension of a limited research stream argues for the independent risk management, and for the more significant and systematic management of strategic risks in order to avoid the possibility of more serious value destruction in the future.

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55 Establishing firm boundaries and hierarchies between risk management and ICS should not be as important as fully implementing these two functions. Arguments between the risk management auditing proponents and the independent CRM proponents seem to overshadow this important point.

56 Cappelletti (2009:18). Section 404 is titled “Management Assessment of Internal Controls”, and internal controls are an integral part of operational risk management, but more on that in later sections.


58 Most recently the control failures led to unauthorized and/or fraudulent trading at UBS resulting in $2bn of losses (Murphy, Gill, & Jones, 2011).

59 Müller (2008:1).

60 Power (2004b:21).

61 Lieberger & Hoyt (2003:40).


64 Beasley et al., (2007:1).

65 Lieberger & Hoyt (2003:40).


67 Walker (2009:20); Monahan (2008:45); Nocco & Stutz (2006); Müller (2007); Beasley & Frigo (2010); Frigo & Anderson (2011); Mikes (2008); Bessis (2010:41); Gordon, Loeb & Tseng (2009); see also FERMA/ECHIA (2010:8); EIU (2010); COSO (2009), Tilman (2008, 2012), etc.
stream appeals to shift from “CRM by numbers” to “holistic CRM”, and urges for less reliance on models and more uses of softer instruments.\(^{68}\) Until now, this research stream was primarily focused on exploring and describing phenomena, as well as presenting theoretical concepts; hence, several practical aspects are missing. It is worth noting that, the majority of this research stream did not include Swiss banks.

This researcher feels this is a substantial unexplored research area. It is worth noting that this stream does not necessarily call for more complex or bigger CRM, but rather more “intelligent”\(^{69}\) CRM, with increased organizational significance.\(^{70}\) This logic is also extension of the New Corporate Governance (NCG) approach\(^{71}\) that recommends a separate risk management function headed by CRO.\(^{72}\) Finally, considering that the literature stream with strategic focus lacks insight into the integration of corporate governance, risk management, and alignment with internal controls, this study contends that is the next logical step in the evolution of CRM. The failures of internal controls seem to be well documented.\(^{73}\)

This thesis further builds on the corporate governance research developed at the IPFM Center for Corporate Governance at the University of St. Gallen.\(^{74}\) Besides employing the “New Corporate Governance” principles developed by Prof. Martin Hilb, this research aims to extend the practical application of risk management developed by Prof. Roland Müller and Vinay Kalia.\(^{75}\) Referenced CRM principles are to be extended, mainly through the integration of strategic and operational risk management, and through ICS aspects.

Integration of CRM and corporate governance has been a hot topic in recent years, and many authors claim that CG and CRM are inextricably linked, and should be studied as such\(^{76}\) even though

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\(^{68}\) Softer instruments are more intrinsic, and include playing the devil’s advocate, trend exploration, contrasting scenarios with experience, etc.

\(^{69}\) Power (2009).

\(^{70}\) Mikes (2009).

\(^{71}\) Hilb (2008:157,164-172); Indera Ramlogan (2009:66-70).

\(^{72}\) This is rational as a banks structure and nature of business are different from other companies, i.e. operations are opaque and not transparent, banks are highly leveraged and have fractional ownership, dual board structure is required by the law, etc. Hilb’s (2008) research focuses on the board level, but this sound logic can easily be applied to the organizational level. This logic is also reflected in FRC recommendations and the Walker Review (Walker, 2009:12). Also see Monahan (2008:38); Du Plessis (2011:411); etc.

\(^{73}\) Ellul & Yerramilli (2010); Doyle, Ge & Mcvay (2007); Rittenberg & Miller (2010); see also BIS (2009:12); SSG (2008).

\(^{74}\) This corporate governance doctrine was never fully integrated with CRM. However, it contains board level provisions on CRM that can be used as a gateway for integration with CRM.

\(^{75}\) This is one of the most complete approaches to practical implementation of CRM in Swiss banks; however, as it was developed before the crisis it does not include internal control aspects of CRM. This well rounded approach is further discussed in the second chapter (see Kalia & Müller, 2007).

\(^{76}\) See Hinrichs (2009); Hilb (2008:158); Harvard Business Review Analytic Services (2011:3).
that is not often the case due to many remaining integration challenges.\textsuperscript{77} As mentioned, the necessity to separate and better align audit and risk management functions in banks is also recognized in this literature stream.\textsuperscript{78} Further, special focus is given to the transparency of risk exposures and reporting.\textsuperscript{79} Considering that the CRM implementation usually lasts in excess of 5 years,\textsuperscript{80} there is a significant chance that at the time of the crisis in 2007-2008 most institutions have not yet fully completed CRM implementation,\textsuperscript{81} hence, there is an obvious need for further improvements and research. This study postulates that implementation in Swiss banks is not yet complete,\textsuperscript{82} especially in smaller private banks. At the same time, the study assumes that all organizations, including banks, tend to focus on pressures and constraints of their environment and respond to external pressures in order to survive.\textsuperscript{83} In recent times, public opinion on good corporate governance and risk management became such a strong social norm that all institutions, regardless of size, started accepting them in order to survive.\textsuperscript{84} To that end this study echoes the institutional theory and argues that even though regulations and frameworks are focused on listed companies, smaller unlisted companies apply the same guidelines, “resulting in similar impacts on processes relative to risk management and internal control practices.”\textsuperscript{85} This study further recognizes that cross sectional differences among banks can explain difference in performance during the crisis.\textsuperscript{86} Logic would dictate that institutions that had strong and independent risk management, with robust dialogues between senior management and business segments regarding all risks, performed better during the crisis.\textsuperscript{87} Interestingly, “material weaknesses in internal control are more likely for firms that are smaller, younger, financially weaker, more complex, growing rapidly, and/or undergoing restructuring.”\textsuperscript{88} Inclusion of all banks provides an opportunity to obtain a critical insight on the optimal level of CRM and ICS, especially since internal control weaknesses are related not only to smaller size and younger age but also to complexity found in financial conglomerates.

\textsuperscript{77} Hinrichs (2009).
\textsuperscript{78} Hilb (2008:157).
\textsuperscript{79} Idea closely related to reputational risk which is often not significantly represented.
\textsuperscript{80} For example, a Canadian study showed only 31 percent of the companies adopted CRM as of 2003, mainly as a result of the risk manager’s influence, board encouragement, and stock exchange guidelines (Kleffner, Lee & McGannon, 2003, cited in Iyer et al., 2010:421).
\textsuperscript{81} Gates (2006). Full implementation of risk management includes many dimensions not mandated by Swiss law, i.e. strategic dimension, integration of corporate governance, etc.
\textsuperscript{82} Only the basic legal requirements are fulfilled.
\textsuperscript{84} Ibid.
\textsuperscript{85} Sarens & Christopher (2010:290).
\textsuperscript{86} Kashyap & Stein (2008).
\textsuperscript{87} Ellul & Yerramilli (2010); Baxter et al. (2011).
\textsuperscript{88} Doyle, Ge & Mcvay (2007).
Finally, it is worth mentioning that the majority of the risk management literature deals with the operational risk management. The predominant view of this stream is that many senior executives were too focused on growing profits, so much so that they missed growing risk concerns at the operational level. Authors arguing such points recommend finding solutions in the improved operational risk management, that would recognize day-to-day operational risks, and through that they would achieve a true risk-adjusted performance culture.\textsuperscript{89} Competing argument is that the systematic risk assessment is superfluous, and that it can be substituted by experience and instinct; however, this is a high-risk assumption.\textsuperscript{90} Further, this stream focuses on CRM improvement through more transparency, an improved role of CRO, more integrated CRM through business units, and even improved data management and assessment.\textsuperscript{91} This study recognizes the potential of improving operational risk management, but believes that strategic and integration challenges are far more significant.\textsuperscript{92} The operational aspect has been researched extensively,\textsuperscript{93} yet it is just one element of the overall picture and should be studied along with the strategic perspective.

This short review clearly indicates several important points, and they are as follows:

- The CRM field is rapidly evolving in the last ten years and becoming increasingly complex.
- The majority of research focuses on operational risk management, while the strategic dimension is far less researched.
- There is a lack of comprehensive and exhaustive research on the strategic level of CRM, and on integration of ICS.
- Very little research focuses on the integration of strategic and operational levels of CRM, and even less on mitigating the two areas of low agreement.
- More boards and senior executives are now working to shift their CRM approach from a compliance orientation to a strategic orientation, consistent with the view that an enterprise-wide approach to risk management should be value enhancing.\textsuperscript{94}
- There is a strong public push for more regulation.

So, what is the significance of all this? Well, this thesis intends to address some of these issues outlined above by focusing on all aspects of risk management including ICS.

\textsuperscript{89} Grody & Hughes (2008); (Breden, 2009); Martin (2009).
\textsuperscript{90} Likierman (2007:277).
\textsuperscript{91} Bates (2010); Wu & Olson (2009,2010); Rochette (2009); Manz & Gesher (2008).
\textsuperscript{92} There are numerous examples from practice that contradict this approach, i.e. Swiss air had an outstanding operational risk management leading to the 2002 bankruptcy (please see Suen, 2002; Muck & Rudolf, 2005).
\textsuperscript{93} Partly because of the influence of frameworks and regulations.
\textsuperscript{94} Beasley & Frigo (2010:31).
II. RESEARCH OBJECTIVES

The overall objective of my thesis is to contribute both academically and practically to the better understanding of the CRM process in Swiss banks. New ideas will be generated and a new model formed by integrating and extending different prior research streams.

More specifically, the following research question will be addressed:

*How is risk management in Swiss banks changing as a result of the subprime crisis?*

There are three distinct dimensions contained in the research questions: theoretical frameworks, practical implications, and recommendations. The following three objectives will be used in order to address them all:

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95 For example, a clear indication of a change would be convergence to a more holistic model of CRM.
Objective 1: Identify how the financial crisis after Lehman has influenced CRM practices in Swiss banks.

Objective 2: Identify how Swiss banks can ensure that the board can be evaluated and managed in regards to risk management. (Particular focus will be placed on internal control systems and implemented/initialized structural changes.)

Objective 3: Establish a set of recommendations for optimization of risk management through the inter-linkage of different CRM dimensions (or at least identify areas for improvement).

The ultimate goal of this study is to provide a set of recommendations on improvement of CRM that can be applied in Swiss banks.

III. APPROACH

A. Scientific Approach

This research is a field study that aims to advance management theory regarding enterprise risk management. As most field research it studies real people, real problems, and real organizations, in a systematic manner that relies on the collection of original data.96 This is a practically oriented study and follows the logic that theory and practice should be highly related in practice.97 Pragmatism represents “a practical and applied research philosophy,”98 therefore, is paradigm of choice for this study.

In order to choose the correct methodological fit,99 the study attempts to develop sensible connections to prior research. The brief reflection on the current state of theory presented earlier indicates that very little research has been conducted on the integration of corporate government, risk management, and internal controls, with even less research focusing specifically on ICS as part of holistic CRM. Therefore, the current state of research and theory is at the Intermediate level,100 and as such “Intermediate theory research draws from prior work—often from separate bodies of litera-
Further, the research at the intermediate level can be either qualitative or quantitative, and often hybrid strategies are utilized. “[The] hybrid strategies allow researchers to test associations between variables with quantitative data and to explain and illuminate novel constructs and relationships with qualitative data.” To that end both qualitative and quantitative research tools will be combined in order to obtain relevant results.

The empirical research is designed to be two-fold. In one part, the survey research method will be used, as it allows for making inferences about a large group of people or companies. In essence, according to Zikmund (2010) this is an explanatory study that is trying to describe causal relationships, and answer the questions how and why. This part will be administered either as a mail (post-al) or email survey. Questionnaires will be sent to at least 100 Swiss banks from a random sample. The design allows for a minimum acceptable response rate of 15 percent.

As expected, the explanatory study comes “with the expectation that the subsequent will be required to provide conclusive evidence.” In the second fold of the study will proceed with the qualitative study, i.e. personal interviews. Through the personal interviews, or as some research call it elite interviews, this study will attempt to gather rich information that will include the researcher opinions not only on the topic by on the relevant theories as well. This interpretative method of data gathering is still not completely designed as it depends on the results obtained from theoretical review. The biggest uncertainty is the amount of open ended questions that will be included. Personal interviews were chosen because of the opportunity for feedback and clarification that are necessary to understand the complex issues at hand, i.e. “illuminating novel constructs”. A total of 10-20 interviews will be conducted as a part of a convenience sample, i.e. those interviewed will be respondents who are willing and able to participate.

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104 Much higher rate is expected.
105 Zikmud, Babin, Carr & Griffin (2010:51).
107 Blumberg, Cooper & Schindler (2008:378).
108 Qualitative part can also defined as descriptive research, as basic concepts are partially defined but are still not fairly conclusive (Zikmund et al., 2010:51).
109 Researcher selects a respondent who happens to be available and willing to participate (Hesse-Biber & Leavy, 2011:55).
Risk Management at the Strategic and Operational Levels of Swiss Banks

It is evident from this short description that the nested mixed method design is utilized, in which the quantitative part has a lower priority, and is embedded in the qualitative part (please see Figure 3: Nested Mixed Method).

![Figure 3: Nested Mixed Method design](source: Hesse-Biber & Leavy (2011:283))

It is worth noting that a literature review is a fundamental requirement of a basic research, so it was not cited as a specific method that will be used. The research conceptualization is presented in the Figure 4: Structural Approach in the following section.

In summary, as errors are inherent in any type of research, this study will reflect on the most common mistakes in this type of research, beginning with the integration of different methods. Integrating qualitative and quantitative data effectively can be difficult, with a risk of losing the strengths of either approach on its own;\(^{110}\) however, careful design should mitigate that issue. Further, there are two common types of error in the survey research. The first is random sampling error that occurs when a sample is not absolutely representative of the target population. For the purpose of this thesis quantitative study does not need to be representative (and is not designed as such), but should be highly significant. The second is a systemic error that can take several forms including non-response error, response biases, etc. As always, all errors can be statistically predicted and partially mitigated through various statistical methods. Interviewer’s bias is the main cause of error in conducting personal interviews; however, good preparation can minimize it substantially.

B. Structural Approach

In order to achieve objectives stated in previous sections, this thesis is structured in four parts. The structure of this thesis is presented below in the Figure 4: Structural Approach.

![Figure 4: Structural Approach](source: own development)

Part one presents the problem analysis, which presents both practical and theoretical perspectives. This section also outlines specific goals and objectives of this research, including key definitions and primary limitations of this research.

Part two will include in depth review of CRM theory. Discussion will start with a short history of CRM and reflection of the subprime crisis. This will follow analysis of the major frameworks and banking regulations. Focus will be on strategic perspective and internal control systems. Several levels of banking regulations (federal, cantonal, etc.) will be discussed in this part, along with major international regulations pertaining to listed companies.

Part three will present research design, including research methods and tools used in this study. In-depth of analysis of empirical calculations will be followed by discussion of findings. Primary areas of CRM improvement will be identified and discussed.

Part four contains concluding remarks and discusses implications for both the practice and theory. Finally, the aim of this study is to develop a checklist that can be used in practice.
IV. LIMITATIONS

This research will include all banks operating in Switzerland, including large and small, private and public, national, cantonal and city, domestic and foreign, etc. Although different implementations of CRM are to be expected based on different sizes and activities of banks, this study argues that sound principles of CRM can be modified and applied to all. The same view is utilized in the major frameworks and regulations. Additionally, although certain regulations are usually not mandatory for all banks, this study argues that all institutions are willing to adhere to best practices and frameworks due to increased social and environmental pressures. Finally, only through inclusion of all banks can this study evaluate the overall CRM practices in Swiss banks. This definition of boundaries, i.e. inclusion of all Swiss banks, is the single biggest limitation of this study, yet it is exactly the same limitation facing all frameworks and most regulations.

Theoretical review will focus on the evolvement of CRM in the post-crisis environment. Although any changes in the CRM implementation in banks might be reviewed, special focus will be more on the strategic risk management and internal control systems, and less on the operational improvements. However, the important dimension of this study is integration between strategic and operational level and communication between the two. This study will not include a comparison of the CRM theory in the pre-crisis and post-crisis environment.\[111\] The theoretical part will not include a comprehensive review of qualitative risk assessment tools and techniques, even though they are a part of operational management and improvements that are being made in that aspect of CRM.

This study recognizes the significance of regulations and their influence in shaping the CRM environment and therefore plans to include in-depth analysis of regulatory frameworks. Although international, federal, and cantonal regulations will be reviewed, this study will not include every single law and regulation pertaining to CRM. Such inclusion would not be beneficial for this study. The same logic is applied to the CRM frameworks. Only the main and most relevant frameworks will be reviewed, while the less significant will be omitted. The sheer reality is that numerous frameworks are available while a relatively small number of them are significant on a global level.

Finally, this study focuses on integration of the operational and strategic risk management, but is not focusing on all aspects of the operational risk management. For example, mathematical models and statistical tools are not a part of this study. This study follows the logic that for the most part the operational risk management is function; therefore, independent CRM function and independent CRO have all the necessary tools for understanding all operational risks. Preliminary research re-

\[111\] The author reserves the right to present the most significant comparisons.
view indicates that knowledge was there at the operational level during the crisis, but it was not communicated to the board, nor aligned with strategic objectives. This integrating dimension along with ICS is a focal part of this study. In other words, the scope of this study is the interaction between CROs and the BoDs.

V. DEFINITIONS

The most commonly used terms and concepts used throughout this thesis will be briefly defined in this section. Most of these concepts will be discussed in more details in the theoretical part of this thesis.

A. Risk

There is an abundance of risk definitions, most of which focus on the negative side of risk. For example Deloitte defines risk as “the potential for loss caused by an event (or series of events) that adversely affect the achievement of a company’s objectives.” This thesis follows the logic that the upside or positive side of risk is much more significant, so it should equally represented. There are two main ideas associated with risk:

- uncertainty – usually linked to two-tailed statistical distribution
- event – can have a negative impact, positive impact, or both.

Uncertainty is all about not knowing if and when an event might occur. “The ratio between the probability of occurrence and the expected measure of damages is referred to as individual risk.” As expected, the events with a negative impact erode value or prevent value creation, while events with a positive impact facilitate value creation or preservation. Management needs to recognize the events with positive impact, i.e. opportunities and channel it back to the firm strategy to enhance value creation. It is crucial to recognize that in matters of true uncertainty, “…there is no scientific basis on which to form any calculable probability whatever. We simply do not know.”

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112 All mentioned terms and concepts will be discussed in more detail in remainder of this thesis.
113 An exception is ISO (2009:1) framework that includes both positive and negative sides of the risk.
114 Monahan (2008:3); also see Kalia & Müller (2007:22); Rochette (2009).
116 COSO (2004:8).
118 COSO (2004:8).
119 Keynes (1937:214).
B. **Risk Management**

“Risk Management means the permanent and systematic recording of all kinds of risks with regard to the existence and the development of the enterprise; it involves analyzing and prioritizing recognized risks as well as defining and implementing adequate strategic or surgical measures to minimize non-tolerable risks.”\(^{119}\) Therefore it is a holistic process that encompasses “a modular cycle of communication, documentation, control, early warning mechanism, and advancement.”\(^{120}\) Further, “the overall strategy, the crisis management and the regulation of damages are not part of the Risk Management.”\(^{121}\)

C. **Corporate Risk Management**

COSO defines ERM\(^{122}\) as: “Enterprise risk management is a process, effected by an entity’s board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.”\(^{123}\)

COSO further explores different CRM concepts included in this definition; and according to them CRM is:

- “A process, ongoing and flowing through an entity,
- Effected by people at every level of an organization,
- Applied in strategy setting,
- Applied across the enterprise, at every level and unit, and includes taking an entity level portfolio view of risk,
- Designed to identify potential events that, if they occur, will affect the entity and to manage risk within its risk appetite,
- Able to provide reasonable assurance to an entity’s management and board of directors,
- Geared to achievement of objectives in one or more separate but overlapping categories.”\(^{124}\)

\(^{120}\) Kalia & Müller (2007:23).
\(^{121}\) Müller (2011:205).
\(^{122}\) Although CRM terminology is used in this thesis, COSO’s definition of ERM fully describes the concept being researched.
\(^{123}\) COSO (2004:8).
\(^{124}\) COSO (2004:8).
This definition is purposely left broad, so it can be applied to organizations, industries, and sectors, yet it is fully applicable to banks. This thesis also takes a broad view of CRM, a holistic approach, under which all areas of risk management would function as an integrated, strategic, and enterprise-wide system. The most general goal of CRM is to “to increase the likelihood that an organization will achieve its objectives by managing risks to be within the stakeholders’ appetite for risk.” As mentioned, this researcher choose CRM designation to stress importance of the next step in risk management evolution, which including all dimensions of risk management including corporate governance and internal controls. Necessity to distinguish a new phase of risk management with new terminology is documented in literature, yet all attempts to define a new phase are sporadic at best and not very recognized, i.e. Rizzi (2010) calls it Enterprise Resilience (ER), Frigo (2011) uses Governance, risk, and compliance (GRC) terminology, etc.

D. Operational Risk Management

The Basel Committee defines operational risk as “the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.” This definition includes legal risk, but excludes strategic and reputational risk. Operational risk is inherent in all banking products, activities, processes and systems, so it is not surprising that it has been a focal point of numerous frameworks and regulations. It starts at the top with the board of directors and senior management who should establish a strong operational risk management culture. The Business Continuity Plan is a subpart of operational risk management that focuses on external risks that might threaten survival of the company.

E. Strategic Risk Management

“Strategic Risk Management is a process for identifying, assessing and managing risk anywhere in the strategy with the ultimate goal of protecting and creating shareholder value. It is a primary component and foundation of Enterprise Risk Management; it is effected by boards of directors, management and other personnel; it requires a strategic view of risk and consideration of how external

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125 An opposite example of simplistic definition was provided by Monahan (2008:11), who defines CRM as “dealing with uncertainty for organization.”
126 Fraser & Simkins (2010:5).
127 BIS (2011:11).
128 Ibid.
130 BIS (2011:12).
131 Majority of operational risks are to the core-business objectives, i.e. internal ones.
and internal events or scenarios will affect the ability of the organization to achieve its objectives; it requires an organization to define a tolerable level of risk or risk appetite as a guide for strategic decision making; and it is a continual process which should be embedded in strategy setting and strategy management.” Strategic risks include all the big dimensions that require companies to think on a grand scale. “Thus, strategic risk management begins by identifying and evaluating how a wide range of possible events and scenarios will impact a business’s strategy execution, including the ultimate impact on the valuation of the company.” In order to be effective, a strategic risk management should at least include the following:

- Strong alignment to protecting and creating shareholder (and stakeholder) value
- Holistic approach that is broad enough to encompass a wide range of entity-wide risks
- Should be an ongoing process capable of identifying and evaluating a wide spectrum of risks.

F. The Subprime Crisis

The subprime crisis is an ongoing real estate and financial crisis resulting from a dramatic rise in mortgage delinquencies and foreclosure in the United States. With the exception of the Great Depression of 1929, this crisis was more severe than any previous one including the dot-com crash of 2001 and the market crash of 1987. However, the origin of the crisis is not unique. It followed the classic boom-and-bust scenario which has historically been observed in many other countries. The crisis is the result of a speculative “housing bubble” which led in 2007 to a crash of the housing market. The severity of the crisis was a reflection of extremely risky speculative bets taken on by executives of financial institutions. These speculative bets were based on the U.S. housing market and subprime mortgages. When the “housing bubble” burst, these speculative bets caused the subprime mortgage crisis of the U.S. in 2007 and the following banking crisis in 2008.

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135 Beasley & Frigo (2010:36).
136 See Degen (2009; Dell’Ariccia, Igan & Laeven (2009); Dowd (2008); Keys, Mukherjee, Seru & Vig (2008); etc.
137 Whalen (2008:2).
138 The only new aspect is the securitization of subprime mortgages.
PART TWO: GENERAL THEORETICAL PART

I. BACKGROUND OF THE CRISIS

A. Introduction

This research focuses on the aftermath of the financial and credit crisis that started in the US sub-prime market\(^{139}\) in 2007. Subprime mortgages have only been available within the U.S. mortgage lending market; yet, in recent years they have been a major concern for all global economies. Researching the whole array of these problems leading to the crisis is beyond this research; therefore, only few significant ones will be reviewed.\(^{140}\) Again, these are the most commonly cited factors, as many authors stress that little is known on how crises start and spread (please see Figure 5: Background of the Crisis).\(^{141}\)

Figure 5: Background of the Crisis

<table>
<thead>
<tr>
<th>Macroeconomic Factors</th>
<th>Changes in Banking Model</th>
<th>RM and CG issues</th>
</tr>
</thead>
<tbody>
<tr>
<td>- deregulation</td>
<td>- originate-to-distribute</td>
<td>- risk strategies failed</td>
</tr>
<tr>
<td>- the .com bubble</td>
<td>- lack of banks discipline</td>
<td>- risk control insufficient</td>
</tr>
<tr>
<td>- low interest rates</td>
<td>- banks held securities</td>
<td>- short term incentives</td>
</tr>
<tr>
<td>- American Dream program</td>
<td>- moral hazard issues</td>
<td>- short term focus of banks</td>
</tr>
</tbody>
</table>

Source: own development

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\(^{139}\) Subprime mortgages have only been available within the U.S. mortgage lending market; yet, in recent years they have been a major concern for all global economies. It is worth acknowledging that many different income streams were securitized like student loans, aircraft leases, not just residential mortgages (Roubini and Mihm, 2010: 65).

\(^{140}\) As previously mentioned total expected write-downs on global exposures in October 2009 are estimated to be around $3.4 trillion, of which two-third will fall on banks and the reminder on insurance companies, hedge funds, and other intermediaries. It is expected that substantial additional write downs lie ahead. It is anticipated that in Europe, some important losses are not yet unveiled (IMF, 2009a; IMF, 2009b). Further, it is apparent that, as of early 2010, the financial market stabilization will take longer than previously envisioned, even if strong efforts by policymakers are introduced. Swiss banks were not exempt from this crisis and were severely affected. The biggest Swiss bank, UBS AG, needed to recognize losses of CHF 21.3 billion by the end of 2007 (UBS, 2008:7). In the case of UBS, as in numerous other companies, the board approved strategy appeared prudent yet it yielded catastrophic results.

\(^{141}\) Claessens, Dell’Ariccia, Igan, & Laeven (2010:269).
B. Macroeconomics Factors Contributing to the US Subprime Crisis

Roots of the crisis can be traced back to the late 90’s and the deregulation of the US financial markets by the President Bill Clinton,\(^{142}\) which lowered barriers and created an environment in which the century old phenomenon of financial innovation, avoiding regulations, and ignoring moral hazard quickly accelerated to previously unseen rates. At about the same time in early 2000’s the stock market crashed (the dot.com bubble). Investors lost faith in the stock market and for safety reasons started to invest in real-estate. In response, the Federal Reserve headed by the chairman Allan Greenspan, lowered interest rates to provide liquidity.\(^{143}\) Cheap money and innovative financial instruments led to a rapid growth in the credit and housing market.

Additionally, the U.S. government programs aimed at spreading home ownership among lower income groups\(^{144}\) also contributed to the crisis rather significantly,\(^{145}\) as increased demand for real-estate led to shortages and rapid house price appreciation\(^{146}\) in the short run.\(^{147}\) Prices started to be driven by speculative bubbles instead of fundamentals, and this rapid price appreciation led to more borrowing, more spending and the influx of foreign funds.\(^{148}\) The secondary side effect of the government programs aimed at spreading homeownership among lower income groups was a significant increase in the credit demand. The years leading to the crisis revealed that the American consumer was borrowing excessively. Debt which was largely obtained through subprime borrowing was used either to invest in the housing market or to finance consumer spending.\(^{149}\) The average household debt doubled in the decade preceding the crisis. It was well over the new entrants’ annual disposable personal income. The new entrants on average had low credit worthiness, thus loans extended to them were extremely risky.\(^{150}\) It is obvious that this excessive debt taking could not con-

\(^{142}\) Deregulation of the US financial markets occurred in the late 90’s. During that era, President Bill Clinton signed the repeal of the depression-era Glass-Steagall Act, which separated investment-banking from lending and deposit-taking, and the Gramm-Leach-Bliley Act that gave rise to financial conglomerates active in retail banking, insurance, stock brokerage and proprietary trading (Puri & Rocholl, 2008:254). This practice was present in Switzerland, Italy, Germany, France, Luxembourg and the Netherlands for years, where securities business is considered to be something of a “natural” banking activity which can be conducted within the legal entity of the bank or by a separate subsidiary within a financial conglomerate.

\(^{143}\) The interest rates remained very low from 2001 to 2004.

\(^{144}\) Also known as the “American Dream” zero equity mortgage proposals, introduced by the Bush Administration.

\(^{145}\) The government used “creative” financial techniques and actively encouraged use of over-the-counter derivatives (Whalen, 2008:1). This factor is specific to the subprime crisis (Dell’Aricia, Igan, Laeven, & Tong, 2012:5).

\(^{146}\) House prices adjusted for inflation have been unchanged for 100 years before 1995, but increased by 30 percentage from 1995 to 2002 (Baker, 2008:73).

\(^{147}\) Baker (2008:73).

\(^{148}\) As a response to this increased demand, the construction of new houses increased by 25 percentages starting in 2001 (Baker, 2008:74), and eventually led to a surplus of houses.

\(^{149}\) Baker (2008:74).

\(^{150}\) Baker (2008:74).
tinue forever and would end with a crash. Sadly, until the recent crisis all policymakers paid little
attention to credit booms, especially in advanced economies.

C. Changes in the Banking Model and Deregulation

Over the last two decades deregulation led to numerous changes which transpired in the banking
model. Most notably, the traditional relationship banking model has evolved to an originate-to-
distribute model. In the traditional mortgage model, a financial institution acted as the originator of
a loan to a borrower, and retained the credit (default risk). The new model allows banks to originate
loans, earn their fees and finally sell them off (securitize) to investors who desire such exposures.
Thereby, financial institutions sold the mortgages and distributed the credit risk through mortgage-
backed securities to investors. Surprisingly, most banks, like UBS, chose to hold large
amounts of securitized securities during the crisis, which in effect led to large losses and the
bailout. At the same time government-sponsored mortgages became uncompetitive, allowing
banks to take that market share and only further enlarge the problem. Additionally, from the risk
management perspective the banking model was static and offered very “low return environments
and competitive pressure with greater leverage and risk taking” to the extent that it became ob-
scured and misunderstood. Financial business became commoditized and active risk taking be-
came a dominant factor. Not all authors agree with this logic; i.e. Greg et al. (2012) claims that

_151_ According to Degen (2009) the features of a typical financial crisis are a credit boom, which leads to leveraging of
financial institutions (e.g. the Bear Stearns hedge funds); and an asset bubble, which increases the probability of a
large price shock (in this case the housing market). Ultimately, these shocks led to a bursting of the housing bubble,
and that initiated a fall in housing prices and triggering a process of deleveraging. All that led to a collapse of un-
sustainable housing bubbles and credit markets.

_152_ Dell’Aricia, Igan, Laeven, & Tong (2012:5).

_153_ Securitization is a structured finance process which distributes the risk by cumulating debt instruments in a pool
and subsequently issues new securities backed by the pool. In other words, it is the process of taking illiquid assets
and transforming them through financial engineering into a security.

_154_ It is worth noting that securitization is not used only for risk spreading; rather, it is a key part of the process to drive
revenue and the return on capital as well as the share price higher. The well documented main problem during the
crisis was following. Since underwriters did not intend to keep the loans, they consciously decided to lower under-
writing expenses (no costly research or investigations) by extending loans to almost all applicants (Degen, 2009;
Dell’Ariccia, Igan & Laeven, 2009; Dowd, 2008; Keys, Mukherjee, Seru & Vig, 2008; Benjamin J. Keys,
Mukherjee, Seru & Vig, 2009); etc.


_156_ The new Basel II agreement on international banking regulation opened arbitrage opportunities for banks causing
them to accelerate off-balance-sheet activities.

_157_ The Office of Federal Housing Enterprise Oversight (OFHEO), the so-called regulator of Fannie Mae and Freddie
Mac, imposed greater capital requirements and balance sheet controls on those two government-sponsored mort-
gage securitization monoliths. The new regulations opened the way for banks to move in on their “patch” with
plenty of low income mortgages going on line.


_159_ Tilman (2008). The same author claims that banks were trading strictly on risk-premium and market-neutral re-
turns.
“incentive structures could be held responsible for inducing bank executives to focus on short-term results”.

Several moral hazard and adverse selection questions are raised when banks sell syndicated loans on the secondary market; the most prominent being sale of so called lemons. Berndt & Gupta (2008) analyzed that negative effects of the originate-to-distribute model do exist in the long run and that it is therefore not entirely “socially desirable”. Banks may indeed sell lemons based on their unobservable private information about the borrower. Furthermore, borrowers might suffer due to a diminished relationship with banks, since securitization removes the discipline of bank monitoring.

D. Risk Management Shortfalls

The chosen risk strategies and internal structures of financial institutions contributed, at least partially, to the crisis. Basel II changed the bank regulatory framework and decreased capital requirements for financial institutions, therefore increasing risk exposure. Popular opinion is that risk management procedures and controls did not keep up with all the financial innovations, and relied heavily on deceptive credit ratings. Reviewing and setting risk policy is a key function of the full board, the same as the ultimate responsibility for strategic directions; yet, boards failed on both tasks during the crisis. This research aims to address some aspects of these significant issues.

E. Incentives and Moral Hazard

Two leading contributing factors to the subprime crisis are: “(1) misaligned incentives linked to securitization-disintermediation and (2) asymmetric information.” At the time of the crisis, the majorities of the existing compensation structures in financial institutions seem to be too short-term oriented – on excessive short-term returns, the so called faked alpha – and therefore, induce excessive risk taking (e.g. AIG, Citigroup, UBS). Bankers receive a large amount of their compensation as bonuses tied to short-term profits with little or no risk adjustments. These bonuses were one-sided; they are positive in good times and at worst zero when returns are poor. This may en-

160 Lemons in this sense are syndicated loans with a high risk of default. Due to asymmetric information about the loans, the investor does not know beforehand if it is a high quality loan or a lemon, whereas the lender has much more information available (Akerlof, 1970).
161 Hilb (2008:45).
163 This concern, like many others starts at the top. A Noble laureate, Paul Krugman, claims that failure of corporate governance was to blame for the subprime crises, specifically the system of executive compensation that encouraged high-risk decision making (Krugman, 2007). Also echoed in Taleb (2011).
164 Also see Hill (2011:8-9).
It encouraged the accumulation of extraordinary large positions of so-called AAA-rated tranches of collateralized debt obligations (CDO). Acharya et al. (2009) compare these portfolios to writing put options on rare events such as a large accumulation of defaults of subprime mortgages. However, these securities were by the risk management systems often considered as essentially riskless. The premiums were directly booked as instant profit. Consequently, bankers received big bonuses with an incentive to load up on them. Furthermore, they were encouraged to report to the senior management and regulators that everything is well although it was not. Most of the time, bankers earned huge fees from the option premiums, booked them as profits and paid out i.e. a fraction of it as a huge bonus. Bankers were encouraged to maximize their current compensation possibly at the expense of the shareholders by taking excessive risks. The introduced compensation model did not consider lower returns or losses in subsequent periods for which the current activities were responsible.

It is obvious that the short-term orientated compensation strategies left room for moral hazard activities. Blundell-Wignall, Atkinson, & Hoon Lee (2008) explained it further with a UBS example. “Staff compensation incentives did not differentiate between the creation of genuine “alpha” versus the creation of returns based on low cost funding, nor the quality (risk attributes) of staff earnings for the company. The relatively high yield from subprime made this an attractive candidate for long position carry trades (even with thin margins) via leverage (and using derivatives). This encouraged concentration in the higher carry mezzanine tranches of CDOs. It also encouraged minimal hedging of super senior positions (in order to be more profitable).” Bankers knew exactly what to do in order to increase their annual remuneration. The financial industry was very much short-term driven. The long-term consequences were basically not considered.

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165 This is a typical manifestation of an Agency theory problem type I, in which managers have different objectives then stakeholders (Padgett, 2012:97).
166 Even worse, those positions were unnecessarily traded numerous times, just so that traders could collect the accompanied fee.
167 This behavior among bankers is also in accordance with the equity theory, which states that people are more interested in their situation relative to the other people and not in their absolute position, i.e. bankers competing with other bankers (Padgett, 2012:95).
168 Clementi, Cooley, Richardson & Walter (2009).
Impact of the crisis on the Swiss banking and the Swiss economy was a borderline,\textsuperscript{169} which is quite significant, but not considered to be a systemic case.\textsuperscript{170} Extensive liquidity support and significant asset purchases were required,\textsuperscript{171} but there was neither significant nationalization nor restructuring costs.

II. DEVELOPMENT OF CORPORATE RISK MANAGEMENT

A. History of Risk Management

The earliest form of risk management can be traced back to Babylon, dating from around 2100 BC.\textsuperscript{172} A form of naval insurance was developed in which the owner of the ship could borrow money to buy cargo and would not have to pay the debt if the ship is lost at sea.\textsuperscript{173} Although there is value in knowing history, in this thesis we’ll concentrate on the more recent times. An overview of the major risk management milestones in the last 100 years is presented in Appendix 3: The most stimulating milestones in the risk management discipline.\textsuperscript{174}

Several distinct stages of risk management development developed by Kalia & Müller (2007:39-41) are graphically represented on the next page in Figure 6: Evolution of Risk Management, and discussed afterwards.

\textsuperscript{169} Laeven & Valencia (2010:9).
\textsuperscript{170} Case is considered to be systemic if two conditions are met:
1. Significant signs of financial distress in the banking system (as indicated by significant bank runs, losses in the banking system, and bank liquidations); and
2. Significant banking policy intervention measures in response to significant losses in the banking system.
\textsuperscript{171} Laeven & Valencia (2010:9).
\textsuperscript{172} Sadgrove (2008:1).
\textsuperscript{173} Also known as “bottomry” principle and it refers to pledging the bottom of your vessel to the lender.
\textsuperscript{174} A Brief History of Risk Management, by H. Felix Kloman (2010) is the primary source used in the Appendix 1. The thesis follows the Kloman’s logic that the most significant milestones are the ones that mostly stimulated the discipline; so included are: the new ideas, books, and actions of individuals and their groups, all of whom had significant contributions. List is very subjective and not comprehensive by any means.
PART TWO: GENERAL THEORETICAL PART

Figure 6: Evolution of Risk Management

Source: adapted from Kalia and Müller (2007:41)

Stage 1: New Concepts. During the initial stage, risk management was conceptualized in the works of Knight, Keynes, and Neumann. Companies like British Petroleum began establishing insurance companies, with the goal of prudent internal financing of risk. The governments worldwide passed numerous acts to sanction “social insurance” schemes, effectively shifting risk and responsibility from individuals to corporations and governments. Further, the Glass-Steagall Act of 1933 prohibited common ownership banks, investment banks and insurance companies, and the McCarran-Ferguson Act of 1945 delegated the regulation of insurance to the various states. These two acts fragmented the financial and insurance industry, and led to disintegration of the risk management discipline. Risk management was used reactively mainly through sporadic insurance purchases.

175 Knight (1921); Keynes (1973); Von Neumann & Morgenstern (1944).
176 BP established Tanker Insurance Company, Ltd.
178 In some countries even sooner, i.e. the US Government passes series of workers compensation laws by 1912.
Stage 2: Credit Risk Management took place in 1970’s with the utilization of traditional insurance management, i.e. the risk was being transferred outside the organization. In this period business considered mainly non-entrepreneurial risk, such as security. Dr. Kenneth Arrow and Sir John Hicks win the Nobel Memorial Prize in Economic Science, for their work on the law of Large Numbers, in which they depict a perfect world in which every uncertainty is “insurable”\(^{180}\). Myron Scholes and Fischer Black publish their paper on option valuation in the *Journal of Political Economy* and seriously learning about derivatives begins.\(^{181}\) Several risk management associations are established around the world, i.e. Sweden’s Statsforetag creates a “risk management circle,” International Association for the Study of Insurance Economics created in Paris, etc. In 1975, the *Fortune* magazine publishes a special article entitled “The Risk Management Revolution,”\(^{182}\) which suggests the Board of Directors (BoD) is responsible for setting policy and organizing function of risk management within organization. It took more than twenty years before many of the ideas in this paper gain broad acceptance.

Stage 3: Financial Risk Management started in the 1980s when risk management developed in two directions: the first being Risk financing (including deductibles, captives and various mixed forms); the second was Risk control (comprehensive risk engineering, partially in close coordination with insurance coverage).\(^{183}\) Risk management becomes part of public policy in many countries. By the end of the decade Risk management develops in direction of risk communication, as a reaction to loss of confidence after large scale accidents in the insurance sector.\(^{184}\) “Black Monday,” October 19, 1987, hits the U.S. stock market,\(^ {185}\) and in response JP Morgan introduced VaR by 1989.\(^{186}\) Its shock waves are global, reminding all investors of the inherent risk and volatility in the market.

Stage 4: Operational Risk Management transpired in 1990s when numerous risk management regulations and frameworks were introduced, with the goal of understanding all organizational risk and having oversight of the entire process. In 1992, the Cadbury Committee issued its report in the United Kingdom, suggesting that governing boards are responsible for setting risk management policy.\(^ {187}\) Its successor committees (Hempel and Turnbull), and a similar work, Australian Standards AS/NZS 4360:1995 published in 1995, Canadian standard CAN/CSA-Q850-97 in 1997, as well as, the U.S., South Africa, Germany (KonTraG) and France, establish a new and broader man-

\(^{180}\) Klamer (1989).
\(^{181}\) Black & Scholes (1973).
\(^{182}\) Kloman (2010:24).
\(^{183}\) Kalia and Müller (2007:40).
\(^{184}\) Kalia and Müller (2007:40).
\(^{185}\) Bogle (2008).
\(^{186}\) Haldane (2010:3).
\(^{187}\) Kloman (2010:26).
date for organizational risk management.\textsuperscript{188} By 1996 JP Morgan published its VaR methodology that became standard in financial risk management.\textsuperscript{189}

\textit{Stage 5: Corporate Risk Management} started in 2000s with series of catastrophes and corporate crises, i.e. the terrorist attacks of September 11 and the collapse of Enron remind the world that nothing is too big for collapse. These catastrophes reinvigorated risk management. Just on September 11, 2001 the New York Stock Exchange (NYSE) lost trillions of USD in a day, and it has had an enormous impact on the perception of Risk Management worldwide.\textsuperscript{190} At this stage everyone understands not only the growing importance of risk management, but also the fact that risk management still lacks maturity.\textsuperscript{191} Today, the concept of risk management represents a 360 degree view of all risks facing the organization, including internal and external ones, and looks to provide an integrated approach to manage risk across divisions and functions.\textsuperscript{192}

\textit{Stage 6: The Age of Regulation in Corporate Risk Management} arose as a response to the subprime crisis. As the subprime crisis was casted as a failure of CRM,\textsuperscript{193} it is only logical that the CRM is at the pivotal point of its evolution.\textsuperscript{194} The crisis and subsequent events like the collapse of Lehman Brothers, the bailouts of Bear Stearns and AIG in the US, the UBS bailout in Switzerland, showed how fragile is the global financial system. As the fear spread in all levels of society, there was a universal push for safer financial system through lower risk and more regulation. A newly aroused series of global regulations sought to mitigate the economic, social, and political impact of the disorderly failure of financial institutions. The sheer volume and range\textsuperscript{195} of recent regulations is unprecedented, same as speed by which it is quickly being codified and encrypted in cooperate government and organizational management blueprint. As Kalia and Müller (2007) developed this model of CRM evolution before the crisis, the model does not reflect the new regulatory environment. Hence, this revision seems essential and the addition of a regulatory stage\textsuperscript{196} seems logical.

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{188} Sadgrove (2008:2). For more information on the mentioned guidelines see Cendrowski & Mair (2009:99-111).
\item \textsuperscript{189} Haldane (2010:3).
\item \textsuperscript{190} Kalia and Müller (2007:41).
\item \textsuperscript{191} Sadgrove (2008:13).
\item \textsuperscript{192} Kalia and Müller (2007:41).
\item \textsuperscript{193} Adamson (2012:551); Mikes (2010:72); Davis (2009:2); Beasley, Branson & Hancock (2010); The Senior Supervisors Group [SSG] (2008:1); etc.
\item \textsuperscript{194} However, like in any developing field, some setbacks are inevitable and should not be considered as the prevailing characteristic of a field.
\item \textsuperscript{195} There are numerous regulations including: liquidity, equity, cross-border, too big to fail, just to name a few, all being revised simultaneously. Over 49 countries have changed existing or developed new regulations (Adams, 2012:1).
\item \textsuperscript{196} It is worth noting that a similar idea was presented by a different HSG student.
\end{itemize}
\end{footnotesize}
Finally, in upcoming sections that review main regulations and frameworks, there are clear indications that regulations lag after CRM frameworks, so this surge in regulations should not be surprising to an informed reader.

B. Academic Background of Corporate Risk Management

Corporate risk management has rapidly gained importance in the last decade, among both practitioners and academics. Figure 1 (on page 7) illustrates this rapid growth of CRM at the turn of the century, but as previously mentioned a limited number of purely academic articles (focusing on statistically testing one or more academically motivated hypothesis and empirically supported) has been published. Even more surprisingly, only a small percentage of the existing research is motivated by earlier studies of risk management. Nevertheless, several themes can be identified in existing research.

One of the first empirical studies conducted by Colquitt, Hoyt, & Lee (1999) focused on characteristics and extent of CRM integration. After surveying 397 companies the authors concluded that risk managers primarily dealt with financial risks, while the three most popular non-financial risks handled by risk departments were political risk, exchange rate risk, and interest rate risk. Continuing with the same theme Kleffner, Lee, & McGannon (2003) conducted the study on the use of CRM among members of Canadian Risk and Insurance Management Society. They discovered that only 31 percent of the companies adopted CRM, mainly as a result of risk manager’s influence, board encouragement, and stock exchange guidelines.

The second identifiable focus of early research was on determinants of CRM. Lieberger & Hoyt (2003) compared firms that appointed a Chief Risk Officer (CRO) with controlled sample, and revealed that firms with greater leverage are more likely to appoint a CRO. Results of the same study are consistent with the hypothesis that the firms appoint CROs to reduce information asymmetry between current and expected risk profile. Beasley, Pagach, & Warr (2008) studied the announcements of senior risk managers’ appointments and discovered that such announcements are positively associated size, leverage and volatility, but only in non-financial firms. The study shows no significant statistics for financial institutions. Desender (2007) studies 100 pharmaceutical companies based on their 2004 public findings, and concluded that firms that have separate CEO and chairman

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197 As mentioned, many authors use the Enterprise Risk Management (ERM) terminology instead of CRM.
198 This review focuses strictly on the risk management field. Applicable knowledge generated in different fields and frameworks will be incorporated in later sections.
199 Majority of risk management articles are practitioner oriented (Iyer et al., 2010:420).
favor and implement more elaborate CRM. In addition, Beasley, Clune, & Hermanson (2005) found that CRM implementation is positively associated with many variables, such as: independence of the board, involvement of internal auditors, the presence of a CRO, external auditors being big firms, size, and industry group (most advanced in banking, insurance, and education).

At the following stage, the more recent studies on CRM implementation have moved past firm characteristics and looked at other factors. A new focus is on whether CRM adaptation adds value (Beasley, Pagach, Warr, 2008; Pagach & Warr, 2011; Gates, Nicholas, Walker, 2009). These two recent studies examined the values seen inside the company observed through better decision making and higher profitability. Beasley et al. (2008) suggest that results are firm specific, and that no claims about ERM benefits and costs to shareholders could be made across a wide range of firms. However, the study indicates that a well designed CRM can provide value to shareholders by significantly reducing downside risks such as financial distress. This study is an important step in further empirical studies on accessing the value of CRM.

Many studies also argue that strategic risk was not the focus of senior management as of 2005, mainly because manifestations of strategic risks were rare (Funston, 2004; Slywotzky and Drzik, 2005; Mikes, 2010). However, the same studies call for more systematic management of strategic risk due to possibility of more serious value destruction. Somewhat different argument is presented by Gates (2006), who claims that ERM implementation is in the early stages in the most companies, since it takes three to five years to fully integrate risk practices. At the same time, most companies are making an effort to implement CRM at substantial costs (including significant managerial time at all levels).

In addition, the importance and benefits of CRM has been a focus of numerous academic works. Most authors agree that CRM benefits firms by decreasing earnings and stock-price volatility, reducing external capital costs, increasing capital efficiency, and creating synergies between different risk management activities (Cumming and Hirtle, 2001; Lam, 2001; Meulbroek, 2002; Pagach and Warr, 2010). Additional benefits cited in numerous works are protecting and enhancing shareholder value, properly aligning risk with shareholders aptitudes, better information flow, reduced costs of regulatory scrutiny and external capital (COSO, 2004; Beasley et al., 2005; Pagach and Warr, 2007), etc.

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201 Reviewed as working paper in Iyer et al., (2010:432), and not available in any database.
202 Ironically, the Subprime crisis was realization of these perceived fears.
Finally, the most recent studies attempt to build an explanatory framework of CRM. Mikes (2008, 2009, 2011) developed “four risk management ideal types that show how they form the risk management mix in a given organization;” and further presented two types of CRM models and two different calculative cultures. This study aims to builds upon Mikes’ conceptualization and attempts to provide a critical assessment based on the evidence from Swiss banks. There is also a limited academic research stream coping with practical applications of CRM. As mentioned, this thesis builds on the works of Kalia and Müller (2007).

The crisis also spurred growth of articles that criticize most CRM ideas or even question the overall usefulness and purpose of CRM. Power (2009) “claims that risk management of everything turned out to be the risk management of nothing,” while Taleb (2007) is concerned with CRM’s “blindness with respect to randomness.” Some authors go as far as questioning the whole economic theory. Although such works gained prominence in the mainstream literature, that research stream stayed fairly minute.

Series of academic case studies devoted to CRM have been identified, but as none of them deals directly with the banking industry they are summarized in Table 2: CRM Case Studies.

<table>
<thead>
<tr>
<th>Author(s) (Date)</th>
<th>Publication</th>
<th>Topic</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harrington, Niehaus, and Risko (2002)</td>
<td>Journal of Applied Corporate Finance</td>
<td>The implementation of ERM at United Grain Growers including the benefits and insights gained.</td>
<td>1. Comprehensive ERM does not increase risk cost, 2. ERM fosters better communication and understanding of risk, 3. Technical knowledge (statistics and finance) is important for successful ERM implementation.</td>
</tr>
</tbody>
</table>

203 Mikes (2009).
204 Two types of CRM models are: holistic ERM and ERM by the numbers.
205 Two calculative cultures are: Quantitative enthusiasm and Quantitative skepticism.
206 This research will be discussed in more detail in later sections, along with works of Müller (2007, 2011), Kalia and Müller (2007), and Hilb (2008).
207 Kloman (2008); Taleb (2007); Power (2009).
209 The only exception is Mikes (2010); however, this case study is also presented in later sections.
## PART TWO: GENERAL THEORETICAL PART

<table>
<thead>
<tr>
<th>Author(s) (Date)</th>
<th>Publication</th>
<th>Topic</th>
<th>Major findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stroh (2005)</td>
<td>Strategic Finance Journal</td>
<td>The implementation of ERM and business risk management at United Health Group</td>
<td>Critical success factors are: strong top management support, planned implementation methodology, accountabilities, reconciliation of views, diverse team, continuous improvement, integration of internal audit, culture accustomed approach.</td>
</tr>
<tr>
<td>Nocco and Stulz</td>
<td>Journal of Applied Corporate Finance</td>
<td>A discussion of the theory and practice of ERM with some extensions on nationwide Insurance.</td>
<td>Main challenges in implementation of ERM are: inventory of risk, economic versus accounting and regulatory values, aggregating and measuring risk, using economic capital to make decisions, and governance of ERM.</td>
</tr>
<tr>
<td>Acharyya and Johnson (2006)</td>
<td>The Geneva Papers on Risk and Insurance: Issues and Practice</td>
<td>The development of ERM of four major European insurance companies.</td>
<td>1. Inconsistent understanding of ERM in the insurance field. 2. CEO and regulations are main driving factors. 3. The design of ERM is much customized. 4. Communication and culture are main challenges in ERM implementation. 5. There is no effective ERM performance matrix.</td>
</tr>
</tbody>
</table>

Source: adapted from Iyer, Rogers & Simkins (2010:425-440)

Natural progression towards more integrated corporate risk management is evident from presented articles and cases. Also evident is a dire need for more academic research on this subject, mainly since the pace of the research did not keep up with the corporate and public interests. The main problem appears to be lack of consistency, primarily due to the fact that newer academic research does not build up on existing theories.
C. Driving Forces of Risk Management in Switzerland

Although major regulations and frameworks have the profound influence on development of the risk management functions they are not the only forces driving this change. Kalia and Müller (2007) listed the key drivers of risk management in Switzerland (please see Figure 7: Driving Forces of Risk Management in Switzerland).

![Figure 7: Driving Forces of Risk Management in Switzerland](source: Kalia and Müller (2007:55))

The main force is obviously laws of the country that include Stock Exchange Act, Swiss Code of Obligations, bank regulations, and so forth. It is not surprising that laws are the main driving force, since both senior management and board of directors have to be in compliance\textsuperscript{210} with civil and criminal laws. Even though in the original form all of the forces are equally significant, it seems that the crisis at least temporarily augmented the influence of corporate failures and banking regulations. As mentioned in the previous section, this is a direct result of an overwhelming public push for more regulation.

\textsuperscript{210} The Board of Directors (BoD) is ultimately responsible for the company, for defining the strategy, and assuring the interests of all stakeholders are represented in all decisions. In fact, Kalia and Müller (2007) noted that the main goal of corporate government in Switzerland is safeguarding stakeholders’ interests.
PART TWO: GENERAL THEORETICAL PART

III. FRAMEWORKS

A. Introduction

Numerous corporate scandals fuelled popularity and increased demand for CRM, not only at the board and senior management level but in entire organizations. The US regulators slowly responded to growing pressure from board audit committees, stakeholders, and rating agencies with the introduction of Sarbanes-Oxley (SOX) in 2002. However, all around the world the board members accountability for risk management was long under way before SOX. As early as 1970, Basel I guidelines were introduced suggesting the boards have an ultimate responsibility for risk management. In Canada, “[in] 1996, the Caremark case established a legal precedent for board members to put in place policies and procedures to manage the company’s most important risks, including those derived from its strategy…moreover, the boards in Canada have been charged with the fiduciary duty of active involvement in… strategic planning and risk management.”211

Therefore, top-down risk-approach regulations are nothing new but their effectiveness has been the topic of many spirited debates. Regardless of one’s position, the world is moving towards more regulations, so it essential to review the main frameworks and regulations on risk management. It is worth noting that no measure calls for countercyclical instead of pro-cyclical regulation.212 Ones that would pull them back in good times so they do not chase after marginal borrowers. Naturally more freedom would be allowed in a downturn.

B. COSO Frameworks

1. History and COSO Internal Controls

The original focus of COSO (The Committee of Sponsoring Organizations of the Treadway Commission) was not on a risk management, but on the internal control problems that contributed to the financial reporting failures during the inflation years in late 1970s and early 1980s. The 1987 COSO report emphasized “…key elements of the effective internal control system, including the strong control environment, a code of conduct, a complete and involved audit committee213, and a strong management function.”214 In 1992 COSO published a final version of an internal control report ti-

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212 Goodhart (2009:97).
213 This strong audit perspective was carried to the future reports including the COSO ERM framework, and continues to be a central theme and much debated approach in most current ERM philosophies.
214 Moeller (2007:3).
Risk Management at the Strategic and Operational Levels of Swiss Banks

tled “Internal Control – Integrated Framework.” The internal control report introduced: “...now almost universally accepted definition or description of internal control, as follows:

Internal control as a process, affected by an entity’s board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in effectiveness and efficiency in the following categories:

- Effectiveness and efficiency of operations,
- Reliability of financial reporting, and
- Compliance with applicable laws and regulations.”

Some of the key elements of the report are as follows:

- Internal control is a process. It is a means to an end, not an end in itself.
- Internal control is not merely documented by policy manuals and forms. Rather, it is put in by people at every level of an organization.
- Internal control can provide only reasonable assurance, not absolute assurance, to an entity’s management and board.
- Internal control is geared to the achievement of objectives in one or more separate but overlapping categories.

The internal control report was a basis for SOX Section 404 (internal control assessment) and as mentioned was a major influence on the ERM framework.

2. **COSO ERM**

In 2001 COSO teamed up with the PricewaterhouseCoopers (PwC) to develop risk management framework. In 2004 the report titled “Enterprise Risk Management – Integrated Framework” was published by COSO (from now on referred to as the COSO ERM). As this framework is discussed throughout this paper only an overview is presented at this point. It is worth noting that risk management is considered a four-step process: (1) risk identification, (2) quantitative or qualitative assessment of the documented risks, (3) risk prioritization and response planning, and (4) risk moni-

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215 Happens to be the most used internal control framework (FERMA/ECIIA, 2010:15).
216 The term “internal control” was widely used but was never precisely defined prior to COSO report. In addition the report proposed procedures to evaluate the internal controls.
219 COSO IC is an integral part of COSO ERM and not meant to be replaced by the new framework (Ruud & Sommer, 2006:130).
The framework aimed at integration of risk management into any company based on eight principles:

- **Internal environment**: Includes the value and culture of an organization.
- **Objective setting**: Set objectives must be aligned with its risk appetite; for four categories (strategic, operations, reporting, and compliance).
- **Event identification**: Identifying risks that an organization may face.
- **Risk assessment**: Risks should be analyzed, and their likelihood and impact considered.
- **Risk response**: Avoid, accept, reduce or share.
- **Control activities**: Auditing should be utilized to ensure the above mentioned actions are carried out.
- **Information and communication**: Relevant information needs to be captured and shared.
- **Monitoring**: Risks should be monitored, and responses modified in accordance.

Risk management is seen as enterprise-wide process, involving people at all levels and all organizational units. The Figure 8: The Integrated COSO Enterprise Risk Management Framework provides an overview of the COSO framework (please see the next page). Just one look at the above Figure shows the major strength of the COSO ERM framework. It allows managers to look at the various aspects and see how they interact and relate in a multidimensional manner. Interestingly, this framework seemed to be fitting the financial services industry better than production or operations.

The framework sets guidelines rather than instructions, which means implementation varies in each organization. COSO is also specific on the roles of management and the board. The management is accountable to the board, which provides governance, guidance, and supervision. Further, by selecting management the Board has a major role in setting expectations. Lastly, the board also formulates a high level objectives, manages broad-based resource allocation.

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221 Sadgrove (2008:282).
222 A portfolio view of risk is followed.
It is worth noting that COSO ERM defines control activities as “policies and procedures necessary to ensure that identified risk responses are carried out.” More details on the four steps for implementation of the control activities are discussed as part of SOX Section 404 requirements,\textsuperscript{225} which include separation of duties, audit trails, security and integrity, and documentation.

The COSO ERM framework gained wide recognition, but to some extent unfortunately it was published at the same time as the Sarbanes –Oxley Act of 2002 (SOX). Most companies were overwhelmed with the SOX implementation, and due to limited resources placed very little attention to the COSO ERM framework.\textsuperscript{226}

Just to reiterate, COSO issues two rather different frameworks or models.\textsuperscript{227} To avoid confusion this thesis will mainly follow the recommendations of the COSO ERM as it is the more comprehensive,\textsuperscript{228} and more relevant to the subject. The biggest difference is as follows: while the COSO internal control framework focuses on the major controls of internal controlling including operations, financial reporting, and compliance with the laws and regulations, the COSO ERM also has emphasis on the strategic component.\textsuperscript{229}

\begin{itemize}
  \item\textsuperscript{225} As SOX requirements are legally binding for all companies working in the US discussing them is more beneficial.
  \item\textsuperscript{226} Frigo & Anderson (2011:82). The SOX did not require or even address ERM, and more significance was given to the COSO Internal Control Framework (Frigo & Anderson, 2011:82).
  \item\textsuperscript{227} Moeller (2007:145).
  \item\textsuperscript{228} More details will be presented later on in the COSO ERM section.
  \item\textsuperscript{229} Moeller (2007:177).
\end{itemize}
The Australian Standard 4360 (see Figure 9: AS/NZS 4360) is still considered to be the most implemented management system, since it contains requirements that a business can easily conform to.\textsuperscript{230} The main advantage is brevity and plain style that still allows for compulsory complexity when examining risks and deciding on actions.

The framework has eight main elements (please see Figure 9: AS/NZS 4360), and they are as follows:\textsuperscript{231}

- \textit{Communicate and consult}: The organization should include internal and external shareholders throughout the risk management process
- \textit{Establish the context}: The business should understand its external and internal context, and understand the risk criteria on which decisions will be based.
- \textit{Identify risk}: This step requires that all risks are written down.
- \textit{Analyze risks}: The organization needs to consider positive and negative consequences of the risks, and their probability.
- \textit{Evaluate risk}: Management has to decide on which options to pursue.
- \textit{Comply}

Figure 9: AS/NZS 4360

Source: reproduced from Sadgrove (2008:278)

\textsuperscript{230} Sadgrove (2010:277).
\textsuperscript{231} Sadgrove (2008: 278-279).
- **Treat risk**: The organization may decide to do any of the following:
  - Avoid the risk
  - Change the likelihood (add controls)
  - Change the consequences (i.e. reducing the amount of stock, requiring protective gear, etc.)
  - Share the risk (i.e. joint venture)
  - Retain the risk

- **Monitor and review**: Repeating the risk management cycle on regular basis, and performing review.

- **Record the process**: Recording should include but not be limited to assumptions, data sources, analysis, results etc.

## D. The ISO Risk Management Framework

ISO 31000 Risk Management-Principles and Guidelines,\(^{232}\) was published in 2009 in the International Standards guide.\(^{233}\) It is the most recently published guidelines and it was developed by experts from more than 30 countries. Many critics claim it is state-of-the-art framework, that incorporates all the best principles contained in COSO, Project Management Institute (PMI), the Australian and New Zealand Standard (AS/NZS 4360:2004), and all the other leading international standards.\(^{234}\)

ISO 31000 presents a generic framework and allows ample room to organizations for implementation of some specific elements. One of the benefits would obviously be implementation of standard terminology and processes. However, the main objective is to have a fully integrated and imbedded risk management in all decisions processes, and not to have just another add-on process.\(^{235}\)

The ISO framework (please see Figure 10 on the next page) is principle based rather than prescriptive, and as such the ISO workgroup identified 11 principles for risk management.\(^{236}\)

1. **Creates value** for objectives of health, reputation, profits, compliance, and so on, less the cost of risk management.

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\(^{232}\) ISO (2009).
\(^{233}\) In the case of Australia and New Zealand, the Joint Technical Committee on Risk Management has approved the adoption of ISO 31000 as AS/NZS ISO 31000:2009.
\(^{234}\) Shortreed (2010:98).
2. *Is integral part of organizational processes* including project management, strategic planning, auditing, and all other processes.

3. *Is part of decision making* through analysis and evaluation to understand risk and determine its acceptability as treated.

4. *Explicitly addresses uncertainty* and how it can be modified.

5. *Is systematic, structured and timely* and produces repeatable and verifiable outcomes and decisions.

Figure 10: Implementation of ISO 31000

Source: reproduced from ISO (2009)
6. Is based on the best available information including historic data, expert opinion, stakeholders concerns, and so forth, tempered with the quality and availability of the information.

7. Is tailored to the organizations, its objectives, its risks, and its capabilities.

8. Takes human and cultural factors into account in addition to technical and other “hard” factors that impact the likelihood of consequences.

9. Is transparent and inclusive so that communication and consultation with stakeholders and others keeps the risk management and risk criteria current and relevant.

10. Is dynamic, iterative and responsive within a “continuous improvement” environment that responds to changes in context, trends, risk factors and other internal and external factors.

11. Facilitates continual improvement and enhancement of the organization.

These principles are just a foundation for an CRM; as the organization implements them it will exhibit characteristics of “risk maturity” in regard to these principles. The concept of “risk maturity” is evaluated through “excellence characteristics” that include continuous improvement, accountability, constant communication, risk management as a core commitment, and so forth. Like any good framework it has to be simplistic in order to be practical, yet it has to allow for sophistication and subtlety in its application and continuous improvement. Figure 10: Implementation of ISO 31000 shows mentioned framework for implementation of risk management.

Similar to other frameworks ISO 31000 recommends risk management efforts should be proportional to the magnitude of the risk and or the benefits of the risk controls including impacts on the stakeholders. The biggest drawback of the ISO 31000 is that the concept of risk appetite is not mentioned, even though it is included in most other frameworks.\textsuperscript{237}

E. Other Frameworks

There are numerous frameworks represented in the literature, i.e. Federation of European Risk Management Associations (FERMA) developed their own risk management standard.\textsuperscript{238} The FERMA standard is heavily based on the ISO terminology and standards; therefore, review of this standard would have only miniscule contributions. All the most influential frameworks have been reviewed so far in this thesis, but some of the others can be seen in Appendix 4: Supplementary rules and regulations. A natural progression towards more complex and more encompassing frameworks is evident.

\textsuperscript{237} AIRMIC (2010:15).

\textsuperscript{238} FERMA (2002).
IV. REGULATIONS

A. Introduction

The most significant regulations are reviewed in this section. SOX is reviewed for its impact on development of internal controls and hampering effect of the CRM. Basel regulation for the impact in shaping of the internal methods and processes of banks’ internal credit risk management, while Basel III in regard to the stability of the financial system. Finally, the most important aspects of the Swiss regulations are examined.

B. Basel

1. Basel I

The Basel Committee on Banking Supervision became noteworthy on international scene shortly after its establishing in 1974. During the late 1970’s large losses were widespread in less developed countries (LDC), causing the Basel regulators to became increasingly worried about possible bank failures. The primary concern was that large banks do not have adequate capital reserves in relations to their risk exposure. In response the 1988 Capital Act better known as Basel I was introduced; and the rate of 8% risk adjusted capital requirements was established.\(^{239}\) Originaly, Basel I focused mainly on the credit risk.\(^{240}\) Interestingly, banks were required to hold higher reserves for ordinary mortgages in comparison to mortgage pools that were securitized. Of course, this process allowed them to shift the risk\(^{241}\) to the investors that bought securities.

Numerous banks held their reserves in excess of Basel I capital requirements. For example, in the United States the FDIC insured banks held on average 12.23\(^{242}\) percent reserves, in 2007. Smaller banks (assets less than $100 million) held higher reserves often approaching 20 percent, while bigger banks held at 10 percent reserves.\(^{243}\)

The Accord was supplemented several times, most notably in 1996 with The Market Risk Amendment which set minimum capital requirements in banks’ trading accounts.\(^{244}\) However, limitations of the original Accord became quickly apparent due to development in derivatives, globalization,

\(^{240}\) Gup (2010:339).
\(^{242}\) FDIC Quarterly Banking Profile (2008).
\(^{243}\) FDIC Quarterly Banking Profile (2008).
\(^{244}\) BIS (1996); White (2007:441).
and consolidation of LCBO’s (Large Complex Banking Organizations), and it manifested mainly through regulatory arbitrage.\textsuperscript{245} Thus, implementation of Basel I in this manner led to increase risk taking and not risk minimization.\textsuperscript{246} As a response, the Basel Committee on Bank Supervision proposed a new capital accord known as Basel II.

2. Basel II

The Basel Committee continues aligning capital requirements and the risks banks face through Basel II Capital Accord.\textsuperscript{247} There were two main innovations introduced in the Accord; the first contains three pillars and the second pertaining to introduction of ERM.

The first pillar deals with minimal capital requirements, which are based on credit, market and operational risk.\textsuperscript{248} Hence a new category of operational risk was introduced since many risks were not covered under market and credit risks. The second pillar fosters comprehensive dialogue between banks and supervisory bodies.\textsuperscript{249} Finally, the third pillar tries to impose the market discipline; hence, aims at increased disclosure.\textsuperscript{250} The three most common ways to compute the capital requirements are: (1) the Standard Approach, (2) the Foundation internal rating based (IRB) Approach, and (3) the Advanced IRB Approach. The same approaches can be used to misinterpret capital requirements, i.e. the minimum capital requirements for USD 100 can vary from USD 1.81 to USD 41.65\textsuperscript{251} depending on the approach used.

The most significant contribution of Basel II for this study is the introduction of enterprise risk management.\textsuperscript{252} ERM aligned organizations with a forward looking perspective, in which economic conditions and wide range of other risks are considered. Further, ERM perspective introduced the concept of economic capital,\textsuperscript{253} which is usually quite different from required capital reserves.

\textsuperscript{245} In regulatory arbitrage banks selectively leave/take off assets on their balance sheet based on riskiness, consequent-

\textsuperscript{246} ly misrepresenting risk exposure.

\textsuperscript{247} Banks in Switzerland used it since 2008 (Credit Suisse Group, 2012:95). The big two also had to comply with sev-

\textsuperscript{248} eral revisions to Basel II (commonly referred to as Basel 2.5 or “Swiss Finish”) to incorporate stress tests (UBS, 2012:20). FINMA’s “Revision to the Basel II market risk framework” (Basel 2.5) is mandatory as of December 31, 2011 (Credit Suisse Group, 2012:96).

\textsuperscript{249} It addresses the supervisory review process, with emphasis on the qualitative measures (BIS, 2006:204).

\textsuperscript{250} Gup (2010:340).

\textsuperscript{251} BIS (2006:12). See also UBS (2011:161); Credit Suisse Group (2011:95-96).

\textsuperscript{252} BIS (2006:226).

\textsuperscript{253} Statistical measurement that estimates capital needed for banks’ risk taking activities.
The three key Basel II risk parameters are: probability of default (PD), loss given default (LGD), and exposure at default (EAD).²⁵⁴

Although Basel II made significant improvements towards limiting excessive risk taking, it came at a cost of greater complexity. This complexity and the efforts to condense the accord led to postponements and a lack of implementation. Most governments ignored regulatory literature that predicted the subprime crisis.²⁵⁵ US financial interests lobbied against Basel II so that it was never fully implemented and 2003 recommendation to control the hedge fund industry was never instituted.²⁵⁶ Bear Stearns was leveraged at 31:1. Lehman Brothers 34:1, Goldman Sachs at 26:1. None of these banks complied with the Basel II capital adequacy requirements and were geared for more than normal on-book average 22:1.²⁵⁷ There are several revisions to the Accord.²⁵⁸

3. Basel III

During preparation of this thesis numerous regulations surfaced, including the Basel III Accord. The financial crisis revealed inefficiencies in Basel II, and failed to protect lenders from insolvency.²⁵⁹ The new accord effectively tripled the size of required capital reserves that banks have to hold against losses, and which are adjusted to growing credit.²⁶⁰ The Basel Committee announced that lenders would have needed €602 billion ($871 billion) to comply with the rules if they were in place at the end of 2009.²⁶¹

There are two main objectives of this framework. “The first objective is to promote short-term resilience of a bank’s liquidity risk profile by ensuring that it has sufficient high-quality liquid assets to

²⁵⁵ Currie (2010:5); Currie (2006).
²⁵⁶ Currie (2010:4).
²⁵⁷ Currie (2010:6-7).
²⁵⁸ Most interesting for us being Revisions to the Basel II market risk framework from July 2009 (BIS, 2009b). These revisions (commonly referred to as Basel 2.5), “introduced new capital requirements to increase the amount of regulatory capital in the banking system. The new measures under Basel 2.5 include (1) a stressed value-at-risk (VaR) requirement taking into account a one year observation period relating to significant losses; (2) an incremental risk charge, which accounts for default and rating migration risk of trading book positions; (3) a comprehensive risk measure to capture correlated defaults and other complex price risk in the correlation portfolio; (4) a revised requirement for the other securitization positions held for trading, in line with the banking book capital charges; and (5) higher risk weights for re-securitization exposures across the trading and banking book to better reflect the inherent risk in these products” (UBS, 2011:161; BIS, 2009b:1). See also BIS (2009a). The stress testing for credit risk (as a compliment to VaR) gained a role through this revision, although it never reached the standards of stress testing for risk estimations that has been in use for years (Gundlach, 2011:349). There are three different methods for scenario analysis: historic, statistical selection, and hypothetical scenarios (Gundlach, 2011:368).
²⁵⁹ It is worth distinguishing that the intention of Basel II was to improve the methods and processes of banks’ internal credit risk management, while Basel III aims to improve the stability of the financial system by raising capital requirements (Engelmann & Rauhmeier, 2011:v).
²⁶⁰ Dell’Aricia, Igan, Laeven, & Tong (2012:5).
²⁶¹ Torres & Moshinsky (2011).
survive a significant stress scenario lasting for one month. The Committee developed the Liquidity Coverage Ratio (LCR) to achieve this objective; however, LCR is currently being revised\textsuperscript{262} by the Basel Committee. The second objective is to promote resilience over a longer time horizon by creating additional incentives for banks to fund their activities with more stable sources of funding on an ongoing basis. The Net Stable Funding Ratio (NSFR) has a time horizon of one year and has been developed to provide a sustainable maturity structure of assets and liabilities.”\textsuperscript{263} Although, both of these standards are not yet introduced they are already significant for the Swiss banks since an observation period already started,\textsuperscript{264} and several institutions are using NSFR as a primary tool to monitor structural liquidity positions.\textsuperscript{265}

The key capital ratio, so called Tier 1, is raised from 2\% to 4.5\%. Additionally, banks that approach a newly established 7\% buffer zone will not be able to pay dividends or discretionary bonuses. For the first time the Basel Committee attempted to link risk taking and compensation, in effect addressing the agency problem.

Most of the countries including the US and UK called for even stricter regulations, but found opposition the most notably in Germany. The German concern was that weakened financial institutions will not be able to comply with any higher requirements. The new rules will be introduced slowly from 2015 to 2018, in part to provide the smaller German banks with sufficient time to adjust.

The most noteworthy is an effort to shift the Basel III Accord from guideline to a more complete methodology for risk management, and the fact that Basel III is basis for the Swiss too-big-to-fail law.\textsuperscript{266}

C. Sarbanes-Oxley Act

1. General provisions

Sarbanes-Oxley Act (SOX) of 2002\textsuperscript{267} was intended to be a resolution for corporate fraud and illegality within American public companies,\textsuperscript{268} i.e. Enron, WorldCom, etc. SOX has five main objec-

\textsuperscript{262} These revisions have proven to be quiet controversial, so some jurisdictions (i.e. in the US) are awaiting the review findings before incorporating them (Madigan, 2012).
\textsuperscript{263} BIS (2010:1).
\textsuperscript{264} An observation period for LCR began in 2011, and an observation period for the NSFR began in 2012 Credit Suisse Group (2011:90).
\textsuperscript{265} Credit Suisse Group (2012:91).
\textsuperscript{266} More on this in sections on big banks.
\textsuperscript{268} Padgett (2012:149).
tives: (1) to strengthen the independence of auditing firms, (2) to improve the quality and transparency of financial statements and corporate disclosure, (3) to enhance corporate governance, (4) to improve the objectivity of research, and (5) to strengthen the enforcement of the federal securities laws. It is widely accepted that the first two objectives were completely achieved, while degree of effectiveness of the last three objectives is still highly debated. The objective to enhance corporate governance is the primary focus of this paper. Further, since banks spend up to 25% of their budget on oversees compliance regulation it is crucial to review the main regulations, as SOX.

Several Self Regulatory Organizations (SROs) including the NYSE and the NASDAQ adopted a new listing requirements based on SOX. The major governance provisions mandated by SOX and SROs include:

- The board of directors of each NYSE- and NASDAQ-listed firm must have a majority of independent directors.
- The independent director must meet a refined definition of independence.
- The compensation and the nominating/governance committees must consist entirely of independent directors.
- The audit committee must have a minimum of three members and consist entirely of independent directors. In addition, each member of the audit committee must be financially literate. One member must be an “audit committee financial expert,” or the company must disclose that it does not have such an expert and why not.

Besides reworking regulations of the audit function, SOX further encouraged firms to impose code of conduct as a means of assuring ethical behavior. Lastly it encouraged the companies to provide additional protection to whistle blowers against retaliation. Thus, SOX significantly improved legal and reputational risk management mechanisms within publicly traded companies.

The biggest criticism of SOX is that companies did not fully embrace it due to its internal controls and financial reporting nature. Additionally, SOX applies only to public companies and many innovative provisions are optional. However, the overall impact of SOX has to be characterized as positive and influential, mainly because all pre-SOX efforts to address these issues were sporadic and complex.

269 Linck et al. (2008:5).
270 Meek (2012).
271 Linck et al. (2008:6).
Further, the section 304 of the SOX introduced a claw-back provision, if the corporation is required to restate its earning due to material noncompliance with the reporting regulations.\textsuperscript{273}

The SOX undoubtedly had an impact on development of risk management. However, it is crucial to understand that internal audit and risk management fulfill two different functions, and that the SOX sits firmly within the internal audit field.\textsuperscript{274}

2. Internal Control sections of the Sarbanes-Oxley Act

The following sections of the SOX\textsuperscript{275} relate to internal controls, more specifically to the internal control aspect of financial reporting.

Section 301 titled “Public Company Audit Committee” is designed to provide more details on the Securities and Exchange Act of 1934,\textsuperscript{276} more specifically on section 10A.\textsuperscript{277} Several provisions are contained in this section, and they are: the audit committee is responsible for preparing and issuing an audit report,\textsuperscript{278} each member of the audit committee must be independent,\textsuperscript{279} the audit committee establishes procedures for complaints\textsuperscript{280}, has authority to engage advisors,\textsuperscript{281} and is responsible for financing the external auditors.\textsuperscript{282}

Section 302 titled “Corporate Responsibility for Financial Reporting” requires financial reports to include sections certifying that: the signing officer has reviewed the report, the report is true\textsuperscript{283} and fairly presenting financial conditions,\textsuperscript{284} the signing officer has reviewed internal controls within the previous 90 days of the report issuing, made a list of all deficiencies of internal controls.\textsuperscript{285}

\textsuperscript{273} Schwartz (2008:2). There is been only a few cases where claw-back was implemented, since the regulation does not state if a personal misconduct is necessary to trigger the regulation (Simmons, 2009:347). In SEC v Jenkins, the court stated that s 304 does not require personal misconduct of the executive, merely of the issuer, in order to ground recovery (Hill, 2011:3-4).

\textsuperscript{274} Monahan (2008:121).

\textsuperscript{275} Full version on SOX is available at http://www.sec.gov/about/laws.shtml#sox2002.

\textsuperscript{276} Full version of the Securities and Exchange Act of 1934 can be found at http://www.sec.gov/about/laws /sea34.pdf.


\textsuperscript{278} Sec. 301, Par. 2, of SOX.

\textsuperscript{279} Sec. 301, Par. 3, of SOX.

\textsuperscript{280} Sec. 301, Par. 4, of SOX.

\textsuperscript{281} Sec. 301, Par. 5, of SOX.

\textsuperscript{282} Sec. 301, Par. 6, of SOX.

\textsuperscript{283} Also echoed in section 401.

\textsuperscript{284} Sec. 301, Par. 5, of SOX.

\textsuperscript{285} Sec. 301, Par. 6, of SOX.
Section 404 titled “Management Assessment of Internal Controls” is presented in the footnote in full.

Therefore, in accordance with the Section 404, issuing institutions are required to publish information in their annual reports concerning the scope and adequacy of the internal control structure and procedures for financial reporting. This report should also assess the effectiveness of such internal controls and procedures. Finally, in the same report the public accounting firm should certify on the assessment on the effectiveness of the internal controls and procedures for financial reporting.

Several other sections are addressing compliance concerns. For example section 407 requires that audit committee to have a financial expert. Section 409 requires the issuing company to disclose changes in financial conditions or operations. Finally, section 809 prescribes penalties and fines, which include up to 20 years in prison for altering, destroying, mutilating, concealing, falsifying records, documents or tangible objects with the intent to obstruct, impede, or influence a legal investigation.

D. Principle vs. rule based approach

This research follows the logic of Eling, Gatzert and Schmeiser (2008) that argue for the principle-based approach instead of using a rules-based approach as implemented, for instance, in the U.S. risk-based capital standards. A major drawback of standard rules-based models is that these have no flexibility to handle individual situations and thus might not be very effective in assessing the wide range of banks risk profiles. The principle-based approach is flexible and captures...
the individual risk profile, for example, by using parameters of the banks instead of those predetermined by the regulator. A principle-based approach also might trigger innovation when banks need to develop their own risk models based on the principles. Furthermore, the principle-based approach provides the bank with the opportunity to integrate regulatory requirements into its risk management process. Business and regulatory objectives then go hand in hand and lead to a more efficient regulation and risk management.292 Another advantage of using principles instead of strict rules is that this might reduce the danger of systematic behavior and, in turn, systemic risk. But these advantages do not come without drawbacks. Relying upon principles might increase the complexity and costs of regulation,293 both for the banks that needs time and money to implement the principles into a model, and for the regulatory bodies, who needs sufficient resources to control all the individual models instead of one standard model. Current risk management regulations in the US are rule based, while Europeans (including Swiss) prefer principle based regulations.294 Risk regulations in both jurisdictions are fragmented and vague.295

E. Swiss Legal System

1. The Swiss Financial Market Supervisory Authority

a. General overview

The Swiss Financial Market Supervisory Authority (FINMA) is the independent regulatory body.296 Article 5 of the Financial Market Supervisory Act (FINMASA) defines FINMA's goals as follows: "In accordance with the financial market acts, financial market supervision has the objectives of protecting creditors, investors, and policy holders as well as ensuring the smooth functioning of the financial markets. It thus contributes to sustaining the reputation and competitiveness of Switzerland’s financial centre."

292 The expectation is to have a more meaningful relationship between companies, auditors, and regulators (Gup, 2010:381).
293 One of the major criticisms (Burklund, Weiss & McKeag, 2010; Jamal et al., 2010:139).
294 Van der Elst & Van Daelen (2009).
295 Van der Elst (2010:25). Please see the original works for more details.
296 The FINMA Authority is based on Art. 98 of the Federal Constitution. Additionally, the Swiss “Parliament approved the Federal Act on the Swiss Financial Market Supervisory Authority (FINMASA) on 22 June 2007. The Federal Council ratified the implementing provisions for FINMASA on 15 October 2008 and the Act entered into full force on 1 January 2009. In addition to organizational issues regarding FINMA as an institution, FINMASA also sets out principles governing financial market regulation, liability rules and harmonized supervisory instruments and sanctions. FINMASA therefore functions as an umbrella law for the other seven laws governing financial market supervision. It is applicable in cases where the other financial market laws do not provide any particular regulations. It takes into account, however, the specificities of the different areas of supervision” (FINMA, 2011a).
“FINMA regulates through ordinances, when so provided for in financial market legislation, and through circulars on the application of financial market legislation. It does so to the extent that is necessary to fulfill the goals of supervision. In accordance with the Art. 7 of the Financial Market Supervision Act, FINMA therefore concentrates in particular on:

- the costs that supervised institutions would incur as a result of a regulatory measure;
- the impact a regulatory measure would have on the competitive environment, capacity for innovation and international competitiveness of the Swiss financial sector;
- the different business activities and risks of the supervised institutions;
- international minimum standards."

b. The Risk Management section of FINMA

“The Risk Management section, which is part of the Banks division, is responsible for authorization and ongoing checks on licensing requirements in relation to institution-specific procedures for the calculation of capital requirements for credit, market and operational risk, and for the calculation of liquidity requirements under regulatory rules. In addition to supervising risk models, the section assesses quantitative methods and procedures (stress tests, liquidity models, risk aggregation, economic capital) as part of the bank supervisory review process under pillar 2 of Basel II. This analysis combines with and expands on the detailed study conducted by the group of experts handling capital markets. The section is also heavily involved in national and international regulatory projects in respect of the above risk areas.” Some of the more prominent subsections are: the Market and Credit Risks group, the Aggregate Risks and Scenario Analysis, and the Capital Markets group.

2. The importance of self-regulation

Swiss banks have a long tradition of self-regulation, they consider it to be a good alternative to state regulation, and it is encouraged by FINMA. There are two main forms of self-regulation, voluntary or autonomous self-regulation that is recognized as a minimum standard and compulsory

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297 FINMA (2012a).
298 FINMA (2012b).
299 Ibid.
301 Under Art. 7 par. 3 of the FINMASA Act, regulators may also, either at the request of a self-regulatory organization or on its own initiative, recognize self-regulatory measures as a minimum standard (see also FINMA Circular 08/10 “Self-Regulation as a Minimum Standard”, 2008).
self-regulation\textsuperscript{302} based on a mandate from the legislator.\textsuperscript{303} It is believed that self-regulation fosters greater development of best practice based on set benchmarks rather than blind compliance.\textsuperscript{304}

3. **Swiss Code of Obligations**

The Article 716a of the Swiss Code of Obligations (CO)\textsuperscript{305} assigns the ultimate control of the company to the board of directors. In accordance to the code the board is responsible for:

- a) the ultimate management of the company and giving of relevant directives;
- b) the establishment of the organization;
- c) the structuring of the accounting system and the financial controls and financial planning;
- d) the appointment and removal of the persons entrusted with the management and representation of the company;
- e) the ultimate supervision of the persons entrusted with the management of the company in particular in view of compliance with the law, the articles of incorporation, regulations and directives;
- f) the preparation of the business report, as well as the preparation of the general meeting of shareholders and the implementation of its resolutions; and finally
- g) the notification of the judge in the case of over indebtedness.

Interestingly, in line with the spirit of self regulation the Code allows companies to choose their own board structure and other necessary arrangements for the effective and efficient management and control.\textsuperscript{306} Additional article of the Swiss Code of Obligations will be reviewed in later sections.

\textsuperscript{302} SFBC (2007/6). FINMA usually delegates a mandate to a bank to deal with a certain topic, for example, “Art. 37h of the Banking Act (deposit insurance), Art. 4 par. 1 of the Stock Exchange Act (appropriate organization), Art. 4 par. 3 of the Collective Investment Schemes Ordinance (requirements for simplified documentation on structured products) or Art. 25 of the Anti-Money Laundering Act (specification of due diligence obligations)” (FINMA, 2011).

\textsuperscript{303} FINMASA (2007).

\textsuperscript{304} Nikulina (2012:22).


\textsuperscript{306} Hayek & Jegher (2003).
PART TWO: GENERAL THEORETICAL PART

4. **The Swiss Exchange Act**

The Exchange and Securities Trading (SESTA)\(^{307}\) sets the conditions for the establishment and operation of stock exchanges.\(^{308}\) The SIX Swiss Exchange is responsible for the issuance of directives on corporate governance for companies listed on the stock exchange.\(^{309}\) The SESTA offers a high degree of flexibility and follows the tradition of self-regulation. The Act does require a company to engage in regular reporting following applicable standards including reporting on the structure and function of corporate management and governance.

5. **Legislations and ordinances**

The most basic principles are still found in legislation, i.e. The Banking Act\(^{310}\) was enacted to have a primary function of protecting creditors, but has since evolved to protect “the function of and trust in the banks”.\(^{311}\) Some other main regulations on banks are the Swiss Federal Ordinance of 17 May 1972 on Banks and Savings Banks\(^{312}\) (Banking Ordinance); the Swiss Federal Ordinance of 29 September 2006 on Capital Adequacy and Risk Diversification for Banks and Securities Dealers (Capital Adequacy Ordinance, CAO).\(^{313}\)

The most interesting for this thesis, the Banking Act, leaves banks a lot of discretion in regards to corporate governance structure.\(^{314}\) Additionally, the Banking Act does not follow the self-regulation philosophy, so mandatory compliance deals with issues such as governance structure,\(^{315}\) and requires a dual board structure with a clear separation of duties.\(^{316}\)


\(^{308}\) Article 1. of the SESTA.

\(^{309}\) Nikulina (2012:24).

\(^{310}\) The Federal Act on banks and Saving Banks 1934.

\(^{311}\) Nobel (2002:489).

\(^{312}\) Very crucial for the creation of transparency and the ascertainment and management of risk (Nobel, 2002:492).

\(^{313}\) FINMA (2012). Also worth mentioning are: ordinance of 21 October 1996 of the Swiss Financial Market Supervisory Authority on Foreign Banks in Switzerland (FINMA Foreign Banks Ordinance, FBO-FINMA); and ordinance of 30 June 2005 of the Swiss Financial Market Supervisory Authority on the Bankruptcy of Banks and Securities Dealers (FINMA Bank Bankruptcy Ordinance, BBO-FINMA).


\(^{315}\) Art. 1. of the Banking Act.

\(^{316}\) Art. 3. of the Banking Act. Also recommended by Hilb (2008:50).
The Banking Act includes duties for the board of directors of a bank, such as:

a) reporting to FINMA in case of changes to the bank’s organization;

b) duties within a group or a holding company;

c) observing laws and regulations; and

d) continuing education of members of the board.”317

6. Other regulations

The Federal Constitution of the Swiss Confederation318 of April 18, 1999 is often overlooked in the literature; however, the Art. 27, It. 94, par. 1 of the SFC guarantees the principle of economic freedom that is a basis for all subsequent regulations. Some of the more prominent regulations that have significant impact on Swiss banks and are coincidentally highly debated in the financial literature will be reviewed in the next section; however, the regulatory review in this thesis is not comprehensive.319 Some of the most relevant FINMA circulars are presented in Appendix 5: Selected Circulars.

Further, regulatory reforms in other jurisdictions might lead to more prominent role of risk management. For example, under the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank”) publically traded banks might be required320 to establish an independent board risk committee with a formal written charter approved by the BoD.321 This proposal is useful insight on the future directions of regulations.

318 Also known as The Swiss Federal Constitution (SFC).
319 Cantonal laws were not discussed as their impact is limited. For instance, in the Canton of St. Gallen there are only two regulations with some degree of influence on banks, and they are the Cantonal Constitution of the Canton of St. Gallen of June 10, 2001 and the Cantonal Bank Act of the Canton of St. Gallen of September 22, 1996. However, it is worth nothing that some authors question whether there is still sufficient public interest in state banking operations (Nobel, 2002:510), while others consider the purpose and preferential treatment of cantonal banks to be outdated (Chammartin, 2009:269). As we know the Art. 98, par. 1 of SFC regulates cantonal banks as a part of a legislation on the banking sector, and gives them a preferential treatment to fulfill a specific role of aiding cantonal prosperity. Yet, in recent years banks are not showing economic restraint that is a condition of their status. As the cantonal banks behave as universal banks they should be regulated as such. Their historic purpose and treatment are obviously outdated and apparent should be reconsidered.
320 Although many banks already have an independent risk management function and an independent risk committee at the board level, they were implemented based on recommendations not regulations.
321 Dodd-Franks delegated the rule making to implement its broad policy goals to the Federal Reserve, which subsequently issued its notice of proposed rulemaking (NPR) on enhanced prudential supervision which will require: 1) U.S. banks and bank holding companies (BHCs) with greater than $50 billion in assets; 2) those with greater than $10 billion in assets and that are publicly-traded; and 3) non-bank financial companies designated as systemically important to establish a board risk committee with a formal written charter approved by the company’s board of directors, the risk committee must be independent and regularly updated by the CRO (The Board of Governors of Federal Reserve System, 2012:600; Deloitte, 2012:1).
PART TWO: GENERAL THEORETICAL PART

7. Regulatory developments in big Swiss banks

The Swiss too-big-to-fail law was adopted\textsuperscript{322} on 30 September 2011, and not the Swiss Federal Department of Finance is expected to issue ordinances necessary to implement this law. Key elements of the law and the upcoming ordinances include the following: (1) higher capital requirements for big banks,\textsuperscript{323} (2) an emergency plan,\textsuperscript{324} and (3) tighter liquidity and enhanced risk diversification requirements.\textsuperscript{325} The Swiss too-big-to-fail law is expected to come into force on January 01, 2013.\textsuperscript{326} This law is so comprehensive that international regulatory framework\textsuperscript{327} for big banks, as proposed on 25 June 2011 by the Group of Governors and Heads of Supervision (GHOS), the oversight body of the BCBS, will not have an effect on Swiss banks.\textsuperscript{328}

For banks operating in the US, the most significant is the Dodd-Frank Act, which focuses on three broad issues: limiting risk in the financial system, increasing consumer protections and regulating the unregulated.\textsuperscript{329} Under “Volcker Rule” UBS expects that certain of its historical trading activities will be considered proprietary trading.\textsuperscript{330}

Further, “in the EU, 2011 saw many important legislative proposals from the European Commission including a review of the Markets in Financial Instruments Directive (MiFID), which contains a very broad reform agenda encompassing the trading market structure, transparency regime, regulation of commodity derivatives, investor protection and third-country access to the EU single market.”\textsuperscript{331}

\textsuperscript{322} Naturally, as a revision of the Swiss Banking Act.
\textsuperscript{323} UBS is expecting: a minimum of 4.5% of RWA in form of common equity tier 1, a buffer of 8.5%, and the progressive components to be 6%, bringing total capital requirement to 19% (UBS, 2012:19).
\textsuperscript{324} Demonstrating how systematically important functions can be maintained in case of impeding insolvency.
\textsuperscript{325} FINMA (2012e).
\textsuperscript{326} UBS (2012:19).
\textsuperscript{327} It is a methodology to determine global systematically important banks (G-SIB), strengthen capital requirements, and provide more intensive supervision on systematically important financial institutions (SIFI).
\textsuperscript{328} UBS (2012:20).
\textsuperscript{329} KPMG (2010:4). The most debated topic being so-called “Volcker Rule”, which would prohibit banking entities from engaging in proprietary trading, with some exceptions that includes market making, hedging and underwriting activities UBS (2012:21). The regulation would also limit banks from investing in hedge funds and private equity funds. In other words, the regulators want to discourage speculation, yet difficulties arise when trying to distinguish between the two.
\textsuperscript{330} UBS (2012:21).
\textsuperscript{331} UBS (2012:21).
F. Implications

This short review highlighted the growing importance of regulations, but is yet to address points raised by opponents of more regulations. The biggest proponents for more regulations are public and policy makers around the world, who use the subprime crisis to fuel their arguments. The opposition comes mainly from business and some academic communities. Forrest (2011:453) states that a Basel I induced decline in lending that has been a major cause of credit crisis in the 1990’s, what ultimately has weekend the economy. A scholar Gregory H. Duckert (2010) in his book “Practical Enterprise Risk Management: A Business Process Approach” argues against all new regulations and exploits the Sarbanes-Oxley Act to illustrate his point. The author claims that as early as 2005, both the Securities and Exchange Commission (SEC) and the Public Company Accounting Oversight Board (PCAOB) observed that many companies adopted “check the box” mentality on compliance, and with that missed the point of the SOX act.332 The author further argues that using the Committee of Sponsoring Organizations (COSO) model as framework for compliance was a mistake, given its audit centric approach. It is worth noting that Sarbanes-Oxley Act was a response to financial and accounting scandals of Enron and WorldCom, so its internal control orientation was expected. Almost certainly as a response, a business model was needed not a fractional audit model, i.e. SOX. Finally, in concluding remarks the author claims that times of reactionary measures have passed. In order to ensure a fluid/dynamic CRM environment, a more active involvement will be required on the board level.333 Some authors claim that international harmonization of regulations creates a situation where cure is more lethal than the ostensible situation.334

Secondly, it is important to stress that regulations have be reactive in nature until the last couple of years; i.e. SOX was a regulators’ response to corporate fraud. A need for stronger internal controls and reporting was recognized by the COSO in 1987, yet it took fifteen years and the corporate crisis before regulators introduced SOX in 2002. The same scenario was followed for years. The preceding section showed that frameworks follow a natural progression towards more complexity, and usually strive to include all developed risk management techniques. Naturally, the best parts of older frameworks are supplemented with innovations, as that is the only way to stay proactive. So, even though there was always significant knowledge in the CRM field, regulators always needed external stimuli to consider it. Please see Figure 11 on the next page for illustration of this point. The latest surge in regulations is a clear response to the subprime crisis, with one slight difference.

332 Duckert (2010: 13). Some authors go further claiming that SOX worsened the corporate governance in publicly traded companies (Adams, 2009:16).

333 Also see Tilman and Martin (2011).

334 Romano (2010:44).
Regulators are finally attempting to be proactive, and that explains the significant increase in regulations.

The Appendix 4 provides a brief overview of regulations and frameworks not reviewed until this point in time. Many of which played a significant part in development of the risk management field.

The literature also indicates that “risk management systems still suffer from vagueness and fragmentation of the regulatory framework.”\textsuperscript{335} The least defined are liability regimes in different jurisdictions.\textsuperscript{336} Additionally, there is no systematic evidence that stronger regulation led to better performance during the crisis.\textsuperscript{337} The psychological effect of restoring the public’s trust is a crucial

\textsuperscript{335} Van der Elst (2010: 25).
\textsuperscript{337} Beltrani & Sultz (2010: 22).
element of any regulation. Finally, stricter regulations cannot be the sole consequence of the crisis, as there is a need for more sophisticated risk management and improved risk awareness.339

V. STRATEGIC ELEMENTS OF CORPORATE RISK MANAGEMENT

A. Different Types of Risks

“Risk is a function of how poorly a strategy will perform if the “wrong” scenario occurs.”340 Although many companies still view risk in accordance to Porter’s perspective, this thesis recognizes both negative and positive effects of risk.341 Inextricably linked are concepts of risk management and uncertainty, so when neither the results nor the probabilities of occurrence of the results are fully known, management is making decision under conditions of uncertainly.342 Figure 12: Risk Gradually Reduce presents the four logical steps followed in this thesis on how to arrive at an opportunity when facing risks.343

The industry norm became inclusion of all risks, both idiosyncratic and systemic risks. There are numerous risks that banks face, so Table 3: Business Risk Model Sample on the next page presents a generic business risk framework, which can be used to illustrate this complexity banks are facing.
It is important to keep in mind, that members for different organizational levels might view the same risks for a different viewpoint; therefore, such risks can fit in more than one of these provisional categories.

Table 3: Business Risk Model Sample

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<th>INTERNAL FACTOR RISKS</th>
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<td>Economy risk</td>
<td>Strategic focus risk</td>
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<td>Competitor risk</td>
<td>Parent company support risk</td>
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<td>Patent trademark protection risk</td>
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<td>Customer needs and wants risk</td>
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<th>PROCESS RISKS</th>
<th>COMPLIANCE RISKS</th>
<th>PEOPLE RISKS</th>
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<td>Environmental risk</td>
<td>Human resources risk</td>
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<td>Customer satisfaction risk</td>
<td>Regulatory risk</td>
<td>Employee turnover risk</td>
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<td>Cycle-time risk</td>
<td>Policy and procedures risk</td>
<td>Performance incentive risk</td>
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<td>Process execution risk</td>
<td>Litigation risk</td>
<td>Training risk</td>
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<th>TRADING RISKS</th>
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<td>Commodity price risk</td>
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<td>Foreign exchange risk</td>
<td>Collateral risk</td>
<td>Duration risk</td>
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<tr>
<td>Capital availability risk</td>
<td>Concentration risk</td>
<td>Measurement risk</td>
</tr>
<tr>
<td></td>
<td>Default risk</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Settlement risk</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INTERNAL FACTOR RISKS</th>
<th>TECHNOLOGICAL RISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting standards risk</td>
<td>Information access risk</td>
</tr>
<tr>
<td>Budgeting risk</td>
<td>Business continuity risk</td>
</tr>
<tr>
<td>Financial reporting risk</td>
<td>Availability risk</td>
</tr>
<tr>
<td>Taxation risk</td>
<td>Infrastructure risk</td>
</tr>
<tr>
<td>Regulatory response risk</td>
<td></td>
</tr>
</tbody>
</table>


Classifying same risks in different categories is not only chaotic but highly impractical as well, yet this perspective is still wide-spread in practice. A more elegant and a much superior view of corpo-
rate risk management was developed by Kägi and Pauli (2003) and represented in the Figure 13: Risk Radar for Corporate Risk Management.

Figure 13: Risk Radar for Corporate Risk Management

The categories used in practice are highly diverse as well, what only illustrates non-standardization in reporting. At the same time this is logical, as it is crucial that classification has to be based on a logic that reflects the uniqueness in the organization.

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345 For example UBS uses five primary risk categories including credit, country, market, operational, and liquidity risks (UBS, 2012:113-114). CSG defines the following categories: management risk that includes of strategy and reputational risks, chosen risks are comprised of market, credit, and expense risks, and consequential risks include operational and liquidity risks (Credit Suisse Group, 2012:112).
B. Corporate Governance Perspective

“Corporate governance is traditionally defined as the system by which companies are directed and controlled as a set of relationships between a company’s management, its board, its shareholders and its other stakeholders.”\(^{347}\) The oversight of the enterprise risk management is one of the most essential and challenging functions of a company’s board of directors. The board of directors should establish, approve, and periodically review the risk management framework.\(^{348}\) Further, the board is responsible for determining the risk appetite and risk tolerances,\(^{349}\) and establishing environment or structure in which senior management can implement the organization policies, processes, and systems.\(^{350}\) When put to the test during the financial crisis, the corporate governance routines did not serve its purpose to safeguard against excessive risk taking in numerous financial companies.\(^{351}\) For example, a survey of European banks indicates that risk management is not deeply embedded in the organization, a clear corporate governance weakness.\(^{352}\) The literature indicates that existing principles of corporate governance\(^{353}\) already addressed the problems highlighted by the financial crisis, but also recognize that genuine effectiveness of corporate governance is still missing.\(^{354}\) The main criticisms of the existing principles are: too broad in scope, difficult to implement, not requiring clear definitions and allocations of roles and responsibilities in regard to implementation, and not binding in nature.

As an improvement and an alternative to the traditional corporate governance Hilb (2005) presented “an integrated corporate governance framework, called “New Corporate Governance” (see Figure 9.), which is based on a reversed KISS-Principle:

- Situational
- Strategic
- Integrated
- Keep it controlled.”

\(^{348}\) BIS (2011:5); UBS (2012b:7).
\(^{349}\) Risk appetite is a higher level determination of how much risk a firm is willing to accept, while risk tolerances are usually a more specific determination of the level of variation a bank is willing to accept around specific business objectives (BIS, 2011:6). Often terms are used synonymously.
\(^{350}\) FERMA (2002:12); also reflected in AIRMIC (2010:12).
\(^{351}\) Kirkpatrick (2009:3); COSO (2009b); Branson (2010).
\(^{352}\) Kirkpatrick (2009:19). Also see (Du Plessis, 2011).
\(^{353}\) OECD Principles, the Basel Committee recommendations, EU Legislations, Walker Review, etc.
\(^{354}\) EC (2010:5-6).
The framework that integrates the interests of shareholders, customers, employees and the public comprises four parts which are presented in the Table 4: Differences between Traditional and New Corporate Governance. The table provides an overview of the framework, and presents differences between the traditional and the NCG framework. The framework is too comprehensive for examination at this point (please see Figure 14: The New Corporate Governance framework on the next page); however, this study will reflect on the strategic dimension, as well as the controlling dimension throughout the entire document.

“New Corporate Governance” is defined as “a system by which companies are strategically directed, interactively managed and holistically controlled in an entrepreneurial and ethical way and in a manner appropriate to each particular context.” Finally, Hilb (2008) recognizes the need for a framework and process that simultaneously deals with both governance and risk.  

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Traditional Corporate Governance</th>
<th>New Corporate Governance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Situational</td>
<td>No difference between national, industry and corporate culture</td>
<td>Implementation appropriate to the specific context of each firm <em>(Keep is situational)</em></td>
</tr>
<tr>
<td>Implementation</td>
<td>Strategic direction</td>
<td>Strategic development is a central function of the supervisory board <em>(Keep it strategic)</em></td>
</tr>
<tr>
<td>Strategic direction</td>
<td>Strategic development is not a function of the supervisory board</td>
<td></td>
</tr>
<tr>
<td>Integrated board management</td>
<td>Only Isolated nominations and remuneration committees is publicly listed</td>
<td>Integrated and targeted selection, appraisal, compensation and development of the supervisory and managing board <em>(Keep it integrated)</em></td>
</tr>
<tr>
<td>Holistic monitoring</td>
<td>Controlling the financial dimension only</td>
<td>Holistic monitoring of results from the perspectives of shareholders, customers, employees and the public <em>(Keep it controlled)</em></td>
</tr>
</tbody>
</table>

Source: reproduced from Hilb (2005:2)
C. Corporate Risk Management

Corporate Risk Management (CRM) is a current evolutionary state of the risk management process. The Committee of Sponsoring Organizations of the Treadway Commission (COSO) defines enterprise risk management as:

“…a process, effected by the entity’s board of directors, management, and other personnel, applied in a strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risk to be within the risk appetite, to provide reasonable assurance regarding the achievement of objectives.”

Another fitting characterization of the contemporary CRM is provided by Liebenberg and Hoyt (2003) who state that “unlike the traditional “silobased” approach to corporate risk management, [C]RM enables firms to benefit from an integrated approach to managing risk that shifts the focus of the risk management function from primarily defensive to increasingly offensive and strategic.”

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357 COSO (2009a:3). COSO framework used ERM terminology to explain the same phenomenon, i.e. CRM.
Therefore, some scholars argue that a new CRM is “a shift of paradigm”, since the CRM process incorporates all possible risks into an integrated, strategic, and enterprise wide system. Some non-traditional risks included are the environmental and reputational risks, which cannot be hedged through conventional methods. CRM as a discipline consists of a comprehensive list of concepts and techniques for managing risk in a holistic way, mainly through timely identification of risks and implementation of appropriate responses. Significance and main challenges lie in holistic nature of CRM, which contrasts with traditional and more technical approaches (hedging etc.). Finally, an often overlooked aspect of risk management is the ongoing nature of the process.\textsuperscript{358} As Prof. Müller structures it: “Risk Management is an ongoing process based on a systematic\textsuperscript{359} collection and analysis of all relevant risks\textsuperscript{360} for a company.”\textsuperscript{361}

In line with the broad COSO definition of “ERM” this research accepts this broad view of CRM, and deals with risks and opportunities affecting value creation in banks. More specifically, an emphasis in on the senior level oversight and coordination of CRM at all levels of the organization. The ultimate goal of fully integrated CRM is for all employees to view risk management as integral and ongoing part of their jobs. After all the quality and effectiveness of the CRM is dependent on the enterprise culture.\textsuperscript{362}

Finally, Kalia & Müller (2007:57-78) provide us with a conceptual framework for risk implementation at the strategic level (see Figure 15: ERM Conceptual Framework on the next page), but caution that several prerequisites have to be fulfilled “in order to achieve effective Risk Management\textsuperscript{363} in an organization.”\textsuperscript{364} These prerequisites can be divided into two main categories:

“Category 1: Key components, i.e. the elements that are directly linked to the Risk Management structure and process in an organization, including objectives, structure, roles, processes, reporting, and communication; and

\begin{itemize}
\item \textsuperscript{358} Reluctance to implement an ongoing process is one of the main deficiencies of the audit based approach.
\item \textsuperscript{359} Follows the logic of systems thinking that assumes that the problems are complex, have more than one cause, affect the entire organization, they are constantly changing, and a problem-solving is a dynamic process (Montana & Charnov, 2000:89).
\item \textsuperscript{360} As mentioned, including non-quantifiable and some non-traditional risks like reputational risks, environmental risks, etc.
\item \textsuperscript{361} Müller (2011:201).
\item \textsuperscript{362} Reflected in all major frameworks. (see FERMA (2002); AIRMIC (2010:12), COSO (2004), ISO (2009), etc.).
\item \textsuperscript{363} For the complete list of the main implementation steps in checklist form please see the works of the original authors Kalia & Müller (2007:101-102).
\item \textsuperscript{364} Kalia & Müller (2007:57).
\end{itemize}
Category 2: Enablers, i.e. the elements that enable Risk Management components to exist and function optimally in an organization, which includes culture and tools.  

D. **Ideal Types of Risk Management**

Similar to risk qualification, there are several categorizations of risk management types presented in literature. The widely accepted classification was presented by Mikes (2009), please see Table 5: Risk Management Types on the next page for more details.

Mikes (2009) develops her argument with a simple claim that senior risk managers, based on their own personal philosophies, shape the CRM practices in an organization. There are two main groups: risk enthusiasts who are heavily reliant on analytical models, and risk skeptics who take compliment models through sound judgment and experience. The second strong influence on CRM practices is a type of corporate governance used in organization. The shareholder value driven organizations tend to focus controls on promoting value creation. A risk based internal, control

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365 As these prerequisites are discussed at different places in this thesis, there is no need to discuss them at this point. Yet, it is worth stressing that the quality and effectiveness of the CRM is dependent on the enterprise culture.

366 They use a variety of “soft” tools like use of a devil’s advocate, communication etc.
based approach is designed around wider strategic objectives. Naturally, these ideal types are never implemented in their true form, so in practice we can expect to see mixture of different types.

Table 5: Risk Management Types

<table>
<thead>
<tr>
<th></th>
<th>Silo-risk management</th>
<th>Integrated risk management</th>
<th>Risk-based management</th>
<th>Holistic risk management</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional background</strong></td>
<td>International regulation of bank capital adequacy</td>
<td>Rating agency expectations of bank capital adequacy</td>
<td>Rise of the shareholder value imperative</td>
<td>The rise of risk-based internal control (Anglo-Saxon and German corporate governance)</td>
</tr>
<tr>
<td><strong>Related theme in the literature</strong></td>
<td>Risk quantification</td>
<td>Risk aggregation</td>
<td>Risk-based performance measurement</td>
<td>The management of non-quantifiable risks</td>
</tr>
<tr>
<td><strong>Focus on</strong></td>
<td>Measurement and control of risk silos; calculation of minimum regulatory capital; tuning capital to the regulatory standard</td>
<td>Assigning a common denominator of risk to the risk silos (economic capital); fine-tuning capital to a given solvency standard; risk limit setting</td>
<td>Calculation of shareholder value created; linking risk management with performance measurement</td>
<td>Inclusion of non-quantifiable risks into the risk management framework; providing senior management with a ‘strategic view’ of risks</td>
</tr>
<tr>
<td><strong>Techniques</strong></td>
<td>Loss distributions; value-at-risk; credit rating models; standardized and advanced measurement approaches set by regulators</td>
<td>Economic capital</td>
<td>Risk-adjusted return on capital (RAROC); shareholder value added; risk pricing; risk transfer; portfolio risk management</td>
<td>Scenario analysis; sensitivity analyses; control self assessment; special risk reviews</td>
</tr>
</tbody>
</table>

Source: Mikes (2009:26)
E. Structure of Risk Management

1. Overview and function of risk management

Depending on a size of the bank the risk management function can range from a single risk champion to a full scale, independent risk management department that is headed by CRO. Kalia & Müller (2007:105) provide us with an ideal risk management structure, which is usually implemented in larger institutions.

Nevertheless, regardless of size and structure each risk management function should fulfill these essential roles:\(^\text{367}\)

- Setting policies and strategies for risk management (BoD).
- Should have a primary champion of risk management at strategic and operational level.
- Should build a risk aware culture within the entire organization, through appropriate training and communication (joint effort by the BoD and CRO – “tone at the top”).
- Establish internal risk policy and structures for business units (designed at operational level and approved by the BoD).
- Design and review processes for risk management (designed at operational level and approved by the BoD).
- Co-ordinate the various functional activities which advise on risk management issues within the organization (operational level).
- Develop risk response processes, including contingency and business continuity programs (operational level).
- Prepare internal and external risk reports, and foster communication.

2. Implementation in the big banks

From the practical standpoint we’ll look at the structure of big banks. It is important noting that two banks in Switzerland, based on their size, have somewhat specific purpose and function.\(^\text{368}\) FINMA has much closer cooperation with them due to their complexity and their importance to the financial

\(^{367}\) List based on FINMA (2012e:2).

\(^{368}\) The closer examination of the risk management function in these two institutions can provide us with a benchmark for the rest of this research, as the big two banks have the most comprehensive and advanced risk management in the country.
system,\textsuperscript{369} and at the same time FINMA usually first monitors implementation of new rules and requirements\textsuperscript{370} in those two banks and then to all other banks.

As alluded earlier, UBS drastically changed the risk management function after the crisis. The main developments included strengthening the roles and responsibilities of the Board of Directors and executive management in regards to risk management and control;\textsuperscript{371} as well as implementing integrated risk management for the group.\textsuperscript{372} The CSG maintained the integrated risk management at the group level even before the crisis,\textsuperscript{373} nevertheless some adaptations\textsuperscript{374} were implemented. Figure 16: CS Risk Governance represents the risk management structure at the Credit Suisse Group.

\textbf{Figure 16: CS Risk Governance}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{fig16.png}
\caption{CS Risk Governance}
\end{figure}

\begin{itemize}
\item \textsuperscript{369} They are subject to more rigorous supervision than other banks (FINMA, 2012e). On the 20 November, 2008 FINMA even issued FINMA-Circ. 08/9 “Supervision of large banks” to ensure efficient regulation.
\item \textsuperscript{370} For example stress testing was first introduced to CS and UBS, and later expanded to other institutions.
\item \textsuperscript{371} Five key principles of UBS’s risk management and control framework that were introduced in 2008 are still enforced, and they are: (1) earnings protection, (2) independent control of risk, (3) reputation protection, (4) disclosure of risks, and (5) business management is accountable for risk (UBS, 2009:121; also see UBS, 2012:113). Also, the authority to control risk was split between the BoD and the executive board, risk committees was introduced at the board and executive levels (UBS, 2009:120).
\item \textsuperscript{372} UBS (2009:120). UBS used not only silo-approach to risk management, but risk was not even integrated in business units, i.e. the investment bank had the separate market and credit functions.
\item \textsuperscript{373} Credit Suisse Group (2006:72). Independent risk management help the group better navigate the crisis
\item \textsuperscript{374} Evident is evolving role of the internal audit. The internal audit was controlling all risks before the crisis, and was positioned between the BoD and the executive board (Credit Suisse Group, 2006:72; also recommended by Kalia & Müller, 2007:105). In the new structure the audit does not hold such a prominent role and controlling is performed within the risk management and controlling function (Credit Suisse Group, 2012:112).
\item \textsuperscript{375} Retrieved from https://www.credit-suisse.com/investors/en/riskmanagement.jsp.
\end{itemize}
The new standard structure for the risk management and control appears to consist of:376

- The BoD: that provides strategic direction, control and supervision; and establishes the overall risk appetite and risk tolerance. Risk Committee is assisting the BoD with the implementation of risk, through monitoring and overseeing of the risk profile, and by approving methodologies and setting limits. Audit committee is responsible for overseeing the internal and external auditors, and monitoring management approach to reporting and compliance.

- The Executive Board implements the risk framework, controls the firm’s risk profile and approves all major risk policies. CRO is a member of the Executive Board.

- The Chief Executive Officer is responsible for the results of the firm, therefore has risk authority over transactions, positions and exposures, and also allocates portfolio limits approved by the BoD within the business divisions.

- The divisional Chief Executive Officers are managing their risk exposures.

- The Chief Risk Officer reports directly to the Group CEO and has functional and management authority over risk control throughout the firm. Risk Control an independent function responsible for implementing the risk control processes for financial and operational risks. CRO crucial in establishing methodologies to measure and assess risk, setting risk limits, and developing and operating an appropriate risk control infrastructure.

- The Chief Financial Officer is responsible for the management of firm-wide treasury risks and for implementing the risk management and control framework for tax.377

- The General Counsel is responsible for implementing the firm’s risk management and control principles for legal and compliance matters.

F. Strategic Risk Management

1. General overview

Each organization has some goals, and whatever the goals to achieve them an organization needs to set objectives (what targets and milestones it will pursue on the path to its goals, i.e. corporate objectives) and strategies (how it is going to accomplish its goals, i.e. corporate strategies).378 The

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376 Based on Credit Suisse Group (2012:111) and UBS (2012:113). The complete framework is too extensive for review at this point, but to fully appreciate the complexity of the structure please see the UBS Annual Report Annex B – Responsibilities and Authorities.

377 In many companies, especially smaller ones, the only standard management system is the financial budgeting, which is being used as a primary tool for forecasting, coordinating, and performance evaluations (Kaplan & Norton, 2008:34). Hence, it is not surprising that CFO’s are risk champions in many organizations that do not have an independent risk function, i.e. in the absence of CROs.

goal of CRM is to increase the likelihood of achieving organizational objectives by managing risks to be within the stakeholders’ appetite for risk. The senior management is expected to consider all risk treats. “That is, management should have a plan for any significant scenario that might lead to consequences that might be detrimental to its core strategy, such as a loss of employees, destroyed operations, damaged IT infrastructure, lack of cash flow, drastic shift in regulations, and so on.” Therefore, the strategic risks are “those risks that are most consequential to the organization’s ability to execute its strategies and achieve its business objectives,” and strategic risk management focuses on them. Latest literature indicates that boards can no longer consider only risks that have financial significance to the company, but have to think about impact on stakeholders and the resulting reputation to the firm. Strategic risk management remains to be an immature process in many companies, but it is rapidly evolving. Through embracing mentioned changes, both big banks in Switzerland are adapting their strategies and business models to be: more client centric, more capital efficient, focused on wealth management, business units are being merged, risk reduced and capital base strengthened.

2. Positioning CRM as value-adding

As just mentioned, the critical part of the effective CRM implementation is aligning it with strategic plan or vision, and to be “…value creating, it must be embedded in and connected directly to the enterprise’s strategy.” Assuming that all risks that an enterprise faces are present in an enterprise’s risk portfolio, it is an essence of CRM to align the portfolio with the stakeholder’s risk appetite. “The ultimate objective is to increase the likelihood that strategic objectives are realized and value is preserved and enhanced.” Therefore, CRM is an integral part of strategic planning and strategic execution process. Literature agrees that such process has to be holistic, broad enough

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383 Including shareholders, customers, employees, and regulators.
385 EIU (2010b).
386 Credit Suisse Group (2012:11); UBS (2012:21).
387 The CSG integrated private banking and investment banking (Credit Suisse Group, 2012).
388 Mainly through risk-weighted asset reduction.
389 Credit Suisse Group (2012:12); UBS (2012:25).
390 They are typically communicated by the CEO through annual reports, and have to be coordinated and communicated throughout entire organization, i.e. cannot be achieved through the “silo-approach”.
392 Based on a COSO ERM concept (Moeller, 2007:98), and also represented in FERMA recommendations (FERMA/ECIIA, 2010).
393 Beasley & Frigo (2010:35).
to encompass all enterprise-wide risks, has to create and protect shareholders' wealth, and it has to be an ongoing process in order to realign strategies and objectives with the ever-changing environment. Naturally, it has to be maintained through the strategic risk management mindset and culture.

3. Critical principles for a strategic risk management process

The following “List of 10 practices worth striving toward” presented in the table 6 was developed

Table 6: List of 10 Practices Worth Striving Toward

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| 1 | Communicate and share information across business and risk functions—and externally. This is considered by some to be the ultimate risk management “best practice”.
| 2 | Break down risk management silos. Establish interdisciplinary risk management teams, so that each functional area can understand where it fits into the entire company strategy and how it affects other areas.
| 3 | Identify and, where possible, quantify strategic risks in terms of their impact on revenue, earnings, reputation, and shareholder value.
| 4 | Make strategic risk assessments part of the process of developing strategy, strategic plans, and strategic objectives. This requires a combination of skills that can be achieved by creating interdisciplinary teams.
| 5 | Monitor and manage risk through the organization's performance measurement and management system, including its Balanced Scorecard.
| 6 | Account for strategic risk and embed it within the strategic plan and strategic plan management process. Wherever scenario planning is included in developing the strategic plan, there should also be a discussion of countermeasures in the event that a risk event occurs.
| 7 | Use a common language of risk throughout your organization. Everyone must understand the organization's particular drivers of risk, its risk appetite, and what management considers acceptable risk levels.
| 8 | Make strategic risk management, like strategy management itself, a continual process. Risk is inherently dynamic, so risk management and assessment must evolve from being an event to being a process—and must include regular analysis and critical risk information refreshment. Strategic risk management reviews should be conducted as part of regular strategy reviews.
| 9 | Develop key risk indicators (KRIs) to continuously monitor the company's risk profile. Like the Balanced Scorecard with its measures, targets, and initiatives, the risk management system should include KRIs, thresholds and trigger points, and countermeasures to mitigate or manage the risk.
| 10 | Integrate ERM into Strategy Execution Systems. This means integrating ERM into the entire management system. This will require strategic risk management as a core competency in and a commitment to continuously monitor and manage risk in the strategy and its execution.”

395 Defined as having a focus on performance under different scenarios and events, especially ones with a high loss potential.
396 More on culture in later sections.
397 The list in its current form is considered to be a starting point, and it will be critically assessed in the concluding parts.
Risk Management at the Strategic and Operational Levels of Swiss Banks

by the Strategic Risk Management Lab\(^{398}\) in the Center for Strategy, Execution, and Valuation at De-Paul University. These principles and concepts are widely represented in the CRM literature in similar forms.

G. The Supervisory Board

1. General overview

While explaining the strategic dimension Hilb (2005) postulates that “great strategy follows great people, and great success follows great strategy”.

The board has overall responsibility for the bank, including approving and overseeing the implementation of the bank’s strategic objectives, risk strategy, corporate governance\(^{399}\) and corporate values. The board is also responsible for providing oversight of senior management.\(^{400}\) The Board is responsible for setting up the company’s appetite or tolerance for risk,\(^{401}\) as well as for appraising the most significant risks and the managerial response.\(^{402}\) The process starts with the strategic objectives setting by means of SWOT –Analysis,\(^{403}\) which facilitates identification and assessment of risks and opportunities within an enterprise.\(^{404}\) This step is extremely important, as risks cannot be defined if strategic objectives are not clear. “Based on corporate strategy, the Board of Directors (BoD) has to initiate the creation of the following documents to showcase the objectives, structure and procedures to manage risk:

- Risk Management policy,
- Risk Management directives, and

\(^{398}\) The Lab was established with a purpose of sharing with management teams and boards emerging best practices gleaned from its research, and performs collaborative research with the COSO.

\(^{399}\) “Corporate governance refers to that blend of law, regulation, and appropriate voluntary private-sector practices which enable the corporation to attract financial and human capital, perform efficiently, and thereby perpetuate itself by generating long-term economic value for its shareholders, while respecting the interests of stakeholders and society as a whole. The principal characteristics of effective corporate governance are: transparency (disclosure of relevant financial and operational information and internal processes of management oversight and control); protection and enforceability of the rights and prerogatives of all shareholders; and directors capable of independently approving the corporation’s strategy and major business plans and decisions, and of independently hiring management, monitoring management’s performance and integrity, and replacing management when necessary.” (Gregory & Grapsas, 2010:2).

\(^{400}\) Basel Committee on Banking Supervision (2011:8).


\(^{402}\) Kalia and Müller (2007:60).
Therefore, this study follows the logic that the board of directors is responsible for both directing and controlling of the company. In order to effectively implement and monitor corporate strategy, the board has: (1) to have an efficient board structure, (2) shareholder and stakeholder oriented board measures of success, (3) a constructive and open-minded board culture communication function of the board, and (4) a strategically targeted composition of the board-team. While functional competences (e.g. auditing, risk management, HRM, marketing) and independence of members have been addressed in the risk management literature, Hilb postulates that well-diverse board teams should also represent relevant team roles (e.g. a controller, a critical thinker, a creative thinker), national cultural competences (e.g. North America, Western Europe, East Asia), business competences (e.g. pharmaceuticals, consumer products), and demographic data (e.g. age, gender). Finally, NCG doctrine recommends a cyclic approach to the risk management at the board level. Please see Figure 17: A Cyclic Approach to Risk Management at the Board Level on the next page. As mentioned, during the crisis boards were not able to identity, understand, and ultimately control the risks to which their banks were exposed. Several factors that contributed to this failure include: (1) members of boards did not have sufficiently diverse backgrounds, (2) board members did not devote sufficient time to fulfillment of their duties, (3) they were unable to understand and appraise risks, etc.
After drawing lessons from the crisis, COSO highlights four specific areas where senior management can work with its board to enhance the board’s risk oversight capabilities, and they are as follows: \(^{415}\) (1) discuss risk management philosophy and risk appetite, \(^{416}\) (2) understand enterprise risk management practices, \(^{417}\) (3) review portfolio of risks in relation to risk appetite, \(^{418}\) and (4) be apprised of the most significant risks and related responses\(^ {419}\).

\(^{415}\) COSO (2009b:5).

\(^{416}\) Risk appetite is the amount of risk, broadly defined, that an organization is willing to accept in pursuit of stakeholder value. All organizations encounter risks in pursuit of their goals, both long-term and short-term. As mentioned, boards play a vital role in articulating a sense of their risk management philosophy and their willingness to accept risks, especially those risks that may be seen as outside the norm for the business and industry. Because boards represent the views and desires of the organization’s key stakeholders, a critical starting point for risk management is for management and the board to develop a shared understanding of the organization’s risk management philosophy and overall appetite for risk as they establish organizational strategies and objectives.

\(^{417}\) Management can review its existing risk management processes with the board and the board can then challenge management to demonstrate the effectiveness of those processes in identifying, assessing, and managing the organization’s most significant enterprise-wide risk exposures likely to affect the achievement of the organization’s objectives.
Numerous rules and policies are created to encourage or mandate numerous corporate governance changes. Evidence indicates that since the crisis boards became smaller, have more independent directors with more banking experience, and boards have better expertise. The key findings of the Walker review include recommendation for a materially increasing time commitment for all board members, especially the chairman - leaving them little time for other business activities. The Walker review further recommends more engagement in the risk oversight by the board, suggests that the reach of the board remuneration committee should extend beyond the executive committee and include all employees in significant positions. Following the same logic and applying it to the financial industry in Switzerland Varges (2011:62-63) argues: the boards should be significantly more involved in governance of remuneration, remuneration committees should be enhanced, quality of information improved.

The majority of literature supports the view that boards should be more shareholder-friendly and more independent; nevertheless, several authors argue that shareholder-friendly and more independent boards performed significantly worst during the crisis.

418 Effective board oversight of risks is contingent on the ability of the board to understand and assess the interaction of the organization’s strategies and objectives with key risk exposures to determine whether those exposures are within the stakeholder’s overall appetite for risk taking. Board agenda time and information packets that integrate strategy and operational initiatives with enterprise-wide risk exposures strengthen the ability of boards to gain comfort that risk exposures are consistent with overall stakeholder appetite for risk.

419 Risks are constantly evolving as the organization strives to achieve its objectives, creating a high demand for robust risk information. Regular updating by management (at all levels of the organization) of key risk indicators that are linked to objectives is critical to enhancing board oversight of key risk exposures for preservation and enhancement of stakeholder value.”

420 Adamson (2012:553-554).

421 Adamson (2012:553). Independence in respect to the RC is regulated by section 3.2 of the CO.

422 Independent directors might not always be beneficial for banks for two reasons: they don’t always have expertise to oversee complex banking processes, and banks’ independent directors make less than their non-financial counterparts so banks do not attract top talent (Adams, 2009:15).

423 Becht et al. (2012:447-448); also echoed in Walker (2009).


425 The board should revise the remuneration policy for the company, approve bonus pools and sub-pools on all levels, determine length for deferred compensation, set performance metrics, etc. Hilb (2011:535) recommends “the variable compensation packages have to account for both the long term and the short term success horizon of the company (e.g. for boards: 100% of bonuses on a 3 year basis, for CEO: 50% of bonuses on a 3 year basis or 50% on a 1-year basis).”

426 The author further makes several management level recommendations, for example establishing management level compensation council.

427 Beltrani & Sultz (2010:1). These authors further claim that the shareholder-friendly banks had more idiosyncratic risk in 2006.

2. **Strategic risk assessment process**

Presented here is a basic, high-level process that is wide enough for all organizations and requires a significant amount of customization.\(^{429}\) To reflect strategic risk management as an ongoing process, this model is designed to be a circular and closed-looped; hence, follows the same logic as the NGC models presented earlier. This strategic risk assessment process presented in Figure 18 on the next page is designed to be tailored to a specific organization and specific culture.\(^{430}\) Naturally there are several alternatives to building strategic risk management process, and some of the more prominent are:\(^{431}\)

- Risk assessment from three perspectives: risks, opportunities, and capabilities (ROC).
- There are many tools that can be useful in strategic risk assessment, including brainstorming, analysis of loss data, self-assessments, facilitated workshops, SWOT (strengths, weaknesses, opportunities, threats) analysis, risk questionnaires and surveys, scenario analysis, and other tools.
- Competitive intelligence as a part of fact-based strategic planning.
- Corporate sustainability risk approach.
- Risk transfer and retention strategies.\(^{432}\)

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\(^{429}\) Frigo & Anderson (2011:85).

\(^{430}\) To be the most efficient the process has to have a footing in culture, so that it is owned by managers (Frigo & Anderson, 2011:85).

\(^{431}\) For more information on all mentioned approaches please see (Beasley & Frigo, 2010:43-44).

\(^{432}\) Kalia & Müller (2007:75), depending on risk intensity and the achievable impact of measures, recommend four options: (1) insurance (high risk/low impact), (2) risk reduction with in-house measures and insurance (low risk/low impact), (3) risk reduction with in-house measures and insurance (high risk/high impact), and (4) in-house measures only (low risk/high impact). Beasley & Frigo (2010:44) take a slightly different view and recommend only three actions: insurance, self-insurance, or creating a captive.
Figure 18: Strategic Risk Assessment Process

1. Understand the strategy of the organization
2. Gather data and views of strategic risks
3. Prepare preliminary strategic risk profile
4. Validate and finalize the strategic risk profile
5. Develop strategic risk management action plan
6. Communicate strategic risk profile and action plan
7. Implement strategic risk management action plan

Return driven strategy framework

Source: Frigo & Anderson (2009:27)
3. **Integrating strategy and risk management**

The most recognized model\(^{433}\) of integrating risk management into strategic planning and performance measurement system was based on the Kaplan-Norton’s balance scorecard framework.\(^{434}\) The original Kaplan-Norton’s framework is developed for integration of strategy and operations,\(^{435}\) but it’s been extended to include risk management.\(^{436}\) The Basel report “Principles for the Sound Management of Operational Risks” also recommends use of scorecards to provide a meaningful translation of risk assessment into metrics that give a relative ranking of risks, as a part of risk assessment.\(^{437}\) Please refer to sub-section on integration of operational and strategic risk management for more details. An alternative method is the SOAR\(^{438}\) methodology that is based on the application of probability distribution;\(^{439}\) however, this elegant solution for a methodologically measuring risk did not receive a wide recognition.

H. **The Swiss Board of Directors**

Banks must provide a management organization adequate for its business activities. Art. 3 of the Banking Act imposes a dual board system on banks making it mandatory to separate supervisory and executive functions.\(^{440}\) The clear separation is aimed at ensuring a system of checks and balances.\(^{441}\) The Swiss corporate law, namely The Corporate Governance Directive of the SIX Swiss Exchange (2002)\(^{442}\) and the Swiss Code of Best Practice (2002), is a basis for the organization of Swiss boards of directors. Article 716A CO asserts main tasks mandated to boards, and they include the strategic direction, organization, and the financial direction\(^{443}\) of the company. In order to achieve the strategic objectives the boards are responsible for allocation of resources, as well as for instructing and monitoring of executives. Therefore, the boards have to adhere to the principle of adequate corporate strategy and financial management, and have to act in good faith of the compa-

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433 Neely, Kennerley, & Adams (2007:147-149). Some of the alternative approaches are: strategy maps, risk dashboards, etc.
437 BCBS (2011:12).
438 SOAR is an acronym for the four step process: set, observe, analyze, and react.
439 Monahan (2008). This framework would fit with a culture of quantitative enthusiasm. It does introduces an interesting idea of a “black box recorder”, that would be a database containing all data surrounding the decisions of the CRM officers. On the other hand such systems are probably present in the field, in a form of MIS systems.
440 The literature indicates that existing empirical evidence does not support this separation of duties (Schmid & Zimmermann, 2008:119).
441 Hilb (2008b; 35); Müller (2001:22).
442 Although the Corporate Governance Directive of the SIX Swiss Exchange entered into force on July 1st, 2002 it was through the revised Corporate Governance Directive on January 1st, 2007.
443 Müller, Lipp, and Plüss (2007).
The boards are held reliable for their performance to shareholders in accordance to the Art 754 CO. In accordance to the Art 707 CO boards have to be composed of a majority of Swiss citizens living in Switzerland. Additionally, the board is required to perform their duties with due care and they are required to safeguard the interests of the company.

Internationally, the composition of the boards and the composition of risk committees have been found insufficient in many financial institutions during the crisis (Kirkpatrick, 2009; Branson, 2010). Kirkpatrick (2009:20) states that boards do not have enough non-executive directors, and goes further to state that “some companies report difficulties in recruiting non-executive directors with recent “high-level” financial expertise” to staff their committees. Confirmation that such assumptions have merit came when UBS launched an extensive remediation plan which included: “the overhaul of its risk governance; significant changes to risk management and control personnel; and improvements in risk capture, risk representation and risk monitoring.”

This is not so surprising when considering that Kalia & Müller (2007:17) indicated many of those deficiencies before the crisis (please table 7).

Table 7: Mistakes and Deficiencies at the Board Level

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wrong structure and insufficient qualification of the Board of Directors (BoD), in particular concerning the function of the Chairman combined with the absence of the non-executive Board members</td>
</tr>
<tr>
<td>2</td>
<td>Board members are not sufficiently prepared and do not have the necessary overview</td>
</tr>
<tr>
<td>3</td>
<td>Board decisions are influenced by conflicts of interests supported by insufficient internal regulations</td>
</tr>
<tr>
<td>4</td>
<td>Missing or insufficient strategy identifications and strategy control</td>
</tr>
<tr>
<td>5</td>
<td>Missing or insufficient risk management, in particular concerning liquidity planning and succession regulations</td>
</tr>
<tr>
<td>6</td>
<td>Low frequency of Board meetings, so that the Board of Directors can only react to changes and events instead of being proactive</td>
</tr>
<tr>
<td>7</td>
<td>Unsatisfactory provision of information and information evaluation, in particular by insufficient or delayed reporting to the Board of Directors</td>
</tr>
<tr>
<td>8</td>
<td>Delayed or incorrect decision making, in particular according to incomplete decision documents</td>
</tr>
<tr>
<td>9</td>
<td>Insufficient cooperation between Board of Directors and Executive Management, in particular unclear allocation of duties and competence</td>
</tr>
<tr>
<td>10</td>
<td>Absence of periodic evaluation of the Board members and Executive Management; inefficient Board and Executive Board members are replaced too late</td>
</tr>
</tbody>
</table>

Source: Kalia & Müller (2007:17)

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444 Müller, Lipp, and Plüss (2007); UBS (2012b:8).
445 Muller (1996:1).
446 Some exceptions are allowed.
Situation in non-financial industries is even more concerning, so that Hilb (2008) states that “…the risk management at board level was either non-existent or could be radically improved.”

I. **Delegation of Risk Management Functions to Board Committees**

1. **General overview**

After reviewing what companies need for a properly composed board, we can focus on the workings of such a board. Common practice among boards is to assign the primary oversight function to a board committee. The committee is then directly overseeing the risk management function, and works closely with the senior management in charge of risk management. The full board is periodically informed about all aspects of the risk management process, so that an organization’s objectives and strategies can be modified according to changes in our dynamic world. Branson (2010) claims that 66 percent of Fortune 100 companies place the primary risk oversight responsibility on the audit committee. Other studies (Kirkpatrick, 2009; The Conference Board, 2006; Monahan, 2008) report even higher percentages on the audit committee involvement. However, all studies state that the risk management committees are represented the most in the financial service industry. For example, in 2008, the study of 25 largest banks in Europe revealed that 52 percent of banks in the sample possessed a standalone risk committee.

With the increased importance of the risk management, the board committees in charge (either the risk management or audit committee) have increased their demand for information on senior management, the boards meet more often and work longer. This increasing trend is in accordance with the New Corporate Governance philosophy that recommends a separate risk management committee in banks.

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448 Hilb (2008:159). Hilb was referring to risk management in all industries, not just the financial one.
449 UBS (2012b:8).
450 This is consistent with the 2004 NYSE Final Corporate Governance Rules.
451 Specific percentages were not provided.
452 Ladipo & Nestor (2009:10).
454 FERMA/ECIIA (2010:8).
PART TWO: GENERAL THEORETICAL PART

2. Risk management committee

The primary function of a risk committee is to assist the BoD in fulfilling its risk management responsibilities as defined by law and regulations, yet they were not standard even in big banks as of 2010. The objectives of the risk management committee (RC) are following: (1) to ensure a comprehensive, professional risk management system exists within the company, and (2) to ensure effective communication between committees, external auditors, management (CEO and CFO), internal auditors and risk management professional. Further, NCG doctrine suggests RC committee should consist of three independent board members who had no executive functions in recent years (at least one should have proven knowledge in risk management), and should receive all relevant information from an executive board and CRO. A Risk Committee usually has the authority to meet with regulators and third parties in consultation with CEO. Among the top responsibilities of RCs are: review and proposal of the guiding risk principles, approval of internal risk management framework, review and make recommendations about the proposals from the executive board, and monitor and review of banks risk profile. To ensure the effective oversight of the risk function, Mongiardino & Plath (2010: 122) recommend bi-monthly meetings. Again it is crucial to keep in mind that not all banks have a risk committee.

Finally, it is worth nothing that not all risk will be a sole responsibility of the risk management committee. For instance in the CS Group the review and assessment of the adequacy of the management of reputational risks is a joint responsibility of the risk committee and audit committee.

3. Audit committee

FINMA Circular 8/24 requires companies of certain size to set up the audit committee. The Audit Committee has the following objectives: “(1) to supervise the internal controlling system, especially

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456 Credit Suisse Risk Charter (2009:3).
458 Particularly as it relates to market, credit, and liquidity & funding risks (Credit Suisse Risk Charter, 2009:3).
459 Hilb (2008:159); UBS (2012b:42).
460 Also applied in practice (UBS, 2012b:36).
461 Also reflected in FRS recommendations, specifically, “a company’s risk committee members should have risk management expertise commensurate with the company’s capital structure, risk profile, complexity, activities, size and other appropriate risk-related factors (The Board of Governors of Federal Reserve System, 2012:624).”
462 Implemented in big banks (see UBS, 2012b:15). Naturally, depending on the size of the bank, all recommendations have to be scaled down and adjusted, but more on that in later sections.
463 Only main duties are mentioned as more details will be provided in concluding sections of this chapter. For instance RCs also signs-off on all quarterly reports and assesses efficiency of internal auditing.
464 Deloitte (2012:3). Smaller banks have boards with limited or no risk expertise.
465 The specified criteria includes: banks that have balance sheet greater them CHF 5 billion, that are listed on stock exchange, whose capital resources are over CHF 200 million, and whose safe-custody volume is greater than CHF 10 billion (FINMA, 2009:7).
the internal audit reports and professionalism, integrity and independence of the internal audit team members, (2) to supervise professionalism, integrity and independence of the external audit, and (3) to analyze and critically examine the annual report and the interim reports (semi-annual and quarterly reports).\textsuperscript{466} Often risk management oversight is one of an audit committee’s oversight duties, but literature indicates this practice will became increasing difficult to justify to regulators.\textsuperscript{467}

4. Remuneration committee

Since the crisis the remuneration committee gain more prominent role as well. FINMA Circular 10/1 on remuneration schemes delegates greater responsibility to the BoD. The board has to publish the remuneration report that details the remuneration policy of the entire financial institution.

The FRS recommendations state that the remuneration committee should:

- “be constituted in a way that enables it to exercise competent and independent judgment on compensation policies and practices and the incentives created for managing risk, capital and liquidity. In addition, it should carefully evaluate practices by which compensation is paid for potential future revenues.
- to that end, work closely with the firm’s risk committee in the evaluation of the incentives created by the compensation system;
- ensure that the firm’s compensation policy is in compliance with respective rules by national supervisory authorities; and
- ensure that an annual compensation review, if appropriate externally commissioned, is conducted independently of management and submitted to the relevant national supervisory authorities or disclosed publicly.”\textsuperscript{468}

J. Key Steps of ERM Process

1. General overview

Kalia & Müller (2007:57-78) present an elegant framework for CRM implementation (see Figure 14). As the framework is well developed only a key processes of CRM will be briefly reviewed. The processes have similarities and follow the same general logic as different framework, i.e. SOAR, COSO, etc.

\textsuperscript{466} Hilb (2008:158); UBS (2012b:38). These recommendations are stated in the FINMA Circular 8/24.
\textsuperscript{467} Du Plessis (2011:417).
\textsuperscript{468} FSB (2009:2).
As mentioned in the previous section the process starts with Strategic Objective Setting.

**Risk Identification** “… is the most important and delicate step because it sets the agenda. Risks are normally only discussed when they have occurred or identified before. The worst risks are unidentified ones, which appear suddenly and where there is no guarantee that only the Executive Board (ExBoD) is the first to observe them.”

Further, identification of as many risks as possible is crucial to create a Master Risk List. In smaller companies all employees could participate, while big companies should include between 500-1000 employees. Naturally, the end goal of this exercise is classification of all risks; and an example of such classification is presented in the work of original authors.

**Risk assessment and prioritization** is performed using qualitative and quantitative techniques. Numerous methods and measurements are used to measure risk in banks; however, many of them have been around for decades. UBS divides all methods into two broad categories: (1) statistical loss measures that include value-at-risk (VaR), expected loss and earnings-at-risk (EaR), and (2) stress loss methods that measure the loss that could result from extreme events under specified scenarios. Stress loss measurement gained more prominence in last couple of years, and “key scenarios include significant movements in credit spreads, interest rates, equity and commodity prices and foreign exchange rates, as well as adverse changes in counterparty default and recovery rates.” All measurements are continuously being revised to reflect the ever changing business and regulatory environments.

470 Kalia & Müller (2007:63). This is achieved through either bottom-up or top-down approach.
471 If this process is not feasible, the authors recommend that a risk manager conducts a workshop with an interdisciplinary/interdivision team.
472 Like VaR, option pricing models, sensitivity analysis, gaps, nominal positions, and so on (for detailed descriptions and limitations of these models see Aerni (1999).
474 Many authors consider the VaR to be the most valuable tool for risk management (Monahan, 2008:23), yet all statistical methods can be deceiving. Instead of describing limitations of this model, the researcher will illustrate it through a few real life examples. Merrill Lynch’s one-day value at risk (the maximum loss in a day at the 99% confidence level) at the end of 2007 was $154 million (Rizzi, 2010:303), yet the company lost $35.9 billion by the end of 2007 (Crotty, 2009:565), what triggered a forced sale to Bank of America. The most recently the VaR model at UBS was loosened significantly to allow large hedge positions that lead to $2 billion loss (Madigan, 2012).
475 Stress testing is required, as VaR does not cover worst loss, i.e. “left tail” losses (Likerian, 2007:271).
476 Credit Suisse Group (2012:118).
477 For example the CS group revisions to the VaR methodology included: (1) Historical dataset changed to two years (from three years); (2) Exponential weighting to give emphasis to more recent market data and volatility (previously: equal weighting of market data and the use of scaled VaR); (3) Expected shortfall calculation based on average losses (previously: losses from a single event); (4) One-day holding period for risk management VaR (from a ten-
Risk Management at the Strategic and Operational Levels of Swiss Banks

some even claim that models along with current IT and operational structures do not allow implementation of CRM or any form of holistic risk management.\(^{479}\)

Nevertheless, CRM framework recommends a use of “The Master Risk List [that] gives a complete portfolio of risks that a company faces at any given point in time.”\(^{480}\) Since all risk cannot be mitigated at the same time,\(^{481}\) the authors recommend the Failure Mode and Effect Analysis (FMEA) technique.\(^{482}\) Under FMEA all risk are classified based on impact, probability, and surprise and usually presented in a risk matrix\(^{483}\) of a risk map (see Figure 19: Risk Matrix). Each risk is represented by a Risk Priority Number (RPN),\(^{484}\) a single numerical value that can be easily compared and then assigned to responsible person/position.

*Risk analysis* is preformed once risks are selected using the FMEA methodology. A next logical step is in depth analysis to assess the main risk drivers in order to effectively manage them.\(^{485}\) The results of this step are usually presented in the Risk Driver Tree of the Measure Map.

<table>
<thead>
<tr>
<th>Impact</th>
<th>Probability of occurrence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A (1) Negligible</td>
<td>5 - Likely</td>
</tr>
<tr>
<td>B (2) Marginal</td>
<td>4 - Possible</td>
</tr>
<tr>
<td>C (3) Moderate</td>
<td>3 - Occasionally</td>
</tr>
<tr>
<td>D (4) Major</td>
<td>2 - Seldom</td>
</tr>
<tr>
<td>E (5) Critical</td>
<td>1 - Unlikely</td>
</tr>
</tbody>
</table>

![Figure 19: Risk Matrix](source: reproduced from Kalia & Müller (2007:68))

day holding period adjusted to one day, with regulatory VaR continuing to be based on a ten-day holding period; and (4) Confidence level changed to 98% for risk management VaR (from 99%, with regulatory VaR) (Credit Suisse Group, 2012:118).

\(^{479}\) Shojai & Feiger (2011:25).


\(^{481}\) Due to limited resources present in any organization.

\(^{482}\) It can be used on different levels, i.e. suited to the lowest level (products) and high level strategic projects.

\(^{483}\) Also known as risk heat chart (see Likierman, 2007:270).


In depth risk analysis is used to study the risks more precisely, so that they can be precisely quantified based on probabilities. Such quantifiable measure then becomes a benchmark against which the success of the action can be compared.\footnote{It is usually compared to EBITDA of the company; however, a more sophisticated approach can be taken as well.}

Action planning is used to plan the future Risk Map, after the mitigation measures took place.

Monitoring, reporting and supervision, is the next logical step. Regular reports\footnote{Reports for the board should be no more than 2 pages (Kalia & Müller, 2007:76).} need to be generated not only to follow specific risks, but also to assemble a complete picture of all risks facing the company.

2. Improvement opportunities

In their work Kalia & Müller (2007) made great strides in the integration of the corporate governance and risk management body of knowledge. However, their work does not include any recommendations on integration of the internal control systems. This thesis plans to further investigates exactly that avenue and contribute to the further integration of corporate governance and risk management. Additionally, the framework is devised as a tool for strategic level; hence, could be expanded through integration with the operational level. Extending on his works, in the latest publication Müller (2011:207) recognizes a necessity to evaluate the board.

3. Oversight of the strategy function

The evaluation function of the board is nothing new in the corporate governance field.\footnote{This recommendation is present in all major corporate governance codes (Padgett, 2012:143).} This is a part of controlling function of the board, and includes self and external evaluation.\footnote{Indera Ramlogan (2009:72); UBS (2012b:10).} The controlling function of NCG framework has to ensure that the extent of reporting is fine-tuned, i.e. that board gets regular information, including financial and non-financial indicators, that strategic controlling is enabled through reporting, that all requirements are communicated to the management, and that there is a possibility to check the accuracy of information. The corporate governance framework is built on the assumption that shareholders engage with companies and hold the management to account for their performance. Even though banks claim that interaction with shareholders is fundamental to their business and success,\footnote{Bebchuk & Weisback (2010:941); Gillian & Starks (2007); Credit Suisse Group (2012:16).} it is evident that majority of shareholders are very passive,\footnote{EC (2011:3).} so essential this control mechanism essentially does not exist anymore. Yet, sati-
factory engagement between boards and investors is crucial for health of the corporate governance regime, so the Walker Review is attempting to encourage involvement of institutional investors.

Conversely, Müller (2011:207) introduces a concept of a feedback loop from the risk management function to the strategy function. As this is normally not done yet, it is the only mechanism that can “provide a clear picture of how the risks and Risk Management in terms of achieving strategic objectives.” This issue proved to be a major weakness of the UBS’s risk management strategy during the crisis. Although, this is a genuine concern and one of the biggest weaknesses of the strategic risk management, there is a hierarchy issue that needs to be considered prior to making any implementation recommendations. Ideally, the independent CRM function reports directly to the executive and supervisory board; by implementing this feedback loop the CRM would have to effectively evaluate its superiors, and that is a potential conflict. Normally the supervisory board is evaluated only by shareholders, and since this is only reactive measure there is a dire need for the feedback loop.

VI. OPERATIONAL ELEMENTS OF CORPORATE RISK MANAGEMENT

A. General Overview of the Operational Risk Management

The category of operational risk management is viewed as much broader than any other dimension, and that partially explains the attention it receives in the CRM literature. The category of operational risks refers to any risk that has impact on enterprise operations, i.e. it focuses on “…managing the risks that appear during its day-to-day activities of actually executing the organi-

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492 FRC (2010:5).
494 Only implicitly performed occasionally through reporting mechanisms (Müller, 2011:207), or partially through external auditing. This issue is also recognized in the internal auditing literature (Ruud, Ruedisser & Isufi, 2011:108); however, that recommendation only expands on current auditing practices.
495 Müller (2011:207).
496 UBS (2008a:35).
497 Normally the board is only evaluated by the stakeholders.
498 This will be obvious in later sections on frameworks and regulations.
499 “The central aim of operations is to perform, in other words, to effectively deliver on corporate objectives using corporate strategy (Del Bel Belluz, 2010:281).”
Embedding risk management into day-to-day operations is the key to successful risk management, i.e. the Holy Grail for banks.

There are several approaches to managing operational risks. Del Bel Belluz (2010:174-175) cites “the three main activities that executives must engage in to manage their operational risks are:

1. Establish clarity around objectives, roles, and responsibilities.
2. Align resources to deliver excellent performance.
3. Develop capabilities to handle unexpected or uncontrollable factors, through one of the three strategies for dealing with uncontrollable and unpredictable risks which are:
   - Cultivating awareness of factors and trends in the external environment. It is only by keen monitoring of the environment that managers can anticipate and detect new risks.
   - Building relationships with external stakeholders.
   - Developing response capabilities (usually through crisis management).”

This logic is in line with the FERMA recommendations which state that senior management assigns responsibilities to lower level managers that become “risk owners”. Different elements of this topic will be discussed in later sections; however, it is worth noting that with all the attention operational risk management is getting there are numerous operational failures still present.

**B. Senior Executive Leadership and CRO**

The 2006 Conference Board report, “The Role of US Corporate Boards in Enterprise Risk Management” states that the Chief Financial Officer (CFO) is responsible (in more than 70 percent of the companies) for informing the board on risk issues. Yet again, the most studies cite that responsibility is being transferred to the Chief Risk Officer (CRO) in most banks. The CRO’s are becoming risk leaders or champions, and the force behind risk efforts in most companies. For instance,
Mikes (2010) states that 43 percent of the insurance companies have appointed a CRO by 2008, in contrast to 19 percent in 2002. CRM approach requires a top-down view of risks that a company faces; therefore, visible leadership is a crucial component of effective CRM. Leadership is needed to ensure that risks are assessed consistently throughout the entire organization. As mentioned the champion of risk management is the CRO, and the main CRO roles are as follows:

- **The CRO as compliance champion.** This role refers to policing and advocating compliance with risks, regulations, and risk management practices. Through risk practices the CRO puts boundaries and controls in place. It is widely recognized in risk-management circles that Baring’s and Societe Generale’s were caused by employees not following the process. Further, the CRO uses the risk policy framework to convey a shared vision of risks for entire organization. Finally, the risk policy framework provides CROs with a plan, a language, the authority, and the measuring tools for each risk type.

- **The CRO as modeling expert.** Through this powerful role allows CROs to select the people, processes, and systems that will define the scope of risk management in an organization.

- **The CRO as strategic controller.** In this role CROs preside over the close integration of risk and performance measurements, allowing them to be key players in the risk-adjusted planning.

- **The CRO as strategic adviser.** Senior level risk officers have a board visibility, due to their knowledge of emerging risks and uncertainties. This role allows them to use their judgment in formulation of high level strategic decision.

There are some indications in literature that as CRO duties expand even more, in future they might include dual reporting responsibilities to CEO and risk committee or the board.

Although not specifically stated it is essential to establish a common risk management language. Finally, it is worth noting that in a new regulatory environment chief risk officers have to be able to

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506 Du Plessis (2011:423) recommends that top-down approach is used, starting with defying risk appetite, and in that way include the views of external stakeholders.

507 The CRO needs to have enough visibility and influence (that usually comes from technical ability, credibility, and backbone) to get the message across that a business might not want to hear (Du Plessis, 2011:427). Ladipo & Nestor (2009:12) argue that a high-profile of a CRO is crucial, as a study conducted by the authors indicates that low-profile of CRO was detrimental to risk management practices during the crisis.


509 FERMA/ECIIA Guidance for boards recommends implementation of a centralized risk function which is headed by CRO, but recognizes that a smaller companies might assign these responsibilities to a different department head (FERMA/ECIIA, 2010:8). Also echoed by Monahan (2008:38).

510 Mikes (2010:75-79). This classification is pretty representative of the literature; yet, on occasion more categories are used (i.e. see Du Plessis, 2011:425-426).

511 Deloitte (2009:3); UBS (2012b:15).
demonstrate their oversight potential of their function. CROs increasingly consider CEOs and boards as their primary customers; however, they still need to comply with demands of numerous stakeholders.

C. Duties and Implementation

Appendix 6: Principles for the sound management of operational present the recommendations of the Basel Committee on Banking Supervision published in June 2011. Further, the Basel Committee on Banking Supervision (2011:3) states that common industry practice for sound operational risk governance often relies on three lines of defense: (1) business line management, (2) an independent corporate operational risk management function, and (3) an independent review.\(^{512}\)

D. Integration of Operational and Strategic Management

“A visionary strategy that is not linked to excellent operational and governance processes cannot be implemented. Conversely, operational excellence may lower costs, improve quality, and reduce process and lead times; but without a strategy’s vision and guidance, a company is not likely to enjoy sustainable success from its operational improvements alone.”\(^{513}\) Most companies are lacking a management system to integrate the two crucial dimensions, even though in recent years several frameworks attempted to address that deficiency.\(^{514}\) The Figure 20 on the next page presents the step-by-step integration model, based on the Kaplan-Norton’s balance scorecard framework.

“Stage 1:\(^{515}\) Managers develop the strategy using the strategy tools.”\(^{516}\) Organization’s strategic risks have to be identified, so that strategy can be properly clarified and articulated.\(^{517}\)

“Stage 2: The organization plans the strategy using tools such as strategy maps and Balanced Scorecards.”\(^{518}\) Risk based objectives and performance measures need to be developed for balance scorecards and strategy maps, or a separate risk scorecard could be developed.\(^{519}\)

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\(^{512}\) That consists of verification (periodically review by auditors) and validation (assurance that quantification systems are sufficiently robust).

\(^{513}\) Kaplan & Norton (2008:1).

\(^{514}\) For more details see Basel III Framework (BIS, 2010), and “Principles for Sound Management of Operational Risk” (BIS, 2011).

\(^{515}\) Kaplan & Norton (2008:36).

\(^{516}\) “Strategy development starts with tools such as mission, values, and vision (MVV) statements, along with external competitive, economic, and environmental analyses, which are summarized into statements of company strengths, weaknesses, opportunities, and threats (SWOT)” (Kaplan & Norton, 2008:34).

\(^{517}\) Frigo & Anderson (2011:86).

\(^{518}\) Kaplan & Norton (2008:36).
“Stage 3: Once the high-level strategy map and Balanced Scorecard have been articulated, managers align the organization with the strategy by cascading linked strategy maps and Balanced Scorecards to all organizational units. They align employees through a formal communication process and link employees’ personal objectives and incentives to strategic objectives.”\textsuperscript{520} At this stage risk and control units need to be aligned for more effective risk management.\textsuperscript{521}

Figure 20: Integration of Strategy and Operations

\textsuperscript{519} Frigo & Anderson (2011:86).
\textsuperscript{520} Kaplan & Norton (2008:37).
\textsuperscript{521} Frigo & Anderson (2011:86). Recommended is the Strategic Framework for GRC (see Frigo & Anderson, 2009).
“Stage 4: With all organizational units and employees aligned with the strategy, managers can now plan operations using tools such as quality and process management, reengineering, process dashboards, rolling forecasts, activity-based costing, resource capacity planning, and dynamic budgeting.”\textsuperscript{522} The strategic risk management action plan needs to be reflected in the operational action plan\textsuperscript{523} and dashboard.\textsuperscript{524}

“Stage 5: As the strategy and operational plans are executed, the enterprise monitors and learns about problems, barriers, and challenges. This process integrates information about operations and strategy in a carefully designed structure of management review meetings.”\textsuperscript{525} Both strategic and operational risk reviews have to be continual for affective process.\textsuperscript{526}

“Stage 6: Managers use internal operational data and new external environmental and competitive data to test and adapt the strategy, launching another loop around the integrated strategy planning and operational execution system.”\textsuperscript{527} Strategic risk assessment at this stage should also include emerging risks.\textsuperscript{528}

VII. INTERNAL CONTROLS, AUDITING, AND INTEGRATION

A. Internal Control Systems

Control has been central process of management science for a long time. Controls are measures that are put in place to reduce the probability or severity of an adverse outcome.\textsuperscript{529} Theoretical evidence shows that banks with stronger and more robust internal control systems\textsuperscript{530} suffered fewer losses

\textsuperscript{522} Kaplan & Norton (2008:37).
\textsuperscript{523} BIS (2011:8).
\textsuperscript{524} Frigo & Anderson (2011:86).
\textsuperscript{525} Kaplan & Norton (2008:37).
\textsuperscript{526} BIS (2011:5-6); Frigo & Anderson (2011:86).
\textsuperscript{527} Kaplan & Norton (2008:37).
\textsuperscript{528} Frigo & Anderson (2011:86).
\textsuperscript{529} Monahan (2008:7). The same author claims that it is unusual for controls to reduce both frequency and severity.
\textsuperscript{530} “The ICS is one of the key management instruments and is defined by the Committee of Sponsoring Organizations of the Treadway Commission (COSO, 2003) as a process affected by an organization’s structure, work and authority flows, people and management information systems, designed to help the organization accomplish specific goals or objectives.” From an organizational perspective, control is “a process whereby management or other groups are able to initiate and regulate the conduct of activities such that their result accord with the goals and expectations held by those groups (Child, 2005:112).” According to FINMA (2009:4-5) “internal control (synonymous with the internal control system) encompasses all controlling structures and processes which allow a company to reach its business policy targets on all levels, and support the orderly operation of the institution. Internal control not only encompasses retroactive controlling activities but also includes those with a planning and steering aspect. Inter alia, an effective internal control entails control activities which are integrated in business processes, processes for risk
Risk Management at the Strategic and Operational Levels of Swiss Banks

during the crisis, but that the internal control systems were generally focused on financial reporting and not focused enough on broader context of risk management.

The Swiss Code of Obligations (Art.728a, Par.1, lt. 3) requires all companies that are subject to an audit to prove the presence of Internal Control Systems (ICS). The functional ICS is required to have at least three basic levels, which include (1) controls at organization level, (2) controls at process level, and (3) IT controls. Logically, processes at all three levels have to be coordinated, and the ICS is responsibility of the BoD. One of the biggest challenges is ensuring that the documentation of processes and controls is formal and comprehensible.

Further, the internal controls system has to be tailored to each individual company based on thermal environment. There are four basic measures that are implemented in the most companies:

- Directive actions to mold a desired behavior,
- Preventive actions to deter undesired behaviors,
- Detective actions aimed at discovery of unwanted behaviors,
- Corrective actions aimed at irradiation of undesired behaviors.

Finding a correct blend of these measures is the most challenging task of management, it is challenging because the application of controls may influence behaviors in a way different then intended. The effectiveness of the internal control systems and auditing has been a central focus of the corporate governance for last couple of years. The overall academic research on internal control follows the classical schools of thought, yet continues to be extremely diverse and fragmented.

management and adherence to applicable standards (compliance), a risk control independent of risk management, as well as a compliance function. Internal audit audits and assesses the internal controls and thereby ensures continuous improvement.”

531 Becht, Bolton, & Roell (2012:455); Baxter et al. (2011).
532 Kirkpatrick (2009:6). For that reason UBS merged risk management and control in a single function titled “Risk management and control”.
533 For that reason also known as the New Swiss Audit legislation.
534 Ruud & Sommer (2006:129). The mentioned steps seem to be based on the reinforcement theory framework, which states that contingencies of reinforcement are: positive reinforcement, negative (avoidance) reinforcement, punishment, and extinction (Montana & Charnov, 2000:249).
535 However, it also depends if controls are process-dependent which are seen as detective and corrective or process-independent controls which are more often preventive and directive (Ruud & Ruedisser, 2008:1).
536 Monahan (2008:8).
537 Hilb (2005:577).
538 Namely the cybernetic of control theory (see Beer, 1959; Otley, 1980), the agency theory (see Eisenhardt, 1985), the transactional cost theory (see Williamson, 1981), the behavioral theory of the firm (see Cyert & March, 1963; March & Shapira, 1987), and most recently the resource-based theory (Henri, 2006).
The NCG framework suggests that controlling function has to ensure that the extent of reporting is fine-tuned, i.e. that board gets regular information, including financial and non-financial indicators, that strategic controlling is enabled through reporting, that all requirements are communicated to the management, and that there is a possibility to check the accuracy of information.\(^{540}\)

As mentioned several times by now, failures of internal controls was a significant factor contributing to the crisis. In response, the European Commission in 2010 initiated proceeding to strengthen the board’s role in regard to risk management, and in according to which the boards would have to file an extensive report on the adequacy of internal control systems.\(^{541}\) Further, stronger controls have been placed on the trending related activities, i.e. at the front office level as such activities require more “real time” decisions.\(^{542}\)

In accordance to the FINMA Circular 8/24 (margins 45-46) the audit committee is responsible for supervision and assessment of internal controls in regard to financial reporting. The audit committee is assessing internal controls beyond financial reporting only if other committees are not established (margins 52-53).\(^{543}\) Hence, in the bigger banks assessing internal controls is responsibility of the risk management committee.

Finally, governance of remuneration at the control function level received surprisingly little attention in the aftermath of the crisis, yet we know that ill-calibrated incentives played a crucial role. Traditionally, management has guarded compensations from the intrusion of others. In order to correct this omission four special features of the ICS function should be: (1) providing subject matter leadership and expertise, (2) providing objective and independent judgment, (3) adding to checks-and-balances, and (4) supporting the board in the exercise of its governance duties.\(^{544}\)

### B. Internal and External Auditing

The main purpose of an internal auditing is to aid an organization in accomplishing its objectives by bringing a systematic, disciplined approach to evaluate and improve the effectiveness of risk management, control, and governance processes.\(^{545}\) Internal auditing is regarded as an independent, objective assurance and consulting activity designed to add value and improve an organization's op-

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\(^{540}\) Indera Ramlogan (2009:72).


\(^{542}\) Bessis (2010:40).

\(^{543}\) FINMA (2009).

\(^{544}\) Varges (2011:72-73).

erations, it fosters continues improvement. The most recognized standard for internal auditing is issued by the Institute of Internal Auditors (IIA).546 The duties grow from original focus on operational compliance to include financial reporting, operations, and compliance.547

External auditors on the other hand primarily provide an external objective evaluation. The primary role is to evaluate an organization’s financial statements and ensure there are no misrepresentations.548 The internal auditors provide significant amount of information to the external ones,549 and external auditors can be effective only with a full support and cooperation from the board, internal auditors, and the audit committee (to which it reports).550 The external auditors551 also serve as an extended arm of the regulators, and they report all their finding on banks directly to FINMA.

C. Aligning Different Elements of Risk Management

A necessity to integrate CRM, ICS, and corporate governance552 has been recognized lately by several authors,553 yet, only a few solutions have been offered so far. NCG doctrine recommends a targeted cooperation between the audit committee (AC), the board, risk committee, internal, and external auditors in order to achieve complete transparency.554

As mentioned earlier in accordance with the Swiss Code of Obligations555 an internal audit is required to determine whether ICS exists and whether it is fully implemented,556 as well as to deliver a comprehensive report to the board which contains revision of accounting practices and ICS.557 Information on implementation of risk management has to be contained in the appendix of annual reports.558

546 It is a principle based standard, that among other things provides basic terminology and basic requirements for the professional practice of internal auditors FERMA/ECIIA (2010:16).
547 Hilb (2005:577).
548 FERMA/ECIIA (2010:16). For this task independence is crucial.
549 Full disclosure especially on ICS is very important (FERMA/ECIIA, 2010:17).
551 Usually performed by the big four auditing companies, as the auditing firm has to be approved by FINMA (see FINMA Circular 8/41- margin 1).
552 Called “GRC (governance, risk, and compliance) convergence” by some authors (Theytaz, Elam, & Dempsey, 2010).
553 Theytaz, Elam, & Dempsey (2010:588); Müller (2011:207); etc.
555 The code was recently revised to focus on revision on internal controls of accounting and financial reporting (Schmid & Stebler, 2007:643).
556 Art. 728a CO.
557 Art. 728b CO.
558 Art. 663b CO.
Before discussing integration, it is worth noting that there are two fundamental differences between CRM and ICS. Firstly, CRM focuses on both opportunities and risks, while ICS focused solely on risk dimension. While CRM focuses on all dimensions (including strategic) of an organization, internal controls excludes strategic dimension and focus on operations, reporting, and compliance (for more details please see Figure 21: RM and ICS).\(^{559}\)

![Figure 21: RM and ICS](source: Schmid & Stebler (2007:644))

Surprisingly, integration of risk management and auditing is not fully defined either, even though these two functions have traditionally been grouped together both on board level\(^{560}\) and within a company.\(^{561}\) The emphasis was always on auditing\(^{562}\) and that is why in most cases the audit committees have been more concerned with the oversight of functions, i.e. internal and external auditing, and less with the underlying processes and activities, i.e. risk management and internal control systems.\(^{563}\) This remains one of the biggest challenges of the integration. Although there is a push

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560 Even the New Corporate Governance doctrine recommends joint risk and audit committees for all companies except banks (Hilb, 2008:158).
561 Spira & Page (2003) nicely describe this changing relationship between risk management, audit, and internal controls, and states that internal auditors view risk management as the means by which internal audit adds value to the company (Spira & Page, 2003:656).
562 Risk management, evaluation, and reporting would be done though an audit function (Ruud & Sommer, 2006b:254).
563 Ruud et al. (2011:108).
for a risk-based internal auditing approach\textsuperscript{564} in the auditing field another significant challenge remains unsolved. As it is critical for internal auditing to remain independent and objective, any primary focus of any integration of RM, ICS, and governance processes should ensure that independence is not impeded.

At the same time the benefits of such integration are numerous. Just accepting a unified terminology between RM and ICS, if not methodology as well, would decrease complexity, increase effectiveness and efficiency, simplify reporting to the board, and contribute to a better understanding of the overall company position and simplify reporting.

The only serious attempt to integrate various actors in risk management and internal controls is provided by 8th Company Law on Statutory Audit: Directive 2006/43/EC- Art. 41-2b,\textsuperscript{565} and presented in the Figure 22: The Three Lines of Defense (please see the next page). Similar models that follow the same logic are present in the literature.\textsuperscript{566}

Following is the summary of the FERMA/ECIIA recommendations.\textsuperscript{567}

In a first line of defense operational management gets ownership for all the risks while maintaining effective internal controls.\textsuperscript{568} As the business line management is the closest to the ever-changing risks, they are the best suited to manage and mitigate those risks.\textsuperscript{569} Finally, in larger banks risk management is embedded with line managers in order to efficiently enforce the risk management practices; however, it is crucial that such relationship is not too close for ensuring effective internal controls.\textsuperscript{570}

\textsuperscript{564} This approach allows synergies and a direct “connection” of internal audit and risk management, which reduces the overall context and allows for more efficiency (Ruud & Sommer, 2006b:255).

\textsuperscript{565} FERMA/ECIIA (2010:9).

\textsuperscript{566} Du Plessis (2011:429); BIS (2011:3).

\textsuperscript{567} FERMA/ECIIA (2010:9-10). This philosophy is also followed by the Institute of Accounting, Control, and Auditing, at the University of St. Gallen, as Prof. Ruud is one of the contributors to the mentioned 8th Company Law (see Ruud et al. (2011), Ruud & Sommer (2006b), etc.). The model also supports the FINMA philosophy on Internal controls (see FINMA, 2009).

\textsuperscript{568} The model also supports the FINMA recommendations on internal controls, not just integration of internal controls and business processes, but integration with risk management as well (see FINMA, 2009).

\textsuperscript{569} Bessis (2010:40).

\textsuperscript{570} Bessis (2010:40).
In a second line of defense the risk management function facilitates and monitors implementation of the effective risk management practices by operational management. The risk management function is setting the target risk exposure and reporting all relevant risk information throughout the organization. The authors also leave room for the creation of a separate compliance unit (depending on organizational needs), to monitor compliance risks. Any separate monitoring unit would report directly to the supervisory board. 571

In a third line of defense the internal audit function will provide assurance to the supervisory board on how efficiently the organization assesses and manages its risks.

Finally, it is worth noting that the external auditors could be viewed as a fourth line of defense, as they provide assurance to the stakeholders and the board in regards to truthfulness of the financial statements. Interestingly, FERMA/ECIIA also recognizes a need to evaluate the board, 572 but recommends that internal auditors should perform that task, as in their view that is outside the scope of duties of external auditors.

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571 Other specific monitoring functions may include health & safety, supply chain, environmental and quality functions (FERMA/ECIIA, 2010:9).

572 As discussed, the same idea was presented by Müller (2011:207).
The “three lines of defense” approach is well represented in literature, but usually internal and external auditing are clustered.\textsuperscript{573}

VIII. CULTURE

Culture was a hot topic in corporate governance even before the crisis. Numerous scandals\textsuperscript{574} in the last couple of decades led to many new regulations and legislations\textsuperscript{575} that aim to maintain a “good” behavior in companies. However, “…regulation and legislation (legal culture) did not lead to an ethical culture”\textsuperscript{576} in many cases. In an attempt to resolve situation almost all banks adopted a code of ethics, even though that is completely voluntary in Switzerland as it is not defined by law.\textsuperscript{577} Naturally, there is a limit to what can be achieved through regulation and codes, so more effective approach is creating and fostering a risk-aware culture,\textsuperscript{578} and that remains the most challenging task of the BoD\textsuperscript{579} and senior management.\textsuperscript{580} At this is a top-down process, firstly there is a need for a constructive and open-minded board culture. NCG doctrine suggests “that an effective board culture consists of five factors: an outward, learning orientation; a holistic perspective; a consensus orientation; a constructively open, trusting environment; and a mix of global effectiveness and local adaptability.”\textsuperscript{581}

In the entire organization, in the context of CRM the defining characteristic of culture is the impact it has on business decisions. Brooks (2010:89) puts it concisely: “The goal of a risk-aware culture is to ensure that all business decision makers understand and behave, recognizing:

- The importance of identifying and assessing risks in current and potential business activities.\textsuperscript{582}
- The importance of communicating\textsuperscript{583} current and potential risks.
- The importance of taking risk and reward into account in business decisions”.

\textsuperscript{573} Bessis (2010:40).
\textsuperscript{574} Accounting standards at the turn of the century, i.e. Enron, WorldCom, etc.
\textsuperscript{575} For example SOX.
\textsuperscript{576} Indera Ramlogan (2009:73).
\textsuperscript{577} Nikulina (2012:109).
\textsuperscript{578} Enabling risk aware culture is the second key responsibility of the CRO (Du Plessis, 2011:433). It is a matter of leading by example and spreading the risk management message (Deloitte, 2009:6).
\textsuperscript{579} BIS (2011:5).
\textsuperscript{580} FERMA/ECHIA (2010:7-8); also echoed in Cumming & Hirtle (2001); Brooks (2010).
\textsuperscript{581} Hilb (2008).
\textsuperscript{582} Deloitte (2009:6) recommends creation of cohesive teams, creating opportunities to engage with management, and rewarding risk intelligent behavior.
\textsuperscript{583} In agreement with the NCG recommendations, which state that a real culture of trust and learning is created through internal communication of the board, i.e. through communication function of the board (Hilb, 2008).
In order to achieve that culture needs to move from being implicit to being explicit, as explicit tasks and responsibilities make it easier to implement controlling and reporting functions leading to improved strategic leadership. On other levels, explicit culture helps discourage excessive risk taking, and can be used for recognition purposes. Transparency of culture is needed over all dimensions, but especially over strategy and planning, business execution, performance evaluation.

Banks are well known for their alpha male culture that fosters excessive risk taking, a complete opposite of a strong risk aware culture that is necessary for a successful CRM. During the subprime crisis the culture in banks exhibited many weaknesses. For example lower prestige and status of risk management staff vis-à-vis traders also led to failures in risk management. The goal of a risk-aware culture is to extend throughout the entire organization, so that each stakeholder can identify risks and make sound business decision. This applies to employees at all levels of an organization. The culture is important since not all risks can be identified in advance. When employees know the risk culture and risk attitudes of a company, they can make better decisions when facing a new situation/risk. When properly defined culture can be easily defined and the progress of each employee can be measured. The importance of culture is also recognized in all major risk management frameworks. For example, in COSO framework the organizational culture has a major role in forming the internal control environment that serves as a foundation for all other components of internal control and overall CRM.

Some researchers (and regulators) argue an excessive risk taking culture in banking (often called a “banking culture”) is a result of incentives introduces through compensation policies, and in their opinion this excessive risk taking needs to be addressed. As remuneration is inextricably linked to culture, it is important to consider risk adjusted performance measurements and rewards. Since the crisis compensations have changed to reflect longer term horizons and they are composed with a smaller variable part. Some of the more reviewed adjustments are bonus deferral periods and claw backs. While addressing issues of compensation and excessive risk taking it is crucial not to go in the other extreme. A healthy dose of risk taking appetite is crucial for normal functioning of

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585 Müller (2011).
590 Especially pronounced in the investment banking, where employees that took the most risks usually besides huge bonuses also received the most recognition and received the best promotions. In such situations risk has to be treated as an essential element in performance-related rewards (Likierman, 2007:277).
591 It is well known that compensations in Switzerland have multiplied within the last years despite moderate stock market increases (Schütz, 2005), and it become one of the major issues in corporate governance (Felton, 2004).
592 Such measures are introducing small variable parts of compensate, and/or introducing claw-back option.
any organization; therefore, employees should not be evaluated based on whether their decision to
take the risk was correct, even if the specific risk did not work out.594

Finally, there has been several attempts to define characteristic of a risk-aware culture, and some of
the more recognized elements are:595

- Establishing an effective culture that explicitly supports sound risk management practices
  (aligned with other incentives, i.e. reward, recognition, controls, etc.).
- Strong leadership within the organization (top-down process starting with the BoD and the
  head of risk management).
- Recognizing risk considerations as integral part of decision-making.
- Devolving risk management to the workplace.
- Establishing clear expectations of behaviors on all levels, and encourage all employees to be
  accountable for their actions.
- Participative management style.
- Enabling capture of risk at all levels of the organization or area/project chosen for the risk
  assessment, but focus on actions not analysis.
- Encourage learning, comprehensive understanding of risks
- Determining controls before risks occur.
- Continuously improve communication and teamwork.
- Employing environmental scanning and continual discussion of forward looking risks.

IX. CONCLUSION AND CONFLICTS IN THE LITERATURE

A. The Overall Implications

Thus far this literature review reflected on all significant elements of risk management, their func-
tion, and main challenges; yet it never entirely combined all elements and provided the entire pic-
ture. This section attempts to accomplish that, in order to better understand the organizational struc-
ture of the risk management function, as well as its roles and responsibilities. Graphical depiction
will be used for better understanding and simpler form. For more details on any specific element
please return to proceeding sections that are much richer in detail. Figure 23: Structure of Risk
Management illustrates an ideal type of risk management for a big institution (see next page).

595 Based on various sources.
This figure illustrates the ideal structure for a large multinational institution as recommended in the latest literature; nevertheless, not all banks have entirely adopted this structure since the crisis.\footnote{Additionally, the smaller banks usually attempt to emulate all the functionality with very limited human resources.} It is worth noting that a clear structure and well defined roles and responsibilities were not widely adopted before the crisis.

Please note that subsidiary governance will be discussed in subsequent sections; therefore, those recommendations are not included in the Figure 23.

Figure 23: Structure of Risk Management

Source: own development
The most significant relationships among different elements of risk management are presented in table 8 on the next two pages.

### Table 8: Roles and Responsibilities

<table>
<thead>
<tr>
<th>Risk</th>
<th>Chairman / BoD BoD Committees</th>
<th>CEO</th>
<th>Executive Board</th>
<th>Risk Function / CRO</th>
<th>Regional / Business Divisions</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Management Principles</strong></td>
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<tr>
<td>1.1 Principles</td>
<td>A</td>
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<tr>
<td>1.2 Implementation</td>
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<td>EX</td>
<td>EX</td>
<td>EX</td>
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<td><strong>Measurement Methodologies</strong></td>
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<tr>
<td>2.1 Framework</td>
<td>A</td>
<td>P for RC</td>
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<tr>
<td>2.2 Methodologies</td>
<td>A by RC</td>
<td>P for RC</td>
<td>A by CRO</td>
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<td><strong>Limits</strong></td>
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<tr>
<td>3.1 Capacity and exposure limits (based on approved methodology)</td>
<td>A</td>
<td>P by RC</td>
<td>P for RC</td>
<td>P for BoD</td>
<td></td>
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<tr>
<td>3.2 Setting limits below those approved by BoD</td>
<td>A</td>
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<td>P</td>
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<tr>
<td><strong>Policies</strong></td>
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<tr>
<td>4.1 Major risk policies and changes</td>
<td>I to RC</td>
<td>A</td>
<td>P by CRO</td>
<td></td>
<td></td>
<td>Risk expert on the ExBoD is responsible for determining &quot;major&quot; policies</td>
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<tr>
<td>4.2 Other significant policies</td>
<td></td>
<td>A by CRO</td>
<td>P</td>
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<tr>
<td>4.3 Minor operational policies</td>
<td></td>
<td>I to CRO</td>
<td>EX</td>
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<tr>
<td><strong>Authorities</strong></td>
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<tr>
<td>5.1 Risk Authorities</td>
<td>A</td>
<td>P by RC</td>
<td>P for RC</td>
<td>P for ExBoD</td>
<td>P for CRO</td>
<td></td>
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<tr>
<td>5.2 Reporting</td>
<td>I</td>
<td>I to RC</td>
<td>EX</td>
<td>EX</td>
<td></td>
<td>Regional and business divisions provide inputs, CRO prepares the report</td>
</tr>
<tr>
<td>5.3 Insurance for RM function</td>
<td>I</td>
<td></td>
<td>P by CFO</td>
<td>C w/ CFO</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LEGEND: A-approval, P-proposal, EX-execution, I-information, C-coordination
<table>
<thead>
<tr>
<th>Risk Relations</th>
<th>Chairman / BoD Committees</th>
<th>CEO</th>
<th>Executive Board</th>
<th>Risk Function / CRO</th>
<th>Regional / Business Divisions</th>
<th>Remarks</th>
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<tr>
<td>6 Financial</td>
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<td>Reporting</td>
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<tr>
<td>6.1 Financial and</td>
<td>A</td>
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<td>Input by CRO</td>
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<td>business plan</td>
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<tr>
<td>6.2 Annual report</td>
<td>A</td>
<td>P by Chairman, AC &amp; RC</td>
<td>P</td>
<td></td>
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<tr>
<td>6.3 Quarterly</td>
<td>I</td>
<td>A</td>
<td>P by CFO</td>
<td>sign-off</td>
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<td>Approval by all function heads, CFO,CRO, COO, etc - SOX (302) requirement</td>
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<td>reports</td>
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<td>7 Capital</td>
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<td>Management</td>
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<tr>
<td>7.1 Framework and</td>
<td>A</td>
<td>P by RC</td>
<td>P for RC</td>
<td>P for ExBoD</td>
<td></td>
<td>Executive credit committee would be beneficial</td>
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<tr>
<td>policy</td>
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<tr>
<td>7.2 Methodology</td>
<td>A</td>
<td>P by RC</td>
<td>P</td>
<td>P for RC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.3 Limits</td>
<td>A</td>
<td>P by RC</td>
<td>P for RC</td>
<td>C by CRO</td>
<td></td>
<td>Indirect influence by RC</td>
</tr>
<tr>
<td>8 Liquidity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.1 Framework and</td>
<td>A</td>
<td>P by RC</td>
<td>P for RC</td>
<td>P for ExBoD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>policy</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.2 Methodology</td>
<td>I</td>
<td>A by CFO</td>
<td>P for ExBoD &amp; CFO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8.3 Major Limits</td>
<td>A</td>
<td>I to RC</td>
<td>P</td>
<td>P for ExBoD</td>
<td></td>
<td>Not fully defined relationship</td>
</tr>
<tr>
<td>8.4 Other Limits</td>
<td>A</td>
<td>I to RC</td>
<td>P</td>
<td>P for ExBoD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Audit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9.1 Internal Audit</td>
<td>I</td>
<td>A by AC &amp; RC</td>
<td>I</td>
<td></td>
<td></td>
<td>Sharing milestones with auditors beneficial for RM function</td>
</tr>
<tr>
<td>9.2 External Audit</td>
<td>A</td>
<td>P by AC</td>
<td>P for AC</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**LEGEND:** A-approval, P-proposal, EX-execution, I-information, C-coordination

Source: own development
The closer examination of the preceding figure and table indicates there are clearly two significant issues that require more consideration. The first major issue is the process of setting up credit and liquidity limits. The second is subsidiary governance in the large multinational banks. Both issues will be reviewed in the subsequent sections.

B. Credit and Liquidity Limits

The common practice among credit committees is to set-up credit and liquidity limits at the strategic level without any input from the operational risk management team. Usually, the limits are proposed by the credit committee and approved by the entire board, yet those limits are never evaluated using proper risk tool and procedures. This practice severely limits effectiveness of the overall risk management function. This issue is even more pronounced in smaller institutions where communication between operational and strategic levels is almost non-existent. The more beneficial approach would be perform the analysis of what is acceptable from the risk management point of view, and then send a proposal to the credit committee to evaluate whether it is within strategic objectives and worth pursuing. This feedback would be beneficial to all levels, but in order to be effective the CRO needs to ensure that proposals are sent indiscriminately. After all, “dream making” i.e. the strategic direction of the bank is the BoD’s responsibility, and that status should be preserved.

C. Subsidiary Governance in International Banks

The corporate governance literature covered extensively composition and structure of boards in a single company\textsuperscript{597} and governance implication in different countries;\textsuperscript{598} yet, subsidiary governance and control mechanisms for subsidiaries is far less researched.\textsuperscript{599} Subsidiary boards often are not very active and they are set up as “puppet boards” to fulfill local legal requirements.\textsuperscript{600} Many companies that have been severely affected by the subprime crisis have failed in subsidiary governance, by establishing subsidiary boards that neither direct nor control subsidiary management.\textsuperscript{601} There are multiple advantages of an active subsidiary boards, including: “(1) avoidance of absolute power to mitigate hubris and corruption of board members and the organization; (2) distributing power to allow and value contrary views to provide checks and balances; (3) simplification of decision mak-

\textsuperscript{597} Hilb (2005, 2008); Adams et al. (2010); Johanson et al. (1996); Davies et al. (2008); Aquilera & Cuervo-Cazurra (2004); Bebchuk & Weisbach (2010); etc.

\textsuperscript{598} Hilb (2005:2008); Cromme (2005); Turnbull (2011); etc.

\textsuperscript{599} Du et al. (2011:153).

\textsuperscript{600} Du et al. (2011:154).

\textsuperscript{601} Hilb (2011:534).
ing-labor to reduce errors; (4) integrating governance functions with management to spread participation and constructive involvement of stakeholders; (5) multiple sources of feedback information for increasing knowledge to improve: (a) the detection of errors in decision-making, communications and control and (b) the integrity of decision making, and (6) adoption of nature’s self-regulating architecture to reduce litigation and the burden of government interventions. Therefore, the subsidiary boards should be active and composed of independent local board members, as they are important internal governance mechanism. The subsidiary board is more likely to be active if chaired by the subsidiary CEO that holds management position in headquarters. Although this is widely accepted practice, NCG approach recommends that “subsidiary boards should each be chaired by a member of the board of directors and not by a member of the management team of the above operative unit.” This dimension of corporate governance in MNEs is not very regulated, and there are only a few government recommendations.

D. Other Implications

As mentioned, this review included: the subprime crisis, history of risk management, major risk management frameworks and regulations, and major elements of the operational and strategic risk management that are directly related to this thesis. The researcher felt that a review of all dimensions was necessary in order to get a complete picture and better understand risk management theory. The presented theory review shows a few areas of disconnect in the current RM literature. The key messages are presented below.

- A large part of this knowledge is produced by different professional organizations. Members/contributors of such organizations include practitioners, academia, and regulators, and their recommendations are becoming universally accepted. For example, Basel III framework was used by regulators as a basis for Swiss too-big-to-fail, and by practitioners for implementation of CRM. The theory indicates that emergence and prominence of such organizations came through cooperation of all parties involved and out of necessity to integrate all dimensions under one umbrella.
- Switzerland has a long tradition of self-regulation, banks have a lot of freedom in the RM implementation, and a lot of knowledge was generated in practice. This is still true, but dy-

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602 Turnbull (2011:1).
603 Hilb (2011:534).
604 Turnbull (2011:2).
605 Hilb (2011:534).
Risk Management at the Strategic and Operational Levels of Swiss Banks

Traditionally, regulators would introduce a principle-based regulation that would trigger innovation when banks needed to develop and implement their own risk models. Seems that in recent years, banks are much more proactive in presenting their views and influencing regulations prior to their introduction.

- Evident is a convergence towards the unified risk management framework as well. For instance ISO 31000 Risk Management-Principles and Guidelines,\(^\text{607}\) was published in 2009 was developed by experts from more than 30 countries. Many critics claim it is state-of-the-art framework, which incorporates all the best principles of leading international standards.\(^\text{608}\)

- The theory indicates there is an apparent convergence of knowledge, and emergence of fully integrated models of risk management (that include corporate governance). Yet, a different literature stream recognizes the need for a framework and process that simultaneously deals with both governance and risk,\(^\text{609}\) as evidence indicates that risk management is not deeply embedded in the organization - a clear corporate governance weakness.

- The literature indicates there are two main risk management types: RM by the numbers and the holistic CRM.\(^\text{610}\) The RM by numbers is viewed as traditional and more technical approach, which is heavily based on models, focused on measurement and control of risk silos, and rooted in compliance and audit philosophy. Reluctance to implement an ongoing process is one of the main deficiencies of this approach. On the other hand, the recent literature argues for adoption of the holistic CRM that incorporates all possible risks into an integrated, strategic, and enterprise wide system. The holistic CRM is an ongoing process based on a systematic\(^\text{611}\) collection and analysis of all relevant risks for a company.\(^\text{612}\)

- The literature indicates there are several issues with implementation of CRM. There is a lack of integration models for integration of corporate governance and risk management, and for especially for integration of the strategic and operational risk management, and incorporation of internal control systems.

- Additionally, the review indicates that boards have traditionally consider only risks that have financial significance to the company, but since the crisis they have to adopt more sys-

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\(^{607}\) ISO (2009).
\(^{608}\) Shortreed (2010:98).
\(^{610}\) Mikes (2009:26)
\(^{611}\) Follows the logic of systems thinking that assumes that the problems are complex, have more than one cause, affect the entire organization, they are constantly changing, and a problem-solving is a dynamic process (Montana & Charnov, 2000:89).
\(^{612}\) Müller (2011:201).
tematic and strategic view to consider impact on stakeholders and the resulting reputation to the firm. The literature further indicates that in order to cope with changing environment, boards became smaller, boards have more independent directors with more banking experience, and boards have better expertise.

- The literature on ICS continues to be extremely diverse and fragmented, and shows that the only significant change to ICS is stronger controls that have been placed on the trending related activities, i.e. at the front office level as such activities require more “real time” decisions.

- A necessity to integrate CRM, ICS, and corporate governance has been recognized lately by several authors, yet, only a few solutions have been offered so far.

- Several academics recognized the need to evaluate the board from within the organization. Traditionally, the board evaluation includes self and external evaluations. It is suggested in literature that evaluation mechanism in regards to risk management should be in the form of feedback loop.

- Subsidiary governance remains to be one of the top unresolved corporate governance issues.

- Risk management function should be more involved in setting-up credit and liquidity limits.

The empirical study presented in the next section will attempt to shed some light on some of the mentioned issues.

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613 Including shareholders, customers, employees, and regulators.
615 Becht et al. (2012:447-448); also echoed in Walker (2009).
617 Bessis (2010:40).
618 Called “GRC (governance, risk, and compliance) convergence” by some authors (Theytaz et al., 2010).
619 Theytaz, Elam, & Dempsey (2010:588); Müller (2011:207); etc.
PART THREE: SPECIFIC EMPIRICAL ANALYSIS

I. RESEARCH OVERVIEW

A. Objectives

After methodical review of the research topic and the recent literature developments, the researcher continues to focus on the original research question (please see table 6 below). Likewise, this continues to be a field study or applied research\textsuperscript{622} that aims to contribute both academically and practically to the better understanding of the CRM process in Swiss banks. This is explanatory research since it is grounded in theory, and theory is created to answer “why” and “how” questions, but attempts to go beyond description and attempts to explain the phenomenon.\textsuperscript{623}

The empirical part aims to show how risk management in Swiss banks is changing as a result of the subprime crisis. Table 9 presents the research question and objectives.

Table 9: The Research Question and Objectives

<table>
<thead>
<tr>
<th>Objective</th>
<th>How is risk management in Swiss banks changing as a result of the subprime crisis?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Objective 1:</td>
<td>Identify how the financial crisis after Lehman has influenced CRM practices in Swiss banks. Identify how Swiss banks can ensure that the board can be evaluated and managed in regards to risk management. (Particular focus will be placed on internal control systems and implemented/initialized structural changes.)</td>
</tr>
<tr>
<td>Objective 2:</td>
<td>Establish a set of recommendations for optimization of risk management through the inter-linkage of different CRM dimensions (or at least identify areas for improvement).</td>
</tr>
</tbody>
</table>

Source: own development

B. Design

The researcher carries out the explanatory study as the phenomenon of the Corporate Risk Management has been addressed in literature, especially in the last couple of years, but as it is an immature filed not all concepts are fully integrated or even aligned. The study follows the pragmatic methodological approach, since “pragmatism is a well-developed and attractive philosophy for integrating perspectives and approaches. Pragmatism offers an epistemological justification (i.e., via pragmatic epistemic values or standards) and logic (i.e., use the combination of methods and ideas

\textsuperscript{622} Saunders, Lewis & Thornhill (2009:8).

\textsuperscript{623} Blumberg, Cooper & Schindler (2008:11).
that helps one best frame, address, and provide tentative answers to one’s research question[s]) for mixing approaches and methods.” Therefore, use of pragmatism as a philosophical position implies the use of mixed or multiple method designs for data collection.

Following that logic this study employs the nested mixed method design, in which the quantitative part has a lower priority, and is embedded in the qualitative part (please see Figure 3: Nested Mixed Method design on page 18). Use of multiple methods is increasingly advocated within the business and management research, as it allows for use of qualitative and quantitative techniques and procedures as well as use of primary and secondary data.

The use of multiple methods allow for a better opportunity to answer the research question as it allows for better evaluation to which the research finding can be trusted and inferences made from them. It is well suited for sensitive topics (like CRM) as it allows easier access to relevant information and provides multiple perspectives on the topic. One of the big advantages a multiple method approach is that different methods can be used for different proposes. In this study, the questioner is used to make inferences about the overall population that includes all Swiss banks. Semi-structured interviews are used to gain valuable, in-depth insight on the phenomenon. The chosen methods complement each other well, as quantitative part will be used to confirm the valuable insight gained in the qualitative study.

C. Limitations

Even though questionnaires are a suitable choice for explanatory research, there are several limitations of this technique. Very often the respondent is not the person to whom the researcher wants to answer the question, since often secretaries or assistants are entrusted to fill out questionnaire.

624 Johnson et al. (2007:115).
626 Hesse-Biber & Leavy (2011:283).
627 The nested mixed method design is a subgroup of a multiple method approach (Saunders, Lewis & Thornhill, 2009:152). It is worth noting that (Johnson et al., 2007:112) recognizes the mixed method as the third major research approach or research paradigm.
631 Questionnaires are appropriate mode of inquiry for making inferences about the large group from relatively small percentage of that population (Marshall & Rossman, 1989:84).
632 The semi-structured interviews were selected as they can be used to collect informant’s view on the studies phenomenon, but also allow for confirming positions from the literature (Blumberg, Cooper & Schindler, 2008:378).
634 When both qualitative and quantitative methods are used, Johnson et al. (2007:124) classifies it as “pure mix”.
responses. To have a greater control of who completes the questionnaire, this research chose to administer it through personal emails, since people read and answer their own mail at their personal computers. Further, this approach mitigates tendency known as uninformed response, as emails were sent only to senior managers, i.e. experts.

Semi-structured interviews depend on an interview guide, and designing such guide involves a trade-off. More structure leads to more comparable answers, but reduces the explorative character of the interview.

To detect weaknesses in both methods a pilot testing was performed. Both questionnaire and an interview guide were pre-tested by three different people: a CEO (that holds a PhD), a doctoral student, and a risk officer in a bank. Additionally, the first interview was used as an actual pilot testing. Based on a feedback from the pilot test there was no need for adjustment, so collected data was included in the study.

Access or entry constraints were not an issue during this research. A solid preparation by the researcher and the reputation of the University of St. Gallen granted this researcher access to the field experts.

Subject, participant or researcher bias is inherent in both research methods. In this case the researcher did not have prior employment or relationships with the banking industry in Switzerland. Also, the CRM literature was extensively used while developing questions and the interview guide.

On the other hand, all different techniques and procedures will affect the results, yet use of multiple methods cancels out the “method effect”. Therefore, in order to cross check the finding and cancel limitations of different methods this research uses three types of triangulation: data triangulation (i.e. uses variety of sources in research), theory triangulation (i.e. uses multiple theories to interpret the results), and method triangulation (i.e. uses the multiple methods), with a hope that

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638 Blumberg, Cooper & Schindler (2008:387).
639 Blumberg, Cooper & Schindler (2008:74).
640 Please see Appendix 8: Questionnaire and Appendix 7: Prospecting letter.
645 Johnson et al. (2007:114).
“the result will be convergence up a truth” \(^{646}\) of the researched phenomenon. After all, the mixed research method is used to enhance academic rigor. \(^{647}\)

II. RESEARCH PROCEDURE

A. Survey

1. Overview and sampling

A great strength of a survey as a primary data collection is its versatility, besides being easy to administer, confidential, efficient and economical. \(^{648}\) The researcher chose to use it to reach the heads of risk departments in Swiss banks. \(^{649}\) A number of different dimensions of CRM were included, including:

- structure and integration of CRM,
- internal control systems,
- regulation, etc.

The researcher opted to apply the systematic sampling, which involves selecting the sample at regular intervals from a sample frame. \(^{650}\) The list of all banks authorized to operate in Switzerland was acquired from FINMA’s website. After filtering out non-Swiss banks and rounding population, the researcher obtained a sample frame of 300 banks. Actual sample size of 100 banks was designated at the beginning of this study, so after randomly selecting first case by a computer, the researcher sent survey to every third bank on a list. Naturally, the researcher had to visit each bank’s website to find an e-mail address of the appropriate \(^{651}\) person.

In order to improve a response rate an accompanying letter explaining the purpose of a study was sent with each survey. The survey was designed to be completely confidential, and that was emphasized in the cover letter. For the respondents’ convenience the survey was designed to be either

\(^{646}\) Johnson et al. (2007:115).
\(^{647}\) Johnson et al. (2007).
\(^{648}\) Blumberg, Cooper & Schindler (2008:278).
\(^{649}\) A participants who are uniquely qualified to answer the desired questions (Blumberg, et al., 2008:278).
\(^{650}\) Saunders, Lewis & Thornhill (2009:266).
\(^{651}\) As risk management gained prominence in the last couple of years, it was surprisingly easy to find out names of people in charge of risk management. In rare cases when that was not possible, the researcher had to contact the bank and requested information. When even that was not possible the survey was sent to CEO, lead partner, or chairman of the board.
completed on line, returned through email, or regular mail. Majority of respondents completed on-
line version, and only a few responded through e-mail. Final, significant response rate was 27 per-
cent, which is low but within expectations.

2. Questionnaire design

The questionnaire was designed based on the literature review to include all relevant dimensions of
CRM, but not to be to complex so that it can be applicable to banks of all sizes. A mixture of di-
chotomous, Likert-scale, multiple choice, checklist, and open ended questions was used. A five
point scale was chosen for Likert-scale questions, even though it allows the respondent to “sit on
the fence” by choosing the middle score “not sure”. Increasing scale or introducing even number of
choices only increases complexity and makes it difficult to distinguish between the values. The
researcher decided to use both positive and negative statement, to ensure the respondents are rea-
ding each question, i.e. to enhance scientific rigor. In an attempt to increase response rate the ques-
tionnaire was organized in a logical flow, so that themes can be identified, check questions were
not used, while some closed-ended questions were utilized. The researcher also follower recom-
dmodation of his mentor and did not require any distinguishing characteristic of the companies or
respondents (name, size, position, etc.). Finally, the researcher concluded the questionnaire with an
open ended question, inviting the respondents to discuss any CRM issue they see fit. Please see Ap-
pendix 8: Questionnaire.

B. Interviews

The qualitative semi-structured research interviews were used to collect a rich and detailed set of
data. The semi-structured interviews were chosen as they offer the most flexibility, allowing
the researcher to have a structure, keep focus, but at the same time use follow-up questions to ex-
plorer the topic. The interviews were conducted with heads of risk management, academics, and
regulators; in order to better understand the CRM from different viewpoints. The researcher pre-
pared a list of themes and questions to be covered, and although the same themes were used the

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652 Limiting the number of items or choices reduces complexity, fatigue and boredom (Mattel & Jacoby, 1972: 508).
655 As respondents might suffer from fatigue (Saunders, Lewis & Thornhill, 2009:374).
656 Closed questions enhance the comparability of answers, and make easier analysis (Bryman & Bell, 2007:261). At the
same time the researcher felt there was a need for several open-questions to ensure all relevant information has been collected.
657 Semi structured interviews can be quantitative (Saunders, Lewis & Thornhill, 2009:351).
questions would vary on occasion depending on the flow of conversation.\textsuperscript{660} The list of questions was usually sent in advance, so that participants can prepare.

All participants were initially contacted by email, and were very gracious to promptly respond and contribute their time. All but one, semi-structured interviews were face to face,\textsuperscript{661} and they lasted on average an hour.\textsuperscript{662} Majority of the interviews were recorded in order to capture entirety of answers, and detailed notes were taken when the interviews were not recorded. A total of twelve interviews were conducted, please see table 10 for breakdown by type of interviewees. One interview was interrupted after only a few minutes, but the participant authorized his executive assistant to continue the interview on his behalf.\textsuperscript{663} A full list of participants can be found in Appendix 9.

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRO’s</td>
<td>4</td>
</tr>
<tr>
<td>Senior risk officer</td>
<td>2</td>
</tr>
<tr>
<td>Chairman of the BoD</td>
<td>1</td>
</tr>
<tr>
<td>Regualtors</td>
<td>3</td>
</tr>
<tr>
<td>Academics</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>12</strong></td>
</tr>
</tbody>
</table>

Source: own development

C. Documentary Sources

Documentary secondary data is often used in research project like this one that also uses primary data collection method,\textsuperscript{664} and plays a prominent role in qualitative research as it is an important information source in all research phases.\textsuperscript{665} Secondary data allowed this researcher to expand his understanding of the phenomenon. Further, this method played an important role in method triangulation, and contributed to the more rigorous research.\textsuperscript{666} The researcher attempted to use only high-

\textsuperscript{660} This procedure is in accordance with literature recommendations of Bryman & Bell (2007:474) and Saunders, Lewis & Thornhill (2009:320).

\textsuperscript{661} Due to time constraints one respondent opted to email his answers, but allowed for a phone follow-up.

\textsuperscript{662} On one instance the interview lasted an hour and a half, while the shortest one was 40 minutes.

\textsuperscript{663} The interview guide was sent in advance and the questions were discussed between the two parties. In the light of unforeseen circumstances, the original interviewee was confident to allow his associate to speak on his behalf. The situation as not ideal, but the insights were valuable.

\textsuperscript{664} Saunders, Lewis & Thornhill (2009:258).

\textsuperscript{665} Blumberg, Cooper & Schindler (2008:339).

\textsuperscript{666} Johnson et al. (2007:114).
quality data through systematic review of data. Therefore, the focus was on leading academic journal, books, and materials published by professional organizations. The CRO literature has proven to be quiet fragmented, the same way the nature of business and management research has become too fragmented and divergent as a body of knowledge.

D. Reliability, Replication, and Validity

Reliability deals with a concern of whether the results of a study are repeatable and whether used measures were designed for concepts in business and management. While reliability is usually an issue with quantitative research, measures and concepts used in this study are standard in business and management research and required only rather simple calculations.

Replication was not an issue as this study did not attempt to replicate the findings of some previous academic study.

To ensure reliability and replication, research methodology, procedure were discussed in detail in proceeding section. Further, this section is followed by the detailed description of data analysis.

Validity is concerned with weather findings are really about what they appear to be about. This is a serious concern when using mixed research methods, especially in regard to inference quality. All researchers make assumptions about the appropriateness of theories they use, so important point is to choose a suitable theoretical framework. Therefore, in order to ensure validity this study utilized well developed and well recognized theories, i.e. NCG doctrine, ERM framework developed by Müller and Kalia, etc. The use of the well recognized theories ensured the construct validity is not an issue. Use of standard scores and testing ensured internal reliability is not an issue with the survey and interview guide.

671 Blumberg, Cooper & Schindler (2008:299-308).
672 If the researcher does not spell out his or her procedures in great detail, replication is impossible (Bryman & Bell, 2007:40).
674 Saunders, Lewis & Thornhill (2009:159).
675 Ibid.
676 To ensure construct validity the researcher is advised to deduct his hypothesis from a theory that is relevant to the concept Bryman & Bell (2007:165).
677 The key issue with internal reliability is whether or not the indictors make up the scale or whether indexes are consistent (Bryman & Bell, 2007:163).
The primary concern for this study is generalisability or external validity, as the research will produce recommendations that are generalisable to the population of all banks. Several measures were employed to mitigate this issue, which included use of representative sample and use of various research methods, i.e. triangulation.

III. DATA ANALYSIS

A. Introduction

The following sections will be organized as follows: initially in section B just a raw data collected through questionnaires will be presented, in section C summary of data collected through interview will be presented, and finally in section D all data will be combined and discussed. Documentary data will not be reviewed separately, but will be used for discussion of findings (section D).

B. Questionnaires

1. Introduction

A total of 100 banks were chosen through the systematic sampling, however, the researcher was unable to obtain a valid email address of the head of risk management in 6 banks (n=94). A researcher received a total of 35 responses. Ten questionnaires were not included in analysis due to missing filed. Six participants sent an email explaining they are unable to complete the survey, as no one in their organization has the expertise/knowledge to answer all the questions. These six responses were not dismissed from the analysis, as several conclusion can be drown from their “non-response”. Subsequently, the researcher received a total of 25 significant responses that will be used in analysis (please see table 11 on the next page).

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678 The construct focuses on whether the findings can be applied to research settings (Saunders, Lewis & Thornhill, 2009:158).

679 Surprisingly, most of these surveys were at least half complete.

680 More on this later on.
The research chose to utilize the advantages of a web-based survey. This web-based survey was convenient for respondents, but also convenient for the researcher as there was no need to code responses into variables. Standard scales for this type of research were used, and the responses were coded as follows:

- For dichotomous questions: “1=Yes” and “0=No”.
- Likert-scale questions: “1=strongly disagree”, “2=disagree”, “3=neither agree nor disagree”, “4=agree” and “5=strongly agree”.
- Multiple choice checklist-type questions: values from 1 to 5 were assigned to each response choice.

The coded data was exported directly to a spreadsheet for analysis. Obviously, this research uses both types of categorical data: descriptive (nominal) data and ranked (ordinal) data, but bulk of data is ordinal as most questions are Likert-type questions. Descriptive statistics are used to describe and compare the data, as the mean is the most frequently used measure of central tendency in the blueness and management research. Appendix 10 presents the descriptive statistics including mean, mode, median, and standard deviation.

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681 The questionnaire was designed to include ordinal data whenever possible, as it is more precise form of categorical data (Saunders, Lewis & Thornhill, 2009:418).
2. Risk champions

The first open ended inquired about the risk management champion in organization. According to collected responses (please see Figure 24), 42 percent respondents stated that CRO/head of risk management is the risk champion in their organizations, another 26 percent stated that CFO is the risk champion, while 11 percent stated that a board member is the risk champion in their respected organization. Other responses each represented by 5 percent were: CEO, COO, multiple department heads, and combination of CRO and a partner. Analyses of data are available in Appendix 10: Descriptive Statistics.

![Figure 24: Risk Champions](image)

Source: own development

3. Organizational structure of risk management

Respondents were asked to state which elements of risk management are implemented in their organization. Multiple answers were allowed. According to questionnaire responses, 68% percent of participants stated that their organization has an independent risk management function, and another 32% of participants stated that risk management is a part of a different department (i.e. auditing, finance…). Another, 53 % of respondents stated that their organization has the risk management committee at the supervisory board (please see Figure 25 on the next page for more details).

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683 Open ended question was used so the respondents are not influenced/limited by offered choices.
Finally, 11% of respondents used an open ended question to supplement their answers, and stated their organization has an executive risk committee and/or that risk management is in the hands of CEO and the board. No participant selected the last answer choice, “no formal risk management at present”. Analyses of data are available in Appendix 10: Descriptive Statistics.

4. Surveying employees in regards to risk

Respondents were asked to state how often are all employees in their banks surveyed in regards to risk management. According to questionnaire responses, 56% percent of participants stated that employees are surveyed once a year; and another 19% of participants stated that employees are surveyed twice a year in regards to risk. Another, 6% of respondents stated that their organization surveys employees once every two years, while 19% of respondents stated their bank does not survey employees on risk related matters (for more details please see Figure 26 on the next page). Analyses of data are available in Appendix 10: Descriptive Statistics.

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Note: The question was added after three respondents already filled out the survey, therefore n=16.
5. Risk management strategies

A majority of respondents or 85% agrees that the risk management strategy in their organization is well defined and updated on regular basis. In addition responses further indicate that banks are not revising their strategy as a result of financial crisis and changing regulations. Only 5% of respondents strongly agree that the risk management strategy in their organization is neither well defined not updated on regular basis. Frequency distributions can be found in graphic form in Figure 27 below.

Note: Both negative and positive statements were used in this question to enhance scientific rigor.
6. Risk management strategies

Figure 28 presents the frequency distribution regarding the risk category that was mostly impacted since the crisis. According to questionnaire results, 47% of respondents agree that the credit and liquidity risk management were the most affected, followed by operational risk (37%), strategic (31%), reputational (27%), market (26%), and other (16%). 16% of respondents agreed that the following risk categories were also impacted: legal/tax risk, counterparty risk, and risk associated with the internal controls.

![Figure 28: The Most Impacted Areas since the Crisis](source: own development)

7. The main challenges to effective CRM

In the next question respondents were asked to state their opinion on what they consider to be the main barriers/challenges to the effective risk management in their organization. A frequency distribution representing their response can be found in Figure 29 on the next page. A majority of respondents or 79% agrees that uncertainty over future regulation is the biggest challenge, and 53% believe there are challenges to the effective risk management. Interestingly, 69% of respondents disagrees that poor communication is a challenge to CRM. Additionally, a small minority (27%) believes that lack of strong leadership in CRM is a challenge; however, 64% of respondent disagrees with that opinion. Opinions were divided on whether major challenges are: insufficient real time data, insufficient processes, procedures and tools, or lack or expertise at the board level.
8. **Effectiveness across risk management**

In this question respondents were asked to rate how effective their organization is across several risk or risk related dimensions, please see frequency distribution of their answers in Figure 30 on the next page. A significant majority or 85% agrees that the board level expertise in regard to risk management is effective in their organization, and 63% agrees that the operational risk management in their organization is effective. 58% of respondents agree that their organization is effective at installing and maintain risk aware culture, but only 26% of respondent agrees that risk training is effective at all levels. Further on only 26% agrees that real time risk management is effective in their organization. 58% of respondents agree that internal controls and risk reporting are effective in their organizations.
9. **Frequency of different activities**

Table 12 on the next page shows the frequency distribution of several different activities which are all related to risk management. According to questionnaire responses, 67% of respondents claim their organizations are computing risk exposures daily, 28% on monthly basis, and 6% quarterly. A majority or 61% of respondents stated that risk management practices and models are being evaluated on annual basis. Further, 61% of respondents claim that the internal financial risk report is prepared for the executive board each month, while 78% state that the risk report for the supervisory board is prepared on the quarterly basis. Ad-hoc reporting for internal use is performed on either monthly (39%) or quarterly (33%) basis. Surprisingly, 17% of respondents stated they do not send reports to regulators, while a majority (55%) is sending reports on either quarterly or monthly basis. Finally, 72% of respondents stated that their organization is sending a report to regulators on an ad-hoc basis, either monthly (28%), quarterly (22%), or annually (22%).
Table 12: Frequency of Different Activities

<table>
<thead>
<tr>
<th>Source: own development</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Computing risk exposures</th>
<th>Evaluating existing risk management practices</th>
<th>Evaluating existing risk management measurement models</th>
<th>Publishing internal financial Risk Report for the Executive Board</th>
<th>Publishing internal Risk Report for the Supervisory Board</th>
<th>Preparing ad-hoc reports for internal use</th>
<th>Send reports to regulators</th>
<th>Prepare ad-hoc reports for regulators</th>
</tr>
</thead>
<tbody>
<tr>
<td>daily</td>
<td>67%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>11%</td>
<td>11%</td>
<td>0%</td>
</tr>
<tr>
<td>weekly</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
<td>6%</td>
<td>11%</td>
<td>6%</td>
</tr>
<tr>
<td>monthly</td>
<td>28%</td>
<td>11%</td>
<td>11%</td>
<td>61%</td>
<td>11%</td>
<td>39%</td>
<td>22%</td>
</tr>
<tr>
<td>quarterly</td>
<td>6%</td>
<td>22%</td>
<td>11%</td>
<td>28%</td>
<td>78%</td>
<td>33%</td>
<td>33%</td>
</tr>
<tr>
<td>annually</td>
<td>0%</td>
<td>11%</td>
<td>11%</td>
<td>61%</td>
<td>11%</td>
<td>6%</td>
<td>28%</td>
</tr>
<tr>
<td>never</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>6%</td>
<td>11%</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: own development

10. Effects of the subprime crisis

How the subprime crisis affected the development of risk management practices is a central idea of this thesis. Respondents were asked how the crisis influenced several dimensions including RM, compensation, training, culture, etc. Please see Figure 31 which presents the frequency distribution of their responses.

Figure 31: Effects of the Subprime Crisis

Source: own development
One half of respondents or 50 percent disagrees that the risk management became more holistic since the crisis. A vast majority of respondents or 88% disagrees with the statement that risk management became more dependent on models since the crisis. A majority or 57% of respondents disagree with a statement that compensation decreased, 44% of respondents agree that compensation is unchanged since the crisis, 76% disagrees with the statement that claw-back measures were introduced. Only 19% of respondents agree that their organization increased the risk management training efforts. Finally, a vast majority or 70% of feels that a risk-based auditing function was not implemented.

11. Controls

According to collected responses, 74% of respondents agree that their organization has the most benefit from preventive controls. 44% agree that their organization has the most benefit from detective controls; however, 25% of respondents disagree. While 25% of respondent agree that their organization has the most benefit from corrective controls, 32% disagrees. While 31% agree that that their organization has the most benefit from directive controls, 25% disagrees.

Figure 32: The Most Utilized Controls

![Bar chart showing the distribution of responses for different types of controls.]

Source: own development

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686 A control question was introduced, as respondent were asked if compensation changed through both a positive and a negative question, and percentages matched indicating that respondents carefully read the questionnaire.
12. The most impacting regulations

The respondents were asked about which recent regulations had to most impact on their organization. Please see Figure 33 for the frequency distribution of their answers. According to collected responses, 53% of respondent’s disagree with the statement claiming that liquidity or equity regulations had impact on their bank; however, 24% of respondents stated that equity regulations had the most impact on their bank. Additionally, 41% of respondents agree that their banks are most influenced by cross-border liquidity regulations, although 30 percent of respondents disagreed with that statement. 12% of the respondents agreed that some other regulations have the most impact for their organizations, and they include: tax regulations, ETP in credit sector, and MiFID.

Figure 33: Regulations with the most Impact

<table>
<thead>
<tr>
<th>Regulation Type</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree or Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity regulations</td>
<td>12%</td>
<td>12%</td>
<td>29%</td>
<td>24%</td>
<td></td>
</tr>
<tr>
<td>Liquidity regulations</td>
<td>6%</td>
<td>24%</td>
<td>29%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross-border regulations</td>
<td>29%</td>
<td>12%</td>
<td>12%</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6%</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: own development

13. Attitudes towards regulation

Figure 34 on the next page shows the frequency distribution of respondents’ attitudes toward regulatory changes. A significant majority or 74% of respondents agree that their organizations have capabilities to address recent regulatory changes. Almost half of respondents view recent regulatory changes as negative (47% disagrees that regulatory changes are positive, and 41% agree that the regulatory changes are negative). Additionally, close to a half or 43% of the respondents agree that the recent regulatory changes will have negative future implications for their banks (consistent with

Note: Both negative and positive statements were used to collect data on the same issues.
the view of 58% of respondents that disagrees with the claim that recent regulatory changes will have positive future implications for the company). 21% of respondents agree there is a high probability of losing a great deal from the recent regulatory changes (consistent with the view of 63% of respondents that disagrees with the claim that there is a high possibility of gaining a great deal from the recent regulatory changes).

**Figure 34: Attitudes towards Regulations**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree or Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is a high probability of losing a great deal from the recent</td>
<td>53%</td>
<td></td>
<td>21%</td>
<td></td>
<td>21%</td>
</tr>
<tr>
<td>regulatory changes as something negative.</td>
<td>21%</td>
<td></td>
<td>21%</td>
<td></td>
<td>11%</td>
</tr>
<tr>
<td>The recent regulatory changes with negative future implications for us.</td>
<td>11%</td>
<td></td>
<td>32%</td>
<td>21%</td>
<td>11%</td>
</tr>
<tr>
<td>We feel we have the capability to address the recent regulatory changes.</td>
<td>5%</td>
<td></td>
<td>37%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>The recent regulatory changes as something positive.</td>
<td>5%</td>
<td>5%</td>
<td>7%</td>
<td>37%</td>
<td>21%</td>
</tr>
<tr>
<td>There is a high probability of gaining a great deal from the recent</td>
<td>5%</td>
<td>21%</td>
<td>7%</td>
<td>37%</td>
<td>21%</td>
</tr>
<tr>
<td>regulatory changes.</td>
<td>5%</td>
<td>5%</td>
<td>11%</td>
<td>37%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Source: own development

**14. The impact of regulations on banks**

Figure 35 on the next page represents the frequency distribution on responders’ position regarding the impact of recent regulations on their institutions.

A majority of respondents or 64% agree that the regulatory changes will have a significant influence on products and services, and 69% of respondent agree that regulatory changes will significantly affect profitability. Only 11% of respondents agree that the changes will significantly affect culture, and 42% agree the will affect capital structure. 37% of respondents agree that the changes will affect risk management, while only 26% agree that the regulations will affect organizational structure. 43% agree that the overall business model will be affected.
15. **Changes in response to new regulation**

In the final question the participants were asked to reflect on the actual changes that were conducted or planned (please see Figure 36 for the frequency distributions). The most affected was business strategy (18% of respondents state high degree of change, while 60% of respondents stated at least some changes), and business model/product portfolio (65% of respondents expect at least some changes). 65% of respondents stated some changes to ICS, but no one stated high degree of change. 47% of respondents stated some changes to risk management practices and procedures, but again no one included a high degree of changes. Least affected was internal power distribution (47% of respondents stated no change at all) and organizational structure (29% stated no change at all).

![Figure 36: Major Changes in Response to new Regulations](source: own development)
C. Semi-Structure Interviews

1. Introduction

In this sub-section presented is empirical data obtained through expert interviews. The researcher decided to present the info in logical sections. Finally, as a large amount of data was obtained from the interview, the researcher attempted to present the most important data in a concise way.

2. Implementation of risk management in practice

Interviews reflected on the level of implementation of risk management in banks. Interview participants were quick to point out that, based on Swiss laws, banks have to have both a risk management system as well as a risk management organization, i.e. persons acting full or part time. However, when inquired about dimensions of risk management, differences were apparent. Only the largest banks have completely implemented risk management function, and even big banks only implemented it in recent years. On the other extreme, two smaller banks just started working on the framework that would integrate all risks, and until this year were focused primarily on financial risks.

More than half of the participants stated their banks were not notably affected by the crisis, and they do not believe that changes in their risk management are that significant. For such banks changes are driven by regulations and environmental pressures. Interview results confirm that bigger banks are ensuring that the risk management function is structurally independent of business units (if that was not the case), and part of corporate/group office. More importantly they are ensuring the financial independence from business divisions, i.e. divisional CEO’s are not controlling bonus pools or austerity, as costs for risk management are being allocated to business divisions. Further, interview results indicate that the head of risk management usually sits on the executive board and reports to the supervisory board more frequently. Approximately 80% of interview participants stated that risk committees in banks of all sizes are growing in size and/or importance, becoming independent, and forming stronger relationship with the operational risk level; however, the level of change is not uniform. For smaller banks, that independence is exhibited through defining risk management positions and/or introduction of formal risk positions, i.e. some banks are introducing the formal CRO position, other are introducing the CORO to assist the CRO, and/or detaching the risk department

688 Depending on the size and activity of the organization.
689 Whether the dimensions include: corporate governance, internal controls, legal and compliance dimension, etc.
690 The previous approach views front office, finance, and risk management as a three legged stool, i.e. all three dimensions are equally important for efficient risk management.
691 Direct communication is not impeded by intermediaries, i.e. by the chairman’s office.
from other departments. Smaller banks are converging towards integration of all risks under one centralized function. The results indicate that CROs form a much closer relationships with the CEOs, but have no direct contact with the board.

3. **Changes of risk management in practice**

The prevailing opinion seems to be that the biggest concerns of banks are not financial risks but financial instability. This issue consumes most of the time of CROs and risk committees. There are no more safe havens, i.e. buying bonds is not safe anymore.

Another identifiable theme for all banks seems to be an increased focus on reputational risks. The participants just kept pointing out that dimension, and focusing on a newly rediscovered focal point.

Interview results show that that majority of participants believe that risk management did not fail during the crisis, but some weaknesses were exposed. They agree that the crisis illustrated that anything is possible; it made us aware of event risks. As one participant stated, “even though most of us knew on the intellectual level that bank failures are possible, the crisis and subsequent bank failures made that possibility real”. Implications being that everyone is very careful, and considers “what would happen if…” Two participants stated that the risk management principles were sound but that execution was poor.

When discussing general idea of risk management, interview results show that risk management is becoming more holistic, more independent, more integrated, and gaining importance since the subprime crisis. According to interview responses, a formal CRO/head of risk with direct engagement with the board is a crucial part of an independent risk function, yet depending on the size and activity of the bank implementation takes a slightly different form.

Two participants also indicated that some traditional risk numbers are being re-introduced in practice and becoming relevant again, i.e. loan-to-value and amortization ratios.

4. **Board and risk management**

All but one participant stated that the board engagement intensified, board members are becoming more inquisitive, more involved, they are forming stronger relationship with management and in-

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692 One participant stated that even in some big banks credit idiosyncrasies and market portfolio risks were considered separately, in other words risks from two of the biggest categories were evaluated independently.
creasingly probing. It is prevailing opinion that board members feel more accountable (both executive and NED); therefore, they asks more prudent questions, requires much richer information, more frequently. Another prevailing opinion is that boards are much better at defining roles and responsibilities at the board level, and establishing clear separation of duties. The remaining interview participant stated that the board in his company is very small, with very limited experience, and no desire to become more involved. However, even those boards set-up credit limits without any input from the risk management function. Subsidiary boards are chaired by a member of a management team of the above operation unit.

The interview participants have quiet different opinions regarding experience and expertise on the board level. In regards to experience, about three quarters of participants believe there is a sufficient, even vast experience on the board level, while the rest believe more experience is required. Only half of interview participants claim that their boards posse sufficient technical expertise regarding risk management. More than 60 percent of the participants explain this situation by stating that there is lack of qualified independent directors, and this problem might only grow as all time commitments are increasing at the board level. Further, all communication is limited by the level of expertise on the board. Overall, the prevailing opinion is that the expertise and experience is improving, just not fast enough. Over 70 percent of interview participants believe there is still room for improvement at the board level.

Interview results further indicate that as boards get much more involved they are providing a lot more explicit approvals and directives. The board requires much more ad-hoc analysis from the operational level, as they want to know “why” and “how”. Some boards (one third) are attempting to react to the changes in environment through adjusting limits.

Finally, participants were asked to express their opinion on whether the supervisory boards should be evaluated in regards to risk management. A feedback loop concept was offered as a solution. Majority of participants liked the idea and possibility of boards being evaluated; however, interview

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693 Some interview participants claim that the boards were already very involved, so there was limited improvement possibility. Again, there was also noticeable difference in intensity depending on a size and activity.
694 Several interview participants stated that their boards even require some data on day-to-day operations.
695 This is again partially driven by regulators and their documentation requirements.
696 A single interview participant stated that the head of risk management is consulted by a credit committee prior to setting up credit limits.
697 These opinions were not related to the size or structure, i.e. opinions were equally represented in big and small banks.
698 For example one participant stated that transactional reputational policy is created and approved at the holding company board level.
699 Not a practice in all banks, as in some banks the executive board is entrusted to set up limits.
participants unanimously agreed that the risk management function should not be involved in such evaluation.\textsuperscript{700} A slight majority of participants believes that the board self evaluations and auditor’s evaluations are sufficient. However, all participants stated that constructive criticisms, close relationship, and interaction of boards and executives, with a lot of good feedback is a key to aligning strategic and operational risk management. Further, participants felt that the relationship between the risk function and the board would be impeded by concepts such as the “feedback loop”. Interestingly, as a solution, one participant suggested that the board of directors should have to review and vote on the risk assessment report at least once a year.

5. Strategies

All of interview responses confirm that the risk management is becoming integral part of strategic planning.\textsuperscript{701} One participant stated that an explicit demand from regulators prompted this change in his organization. About a third of respondents stated that the crisis, recent regulatory changes, and diminished risk appetite influenced major strategic changes. In order to minimize risk exposure larger banks are simplifying their strategy, looking for synergies, integrating not only business divisions but also product suites, and shutting or scaling down non-integrated parts.\textsuperscript{702} The remaining participants stated that the crisis did not affect their banks significantly,\textsuperscript{703} and any changes in strategy are minimal and related to regulations. For example, less than half of participants stated regulatory capital regulations will affect their strategy.\textsuperscript{704} One participant reflected on an extreme case, where the failed strategy led to the dissolution of a bank.\textsuperscript{705} Participants positively reflected on the development that FINMA requires all banks to explicitly define strategy in regard to risk management.\textsuperscript{706}

\textsuperscript{700} Just over a half of participants stated that internal and external auditors should perform all evaluations of the board, and/or yearly board evaluations should be taken more seriously.

\textsuperscript{701} Several interview participants stated that was not the case before the crisis. In their banks strategy was defined and risk limits were set at the operational level later on; hence, no integration.

\textsuperscript{702} One bank is integrating investment bank and wealth management division, i.e. integrating a product (investment bank) and placement (wealth management).

\textsuperscript{703} Quiet logical for retail, private, and similar banks, as for the most part they do not have market or liquidity concerns.

\textsuperscript{704} The rest of interview participants claim their institutions are well capitalized.

\textsuperscript{705} A wrong strategy was selected (pursuing US based clients), and impact of regulations disregarded. As bank was organized as partnership, a same person was in charge of strategy, execution, and risk management.

\textsuperscript{706} One participant stated that risk management strategy was never well defined in his bank, same as risk appetite, and several other less quantifiable risks.
6. Risk management practices

The primary focus of risk management is on explicit understanding of all risks and their interactions. Participants indicate that frequencies have increased, and focus has shifted to potential trouble areas - lately focus areas have been on liquidity and funding side.\textsuperscript{707}

Further, a majority of interview participants believe that developing an adaptive framework, which includes all risk, is crucial.\textsuperscript{708} Naturally, all participants point out there is no substitute for common sense. Prevailing opinion is that models should be used only as an input into thought process, and should never be a substitute for critical analysis.\textsuperscript{709} Therefore, participants agree that risk management is less reliant on models, but recognize increased use of scenarios and increased importance of counterparty risk.\textsuperscript{710} While the majority of participants value scenarios as a starting point of the thought process,\textsuperscript{711} others (less than a forth) disregard the value of all models.\textsuperscript{712}

Most participants claim that their institutions follow industry standards in risk management (blend on standards), and benchmark among rivals.\textsuperscript{713} Procedures, tools, and processes are updated on a continual basis in big banks,\textsuperscript{714} while smaller banks review them as it is required by FINMA.\textsuperscript{715} The

\textsuperscript{707} A clear response to the last crisis, since it follows logic that Lehman was illiquid but not insolvent. This logic has been highly debated in recent years, as many authors state this claim is impossible to prove (Zingales, 2008:13; Acharya & Backus, 2008:1).

\textsuperscript{708} Such efforts are encouraged by FINMA, even becoming mandatory (as one of participants stated). Smaller banks are excited to adopt a framework, while big banks are integrating divergent platforms, i.e. pursuing austerity and efficiency in business (same as with strategy).

\textsuperscript{709} One respondents advice is: “Only do things you understand, and when you are not sure if you understand it or not, you do not understand it so don’t do it”.

\textsuperscript{710} More than half of participants specifically mentioned that a much closer relationships are formed with the counterpart, and much more information on counterparty risk is shared.

\textsuperscript{711} That requires further analysis and understanding of underlying implications.

\textsuperscript{712} Criticisms of models were numerous, so here are a few. Risk managers should not rely on VaR, as it is ok for daily volatility it is disastrous for tail risks (even though that is VaRs original purpose). Models depend on rating agencies, and they cannot be trusted. Models for aggregate view of risks are useless.

\textsuperscript{713} Benchmark is performed based on important industry papers, and among more popular choices are papers from IMF, European Commission, Bank of International Settlements, etc; almost exclusively papers from “meta-organizations”. Several participants stated that academic papers are not used very often.

\textsuperscript{714} The largest banks even have a risk processes and standards committee, that has to approve all changes in tools and processes, and naturally provide documentation.

\textsuperscript{715} This requirement started this year. Several interview participants admitted their procedure needed review, and that written reports were not representing the practices. Before this, smaller banks used to follow the logic: “we’ll fix them when they break”. However, after realizing the volume of required work, even smaller banks are introducing regular review schedules, i.e. monthly reviews of certain dimensions.
largest banks try to stay ahead of the curve and their changes are not regulatory driven. They follow the industry papers, as well as the internal and external recommendations.

Again, depending on the size and activity, interview participants cited different focal points, yet all of them mentioned regulations and reputational risk. For smaller institutions reputation is preserved through measures like: no exposure to PIGS, ensuring good PR, ensuring adherence to cross border and money laundering regulations, etc. For larger institution reputational risks are encompassing all aspects of the business.

Finally, one participant stated that improvements in risk management are probably more an issue of education than one of rules and standards. Education is the key management issue in any quality assurance system. The recommendation is that the lower management level should be relieved from other, less important issues and focus on RM dimension even more. But this is unfortunately not the case in practice. In the opinion of the mentioned participant, the formal aspects of RM are those that prevail, as in the wake of the current development concerning corporate governance, compliance and similar issues, where [all stakeholders] are focusing on form rather than on substance this should not be of any surprise at all.

7. Regulations

Although interview participants had very different opinions on regulations, several themes can be identified. Firstly, interview participants are not against regulation, but they would like to see smart, good solutions. Banks are forced to implement a lot of regulations, which make no sense to them. They indicate that that banks are overwhelmed with regulations, compliance is very costly, and has a limited economic effect. Participants are further concerned that regulations are too stringent, and over reliant on reporting. Prevailing opinion is that the main pressure for more regulation comes from shareholders.

716 This goal of staying ahead of the curve can is also reflected through early implementation of regulations, i.e. all participants stated that their leverage ratios are above 3% FINMA’s requirement even though it comes in force in 2013.
717 Currently one bank is implementing big remuneration plan, which will redefine operating model; all in accordance to the industry papers and some ingenuity.
718 In this argument risk management is identified as a quality assurance system.
719 Main criticism is that regulations cannot be scaled based on the size and activity.
720 One participant even stated that cost of regulation and efficiency in compliance will soon become a source of competitive advantage among banks. Most banks in Switzerland use “FIRE” IT system and as one participant stated the system has to be modified in accordance to each regulations, and just one such modification can cost over a million francs.
721 One participant equates more reporting to making another business continuity plan. His logic is why write it when it’s never used, not even in the crisis situation.
722 Interestingly one participant stated that pressure is not strong enough.
Several participants voiced their frustration with different regulators that are not on “the same page”, on how to solve certain issues; therefore, making compliance and implementation extremely difficult.\footnote{Most banks decide to implement the minimum standard across all jurisdictions, regardless of whether it is required or not. Naturally, FINMA is the main regulator for Swiss banks.} Further, there is lack of consistency, as competition is setting up in loose regulatory environments, and that competitors domiciled in different jurisdictions are putting pressure on Swiss banks. At the same time, banks recognize that different regulators are attempting to collaborate on different issues, with a goal of more uniform regulations.\footnote{This was recognized by several participants that were included in such talks, and by a regulator that was interviewed.}

Many participants see several predicaments with standardized regulations. Regulations tend to manage the last crisis, and have no forward thinking.\footnote{As a response to emerging market crisis in ’98, no bank would invest in low grade credit, i.e. everyone wanted AAA real-estate security what led to the subprime crisis.} Further, a lot of regulation can lead to check the box mentality, where people have a false sense of security. That leads to complacency; no one thinks outside the box, yet even low risk in big enough size can be a huge risk.\footnote{As one participant frames it: even a grain of sand can turn into a beach.}

One aspect that most participants like is the fact that FINMA assigns a point person for each bank, as that allows for a developing relationship and eases the whole supervision process within Switzerland.

Additionally, standardization of regulation has some other threats as well. One participant points out that moving in the same direction is increasing systematic risk for some unforeseen tail risk. All participants believe that it is crucial for regulations to contain a degree of flexibility.\footnote{To illustrate his point the participant uses balloon analogy, i.e. harder you squeeze something will pop (in his opinion AAA debacle was a direct result of implementing ’90 regulation).}

Interview results show that regulators are more rigorous in getting the information.\footnote{Regulators used to be more passive before the crisis.} Further, the European regulators (including Swiss) rely more on “carrot” type measures,\footnote{Naturally, on occasion FINMA has used serious penalties such as revoking the banking license.} i.e. early engagement, close relationships with banks,\footnote{Among other benefits, by using this approach FINMA is attempting to provide timely direction and eliminate check-the-box mentality.} and such; while the American regulators have a bigger “stick” i.e. their enforcement relies on huge fines and significant jail time. This is logical as several interview participants pointed out that traditionally Swiss regulators use more principle based regulations, while the US regulators prefer rule based.
Further, two participants stated that some regulations are directly influencing business practices and affecting profits, so banks are not happy with that.

As a solution to some of these issues most participants like the idea of using principle based regulations, which would allow for adjustments based on the size and activity. However, the participants were unanimous that a combination of principle and rule based regulations are needed.

Naturally, participants mentioned some good and bad regulations. Prevailing opinion is that there should be a bigger concern for bigger banks, as reflected in regulations. Yet most participants recognize that smaller risks though correlation could have a significant impact.

The overall sentiment is that banks do not need more rules, rather good systems, meaningful controls, less formalities and more substance. As one participant puts it, we live in a world where politicians and media believe that everything can be controlled and risks can be either eliminated almost completely are we can “buy insurance” against risks. This is simply not true. As an extreme illustration, one participant stated that the best prevention for “careless risk taking” is the “let them fail approach”, meaning that we should let them go broke and not burden the governments with the mess of such bankruptcies.

Finally, one participant made an interesting comment connecting trading practices, regulations, and culture. Investment banks hire the best and brightest talent to trade on arbitrage, such people are capable of getting around any regulations, so it’s only their integrity stopping them for doing so. Naturally, a good culture can not only mitigate this issue but also decrease need for internal controls.

731 For example MiFID (The Markets in Financial Instruments Directive or Directive 2004/39/EC – the EU legislative text regulating the activities of brokers and exchanges) regulations are changing sales practices, same as cross border regulations (for more information on MiFID please see Casey & Lannoo, 2006). Further, rules on explicit disclosure of fees, make it less attractive for banks to invest in structured notes or hedge funds (reputational issue).

732 Requirement of explicit inclusion of liquidity ratios.

733 Negative example is introduction of leverage ratio, as an alternative to risk weights. Risk weights needed to be improved, but instead regulators decided to implement leverage ratios because they are simple. But there is no simple solution for complex problems, so leverage ratios were wrong solution. They set up wrong incentives to get rid off low risk business off the balance sheet. Further securitization treatment is too harsh from the risk reward perspective.

Smaller institutions (two participants) are dissatisfied with the FINMA-Circ. 08/23 on risk diversification; as such banks claim they are unable to invest excess liquidity. Smaller banks avoid investing in PIGS countries, and Circ. 08/23 counterparty limits are too stringent, so they are unable to concentrate on bigger and safer institutions, i.e. Credit Suisse, UBS, JPMorgan, etc. Such smaller institutions are resorting to unusual measures, like keeping funds at SNB, yet such strategy is predicated on the appreciating Swiss franc and the large non-franc customer deposits. For definition and more information on counterparties please see BIS (2010:34).

Finally, under FINMA-Circ. 08/34 on core capital preferred shares are being phasing out, and for some smaller banks this is so significant that future growth concerns are raised.

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8. **Operational risk management**

Interview results indicate that operational management is shifting focus to include/assign a risk owner for each process and encourage sound management. Most participants believe that the operational risk management is all about prudent management and controlling the environment, as the operational risk management is consequential. This idea (shared by three participants) is closely related to internal controls, and follows the logic that more effective operational management leads to diminished need for internal controls. As one participant stated, Goldman Sachs has extremely prudent management, and can afford to have weaker internal controls, as managers are effective in controlling the environment.\(^{734}\) Another participant used the UBS as an example, and stated that the bank had excellent models and strong internal controls, yet poor track record during the crisis.

Standard measures like P&L, exceptions and monitoring supervisors are the most popular. Participants agree that the operational risk management is the biggest segment of the CRM, or as one participant puts is “anyone with a budget is an operational risk manager”. Some participants suggested setting the explicit error rate (acceptable losses\(^{735}\)), in order to make a cost/benefit analysis. Overall participants believe that operational risk management is well defined,\(^{736}\) and all the elements (processes, tools, methods) are being regularly revised.

Similar to other aspects of risk management the culture plays the crucial part. People should do the right thing, not because of controls or regulators, but because of personal integrity. According to several participants, in organizational setting a code of conduct is much more important than any law, as it sets the foundations for a sound risk culture.

Interview participants indicated that hedging is used for operational risk in the control environment.\(^{737}\) One of the significant operational changes is that bankers are now charged for use of scarce resource, i.e. they are charged for balance sheet usage. Positions on subprime exposures were making only 2-3 basis points profits,\(^{738}\) so if the bank charged 5 points for balance sheet usage, those large positions would not be there. As one participant claims: “it’s a very effective way of changing behaviors”. The same participants explains that such operational constructs are extremely

\(^{734}\) Goldman Sachs was used as an example, since the company weathered the crisis with minimal losses, in other words they liquidated their subprime positions much earlier than most banks (Kelly, 2007). The company since tries to downplay the profits made on betting against the housing market during that time (Story & Chan, 2010).  
\(^{735}\) For example 1% of profits/revenues would be an acceptable loss, and would not require any additional measures.  
\(^{736}\) As several participants point out, banks just did not have time to fully implement Basel 2 and related regulations. Further, Basel 2.5, Basel review of operational measures, and Basel 3 made several advancements as well.  
\(^{737}\) Delta hedging is used to minimize risk associated with the price movements in the underlying assets and set basic limits. http://www.investopedia.com/terms/d/deltahedging.asp#axzz21IQ3TsJ8  
\(^{738}\) Profits were made on large exposures, and such large volume leads to increased risk exposures.
effective, as policies are implemented “up-stream”, and therefore require much less internal control efforts afterwards.

Tools, methods, and processes are being regular basis, as required by regulators.

9. Culture

Interview participants were unanimous in a clam that culture should be a focal point of the risk management adaptation; a risk culture based on natural skepticism and integrity.

Participants agree that in each organization there are two levels of change, while structural changes took place in most banks, it will take a long time for behavioral change to be fully implemented. A participant illustrated this point with an example from his team. The participant stated that with structural changes even the members of risk management have a hard time adjusting. Structure changes take place on paper but mindsets and a feeling of belonging did not, i.e. members still loyal to business divisions (old structure).

A “make as much money ASAP” attitude is dangerous and detrimental to risk culture. Banks are trying to mitigate it through a code of conduct. Further, smaller banks see an issue with changing the mind set of older client managers that are working with old “Swiss secrecy” mentality and mind set. All participants agree that banks are pursuing the culture that supports a long term relationship over quick profits.

Most participants stated that culture should be shaped through guidelines, rules, and training; yet only two participants stated their organizations have some risk training. Once again it was reiterated that the lower management should be relieved from less important duties and focus on RM. With more time to devote to RM those managers could continuously train/educate employees. Only one interview participant believes that training does not help, and behavioral changes should be enforced with policies and controls.

Additionally one participant pointed out that altering the culture in private banks presents several unique challenges, as client advisors/relationship managers often have a very close relationship with the clients. An increased pressure on advisors to modify their behavior/culture might lead to them leaving and taking clients as well.

Finally, the prevailing opinion seems to be that installing and maintaining risk culture and natural skepticism are more crucial for the front office, as it can often be found it the back office but not the front.
10. Compensation

Several participants (40%) believe that the only way of changing the “motivation” and “concern” factor would be a change concerning “ownership” and “compensation”. Some of the more prominent opinions are that investment banking should only be allowed for companies with unlimited liability for their owners, i.e. partnership and similar forms of organizations (as practiced by the Swiss private bankers in Geneva and elsewhere). According to this logic the risk taking and management approach would change immediately and radically as the managers/owners would not only benefit of the upside when incurring risks but would rather have to bear the downside as well. Furthermore, the payout ratio for bonuses should be linked with a multiple to the amounts paid out as dividends to shareholders, where banking (i.e. retail, commercial credits etc.) would still be possible through limited liability companies.

Participants agree that all banks are FINMA remuneration circular should be applied by all banks, even though it technically does not apply to all of them. Participants see a need to include risk adjusted revenue as basis for compensation. Almost anonymously participants agree that boards are much more involved in designing compensation; although involvement ranges from approving limits to setting compensation pools for all levels.

Interviews indicate that explicit claw backs in case of non-profitability and in case of detrimental behavior of an employee are used. Even though deferred compensation is used, several participants noted that it is not right measures for modeling risk behavior on operational level, i.e. there is still a need for development of different measures.739

Almost all participants agree that one of the biggest challenges for all banks seem to be attracting and retaining top talent. Due to market competition forces, smaller banks have to offer competitive packages to compete with big banks while big banks are competing with hedge funds. One participant stated that hedge funds are currently willing to offer a multi-year guarantees to attract top talent, so banks are forced to make a choice between matching such offers or losing top talent.

Two participants that were willing to discuss compensation in more detail stated that time horizon of risk remains to be a significant challenge, i.e. how to match compensation over time horizon of transaction. This issue of revenue recognition vs. revenue realization is extremely complex in trad-

739 Big banks are developing their own models, but as they are not fully implemented yet participants were unwilling to share any specific details.
ing, as many trades cannot be properly evaluated for many years to come. The two participants in principle agree that there is a high degree of certainty on value of the asset, then revenue should be recognized immediately. However, traders should not be paid for assets with no certainty on valuation (long-dated risk), i.e. asset should match compensation on value of risk. At the same time this approach is not possible because of current regulatory and accounting standards, i.e. regulations are attempting to regulate on transaction basis, while the accounting standards do not recognize the revenue for assets that cannot be valued. It is an intrinsic difference between regulatory standards, accounting standards, and economic risk value.

11. Reporting

Participants see an increase in ad-hoc reporting on different risk, towards regulators, management, and the board. The biggest problem, as one participant puts it, is synthesizing complexity on five pages, since more consolidation leads to more simplification. However, the majority opinion is that reports should be a starting point of dialog.

Boards have to be knowledgeable about the systems and organizations, should insist on a simple and understandable but also consistent reporting on the issues and the implementation/application of the RM. One participant suggested that the board of directors has to review and vote on the risk assessment report at least once a year.

About a third of participants mentioned that as ad-hoc reporting towards regulators is increasing, it is becoming clear that many of those reports are more appropriate for big banks. Such smaller banks are of opinion that more personalized reporting would exponentially increased effectiveness.

12. Internal Control Systems

Interview participants were asked to discuss the ICS system in their institutions. More than two thirds of participants stated that ensuring operational efficiency should be the focus of the ICS systems. ICS is viewed as a part of operational risk controls, and an overall component of CRM, that is also used for financial control and compliance. More than half of participants fear that focus on compliance is taking a lot of capacities, and banks should not forget core business of internal controls and risk management. Prevailing view is that the front office always catches fraud so operational dimension is much more critical for ICS. Approximately, a third of participants stated that

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740 For example, it can be up to ten years before any certainty can be places on esoteric complex exotic trade, as such market does not exist. On the other hand interest rate trades (CHF/USD swap), even if they are long dated can be recognize on transaction basis, as such markets exist and all trades are easy to evaluate.
internal controls are used primarily to control financial transactions and reporting, and as such controls are operating completely independently of risk management. Those participants claim that even such systems are still ensuring operational effectiveness within their banking model.

Once again, different approaches based on the size and activities are evident. According to two participants, in the smallest banks finance and accounting department is in charge of controls, i.e. those departments define controls, define owners, and update them on regular basis. In big banks risk management function is in charge of almost all controls.741

Finally, when asked about different types of controls they employ in their organizations, all participants stressed the importance of finding the right mixture of controls.742 About 40% of participants stated their organizations are making an effort to relay more on directive and preventive measures, and less on corrective and detective measures.743 The rest of participants stated that all measures are being utilized and adjusted according to the organizational needs.

Once again a majority of participants stress the importance of risk culture. Or as one participant puts it: “you can take the horse to the water but can’t make it drink”, but resumes by saying that “at least the horse is not in the desert any more”. Then again, participants agree that not everyone is responsible as they should be.

Participants agree that personal attitudes are more important to ICS than formalities. Integrity – to stick to the rules even while nobody is watching you – is crucial. Walk the talk is imperative for managers, but not everybody understands this issue.

IC regulators want more documentation, so risk manager need to makes sure controls are implemented not just documented, as many people use 10% of the time performing tasks and 90% documenting them. Naturally, that would be a wrong solution. Some participants go as far to say that documentation is counterproductive. There is a level of frustration with risk framework, as it is often compliance based, and the same importance is attributed to all controls. In order to fix that problem supervisory controls should be strengthened.

741 Even in regards to financial risks, the risk management function is working closely with the CFO and finance department to establish efficient controls.

742 One participant stressed the importance of never relaying on a single control, i.e. the importance of having many different types of controls. The participant used the three mile island disaster to illustrate the danger of utilizing the same type of control, i.e. numerous controls failed because they were part of the “highly interdependent synergetic system” (Perrow, 1981:21).

743 This corresponds with the European philosophy that can be applied to both company and regulatory approach, that is based on an early engagement, early prevention, assisting in prevention, and smaller “hammer”, i.e. remedies. On the contrary the American approach is based on the large “hammer”, i.e. huge fines, significant jail time, significant corrective prescriptions, etc.
Opinions were further divided in regards to adaptation of formal internal control systems. Most participants fear that over-formalized process would yet again lead to check the box mentality.

13. **Integration of risk management, corporate governance and ICS**

Most interview participants believe that RM cannot exist without CG, but only half of interview participants believe Basel III and Walker Review are fully developed and necessary approaches for integrating CG and RM. Further, those participants feel that even though this was a significant issue during the crisis it has been successfully resolved. The remaining participants feel that any formal and explicit integration concepts are completely unnecessary.  

Interview results indicate most organizations are striving towards integration of these dimensions, mainly thorough improved communication and closer relations between the supervisory board and senior management. However, a few participants were of opinion that process should not be too formalized. Following the “lex persimoniae” philosophy that less would mean more, which suggests that focus on even more rules and unproductive control mechanisms, is not good. Too many rules lead to an overload, as people will simply not be able to have everything in mind during their daily work.

Again, the divide based on the size and activity is present. More established organizations have more formal and defined processes, and participants from those organizations don’t see too many improvement opportunities. Overall, approximately two thirds of interview participants are satisfied with the integration of different dimensions of risk within their organizations. On the other end of the spectrum, small institutions recognize the need to first of all fully define the different dimensions (CG, RM, ICS) and then work on further integration.

14. **Risk management and auditing**

Participants were further asked to discuss their views on auditing (both internal and external) and its relationship with risk management. Close to the half of participants saw no need to advance risk rapport between management and internal auditing, and were adamant about preserving the current situation mainly based on the independence of audit argument. The rest of participants were not very enthusiastic about changes, but allowed for future improvements as internal audit is used for risk assurance. Several participants stated that the expertise of auditors (especially external) help

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744 Argument against such integration ranged from explanations that such attempts are too formal and too rigid, to statements that Walker is “stupid”.

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them gain a new perspective. In those cases a much closer relationship, a partnership, is formed between the risk management function and auditors; critical defining points (milestones and/or processes) are passed on to auditors for a closer examination. On the other hand several participants were disappointed with the expertise level of primarily external auditors. They characterize auditors as complacent, as performing audits according to framework and not thinking outside the box, and not very beneficial to the risk function.

One of the academic participants pointed out that FERMA/ECIIA (2010:8-9) recommendations define duties and the relationship between auditors and risk management very well, and provide all the structure banks need.

Finally, several participants echoed the idea that auditors need to be more concerned with the nature of activity, in order to be more efficient.

D. Discussion of Findings

1. Introduction

In this section the researcher will discuss the results of the empirical study gathered through questionnaire and semi structured interviews, and evaluate them against the theoretical body of knowledge. Empirical findings with low agreement or disagreement with the theory will be discussed in more detail as the researcher attempts to explain and understand those unexpected results.

2. Impact of the crisis and changes to risk management

When discussing the general idea of risk management, interview and questionnaire results confirmed the theoretical implications that overall risk management is gaining more prominence as reflected through areas of international regulations and the corporate governance theory. Although the CRM was a world model almost ten years ago, after the crisis this distinction is becoming increasingly true. Empirical findings confirm there is a clear shift from CRM by numbers to

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745 Interestingly in two cases banks changed the external auditors within the last year.
746 In other words key risk takers are identified, then appraised by risk function (controlling), and that information is shared with internal auditors which utilized internal appraisal approach to perform their duties. Included are all revenue producers, as well as senior managers from logistics and support. Yet it is worth noting that several participants stated within their organization information is not shared or only basic information is shared to preserve an independence of the audit function.
747 For the discussion of the three lines of defense approach please see the theoretical part.
748 Assuming that risk management theory is an integral part of corporate governance theory.
749 Power (2003:10).
holistic CRM, since the crisis. Expert interviews and survey results confirmed the theoretical findings that the CRM is becoming more holistic, more independent, less dependent on models, and more integrated since the crisis. However, the empirical findings also showed that risk management in many institutions was not significantly affected by the crisis, and that dimension is less represented in the literature. An apparent division can be made based on the size and activity. As a general rule smaller, retail, cantonal, and to some extent private banks had limited or no exposures to the subprime loans, they were well capitalized, and for the most part their business was not affected, or at most incrementally affected.

As mentioned, in the survey six respondents (25% of the respondents) were unable to answer the survey as clearly their risk management continues to be silo-based, so that indicates that any possible changes in those institutions were only incremental. Risk management changes in such institutions are primarily driven by external forces, i.e. regulatory change and industry papers. Empirical findings also show that small and slightly larger banks just started working on the framework that would integrate all risks as required by FINMA, as until this year such banks were focused primarily on financial risks. On the other extreme, the largest banks have fully implemented the corporate risk management function in recent years, if that was not the case.

Empirical results show that the vast majority of banks presently have well defined strategies that are updated on a regular basis. That is an obvious response to the crisis as the theory clearly indicates that during the crisis the wrong strategies were pursued, they were not defined well, and they were not translated well into organizational objectives at the operational level. The theory further demonstrates that the corporate risk management failed during the crisis, yet empirical results show that practitioners disagree with that claim and stated that the wrong strategy caused all the problems. After reviewing the theory and empirical findings this researcher is of the opinion that the truth lies somewhere in the middle. Even if the wrong strategy was pursued, the CRM failed to set clear objectives and/or enforce acceptable limits, and in essence failed to control the environment.

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751 It is worth nothing that some survey statistics might be misleading when considered independently. For example, the survey was inconclusive on the question whether RM became more holistic. First, there is obviously a respondents tendency to “ride the middle”, as more than a third of respondents gave a neutral answer. More importantly, when considering answers from related questions, i.e. 70% of respondents stated that banks are less dependent on models, the researcher was confident in his conclusions. Therefore, all conclusions are made after careful consideration of all answers and all sources.
752 Even those slightly larger banks would be classified as a small institution, i.e. private banks with limited international presence.
753 The researcher was unable to empirically confirm that the smallest banks (i.e. regional savings banks) made any changes at all to their risk management.
755 Ramirez (2009:1); EC (2010:5-6).
Further, most practitioners will recognize the strategic and operational risk management were not sufficiently aligned, but view it as a failure of the board and/or strategy and not risk management. The researcher has to respectfully disagree with that position, as it is clear that the risk management function could have been more effective.

Increased stature and rapid evolution of risk management is also evident, as well as increased importance and independence of RM. As recommended by theory, both the survey and interviews confirm that the risk departments are expanding and becoming independent.

Empirical evidence also indicates that reputational risks are becoming increasingly important for all banks. Based on size and activity, banks are controlling different dimensions of reputational risk; yet, reputational risk is one of the top priorities for all banks.

Finally, the biggest impact on all organizations is exerted through numerous regulations that were a direct response to the crisis. As regulations are attempting to ensure financial stability, the credit and liquidity risk management seem to be the most affected dimension of the CRM, but more on this in later sections.

3. Types of risk management

The empirical findings once again confirm the theoretical findings that banks have various risk management practices and that their unique risk management mix can be classified in one of the four ideal types of risk management. The silo-risk management approach is evident in the smallest banks, and as mentioned risk management in those banks is being modified only in response to regulatory pressure. Such institutions usually have a simple business model, a sound capital structure and sufficient liquidity, in other words they are very financially stable, and that is why they do

59 Survey responses were slightly higher than expected in regards to the independence of risk management. Survey showed that 68% percent of participants stated that their organization has an independent risk management function, and another 32% of participants stated that risk management is a part of a different department (i.e. auditing, finance…). Independent and centralized function is recommended by frameworks and theory (FERMA/ECIIA, 2010:8; Monahan, 2008:38), so industry continues to move in that direction. Therefore, these slightly higher than expected results can be explained through the mentioned trend, and the indication that smaller institutions are not fully represented in the sample. Yet, the result showing that 53% of organizations have the risk management committee at the supervisory board is completely in line with the expectations.
60 UBS (2009:121). Further, it is worth noting that reputational risk received a low impact score in the survey; however, as it was extensively discussed during interviews, the researcher chose to assign it a high priority (as mentioned in the literature).
not raise many regulatory concerns. Yet, although this recent pressure is still quiet low, but it is obviously aimed at the implementation of a more integrated approach, i.e. the integrated risk management.\footnote{Integrated model introduces the use of a single metric, usually Economic Capital, along which all types of risks can be measured and compared (BIS, 2003:6), and that approach has been used since late ’90s.} In the next couple of years the silo-risk management approach might disappear from Swiss banks. Further, empirical evidence not only confirms the existence of all four risk management types, but also indicates a possible evolution of the mentioned categories. The most obvious indication is the use of soft tools (scenario analysis, sensitivity analysis, etc.); as empirical evidence confirms almost all banks utilize those tools – traditionally a characteristic of the holistic type. Further, all banks are also considering all risks (including non-quantifiable risks), and adopting a more systematic and strategic view of risk. It is inconclusive from the empirical evidence which type of risk management is the most represented and whether categories should be modified, but it is clear that based on cost-benefit analysis banks are adopting more complex types of risk management. Finally, only the largest institutions have fully implemented CRM that includes corporate governance and internal controls dimensions, and as this is a significant paradigm shift it might warrant a new category.

4. Risk champions

Survey evidence shows that CROs/heads of risk management are the risk champion in 42 percent of banks, and CFOs are the risk champion in 26 percent of institutions; those results are in line with the interview findings and theoretical predictions (including independent surveys).\footnote{Mikes (2010).} It is a clear indication that companies follow a trend of appointing more CRO’s as banks with strong CROs fared better during the crisis;\footnote{Aebi et al. (2012:3225); Sabato (2010:16).} banks along with insurance companies are leading the way in this dimension. This dimension also continues to be fragmented based on the size and activity,\footnote{For recommendation for a small and medium size companies please see Kalia & Müller (2007:89).} as smaller institutions are resisting a trend to appoint CROs; yet, with the regulatory pressure to develop a well defined and integrated risk management framework such appointments are on the rise. As mentioned, regulatory pressure increased this year for all institutions, so significant changes can be expected in the near future.

More importantly, empirical findings confirmed theoretical predictions that heads of risk management became much more involved in strategy formulation and planning. Heads of risk management continue to perform more traditional roles (as modeling experts or compliance champions), but strategic roles (as strategic adviser or strategic controller) are becoming more dominant as they require
Empirical evidence shows that heads of risk management are having a direct and much richer contact with the supervisory boards, even in smaller institutions where heads of risk management do not report directly to the board information exchange is much richer.

5. Supervisory boards

The expertise and experience of board members are crucial in ensuring that the board can perform its duties effectively. Theory indicated that banks do not have enough board members with sufficient levels of expertise relevant to the company’s core business, and empirical results confirm that claim. Yet, empirical finding demonstrate that improvement is evident since the crisis. In accordance with the theoretical recommendations, empirical evidence confirms that the board expertise and experience is improving, engagement is intensified, board members are becoming more inquisitive and involved, and they are forming stronger relationship with management and increasingly probing. Also, empirical results indicate that as boards get more involved they are providing a lot more explicit approvals and directives. The board requires much more ad-hoc analysis from the operational level, as they want to know “why” and “how”. In some cases boards are even more involved then the theory recommends, i.e. some boards (one third) are attempting to react to the changes in environment through adjusting limits.

Besides emphasizing functional competences (expertise) and experience, the independence and commitment of board members are also in focus. While theory suggests that directors with too many board positions lack the time and commitment to effectively perform their duties, practitioners are concerned that less independent directors will be available. Practitioners feel that there was a lack of qualified independent directors even before the crisis, so now that a board position requires even more time commitment qualified directors will sit on fewer boards and that deficiency will be even more pronounced. Further, experts believe boards could use more full time board

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769 The survey results were slightly higher than expected as 85% of respondents stated that the board level expertise in regards to risk management is effective in their organization. The survey did not distinguish between the experience and expertise (especially a technical expertise), and that might have contributed a higher results. The same predisposition to favorably evaluate the board was evident during the interviews, but once the research inquired about technical experience the answers would change. At the end about half of interview participants stated there should be a deeper and better understanding of risk at the board level, as boards are evaluating risks they do not understand.
771 Increased time commitment and increased engagement also recommended by the Walker Review (see Walker, 2009:12).
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members, larger risk management committees, and those recommendations are echoing theoretical findings.

To the surprise of this researcher, empirical findings indicated that all banks are satisfied with the assignment and documentation of tasks and responsibilities at the board level. Theory asserts that some banks had issues with separation of ownership and control in the past, but empirical evidence suggests that issue is completely resolved.

Boards have to be knowledgeable about the systems and organizations and should insist on a simple, understandable and consistent reporting on the issues and the implementation/ application of the RM. The biggest problem, as one participant puts it, is synthesizing complexity on five pages, since more consolidation leads to more simplification. However, the practical evidence shows that reports are becoming a starting point of dialog. Empirical research discovered and interesting idea that the board of directors should review and vote on the risk assessment report at least once a year.

Finally, empirical evidence suggests that risk managers like the idea and possibility of boards being evaluated; however, interview participants unanimously agreed that the risk management function should not be involved in such evaluation. A slight majority of participants believes that the board self evaluations and auditor’s (evaluations) evaluations are sufficient. Empirical results and theory show that constructive criticisms, close relationship, and interaction of boards and executives, with a lot of good feedback is a key to aligning strategic and operational risk management. This is another surprising revelation as theory suggests that a few years ago on only 20 percent of banks carried out board evaluations on regular basis.

6. Operational risk management

Embedding risk management into day-to-day operations is the key to successful risk management, i.e. the Holy Grail for banks. Empirical results indicate that operational management is shifting focus to include/assign a risk owner for each process and encourage sound management,

773 Most banks claim to follow international recommendations, i.e. NYSE (2003:14). The researcher did not interview any representative from a small cantonal bank, so
775 Just over a half of participants stated that internal and external auditors should perform all evaluations of the board, and such evaluations along with yearly board evaluations should be sufficient.
776 Coincides with the theory (see Hilb, 2008:188; NYSE, 2003:14).
PART THREE: SPECIFIC EMPIRICAL ANALYSIS

and that is in line with the theory.\textsuperscript{780} Findings show that risk experts share this view and believe that the operational risk management is all about prudent management and controlling the environment, as the operational risk management is consequential.\textsuperscript{781} Practitioners feel that the operational risk management frameworks are well developed, and tools and processes have been extensively refined as requested by regulators.

Some participants suggested setting the explicit error rate (acceptable losses\textsuperscript{782}) in order to make a cost/benefit analysis. This suggestion coincides with the theoretical recommendations that internal operational loss data could provide meaningful information for assessing a bank’s exposure to operational risk and the effectiveness of internal controls. Analysis of loss events can provide insight into the causes of large losses and information on whether control failures are isolated or systematic.\textsuperscript{783}

Similar to other aspects of risk management, culture plays the crucial part. People should do the right thing, not because of controls or regulators, but because of personal integrity. According to the theory, the supervisory board should take a lead in establishing an effective risk culture.\textsuperscript{784} Empirical results further show that in an organizational setting a code of conduct\textsuperscript{785} is much more important than any law, as it sets the foundations for a sound risk culture.

Empirical results disclosed one significant operational change. Bankers are now charged for use of scarce resource, i.e. they are charged for balance sheet usage. Positions on subprime exposures were making only 2-3 basis points profits,\textsuperscript{786} so if the bank charged 5 points for balance sheet usage, those large positions would not be there. As one participant claims: “it’s a very effective way of changing behaviors”. The same participants explains that such operational constructs are extremely effective, as policies are implemented “up-stream”, and therefore require much less internal control efforts afterwards. And is also extension of the logic that internal loss collection and analysis should be performed whenever possible.

\textsuperscript{780} BIS (2011:3). This logic is in line with the FERMA recommendations which state that senior management assigns responsibilities to lower level managers that become “risk owners” (FERMA/ECIIA, 2010:7). Further, lower level managers play a more hands-on role in daily risk management which in turn helps them develop effective internal controls. Finally, it is essential that risk owners have fixed measurable objectives and controls that can be tied to the remuneration mechanism (FERMA/ECIIA, 2010:7-11).

\textsuperscript{781} See Goldman example in previous section.

\textsuperscript{782} For example 1% of profits/revenues would be an acceptable loss, and would not require any additional measures.

\textsuperscript{783} BIS (2011:7).

\textsuperscript{784} BIS (2011:5).

\textsuperscript{785} The board should also establish a code of conduct (BIS, 2011:7).

\textsuperscript{786} Profits were made on large exposures, and such large volume leads to increased risk exposures.
7. **Internal control systems**

The theory suggested that the ICS should ensure: (1) effectiveness and efficiency of operations, (2) reliability of financial reporting, and (3) compliance with applicable laws and regulations, yet traditional focus has been on compliance. The theory further suggests that in response to failures of internal controls during the crisis the board’s role in regard to risk management and internal controls is strengthened, and stronger controls have been places in the front office.

Empirical findings coincide with the theory and show that renewed focus of ICS is ensuring the efficient and effective operations; supporting a view that ICS is a part of operational risk controls and an overall component of CRM.

In accordance to the theory, empirical evidence established that banks utilize different approaches based on the size and activities. As with any other dimensions, it is a task of the board and top management to define and integrate the ICS system that still allows for realization of opportunities. In the smallest banks the finance and accounting department continue to be in charge of controls but focus on integration of ICS and operations, i.e. those departments define controls, define owners, and update them on regular basis. In big banks the risk management function is in charge of almost all controls (except certain aspects of financial reporting).

Further, empirical evidence point to very little uniformity and highlights the importance of finding the right mixture of controls for a particular institution. Although all controls are utilized in banks, it is evident that preventive and directive measures are more in focus in recent years. This recommendation is in line with the theoretical recommendations, as overuse of corrective and detective measures can impede entrepreneurial freedom. Banks charging for balance sheet usage is an example of simple directive control that could have prevented the crisis.

Empirical evidence also demonstrates that internal control systems were not significantly impacted by new regulations, as internal controls have been studied for year and theoretical foundations are solid. Findings confirm that implementation was poor during the crisis. Empirical evidence shows

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789 The boards would have to file an extensive report on the adequacy of internal control systems (Du Plessis, 2011:417).
790 Bessis (2010:40).
791 “Internal controls are typically embedded in a bank’s day-to-day business and are designed to ensure, to the extent possible, that bank activities are efficient and effective, information is reliable, timely and complete and the bank is compliant with applicable laws and regulation (BIS, 2011:3).”
792 Hilb (2008: 165).
that over 60 percent of banks believe their current IC are efficient. In regards to the ICS failures during the crisis, empirical evidence highlighted the importance of risk culture, or to quote a participant: “you can take the horse to the water but you can’t make it drink”. Therefore, empirical evidence confirms that personal attitudes are more important to ICS than formalities and the determination to identify and access risks in all business activities and behave accordingly.\footnote{Brooks (2010:89).}

Empirical evidence confirmed that IC regulators want explicit documentation, as explicit tasks and responsibilities make it easier to implement controlling and reporting functions which leading to improved strategic leadership and risk management.\footnote{Müller (2011); BIS (2011:7).} Practitioners further pointed out that the risk manager need to makes sure controls are implemented, not just documented, as many people use 10% of the time performing tasks and 90% documenting them. Even though frameworks are recommended,\footnote{Recommendation is for operational framework that includes all dimensions or ICS (BIS, 2011:3).} there is a level of frustration with risk frameworks among practitioners, as they are often compliance based and the same importance is attributed to all controls. To mediate that issue practitioners suggest that supervisory controls at the operational level should be strengthened. Extension of this logic is the above mentioned Goldman example, which argues that prudent management at operational level is more effective in controlling the environment, so there is no need for stronger controls.

The front office always catches fraud, so establishing and maintaining “a corporate culture that is guided by strong risk management that supports and provides appropriate standards and incentives for professional and responsible behavior” is even more important in the front office.\footnote{BIS (2011:7).} Conclusion of this study is that attitudes are more important to ICS than formalities. Integrity to stick to the rules even while nobody is watching you is crucial, and ICS should be further improved through this dimension.

Finally, the conceptual framework to integrate various actors in risk management and internal controls is provided by 8th Company Law on Statutory Audit: Directive 2006/43/EC,\footnote{FERMA/ECHIA (2010:9). Similar models that follow the same logic are present in the literature (see Du Plessis, 2011:429; BIS, 2011:3).} and empirical evidence indicates that practices in large banks coincide with the recommendations.
Risk Management at the Strategic and Operational Levels of Swiss Banks

8. Strategy

Empirical findings established that banks are applying best practices that were discussed in detail in the theoretical part. Empirical evidence also confirms that the risk management is becoming an integral part of strategic planning. So it’s not surprising that the results also confirm that most banks have well defined strategies, updated on regular basis.\textsuperscript{799} Further, empirical results indicated that the crisis, recent regulatory changes, and diminished risk appetite influenced major strategic changes.\textsuperscript{800} In order to minimize risk exposure larger banks are simplifying their strategy, looking for synergies, integrating not only business divisions but also product suites, and shutting or scaling down non-integrated parts.\textsuperscript{801} The crisis did not affect small banks significantly,\textsuperscript{802} and any changes in strategy are minimal and related to regulations.\textsuperscript{803} Participants positively reflected on the development that FINMA requires all banks to explicitly define strategy in regard to risk management.

9. Regulations

Theoretical review indicated that banks are forced to implement a lot of regulations, which include: higher capital requirements for big banks,\textsuperscript{804} tighter liquidity and enhanced risk diversification requirements,\textsuperscript{805} an emergency plan,\textsuperscript{806} etc. Empirical results show that for practitioners many of those changes make no sense, as most of the regulations cannot be scaled based on the size and activity. Empirical evidence indicates that banks are overwhelmed with regulations and compliance,\textsuperscript{807} which are very costly. The theory confirms this argument, as principle based regulations that are preferred by Swiss regulators increase complexity and cost.\textsuperscript{808} At the same time principle based regulations offer many advantages and address many issues raised by practitioners. Practitioners views coincide with some academics that fear that standardized regulations will lead to increasing systematic risk for some unforeseen tail risk;\textsuperscript{809} yet, principle based regulations reduce the

\textsuperscript{799} Naturally, such recommendations are part of all major frameworks and regulations, i.e. BIS (2011: 2). Also see Walker (2009); BIS (2006).
\textsuperscript{800} Empirical results indicate the profitability was significantly impacted, and in response bank are making numerous changes in products and services, business strategy, structure, etc.
\textsuperscript{801} One bank is integrating investment bank and wealth management division, i.e. integrating a product (investment bank) and placement (wealth management).
\textsuperscript{802} Quite logical for retail, private and similar banks as for the most part they do not have market or liquidity concerns.
\textsuperscript{803} For example, less than half of participants stated regulatory capital regulations will affect their strategy.
\textsuperscript{804} UBS is expecting a minimum of 4.5% of RWA in form of common equity tier 1, a buffer of 8.5%, and the progressive components to be 6%, bringing total capital requirement to 19% (UBS, 2012:19).
\textsuperscript{805} FINMA (2012e).
\textsuperscript{806} Demonstrating how systematically important functions can be maintained in case of impending insolvency.
\textsuperscript{807} Regulators are more rigorous in getting the information, and that is quite a change since before the crisis when they were very passive.
\textsuperscript{808} Jamal et al. (2010:139); Gup, 2010:381; Burklund, Weiss & McKeag (2010).
\textsuperscript{809} Romano (2010:44).
danger of systematic behavior. Further, a lot of regulation can lead to a check-the-box mentality, but this concern is associated with the rule based regulations and mitigated by principle based ones. All participants believe that it is crucial for regulations to contain a degree of flexibility, and principle based relations allow for that. Also, a principle-based approach also might trigger innovation when banks need to develop their own risk models based on the principles, or even prior to new regulation. Furthermore, the principle-based approach provides the bank with the opportunity to integrate regulatory requirements into its risk management process, and this fact might explain why survey results showed that regulations did not have significant impact on risk management.

Empirical evidence also indicates that regulations are very different in various jurisdictions; however, banks recognize that different regulators are attempting to collaborate on different issues, with a goal of more uniform regulations. Further, results shows that profitability, along with product and services were the most affected by the numerous regulatory changes.

The overall sentiment towards regulation is negative, as practitioners feel that banks do not need more rules; rather, they need good systems, meaningful controls, less formalities and more substance. Practitioners also prefer principle based rules, but the same as regulators they recognize that both principle and rule based rules are necessary for stable financial markets. Most practitioners believe that there should be a bigger concern for bigger banks, as reflected in regulations. Yet most participants recognize that smaller risks through correlation could have a significant impact.

Empirical evidence further indicates that most banks have the capability to address the recent regulatory changes. Liquidity and equity regulations were the first to emerge soon after the crises so they do not have a significant impact on banks any longer, as most banks are currently more con-

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810 In such situations people have a false sense of security that leads to complacency, no one thinks outside the box, and completely miss out the point of regulations (see Duckert, 2010:13).
811 Eling, Gatzert, & Schmeiser (2008).
812 To illustrate his point the participant uses a balloon analogy, i.e. harder you squeeze something will pop (in his opinion AAA debacle was a direct result of implementing '90 regulation).
813 Eling, Gatzert, & Schmeiser (2008).
814 Hilb (2011:536) recommends banks should not wait for new regulations but instead periodically evaluate performance from all dimensions.
815 This was recognized by several participants that were included in such talks, and by a regulator that was interviewed.
816 As mentioned before, MiFID (The Markets in Financial Instruments Directive or Directive 2004/39/EC – the EU legislative text regulating the activities of brokers and exchanges) regulations are changing sales practices, same as cross border regulations (for more information on MiFID please see Casey & Lannoo, 2006). Further, rules on the explicit disclosure of fees make it less attractive for banks to invest in structured notes or hedge funds (reputational issue).
817 Although the credit and liquidity risk was among the most impacted areas since the crisis.
cerned with cross-border regulations. Cross border regulations are harder to anticipate and prepare for, while most banks had ample time to prepare for liquidity and equity regulations.  

FINMA adopted a new supervisory approach with a more systematic orientation of supervision, which is characterized by increased use of on-site visits, increased quality of the interaction, and more inquiries and analysis. FINMA characterized all banks in six categories, so intensity of supervision is based on the category, i.e. the most systemically important banks (the big two) are in category one and they receive the most attention. Empirical findings also demonstrate that as ad-hoc reporting towards regulators is increasing and that it is clear that many of those reports are more appropriate for big banks. Such smaller banks are of the opinion that more personalized reporting would exponentially increased effectiveness.

Finally, it is crucial for banks to foster risk aware culture that would condemn any behavior that leads to avoidance of regulations. The best and brightest talents that are hired to trade on arbitrage are capable of getting around any regulations, so it’s crucial to discourage them from doing that. This is the same logic that can be applied to decrease the need for internal controls.

10. Auditing

Theory indicates that integration of risk management and auditing is not fully defined, even though these two functions have traditionally been grouped together both at the board level and within a company. Even though the benefits of such integration are numerous, empirical evidence indicates that practitioners are adamant about preserving the current situation mainly based on the independence of audit argument.

The relationship between risk management has always been unambiguous as emphasis was always on auditing and that is why the audit committees have been more concerned with the oversight function, i.e. internal and external auditing, and less with the underlying processes and activities, i.e. risk management and internal control systems. This remains one of the biggest challenges of...
Recently, there has been a push for a risk-based internal auditing approach in theoretical works, yet empirical evidence shows that practitioners are against this idea as well.

Empirical evidence also indicates that banks are using the expertise of auditors (especially external) to help them gain a new perspective. In those cases a much closer relationship, or partnership, is formed between the risk management function and auditors; critical defining points (milestones and/or processes) are passed on to auditors for a closer examination. Empirical results also indicate that not all banks support this view, as some are disappointed with the expertise level of primarily external auditors. External auditors in such cases are complacent and performing audits according to framework instead of thinking outside the box; therefore, they are not very beneficial to the risk function.

During empirical discovery, academic participants pointed out that FERMA/ECIIA (2010:8-9) recommendations define duties and the relationship between auditors and risk management very well, and provide all necessary tools for companies. Practices in larger companies seem to coincide with these recommendations. Also, risk experts would further like to see auditors be more concerned with the nature of activity, in order to be more efficient.

11. Integration

The theory indicates a need for integration of corporate governance and risk management, and integration of the strategic and operational risk management.

Proponents of the integration of risk management and corporate governance point out that during the financial crisis, the corporate governance routines did not serve its purpose to safeguard against excessive risk taking in numerous financial companies. For example, a survey of European banks indicates that risk management is not deeply embedded in the organization, a clear corporate governance weakness. Although, practitioners in big institutions recognize existence of these deficiencies during the crisis, they believe the issue has been successfully resolved. Practitioners feel this was the first issue to be resolved since, and it is reflected through numerous improvements all that are associated with holistic approach to risk. Evidence suggests roles and responsibilities are

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826 This approach allows synergies and a direct “connection” of internal audit and risk management, which reduces the overall context and allows for more efficiency (Ruud & Sommer, 2006b:255).

827 These recommendations fully coincide with the current Swiss regulations, i.e. with FINMA Circular 8/24 requires companies of certain size to set up the audit committee.

828 Kirkpatrick (2009:3); COSO (2009b); Branson (2010); Hilb (2008:165).

829 EIU (2010b); Frigo & Anderson (2011:83).

830 Kirkpatrick (2009:3); COSO (2009b); Branson (2010).

now well defined, new structures that reflect relationships in place, duties enhanced, the boards are more involved, time commitments increased for boards and members, reporting and controls were improved, all based on the leading industry papers. Those recommendations are currently reflected in Walker recommendation, Basel 2.5 and 3, FINMA circulars, and numerous risk management principles, i.e. ISO 3100, etc. Practitioners feel this was not rocket science, but required numerous incremental changes that already took place. After careful examination of the risk management framework in the two big Swiss banks, the researcher has to agree with practitioners. Soon this might be a regulatory requirement in the US.832 For smaller institutions this integration is currently taking place based on regulatory requirements.

Overall, empirical evidence suggests that approximately two thirds of experts are satisfied with the integration of different dimensions of risk within their organizations. On the other end of the spectrum, small institutions recognize the need to first of all fully define the different dimensions (CG, RM, ICS) and then work on further integration. Further, empirical evidence confirms that half of interview participants believe Basel III is a fully integrated approach for integrating CG and RM, and most participants believe that RM cannot exist without CG. In theory Basel III is well recognized as a framework for integration of CG and RM, as that was one of the main objectives of this framework.833

Empirical results indicate most organizations are striving towards integration of operational and strategic risk management, mainly through improved communication and closer relations between the supervisory board and senior management. The theory also recognizes the need for rich communication and strong risk culture, but surprisingly does not offer a specific model for achieving that goal. The most recognized model, Kaplan & Norton's (2008:36) balance scorecard framework, is borrowed from the strategy field. Practitioners are of the opinion that the process should not be too formalized, as they follow the “lex persimoniae” philosophy that less would mean more. Even if the model is not utilized all the time, it would probably be beneficial as a reference point.

12. Culture

Empirical evidence indicates that culture should be a focal point of the risk management modifications, a risk culture based on natural skepticism and integrity. That is somewhat surprising since 60 percent of participants suggest that their organizations are effective at installing and maintaining a

832  BoFRS (2012:600).
833  BIS (2010:2).
risk aware culture; and even more surprising since only about quarter of respondent agrees that risk training is effective at all levels. Empirical findings coincide with the theory that tone is set at the top by the board, championed by the senior management and the CRO at operational level and that it is crucial to involve all employees. The tone that is set at the top is crucial as it channels down to the entire organization through strategies, objectives, etc. Calculative cultures can be divided in two categories, so if the board and senior management place emphasis on robust risk models they tend to foster the culture of quantitative enthusiasm; however, if models are used as indicators and focus on underlying risk profiles then quantitative skepticism is fostered. Empirical evidence suggests that the Swiss banks are striving towards the culture of quantitative skepticism. Further, empirical findings demonstrate that most banks survey all employees in regards to risk management, even though this issue is not addressed in the literature.

Empirical evidence suggests that in each organization there are two levels of change, while structural changes took place in most banks, it will take a long time for behavioral change to be fully implemented, as it is crucial to lead by example and continuously spreading the risk management message at all levels. Further agreement is that culture needs to be explicit, as explicit tasks and responsibilities make it easier to implement controlling and reporting functions leading to improved strategic leadership.

Empirical findings confirm that the “make as much money ASAP” attitude was detrimental to risk culture during the crisis. Evidence from the field demonstrates that culture should be shaped through guidelines, rules, and training; yet only two participants stated their organizations have specific risk training. Once again it was reiterated that the lower management should be relieved from less important duties and focus on RM. With more time to devote to RM those managers could continuously train/educate employees.

The theory states that an excessive risk taking culture in banking is a result of incentives introduced through compensation policies, and in their opinion this excessive risk taking needs to be

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834 BIS (2011:7).
839 Müller (2011).
840 Gup (2007:144).
841 Even more significantly is that managers do not tolerate undesired behaviors’ (Gup, 2007:137).
842 Especially pronounced in the investment banking, where employees that took the most risks usually besides huge bonuses also received the most recognition and received the best promotions. In such situations risk has to be treated as an essential element in performance-related rewards (Likierman, 2007:277).
addressed. As remuneration is inextricably linked to culture, it is important to consider risk adjusted performance measurements and rewards, but more on this in the next section.

Naturally, abrupt changes in culture can have undesired results, i.e. an increased pressure on advisors to modify their behavior/culture might lead to them leaving and taking clients as well.

Finally, the empirical evidence indicates that installing and maintaining risk culture and natural skepticism are more crucial for the front office, as it can often be found in the back office but not the front.

13. Compensation

Empirical findings suggest that the only way of changing the “motivation” and “concern” factor would be a change concerning “ownership” and “compensation”. Both theory and practice agrees that the risk adjusted revenue should be a basis for compensation.

The literature suggests that since the crisis compensations have changed to reflect longer term horizons and they are composed with a smaller variable part. Some of the more popular adjustments are bonus deferral periods and claw backs. Empirical findings indicate that explicit claw backs in case of non-profitability and in case of detrimental behavior of an employee are increasingly utilized, even though it is not the right measures for modeling risk behavior on an operational level.

Varges (2011:62-63) argues: the boards should be significantly more involved in governance of remuneration, remuneration committees should be enhanced, quality of information improved, and further makes several management level recommendations. Empirical evidence suggests that the boards embraced this dimension.

Almost all participants agree that one of the biggest challenges for all banks seem to be attracting and retaining top talent. Due to market competition forces, smaller banks have to offer competitive packages to compete with big banks while big banks are competing with hedge funds. One participant stated that hedge funds are currently willing to offer a multi-year guarantees to attract top talent, so banks are forced to make a choice between matching such offers or losing top talent.

843 It is well known that compensations in Switzerland have multiplied within the last years despite moderate stock market increases (Schütz, 2005), and it become one of the major issues in corporate governance (Felton, 2004).
844 Such measures are introducing small variable parts of compensation, and/or introducing the claw-back option.
847 The board should revise the remuneration policy for the company, approve bonus pools and sub-pools on all levels, determine length for deferred compensation, set performance metrics, etc.
848 For example establishing management level compensation council.
Practitioners further stated that the time horizon of risk remains to be a significant challenge, i.e. how to match compensation over the time horizon of the transaction. This issue of revenue recognition vs. revenue realization is extremely complex in trading, as many trades cannot be properly evaluated for many years to come. Empirical research implies that solutions to this problem are not possible because of current regulatory and accounting standards, i.e. regulations are attempting to regulate on a transaction basis, while the accounting standards do not recognize the revenue for assets that cannot be valued. There is an intrinsic difference between regulatory standards, accounting standards, and economic risk value.

While addressing issues of compensation and excessive risk taking it is crucial not to go in the other extreme. Both literature and practitioners agree that a healthy dose of risk taking appetite is crucial for normal functioning of any organization; therefore, employees should not be evaluated based on whether their decision to take the risk was correct, even if the specific risk did not work out.

E. A Brief Summary

In this section, the researcher attempted to integrate the empirical and theoretical findings and identify areas of disagreement. With all the attention that risk management is receiving in recent years from academics, practitioners and regulators, it is surprising that any areas of disagreement can be recognized. Overall risk management in practice is becoming more holistic, more independent, less dependent on models and more integrated since the crisis, as recommended in literature. The transition from RM by numbers to a holistic RM is unquestionable. A brief summary of key dimensions follows.

Corporate Risk Management: Combined findings confirm the emergence of a fully independent and integrated risk management model, which includes integration of corporate governance and integration of strategic and operational risk management with all other risk dimensions, i.e. internal control systems. This represents the emergence of a new model (not just improvements to ERM) which is fully implemented only in the largest institutions, as it requires significant resources.

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849 For example, it can be up to ten years before any certainty can be placed on esoteric complex exotic trade, as such a market does not exist. On the other hand interest rate trades (CHF/USD swap), even if they are long dated, can be recognize on a transaction basis, as such markets exist and all trades are easy to evaluate.


852 As recommended by Walker Review (2009).

853 Included in several frameworks, for example see FERMA/EChIA (2010:8).
Other types of Risk Management: Based on cost-benefit analysis banks are adopting more complex types of risk management and regardless of size and activity all banks utilize soft tools (scenario analysis, sensitivity analysis, etc.), which are traditionally a characteristic of the holistic type of risk management. Findings further indicate that as regulators are starting to require integrated risk framework, it is increasingly challenging to justify the use of silo-based risk management; consequently, this type of risk management might disappear in upcoming years.

Strategic Risk Management: The theory and empirical findings disagree on whether risk management failed during the crisis, since practitioners view it as a failure of strategy and not risk management. Nevertheless, risk management is becoming an integral part of strategic planning.

CRO/heads of risk management: CRO appointments are on the rise, and their duties and influence is expanding. They are much more involved in strategy formulation and planning as CROs are in direct and much richer contact with the supervisory boards. CROs strategic roles are becoming more dominant over traditional risk roles. CRO involvement is needed for alignment of risk management and strategy, in order to “promote risk taking for reward in the context of sound risk management.”

Boards: Combined findings demonstrate that as the board engagement intensified, risk committees are growing in size and expanding responsibilities, board members are becoming more inquisitive and involved and they are forming stronger relationship with management. Experience and expertise (technical risk management knowledge) remain the biggest problem at the board level. This problem received ample attention and is well analyzed from regulators, practitioners, and academics; furthermore, empirical findings indicate that practitioners are expecting that more experts will become full time board members. Increasing recruitment efforts is the only remaining action.

Operational Risk Management: This largest dimension of risk management is well developed and documented, so only incremental changes were observed. Theory and practice concur that operational management is shifting focus to redefine and reassign a risk owner for each process and encouraging sound management. More significant are the efforts to explicitly define the ICS as an integral part of operational risk management, and to find a correct mixture of controls. Although all controls are utilized in banks, preventive and directive measures are more in focus in recent years.

854 Deloitte (2009:3).
855 As mentioned, bankers are now charged for use of scarce resources.
Once again, establishing a sound risk aware culture, especially in the front office, is a prerequisite for effective ICS.

Regulations: In recent years regulations have been the main force behind numerous changes in the finance industry. Evidence suggests that banks are overwhelmed with regulations and compliance; they find it very costly but they are confident they have the capability to address the recent regulatory changes. Evidence indicates that regulations had the most impact on profitability, products and services and on risk management practices. FINMA became very proactive since the crisis; regulators formed closer relationships with banks, drastically increased on-site visits and required much more information.

Auditing: Recently, there has been a push for a risk-based internal auditing approach in theoretical works, yet empirical evidence indicates that practitioners are against this idea as well. Empirical evidence indicates that practitioners are adamant about preserving the current situation mainly based on the independence of audit argument. FERMA/ECIIA (2010:8-9) framework that defined duties and the relationship between auditors and risk management was offered as a leading concept.

Integration of different dimensions: Empirical results indicate that most organizations are striving towards integration of the strategic and operational risk management, mainly through clearly defining roles and responsibilities, through improved communication and closer relations between the supervisory board and senior management. There is strong push among academics for more formal processes, but many practitioners resist those formal processes. Kaplan & Norton's balance scorecard model is recommended for the integration of operational and strategic risk management.

Culture: This study came to the conclusion that culture is one of the focal points of the current risk management modifications. Risk culture based on natural skepticism and integrity is a prerequisite for effective risk management, and results also demonstrate it is a missing component of effective ICS. Evidence shows that many organizations made necessary structural changes, but behavioral (cultural) changes are still lagging. Further, it is evident that the issues banks face in implementing and maintain effective risk culture include a lack of risk management training, a lack of risk awareness and a lack of feedback mechanism.

856 This approach allows synergies and a direct “connection” of internal audit and risk management, which reduces the overall context and allows for more efficiency (Ruud & Sommer, 2006b:255).
F. Key Recommendations

Many principles have similar recommendations; therefore, developing another set would not be beneficial. Instead of developing other guidelines or principles that are too broad in scope and are not sufficiently precise, this research chose to evaluate a part of existing principle and make critical assessments and recommendations. Specific recommendations are based on literature and findings of this study and pertain to strategic and operational risk management.

**Board Level - Principle**

The board provides oversight and direction to senior management by:

- Setting (in cooperation with senior management) the organization’s risk appetite (amount of risk an organization is willing to accept in pursuit of value);
- Being apprised of the most significant risks for the organization and whether senior management is responding appropriately (i.e. in relation to the agreed upon risk appetite).

**Recommendations**

- The board should initialize and approve development of an integrated risk management framework that can be embedded in all business operations.
- CROs involvement in strategy formulations is increasing; yet, strategic risk assessment is only a part of the process of developing strategy, strategic plans, and strategic objectives. It is crucial to understand that risk managers are not defining or setting strategy (no “dream making”), but mitigating a strategic plan. For better understanding please refer to Figure 16c: Strategic Risk Assessment Process.
- CROs are involved in this process not to completely avoid all risks, but to promote risk-taking for reward in the context of sound risk governance.
- Risk management is only as good as the board accepts its value to a company (“tone at the top”), so it is crucial to accept risk management as a top priority.
- The board should establish and maintain a risk management culture throughout the entire organization. Further, along with senior management, the board should establish a strong corporate culture that is guided by risk management. This dimension should be one of the top priorities of the board.
- To ensure this is a dynamic process, strategic risk management reviews should be conducted as a part of regular strategy reviews.

857 FERMA/ECIIA (2010).
PART THREE: SPECIFIC EMPIRICAL ANALYSIS

- The board is responsible for overseeing the risk management infrastructure, and for that purpose a list of key risk indicators (KRIs) should be developed and risks should be ranked. It is important for boards to agree on their appetite or tolerance for individual key risks. Recommended is the use of a Balance Scorecard, a risk map (see Figure 19: Risk Matrix), or a simple master risk list (see Figure 37 below). Consequently, individual risks can be measured and thresholds and target points can be set and observed.

Figure 37: Generic Master Risk List

<table>
<thead>
<tr>
<th>Risk title</th>
<th>Risk description</th>
<th>Probability</th>
<th>Impact</th>
<th>Potential</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reputation</td>
<td>Loss of reputation from some unexpected risk</td>
<td>2</td>
<td>5</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Liquidity</td>
<td>Decreased liquidity combined with a generally stressed market environment</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Dolar FX</td>
<td>Market fluctuations in US dollar/CHF rates</td>
<td>2</td>
<td>4</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Trading loss</td>
<td>Risk of occurring unauthorised trading loss</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Real estate</td>
<td>Losses from commercial real estate loans</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: own development

- Silos should be broken down and interdisciplinary teams should be established to share information across business units and improve communication. This would also foster the use of common language.

- Strategic risks in terms of their impact on revenue, earnings, reputation and shareholder value should be identified and quantified where possible.

- The full board is responsible for overseeing the risk management structure. If the oversight is assigned to a board committee, a risk management committee should be responsible for the oversight.

858 A master risk list should be specifically developed for each institution, as even banks of the same size and activity face different risks. This illustration provides only a generic form.
Chief executive officer and senior management-Principle

The CEO, with his/her senior management team, has the ultimate ownership responsibility for the organization’s risk management and control framework. He/she:

- Ensures the presence of a positive internal environment and risk culture within the organization (“tone at the top”);
- Provides leadership and direction to operational management and monitors the organization’s overall risk activities in relation to its risk appetite;
- Where evolving circumstances and emerging risks indicate potential misalignment with the risk appetite, the CEO and senior management take the necessary measures to reestablish alignment. Members of senior management have responsibility for managing risks within their spheres of responsibility related to their units objectives by:
  - Converting strategy into operational objectives;
  - Identifying and assessing risks adversely impacting the achievement of these objectives;
  - Effecting risk responses consistent with risk tolerances.

Recommendations

- Senior risk management should develop, for approval by the board of directors, an integrated risk management framework that can be embedded in all business operations. The framework should include a clear and effective governance structure, which defines all roles and responsibilities, as well as tools and processes. Further, the senior management is responsible for implementing and maintaining the framework.
- As CROs increasingly consider CEOs and boards as their primary customers, they should ensure compliance with the demands of numerous stakeholders.
- Senior risk management is also responsible for an approval process for all new products, activities, processes and systems that fully assesses operational risk.
- Senior management/CRO is responsible for surveying all employees in regards to risk management on a regular basis.
PART FOUR: SUMMARY AND RECOMMENDATIONS

I. CONCLUSION

A. Introduction

The study focused on the evolution of risk management practices in Swiss banks after the subprime crisis. To be more precise, the study attempted to establish how the crisis influenced CRM practices, tried to investigate if the board can be evaluated in regards to risk management, and embarked to establish a set of recommendations for how one can optimize risk management through the interlinkage of different CRM dimensions (or at least identify areas for improvement). In the reminder of this section, conclusions are discussed through these three dimensions. An overview of key findings is presented in Appendix 1: Key findings, while an overview of key recommendations is presented in Appendix 2: Key recommendations.

B. Changes to CRM

Simply stated, everything related to risk management intensified since the crisis. There is evident growth in both the importance and structure of risk management in response to increased demands from various stakeholders, primarily regulators.

Empirical results confirmed the theoretical predictions that the CRM is becoming more holistic, more independent and less dependent on models, and more integrated since the crisis. The study confirms that there is a clear shift from CRM by numbers to holistic CRM. That is obvious as banks of all sizes are considering all risks (including non-quantifiable risks), and adopting a more systematic and strategic view of risks. This shift is further illustrated through the following dimensions.

Regulations: Regulations are the main impetus of most changes in risk management. In their attempt to ensure that there is stability in financial markets, regulators are assigning numerous new roles and duties to risk management and expanding old ones. Overall, regulators became much more engaged and proactive and their actions are spurring growth of risk management. Since the crisis, new regulations were issued for almost all dimensions of risk management. Most importantly, through their new supervisory approach regulators are emerging into risk management partners. Their on-site visitations increased exponentially, quality of the interaction increased, and they are increasingly sharing knowledge with the banks.
Structure: Structural changes are evident in banks of all sizes and activities. Bigger banks are ensuring that the risk management function is structurally independent of business units and they are centralizing their operations and, in many cases, integrating different dimensions of risk management. Smaller banks are converging towards integration of all risks under one centralized function, as in many cases they are still utilizing the silo-based approach. Additionally, as smaller institutions are developing integrated risk management frameworks, in many cases they are defining and introducing risk management positions.

Types of Risk Management: Based on their needs and cost-benefit analysis, banks are adopting more complex types of risk management. Regardless of size and activity, all banks make use of soft tools (scenario analysis, sensitivity analysis, etc.), which are traditionally a characteristic of the holistic type of risk management. Findings further indicate that as regulators are starting to require integrated risk framework, it is increasingly challenging to justify the use of the silo-based risk management; so this type of risk management might disappear in upcoming years.

Additionally, the study confirms the emergence of a fully independent and integrated corporate risk management model, which includes integration of corporate governance, integration of strategic and operational risk management with all other risk dimensions, i.e. internal control systems. This represents an emergence of a new model (not just improvements to ERM), which is fully implemented only in the largest intuitions, as it requires significant resources.

Strategy: Results show that a vast majority of banks presently have well defined strategies that are updated on a regular basis. That is an obvious response to the crisis, as the theory clearly indicates that during the crisis the wrong strategies were pursued, they were not well defined and they were not translated well into organizational objectives at the operational level. Additionally, study indicates that reputational risks are becoming increasingly important for all banks at all levels, especially at the strategic level. Strategy is defined through a much richer interaction of the board and senior management. In response, CRO duties are shifting from traditional (compliance and modeling expert) to more strategic duties (strategic controller and adviser).

Strategic risk management: Findings confirm that risk management is becoming an integral part of strategic planning since the crisis. The board engagement intensified, board members are becoming more inquisitive and more involved and they are forming stronger relationships with management and are increasingly probing. CROs/heads of risk are increasingly having a direct rapport with the board, even in smaller institutions in which they report to different senior executives, i.e. CFO. Availability of the talent seems to be the most important remaining issue. Theory indicates that
banks do not have enough board members with sufficient levels of expertise relevant to the company’s core business, and empirical results confirm that claim. There was a lack of qualified independent directors even before the crisis, so now that a board position requires even more time commitment, qualified directors will sit on fewer boards and that deficiency will be even more pronounced. The problem can be mediated through increased recruitment.

Operational risk management and ICS: Findings indicate that operational management is integrating with ICS and shifting focus to include or assign a risk owner for each process and encourage sound risk management. Study findings indicate that risk managers believe that operational risk management is all about prudent management and control of the environment. In order to succeed, managers should be relieved of other less important duties; and further, there is no need for yet another formalized process as it would only impede their ability to manage. Although all controls are utilized in banks, it is evident that preventive and directive measures are the preferred choice in recent years. The findings indicate that risk managers approve the current concepts and believe implementation is the main issue, i.e. ensuring that all structural and procedural changes are supported by appropriate behaviors. The culture plays a crucial role in the success of operational risk management and ICS.

Compensation: The study confirms that since the crisis, compensations have changed to reflect longer term horizons and they are composed of a smaller variable part. Some of the more popular adjustments are bonus deferral periods and claw backs. Compensation remains to be an unsolvable puzzle and due to its complexity this study does not attempt to make any recommendations.

Culture: In the most general terms the study concludes that the Swiss banks are slowly moving towards the culture of quantitative skepticism. The study concludes that installing and maintaining risk culture based on natural skepticism is the most crucial part, as well as the biggest remaining challenge and opportunity to improvement of risk management. Once again it is reiterated that management should be relieved of some less important duties and focus on risk management. With more time to devote to risk management, those managers could continuously train/educate employees, as banks are trying to change the “bankers” culture and mindset. The study identified a lack of risk training and a lack of surveys in regards to risk management as the most significant issues in establishing the effective culture.

Integration: Findings indicate that most organizations are striving towards integration of the operational and strategic risk management, mainly thorough clearly defining roles and responsibilities, through improved communication and closer relations between the supervisory board and senior
management. There is strong push among academics for more formal processes, but many practitioners resist them. Kaplan & Norton's balance scorecard model is recommended for the integration of operational and strategic risk management.

Numerous other changes to risk management could be mentioned here, but this review of the main changes clearly illustrates a significant shift in risk management implementation.

C. The Board Evaluation in Regards to Risk Management

The evaluation function of the board is nothing new in the corporate governance field and traditionally includes self and external evaluations. Even self evaluations are rather new in practice, as the theory suggests that a few years ago only 20 percent of banks carried out board evaluations on regular basis. Although a majority of the literature is in agreement that these two options are sufficient, several academics recognized the need to evaluate the board from within the organization. Müller (2011) theorized that the boards should be evaluated in regards to risk management. Further, in the internal auditing literature Ruud, Ruedisser & Isufi (2011:108) recognize this issue; however, their recommendations expand only on auditing practices.

Müller (2011:207) introduces a concept of a feedback loop from the risk management function to the strategy function as a direct link between the strategy and risk management. This is normally not done yet, it is the only mechanism that can “provide a clear picture of the risks and Risk Management in terms of achieving strategic objectives.” As this issue proved to be a major weakness of the UBS’s risk management strategy during the crisis, Prof. Müller’s logic seemed very promising at the beginning of this study.

Findings suggest that risk managers like the idea and possibility of boards being evaluated; however, they unanimously agree that the risk management function should not be involved in such evaluations. Their objections were based on a hierarchy issue. Ideally, the independent CRM function reports directly to the executive and supervisory board; by implementing this feedback loop risk managers would have to effectively evaluate their superiors and practitioners see that as a potential conflict. Risk managers fear this type of loop would prevent close relationships, rich dialogue, con-

859 This recommendation is present in all major corporate governance codes (Padgett, 2012:143).
862 Only implicitly performed occasionally through reporting mechanisms (Müller, 2011:207), or partially through external auditing.
863 Müller (2011:207).
864 UBS (2008a:35).
structive criticisms and interaction of boards and risk executives, all key elements in aligning strategic and operational risk management. Findings suggest that participants find the board self evaluations and auditor’s (external) evaluations sufficient\textsuperscript{865} and do not see a need for another formal process.

Further, Müller (2011:207) stated the board is only implicitly and occasionally evaluated through reporting mechanisms. Instead of looking for a completely different mechanism, an expert suggested that consistent reporting on both the issues and the implementation/application of the RM could be a solution, i.e. requiring the board of directors to review and vote on the risk assessment report on a regular basis. This suggestion requires the board to be knowledgeable about the RM, makes them accountable and it is simple, understandable and not overly formal. Although this might not be the entire solution to the issues, it is a significant improvement.

Therefore, it is the recommendation of this study that banks should establish close relationships, rich dialogue, constructive criticisms and the interaction of the board and senior risk executives. Further, to ensure knowledge about the RM issues and their implementation, the recommendation is that the board of directors be required to review and vote on the risk assessment report at every board meeting.

D. Recommendations on Optimization of Risk Management

Thus far, this study has established that integration of corporate governance and risk management has been completed in recent years, even though the theory still does not fully reflect that. Interviews with experts were also conclusive that integration of strategic and operational risk management is nearing completion, and while some incremental improvements are possible, there is no need for a formal process. In accordance with the finding, this researcher established a set of recommendations for improving integration of strategic and operational risk management. Those incremental recommendations can be found in the concluding sections of the empirical part of the study.

However, during empirical discovery and discussion of findings, this study demonstrated that the risk management culture is a key to improving the operational risk management and internal control systems. The study demonstrated that the risk management implementation continues to be an issue even though there is abundance of well developed frameworks, procedures and regulations. The study demonstrated that structural changes in risk management were implemented but behavioral

\textsuperscript{865} Coincides with the current theory (see Hilb, 2008:188; Padgett, 2012; NYSE, 2003:14).
changes are lagging; therefore, banks need to strengthen the culture and change that behavior. Therefore, the biggest opportunity for improving corporate risk management is through strengthening the culture.

Culture is addressed as a prerequisite for effective risk management in all the major risk management works, but no specific recommendations were provided in regards to implementation. To that purpose this study recommends that all employees should be surveyed in regards to risk management at least once a year. This process should be an integral part of annual or semi-annual performance reviews, as a question (or several) at the end of the review would be simple to administer (please see Figure 38). Benefits are twofold; as employees get a chance to voice their opinion it will be beneficial for assessment of risk management, tools and processes. Additionally, that action would also introduce a dimension of accountability to employees as they will be more aware of risks, and awareness will undoubtedly lead to strengthening of risk aware culture. This researcher believes it is a simple but effective tool.

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<tr>
<th>Issue</th>
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<td>Challenges</td>
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<td>Improvement</td>
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Source: own development

Further, the study discovered that there is a very little risk management training in practice. Education is discussed at the board or management level but there is lack or risk management training for employees. As mentioned, this study recommends the lower management should be relieved from less important duties to focus on RM. With more time to devote to RM those managers could continuously train/educate employees. At the same time, simply adding a dimension to regular operational training would be another simple solution with potentially significant benefits.
This study also recommends that a proposal for setting credit and liquidity limits should originate within the risk management function; so that a thorough analysis can be performed before the credit committee evaluates and BoD approves any limits.

In conclusion, all MNEs should ensure that the subsidiary boards are active and composed of independent local board members. This study upholds the NCG recommendation that subsidiary boards should be chaired by a member of the board of directors and not by a member of the management team of the above operative unit.

II. CONTRIBUTIONS

A. Theoretical Contributions

As a significant portion of the risk management body of knowledge is generated outside academic circles by professional organizations, so establishing a direct link to the CRM literature becomes challenging.

By providing empirical evidence on the Corporate Risk Management among banks in Switzerland, the study contributes to the risk management literature of financial institutions by integrating a wide range of models and concepts from the areas of risk management, corporate governance and internal controlling. Hence, the research is also relevant to the literature on corporate governance as risk management is an integral part of corporate governance; plus the board inter-workings were extensively discussed.

As this study argues for a more systematic view of risk it is also an extension of that stream, which additionally argues for a more holistic, independent and systematic risk management. It is a direct extension of the works of Mikes (2009) and Power (2009), as the study provides evidence that the culture of empirical skepticism is dominant in Swiss banks. Further, it extends on related concepts of two risk methods and four risk types by providing empirical evidence from Switzerland.

There is a limited contribution to the controlling literature as the study includes internal control systems and their implementation. Yet, conclusions are in line with the overall controlling body of works.

Overall, the study covers a wide range of risk management dimensions and provides incremental contributions to all those sub-fields.
B. Practical Contributions

The findings make a contribution to the risk management of Swiss banks but also have wider implications for risk management practitioners in other industries. The study provides empirical evidence on the current state of risk management implementation in Swiss banks and discusses tendencies and future implications. The results clearly demonstrate that risk management is moving towards more complex and integrated methods.

The results of this study could be especially interesting to smaller banks, since quite a few advanced methods and their implications were discussed. It also provides critical assessment and recommendations for integration of the strategic and operational risk management in Swiss banks. It provides banks the opportunity to reevaluate their methods of integration or even implement a new one. For instance the Kaplan-Norton (2008:36) model provides a simple and elegant solution for integration of the operational and strategic risk management. It might have more benefit for smaller banks that are just starting to integrate these two dimensions.

The study allows banks to benchmark themselves against their peers across various risk management dimensions. Further, the best practices in all these dimensions are discussed. Even recommendations that were based on best practices should be beneficial to numerous banks. The study clearly demonstrated that integration of the corporate governance and risk management requires only a clear structure, well defined role and responsibilities and rich communication. This simple logic has solid foundation in both practice and literature.

The study also provides a simple and effective solution to strengthening the risk management culture. Usually, the simplest solutions have the most impact so this philosophy guided the researcher when making recommendations.

Finally, the empirical evidence clearly demonstrates that banks have capabilities to deal with the current regulatory change. That information could be interesting to regulators, as it directly impacts their efforts.

C. Limitations and Future Research

This empirical study has several limitations, mostly caused by the choice of the research methodology and sampling techniques. Yet, some of them also represent opportunities for future research. The most academic studies in regard to risk management use only one method, usually relaying on interviews, so it is hard to compare the findings obtained through the use of a mixed-method. Inte-
PART FOUR: SUMMARY AND RECOMMENDATIONS

grating qualitative and quantitative data effectively can be difficult, with a risk of losing the strengths of either approach on its own;\textsuperscript{866} however, careful design mitigated that issue. The researcher benchmarked the finding of this study against surveys from various journals and public institutions. Conclusions were consistent with both such third-party studies and risk management literature.

Additionally, as the researcher sent out prospecting letters there is a possibility that the study introduced a self-selection bias.\textsuperscript{867} Most prospects required a brief overview of the study before committing to participate. That allowed experts, mainly risk managers, the opportunity to self-select to participate or not based on the letter. As a result, the overall sample and the range of banks that took part in the study was possibly skewed as the smallest cantonal banks were represented only through the survey.

As mentioned in the opening section, the definition of boundaries, i.e. inclusion of all Swiss banks, is the single biggest limitation of this study.

It is evident that this study covered a wide range or interesting topics which could be further researched. The study clearly illustrated the impact of culture on risk management and potential benefits of strengthening the organizational culture. It would be valuable to further investigate this potential. This dimension allows for research with practical applications, but could also be based on the well recognized concept of calculative cultures.

Additionally, the study clearly demonstrated that even after more than five years since the subprime crisis, compensation issues have not been solved. Some incremental advancements were made but many of those solutions are nothing new, i.e. SOX introduced the concept of claw-backs several years prior to crisis.

This study only touched on problems of subsidiary governance; yet, this barely researched topic presents a significant opportunity for further research.

Finally, future research could attempt to validate finding of this study and evaluate if the informal structure and recommendations were sufficient for integration of corporate governance and risk management, and if Kaplan-Norton model is well suited for integration of the strategic and operational risk management.

\textsuperscript{866} Edmondson & Mcmanus (2007:1167).
\textsuperscript{867} Bryman and Bell (2003).
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Risk Management at the Strategic and Operational Levels of Swiss Banks


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REFERENCES


REFERENCES


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Risk Management at the Strategic and Operational Levels of Swiss Banks


APPENDICIES

Appendix 1: Key findings

1. Changes to risk management
   - the CRM is becoming more holistic, more independent, less dependent on models, and more integrated since the crisis
   - the majority of banks presently have well defined strategies that are updated on a regular basis
   - regulations became the major impetus on risk management
   - the study confirms the emergence of a fully independent and integrated corporate risk management model, which includes integration of corporate governance, integration of strategic and operational risk management with all other risk dimensions

2. Types of risk management
   - all four risk management types are present in Swiss banks (silo, integrated, risk-based, holistic)
   - evolution towards more complex types of RM is evident (i.e. soft tools: scenario analysis, sensitivity analysis are used by all banks)
   - silo-based risk management present in smallest banks might disappear due to regulatory pressure

3. Risk champions
   - more CROs are being appointed
   - risk management champions being assigned in all banks in response to the regulatory pressure
   - strategic roles (strategic adviser or strategic controller) are becoming more dominant over traditional roles (modeling experts or compliance champions)
   - risk champions have much richer contact with the supervisory boards

4. Supervisory boards
   - the board expertise and experience is improving, engagement is intensified, board members are becoming more inquisitive and involved
   - BoDs are forming stronger relationship with management
   - lack of qualified independent directors pronounced even more then before the crisis
5. Operational risk management
   - shifting focus to include/assign a risk owner for each process
   - encouraging sound management as a key to effective operational risk management
   - the operational risk management frameworks are well developed, and tools and processes have been extensively refined as requested by regulators
   - realization that the risk-aware culture is crucial part of risk management is widespread
   - bankers are now charged for use of scarce resource, i.e. they are charged for balance sheet usage

6. Internal Control Systems
   - stronger controls have been placed in the front office
   - no uniform approach to ICS implementation
   - preventive and directive measures are more in focus in recent years
   - ICS were not significantly impacted by new regulations (regulators just requiring explicit documentation)
   - in general, banks are trying to strengthen ICS through stronger culture

7. Strategy
   - risk management is becoming an integral part of strategic planning
   - banks are simplifying their strategy looking for synergies, integrating not only business divisions but also product suites, and shutting or scaling down non-integrated parts

8. Regulations
   - regulators are much more proactive (i.e. more on site visits, ad-hoc reports, etc.)
   - bigger banks are trying to stay proactive and implement changes prior to new regulations
   - banks forced to implement a lot of regulations; overwhelmed with the volume
   - banks dislike that most of the regulations cannot be scaled based on the size and activity
   - principle based regulations preferred by Swiss regulators offer many advantages and address many issues raised by practitioners
   - closer cooperation with FINMA is evident
9. Auditing
   - a risk-based internal auditing approach is dominant in theoretical works, yet empirical evidence indicates that practitioners are against this idea
   - FERMA/ECIIA (2010:8-9) framework that defined duties and the relationship between auditors and risk management was offered as a leading concept

10. Integration of different dimensions
    - enhanced thorough clearly defining roles and responsibilities, through improved communication and closer relations between the supervisory board and senior management
    - practitioners resist any formal integration processes

11. Culture
    - structural changes took place in most banks, but it will take a long time for behavioral change to be fully implemented
    - a focal point of the risk management modifications is a risk culture based on natural skepticism and integrity (on both strategic and operational levels)
    - the Swiss banks are striving towards the culture of quantitative skepticism
    - employees are being surveyed on RM, but RM training is sporadic

12. Compensation
    - compensations have changed to reflect longer term horizons and they are composed with a smaller variable part
    - risk adjusted revenue is utilized as basis for compensation
    - bonus deferral periods and claw backs used more often
    - boards becoming more involved in approving compensation pools on all levels
    - banks are forced to make a choice between matching high compensation packages or losing top talent to hedge funds
    - the time horizon of risk remains to be a significant challenge (i.e. the issue of revenue recognition vs. revenue realization)
    - there is an intrinsic difference between regulatory standards, accounting standards, and economic risk value
Appendix 2: Key recommendations

1. The board evaluation in regards to risk management

It is the recommendation of this study that banks should establish close relationships, rich dialogue, constructive criticisms and the interaction of the board and senior risk executives. Further, to ensure knowledge about the RM issues and their implementation, the recommendation is that the board of directors be required to review and vote on the risk assessment report at every board meeting.

2. Recommendations on optimization of risk management

This study recommends all employees should be surveyed in regards to risk management at least once a year. This process should be an integral part of annual or semi-annual performance reviews, and it would be simple to administer as a question (or several) at the end of the review (see Figure 38). Benefits are twofold; as employees get a chance to voice their opinion results will be beneficial for assessment of risk management, tools and processes. Additionally, that action would also introduce a dimension of accountability to employees as they will be more aware of risks, and awareness will undoubtedly lead to strengthening of risk aware culture. This researcher believes it is a simple but effective tool.

Further, the study discovered that there is a very little risk management training in practice. Education is discussed at the board or management level but there is lack or risk management training for employees. As mentioned, this study recommends the lower management should be relieved from less important duties to focus on RM. With more time to devote to RM those managers could continuously train/educate employees. At the same time, simply adding a dimension to regular operational training would be another simple solution with potentially significant benefits.

3. Recommended structure

An ideal risk management structure is presetting in Figure 39: Recommended Structure on the next page.

Please note following:

- subsidiary boards are chaired by the member of board of directors, not a member of management team
- divisional/regional heads of risk management have a direct report to CRO, not to divisional/regional CEO
- credit and liquidity limits are initially proposed by the executive board or risk function and ultimately approved by the credit committee/BoD
- risk management function is independent and part of corporate HQ
- CRO had direct contact with BoD

NOTE: For general board level and senior management recommendations please see part III, section F (pp. 165-167).

Figure 39: Recommended RM Structure

Source: own development
Appendix 3: The most stimulating milestones in the risk management discipline

<table>
<thead>
<tr>
<th>Year/Period</th>
<th>Major Milestones</th>
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<tr>
<td>1905-1912</td>
<td>Worker's compensa-</td>
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<td>responsibility.</td>
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<td>1915</td>
<td>Die Unternehmensrisiken is published by Friedrich Leitner in Berlin, and this dissertation is on risk and responses to risk, including insurance.</td>
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<td>1920</td>
<td>BP forms Tanker Insurance Company Ltd, and introduces the idea of internal financing of risk, as compared to shifting it outside the organization.</td>
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<td>1921</td>
<td>Risk, Uncertainty and Profit is published by Frank Knight. A book that becomes the keystone in the risk management. Uncertainty (not measurable) is distinguished from risk (measurable). Knight emphasizes &quot;surprise&quot; and argues against over-reliance on the past occurrences to predict future.</td>
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<td>1921</td>
<td>A Treatise on Probability, published by John Maynard Keynes. Keynes has similar argument to Knight, in which he argues against over-reliance on &quot;Law of Great Numbers&quot;, and encourages relative perception and judgment when determining probabilities.</td>
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<tr>
<td>1928</td>
<td>John von Neumann presents his first paper on a theory of games and strategy at the University of Göttingen. The author argues that the goal of not loosing is superior to that of winning. In 1953, along with Oskar Morgenstern, Neumann published the Theory of Games and Economic Behavior.</td>
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<tr>
<td>1933</td>
<td>The Glass-Steagall Act was published by the US Congress, which separates banks, investment banks and insurance companies. Although this act was intended to minimize risk exposure in many ways it led to more fragmented risk management. This split between insurance and financial risk continues until today.</td>
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<td>1945</td>
<td>The McCarran-Ferguson Act was passed by the US Congress, which delegates responsibility of insurance to various states, rather than the federal government. This further hampered development of risk management.</td>
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<td>1952</td>
<td>The Journal of Finance published &quot;Portfolio Selection&quot; article, by Dr. Harry Markowitz. The article explores return of variance in an investment portfolio, and led to many of the sophisticated measures of financial risk in use today. For his work on this topic Dr. Markowitz won the Nobel Prize in 1990.</td>
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<tr>
<td>1956</td>
<td>The Harvard Business Review publishes “Risk Management: A New Phase of Cost Control,” by Russell Gallagher, then the insurance manager of Philco Corporation in Philadelphia. This city is the focal point for new “risk management” philosophy, starting with Dr. Wayne Snider, then of the University of Pennsylvania, who suggested in November 1955 that “the professional insurance manager should be a risk manager”. Another Penn professor, Dr. Herbert Denenberg, also began exploring the idea of risk management using some early writings of Henri Fayol.</td>
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<tr>
<td>Year/Period</td>
<td>Major Milestones</td>
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<td>1962</td>
<td>In Toronto, Douglas Barlow, the insurance risk manager at Massey Ferguson, develops the idea of “cost-of-risk,” comparing the sum of self-funded losses, insurance premiums, loss control costs, and administrative costs to revenues, assets and equity. This moves insurance risk management thinking away from insurance, but it still fails to cover all forms of financial and political risk.</td>
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<td>1965</td>
<td>Ralph Nader’s Unsafe at Any Speed appears and gives birth to the entire consumer movement, first in the US and later moving throughout the world, in which the old precept of caveat emptor is replaced by caveat vendor. The ensuing wave of litigation and regulation leads to stiffer product, occupational safety, and security regulations in most developed nations. Public outrage at corporate misbehavior also leads to the rise of punitive damages in American courts. That same year Rachel Carson’s The Silent Spring challenges the public to consider seriously the degradation to our air, water and ground from both inadvertent and deliberate pollution. Her work leads directly to the creation of the Environmental Protection Agency in the U.S. in 1970, the plethora of environmental regulations, and the global Green movement so active today.</td>
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<tr>
<td>1966</td>
<td>The Insurance Institute of America develops a set of three examinations that lead to the designation “Associate in Risk Management,” the first such certification. While still heavily oriented toward corporate insurance management, its texts feature a broader risk management concept and are revised continuously, keeping the ARM curriculum up-to-date.</td>
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<td>1972</td>
<td>Dr. Kenneth Arrow wins the Nobel Memorial Prize in Economic Science, along with Sir John Hicks. Arrow imagines a perfect world in which every uncertainty is “insurable,” a world in which the law of Large Numbers works without fail. He then points out that our knowledge is always incomplete — it “comes trailing clouds of vagueness” — and that we are best prepared for risk by accepting its potential as both a stimulant and a penalty.</td>
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<td>1973</td>
<td>In 1971, a group of insurance company executives meet in Paris to create the International Association for the Study of Insurance Economics. Two years later, The Geneva Association, its more familiar name, holds its first Constitutive Assembly and begins linking risk management, insurance and economics. Under its first, and current, Secretary General and Director, Orio Giarini, the Geneva Association provides intellectual stimulus for the developing discipline. That same year, Myron Scholes and Fischer Black publish their paper on option valuation in the Journal of Political Economy and we begin to learn seriously about derivatives.</td>
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<td>1974</td>
<td>Gustav Hamilton, the risk manager for Sweden’s Statsforetag, creates a “risk management circle,” graphically describing the interaction of all elements of the process, from assessment and control to financing and communication.</td>
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</table>
In the U.S., the American Society of Insurance Management changes its name to the Risk & Insurance Management Society (RIMS), acknowledging the shift toward risk management first suggested by Gallagher, Snider and Denenberg in Philadelphia twenty years earlier. By the end of the century, RIMS has 3,500 corporate members, some 7,000+ deputy members and a wide range of educational programs and services aimed primarily at insurance risk managers in North America. It links with sister associations in many other countries around the world through IFRIMA, the International Federation of Risk & Insurance Management Associations.

With the support of RIMS, Fortune magazine publishes a special article entitled “The Risk Management Revolution.” It suggests the coordination of formerly unconnected risk management functions within an organization and acceptance by the board of responsibility for preparing an organizational policy and oversight of the function. Twenty years lapse before many of the ideas in this paper gain general acceptance.

Daniel Kahneman and Amos Tversky publish their "prospect theory", arguing that human nature can be perversely irrational, especially in the face of risk, and that the fear of loss wins over the hope of gain. Three years later along with Paul Slovic they write Judgment Under Uncertainty: Heuristics and Biases, published by Cambridge University Press. Kahneman wins the Nobel Prize in Economics in 2002.

The Society for Risk Analysis forms in Washington to represent public policy, academic and environmental risk management advocates. Risk Analysis, its quarterly journal appears the same year. By 1999 SRA has over 2,200 members worldwide and active sub-groups in Europe and Japan. Through its efforts, the terms risk assessment and risk management are familiar in North American and European legislatures.

William Ruckelshaus delivers his speech on “Science, Risk and Public Policy” to the National Academy of Sciences, launching the risk management idea in public policy. Ruckelshaus had been the first director of the Environmental Protection Agency, from 1970-73, and returned in 1983 to lead EPA into a more principled framework for environmental policy. Risk management reaches the national political agenda in the US.

The Institute for Risk Management begins in London. Several years later, under the guidance of Dr. Gordon Dickson, it begins an international set of examinations leading to the designation, “Fellow of the Institute of Risk Management,” the first continuing education program looking at risk management in all its facets.

That same year the Congress of the U.S. passes a revision to the Risk Retention Act of 1982, substantially broadening its application, in light of an insurance cost and availability crisis. By 1999, some 73 “risk retention groups,” effectively captive insurance companies under a federal mandate, account for close to $750 million in premiums.
Year/Period | Major Milestones
--- | ---
1987 | “Black Monday,” October 19, 1987, hits the U.S. stock market. Its shock waves are global, reminding all investors of the inherent risk and volatility in the market. That same year Dr. Vernon Grose, a physicist, student of systems methodology, and former member of the National Transportation Safety Board, publishes Managing Risk: Systematic Loss Prevention for Executives, a book that remains one of the best, and clearest, primers on risk assessment and management.

1990 | The United Nations Secretariat authorizes the start of IDNDR, the International Decade for Natural Disaster Reduction, a ten-year effort to study the nature and effects of natural disasters, particularly on the less-developed areas of the world, and to build a global mitigation effort. IDNDR concludes in 1999. Much of its work is detailed in Natural Disaster Management, a 319 page synopsis on the nature of hazards, social and community vulnerability, risk assessment, forecasting, emergency management, prevention, science, communication, politics, financial investment, partnerships, and the challenge for the 21st Century.

1992 | The Cadbury Committee issues its report in the United Kingdom, suggesting that governing boards are responsible for setting risk management policy, assuring that the organization understands all its risks, and accepting oversight for the entire process. Its successor committees (Hempel and Turnbull), and similar work in Canada (Dey), the U.S., South Africa, Germany (KonTraG) and France, establish a new and broader mandate for organizational risk management.

In 1992, British Petroleum turns conventional insurance risk financing topsy-turvy with its decision, based on an academic study by Neil Doherty of the University of Pennsylvania and Clifford Smith of the University of Rochester, to dispense with any commercial insurance on its operations in excess of $10 million. The BP approach is immediately studied by other large, diversified transnational corporations.

The title “Chief Risk Officer” is first used by James Lam, at GE Capital, to describe a function to manage “all aspects of risk,” including risk management, back-office operations, and business and financial planning. Today, globally there are more than 150 CROs responsible for multiple risk functions.

1995 | A multi-disciplinary task force of Standards Australia/Standards New Zealand publishes the first Risk Management Standard, AS/NZS 4360:1995 (since revised in 1999), bringing together for the first time several of the different sub-disciplines. This standard is followed by similar efforts in both Canada and Japan (1997). While some observers think the effort premature, because of the constantly evolving nature of risk management, most hail it as an important first step toward a common global frame of reference.

That same year Nick Leeson, in Singapore, finds himself disastrously overextended and manages to topple Barings. This unfortunate event, a combination of greed, hubris, and inexcusable control failures, receives world headlines and becomes the “poster child” for fresh interest in operational risk management.
<table>
<thead>
<tr>
<th>Year/Period</th>
<th>Major Milestones</th>
</tr>
</thead>
</table>
| 1996       | The Global Association of Risk Professionals, representing credit, currency, interest rate, and investment risk managers, begins in New York and London. An organization attuned to the new Internet world, it first operates electronically, without official offices or staff. By 2002, it grows to be the world’s largest risk management association, with over 5,000 paid and 17,000 associate members.
|            | In 1996, risk and risk management make the best seller lists in North America and Europe with the publication of Peter Bernstein’s Against the Gods: The Remarkable Story of Risk. Now in paperback and translated into eleven different languages, this single book, more than any of the preceding papers, speeches, books, ideas, or governmental acts, popularizes our understanding of risk and the attempts to manage it. |
| 1998       | The four year old Long Term Capital Management hedge fund collapses in Connecticut, USA. The occurrence illustrates a failure of overreliance on supposedly sophisticated financial models. |
| 2000       | The widely-heralded Y2K bug fails to materialize, in large measure because of billions spent to update software systems. It is a noted success for risk management. The US Congress passes Sarbanes-Oxley Act, as a response to numerous financial scandals. The Act combines risk management with corporate governance and regulatory compliance. Although many consider it as a stimulus for risk management at the board level, there are many critics that see only focus on negative sides of risk. |
| PRMIA, The Professional Risk Manager's International Association is established in the US and UK. It sponsors professional certification, and has 2,500 active and 48,000 associate members in 2008. |
| 2001       | The terrorism of September 11 and the collapse of Enron remind the world that nothing is too big for collapse. These catastrophes reinvigorate risk management. |
| 2004       | The Basel Committee on Banking Supervision publishes the Basel II Accords. Operational risk was introduced, along existing guidelines on credit and market risks. |
| 2005       | The International Organization for Standardization creates an international working group to write a new global "guideline" for the definition, application, and practice of risk management, with a target date of 2009 for approval and publication. |
| 2007       | Nassim Nicolas Taleb's The Black Swan is published by Random House in New York. Taleb argues that "our world is dominated by the extreme, the unknown, and the very improbable", therefore in his opinion sophisticated financial models are useless. |
| 2008       | The US Federal Reserve bailout of Bear Stearns appears to many to be an admission of failed of conventional risk management in financial institutions. |
Appendix 4: Supplementary rules and regulations

<table>
<thead>
<tr>
<th>Regulation/Framework (date)</th>
<th>A brief overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Cadbury Report (1992)</td>
<td>Focused on the role of corporate directors as a unified board as well as individuals. Rigorous reporting and control measures were stressed. Recommendations of this report were not mandatory, but they were well received.</td>
</tr>
<tr>
<td>The Austrian Standards Institute Rules (2005)</td>
<td>Prepared by the Austrian Standards Institute and the Swiss Association for Quality (SAQ). It was the only report that consolidated all Risk Management techniques of that time.</td>
</tr>
<tr>
<td>The Combined Code and Hampel Report</td>
<td>Hampel report was the pioneer report in introducing risk and control dimensions into corporate governance, and was used for the combined codes of 1998 and 2003. Hampel took a wide view of internal control, and argued that the ultimate responsibility lies with the directors.</td>
</tr>
<tr>
<td>The Turnbull Report (1999)</td>
<td>The report was formulated to help the directors of listed companies set up a sound internal control system to manage significant risks facing their business. The report applied external standards to financial reporting and internal control.</td>
</tr>
<tr>
<td>The King II Report (2001)</td>
<td>The first report to raise a question of the importance of risk management. Provides the most comprehensive and detailed study about the Risk Management committees at the BoD.</td>
</tr>
<tr>
<td>PAS 56 (Publicly Available Specification) 2003</td>
<td>A guide issued by the British Standards Institution (BSI) and the British Continuity Institute. Focuses on the business continuity - the disaster area of risk management and therefore is less relevant for this thesis.</td>
</tr>
<tr>
<td>IRM's Risk Management Standard</td>
<td>The standard is linked to the Registered Risk Practitioner qualification, and it attempts to include all contemporary techniques.</td>
</tr>
<tr>
<td>CAN/CSA-Q850 (2005)</td>
<td>The Canadian guideline is intended to help decision-makers to effectively manage all types of risk issues, including injury or damage to health, property, the environment, or something else of value. The guideline describes a process of acquiring, analyzing, evaluating, and communicating information required for decision-making.</td>
</tr>
</tbody>
</table>
### Regulation/Framework (date)
ISO 9000, ISO 14000

### A brief overview
ISO 9000 (quality standard) and ISO 14000 (environmental standards) are often considered to be conflicting with risk management systems. On the other hand, some experts see these methodologies not only working together, but consider them to be part of a single system.


Section 111 (b)(2)(A) institute certain compensation restrictions that relate to corporate risk strategy. For the first time the risk officer is obligated to take part in setting incentive compensation packages.

2010 Wall Street Reform and Consumer Protection Act

Creates the Financial Service Oversight Council that looks for systematic risks at Financial Institutions (FI). Gives regulating power to break up FI that provide a systematic risk to the financial system. Regulates credit card and mortgage markets in the US.

Source: combined from various sources (Kalia and Müller 2007; Sadgrove 2008; Branson 2010; Saunders & Cornett, 2011)
### Appendix 5: Selected circulars

<table>
<thead>
<tr>
<th>FINMA Circular (Date) - Title</th>
<th>Brief Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINMA-Circ. 11/2 (30.03.11) - Capital buffer and capital planning</td>
<td>Capital buffer and capital planning in the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 10/1 (21.10.09) - Remuneration schemes</td>
<td>Minimum standards for remuneration schemes of financial institutions</td>
</tr>
<tr>
<td>FINMA-Circ. 09/1 (18.12.08) - Guidelines on asset management</td>
<td>Guidelines for the recognition of self-regulation in asset management as minimum standard</td>
</tr>
<tr>
<td>FINMA-Circ. 08/44 (28.11.08) - SST</td>
<td>Swiss Solvency Test (SST)</td>
</tr>
<tr>
<td>FINMA-Circ. 08/41 (20.11.08) - Audit matters</td>
<td>Limited continued application of the Circulars of the Swiss Federal Banking Commission, the Federal Office of Private Insurance and the Anti-Money Laundering Control Authority with regard to audit matters</td>
</tr>
<tr>
<td>FINMA-Circ. 08/38 (20.11.08) - Market conduct rules</td>
<td>Market conduct rules for the securities market</td>
</tr>
<tr>
<td>FINMA-Circ. 08/34 20.11.08 Core capital</td>
<td>Determining regulatory capital in the banking sector using internationally accepted accounting standards</td>
</tr>
<tr>
<td>FINMA-Circ. 08/24 (20.11.08) - Supervision and internal control</td>
<td>Supervision and internal control within the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/23 (20.11.08 amended 17.11.10) Risk diversification</td>
<td>Risk diversification within the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/22 (20.11.08 amended 17.11.10) - Capital adequacy disclosure</td>
<td>Disclosure obligations regarding capital adequacy in the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/21 (20.11.08) - Operational risks</td>
<td>Capital adequacy requirements for operational risks within the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/20 (20.11.08 amended 17.11.10, 22.12.10) - Market risks</td>
<td>Capital adequacy requirements for market risks within the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/19 (20.11.08 amended 17.11.10) - Credit risks</td>
<td>Capital adequacy requirements for credit risks within the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/14 (20.11.08) - Supervisory reporting</td>
<td>Supervisory reporting for annual and semi-annual financial statements within the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/10 (20.11.08 amended 01.06.12) - Self-regulation as a minimum standard</td>
<td>Self-regulation recognized as a minimum standard by the Swiss Financial Market Supervisory Authority</td>
</tr>
<tr>
<td>FINMA Circular (Date) - Title</td>
<td>Brief Description</td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>FINMA-Circ. 08/9 (20.11.08) - Supervision of large banks</td>
<td>Supervision of large banks</td>
</tr>
<tr>
<td>FINMA-Circ. 08/6 (20.11.08) - Interest-rate risks</td>
<td>Measurement, management and monitoring of interest-rate risks within the banking sector</td>
</tr>
<tr>
<td>FINMA-Circ. 08/2 (20.11.08 amended 04.03.11) - Accounting</td>
<td>Guidelines on accounting standards under art. 23 to 27 of the Banking Ordinance</td>
</tr>
</tbody>
</table>

Source: own development
Appendix 6: Principles for the sound management of operational risks

Fundamental principles of operational risk management

Principle 1: The board of directors should take the lead in establishing a strong risk management culture. The board of directors and senior management should establish a corporate culture that is guided by strong risk management and that supports and provides appropriate standards and incentives for professional and responsible behavior. In this regard, it is the responsibility of the board of directors to ensure that a strong operational risk management culture exists throughout the whole organization.

Principle 2: Banks should develop, implement and maintain a Framework that is fully integrated into the bank’s overall risk management processes. The Framework for operational risk management chosen by an individual bank will depend on a range of factors, including its nature, size, complexity and risk profile.

Governance

The Board of Directors

Principle 3: The board of directors should establish, approve and periodically review the Framework. The board of directors should oversee senior management to ensure that the policies, processes and systems are implemented effectively at all decision levels.

Principle 4: The board of directors should approve and review a risk appetite and tolerance statement for operational risk that articulates the nature, types, and levels of operational risk that the bank is willing to assume.

Senior Management

Principle 5: Senior management should develop for approval by the board of directors a clear, effective and robust governance structure with well defined, transparent and consistent lines of responsibility. Senior management is responsible for consistently implementing and maintaining throughout the organization policies, processes and systems for managing operational risk in all of the bank’s material products, activities, processes and systems consistent with the risk appetite and tolerance.

Risk Management Environment

Identification and Assessment

Principle 6: Senior management should ensure the identification and assessment of the operational risk inherent in all material products, activities, processes and systems to make sure the inherent risks and incentives are well understood.

Principle 7: Senior management should ensure that there is an approval process for all new products, activities, processes and systems that fully assesses operational risk.

Monitoring and Reporting

Principle 8: Senior management should implement a process to regularly monitor operational risk profiles and material exposures to losses. Appropriate reporting mechanisms should be in place at the board, senior management, and business line levels that support proactive management of operational risk.
## Control and Mitigation

**Principle 9:** Banks should have a strong control environment that utilizes policies, processes and systems; appropriate internal controls; and appropriate risk mitigation and/or transfer strategies.

## Business Resiliency and Continuity

**Principle 10:** Banks should have business resiliency and continuity plans in place to ensure an ability to operate on an ongoing basis and limit losses in the event of severe business disruption.

## Role of Disclosure

**Principle 11:** A bank’s public disclosures should allow stakeholders to assess its approach to operational risk management.

Source: Basel Committee on Banking Supervision (2011:5-6)
Appendix 7: Prospecting letter and interview questions

Dear Madam/Sir,

My name is Goran Oblakovic, and I am a PhD student at the University of St. Gallen (HSG). I am conducting an empirical study of Risk Management at the Strategic and Operational Levels of Swiss banks, under supervision of Prof. Roland Mueller and Prof. Martin Hilb. To validate my results I hope to conduct several interviews with key opinion leaders of the banking industry.

The recent crisis showed that although banks were pioneers in the implementation of corporate risk management (CRM), with some of the most comprehensive CRM systems available to date, their risk management systems had numerous weaknesses. As a result, regulatory and best practice changes are sweeping the industry.

This study will investigate how risk management is changing as a result of the subprime crisis. More specifically, the study focuses on the integration of corporate governance, risk management, and internal controls systems, and aims to examine: (1) how boards can be evaluated and managed in regards to risk management, and (2) how can the whole risk management be optimized through the inter-linkage of different CRM dimensions. The goal of this study is to establish a set of recommendations that would aid in this optimization.

Your participation as an opinion leader of the industry is very important and I hope you will find the time and the inclination to take part in an interview. Of course, in my gratitude I will furnish you with the results of the empirical study as well as a complimentary copy of my thesis. The interview would last for less than an hour, and all responses will be kept confidential and anonymous. The information will only be used for this study.

I will contact your office in the coming week to schedule an interview. Please feel free to contact me anytime if you have any questions or concerns regarding the interview process. My number is (079) 366 64 24, and my email is goran.oblakovic@student.unisg.ch. Thank you very much for considering my request and hopefully I will talk to you soon.

Kind regards,

Goran Oblakovic
PhD Candidate
University of St. Gallen

Encl: Proposed Interview Questions
Proposed Interview Questions

1. Do you consider to have fully implemented RM in your organization? How long has it been fully implemented? What dimensions does it include?
2. How is the risk management in your bank changing as a result of the subprime crisis?
3. What is the main focus of your current risk management strategy?
4. What are the biggest risk management challenges for your bank?
5. What is the role of the board of directors (supervisory) in regards to RM in your organization?
6. How is your bank ensuring that the board can be evaluated and managed in regards to risk management? Should the board be evaluated/monitored through CRM?
7. How do you ensure relevance of RM processes and procedures at operational level? Have they changed, how? Is there a formal process?
8. Has there been any emphasis on changing the culture (bankers)? Is it changing and how? Please discuss the impact of RM training?
9. Have you changed your compensation structure? How has it changed?
10. Has reporting (both internal and external) changed significantly? How?
11. Have Internal Control Systems changed and how?
12. How can auditing assist the risk management function in banks?
13. In your opinion have you achieved a greater integration of RM, CG, ICS since the crisis?
14. Please discuss regulatory changes and their impact on your bank? What would you like to see regulators require/demand, i.e. the report/action that would give a clear picture of RM in your organization?
15. Do you have any other remarks regarding RM in your organization?
Appendix 8: Questionnaire

Disclaimer: We assure you that all responses will be kept confidential and anonymous. The information will only be used for the doctoral dissertation titled “Risk Management at the Strategic and Operational Levels of Swiss banks” at the University of St. Gallen (HSG). If you would like to receive the results of the study, please email your request separately to goran.oblakovic@student.unisg.ch.

Who is a risk management champion in your organization.
(CRO, CEO, CFO...please specify).
1.

<table>
<thead>
<tr>
<th>Your organization currently has:</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please check all that apply</td>
<td></td>
</tr>
<tr>
<td>1. Chief Risk Officer.</td>
<td></td>
</tr>
<tr>
<td>2. Independent risk management function.</td>
<td></td>
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<tr>
<td>3. Risk Management that is part of a different department (Finance, Accounting...)</td>
<td></td>
</tr>
<tr>
<td>4. Risk management committee at the Supervisory board.</td>
<td></td>
</tr>
<tr>
<td>5. No risk function at present.</td>
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<tr>
<td>6. RM in other form (please specify).</td>
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</tr>
</tbody>
</table>

How frequently do you survey your employees in regard to risk?

Please check all that apply
1. Once a year.     
2. Twice a year.    
3. Once every few years. 
4. Never. 

Risk management strategy at our company is:

<table>
<thead>
<tr>
<th>1=strongly disagree</th>
<th>5=strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2 3 4 5</td>
</tr>
</tbody>
</table>

| 1. Well defined and updated on regular basis. |
| 2. Well defined but not updated on regular basis. |
| 3. Neither well defined or updated on regular basis. |
| 4. Currently being revised as a result of the financial crisis and changing regulations. |
In which of the following areas (if any) has there been the most change since the crisis.

<table>
<thead>
<tr>
<th>Area</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit risk.</td>
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</tr>
<tr>
<td>Market risk.</td>
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<tr>
<td>Liquidity risk.</td>
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</tr>
<tr>
<td>Operational risk.</td>
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<tr>
<td>Strategic risk.</td>
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</tr>
<tr>
<td>Reputational risk.</td>
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</tr>
<tr>
<td>Other (please specify).</td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

What do you consider to be main barriers/challenges to effective risk management in your organization?

Please answer all that apply.

<table>
<thead>
<tr>
<th>Barrier/challenge</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>No major challenges at present.</td>
<td></td>
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<tr>
<td>Uncertainty over future regulation.</td>
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<tr>
<td>Insufficient risk management processes, procedures, and tools.</td>
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<tr>
<td>Poor communication throughout the organization.</td>
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<tr>
<td>Lack of expertise at the board level.</td>
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<tr>
<td>Insufficient real time data (i.e. insufficient management of information systems).</td>
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</tr>
<tr>
<td>Lack of strong leadership in the risk management function.</td>
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<tr>
<td>Other (please specify).</td>
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</tr>
</tbody>
</table>

How effective is your organization in each of the following areas.

Please answer all.

<table>
<thead>
<tr>
<th>Area</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall risk expertise.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Board level expertise (in regards to risk management).</td>
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</tr>
<tr>
<td>Risk function expertise at the operational level.</td>
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<tr>
<td>Integration of risk management across divisions/functions.</td>
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<tr>
<td>Real time risk management.</td>
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<tr>
<td>Installing/maintaining risk aware culture.</td>
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<tr>
<td>Risk training at all levels.</td>
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<tr>
<td>Internal controls.</td>
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</tr>
<tr>
<td>Risk reporting.</td>
<td></td>
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</tr>
<tr>
<td>Aligning risk management, internal controls and auditing.</td>
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<td></td>
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</tr>
</tbody>
</table>

How frequently do you:

(daily= dly, weekly= wk, monthly = mo, quarterly = qrt, annually = ann)

<table>
<thead>
<tr>
<th>Task</th>
<th>dly</th>
<th>wk</th>
<th>mo</th>
<th>qrt</th>
<th>ann</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compute your risk exposures?</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Evaluate existing risk management practices?</td>
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<td></td>
</tr>
<tr>
<td>Evaluate existing risk management measurement models?</td>
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<tr>
<td>Publish internal financial Risk Report for the Executive Board?</td>
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</tr>
<tr>
<td>Publish internal financial Risk Report for the Supervisory Board?</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare ad-hoc reports for internal use?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Send reports to regulators?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepare ad-hoc reports for regulators?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Since the subprime crisis (after Lehman)...

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. ... our RM became more holistic.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. ... our RM became more dependent on models.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. ... compensation in our organization decreased.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. ... compensation structure (variable part) is better linked to a long term performance.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ... claw-back measures was introduced into compensation structure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. ... compensation is unchanged (was always conservative with a small variable part).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. ... our organization increased RM training efforts.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. ... risk averse culture was strengthened in our organization.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. ... our organization implemented the risk-based auditing function.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Since the subprime crisis (after Lehman)... How strongly do you agree with the following statements.

In our organization we see the most benefit from:

<table>
<thead>
<tr>
<th>Benefit Type</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Preventive controls.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Detective actions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Corrective actions.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Other (please specify.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Which recent regulations have the most impact on your organization:

<table>
<thead>
<tr>
<th>Regulation Type</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Equity regulations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Liquidity regulations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cross-border regulations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Other (please specify).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To what extent do you agree/disagree with the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. We label the recent regulatory changes as something positive.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. We view the recent regulatory changes with positive future implications for us.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. We feel that there is a high probability of gaining a great deal from the recent regulatory changes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. We label the recent regulatory changes as something negative.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. We view the recent regulatory changes with negative future implications for us.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. We feel that there is a high probability of losing a great deal from the recent regulatory changes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. We feel we have the capability to address the recent regulatory changes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Risk Management at the Strategic and Operational Levels of Swiss Banks

The regulatory changes will have significant effects on ...

<table>
<thead>
<tr>
<th></th>
<th>1=strongly disagree</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5=strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>...products and services.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>...capital structure.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>...organizational structures and internal processes.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>...risk management.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>...profitability.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>...the overall business model.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>...culture.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Facing regulatory changes, which of the following did you or will you substantially alter?

<table>
<thead>
<tr>
<th></th>
<th>1= no change</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5 = high degree of</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.</td>
<td>Organizational Structure (create new divisions, shift functions between divisions).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Internal Power Distribution (e.g., change in functional backgrounds of our top management team).</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Risk Management practices and procedures.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please provide us with additional comments you would like to make in regards to the Risk Management function at your company.

Thank you very much for completing the survey!

Contact:

Goran Oblakovic
PhD Candidate, University of St. Gallen
Rehetobelstrasse 2, St. Gallen, CH-9000
Phone: +41 79 366 64 24, E-mail: goran.oblakovic@student.unisg.ch
Appendix 9: List of interviewed experts

1. **Dr. Paul-André Sanglard**  
   President of the Board  
   Jura Cantonal Bank &  
   Vaudoise Assurances Holding SA

2. **Dr. Tobias Guildimann**  
   Chief Risk Officer  
   Member of the Executive Board of  
   Credit Suisse Group AG and Credit Suisse AG

3. **Mr. Richard Metcalf**  
   The Group Risk Chief Operating Officer  
   Member of the Risk Executive Committee  
   UBS AG

4. **Dr. Dirk Ocker**  
   Head Quantitative Research & Data Management  
   Reiffeisen Switzerland

5. **Dr. Gabe Shawn Varges**  
   Head of Governance  
   Swiss Financial Market Supervisory Authority FINMA

6. **Prof. Flemming Ruud**  
   Professor at the University of St Gallen

7. **Dr. Michael Boge**  
   Deputy Head of Operations  
   Investment Controlling  
   Wegelin & Co. Private bank
8. **Ms. Carin Huber**  
   Strategic Assistant  
   on behalf of  

   **Prof. Axel P. Lehmann**  
   The Group Chief Risk Officer  
   Zurich Financial Services &  
   Professor at the University of St. Gallen  

9. **Mrs. Renate Schwob**  
   Head of Financial Market Switzerland  
   Swiss Bankers Association  

10. **Mr. Markus Staub**  
    Head of Banking Policy, Banking Regulation  
    Swiss Bankers Association  

11. **Dr. Fred Link**  
    The Chief Risk Officer  
    EFG International bank  

12. **Prof. Giorgio Behr** (submitted a detailed written report)  
    The founder of Bellevue bank &  
    Professor at the University of St Gallen
Appendix 10: Descriptive statistics

<table>
<thead>
<tr>
<th>2. Your organization currently has:</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chief Risk Officer</td>
<td>0.63</td>
<td>1.00</td>
<td>1.00</td>
<td>0.50</td>
</tr>
<tr>
<td>Independent risk management function</td>
<td>0.68</td>
<td>1.00</td>
<td>1.00</td>
<td>0.48</td>
</tr>
<tr>
<td>Risk management that is part of a different department (Finance, Accounting…).</td>
<td>0.32</td>
<td>0.00</td>
<td>0.00</td>
<td>0.48</td>
</tr>
<tr>
<td>Risk management committee at the Supervisory board</td>
<td>0.53</td>
<td>1.00</td>
<td>1.00</td>
<td>0.51</td>
</tr>
<tr>
<td>No risk function at present</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>RM in other form (please specify)</td>
<td>0.11</td>
<td>0.00</td>
<td>0.00</td>
<td>0.34</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. How frequently do you survey your employees in regard to Risk Management?</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a year</td>
<td>0.60</td>
<td>1.00</td>
<td>1.00</td>
<td>0.51</td>
</tr>
<tr>
<td>Twice a year</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Once every two years</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Never</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4. Risk management strategy at our company is:</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Well defined and updated on regular basis</td>
<td>4.15</td>
<td>5.00</td>
<td>5.00</td>
<td>1.31</td>
</tr>
<tr>
<td>Well defined but not updated on regular basis</td>
<td>1.37</td>
<td>1.00</td>
<td>1.00</td>
<td>1.42</td>
</tr>
<tr>
<td>Neither well defined nor updated on regular basis</td>
<td>1.05</td>
<td>1.00</td>
<td>1.00</td>
<td>1.19</td>
</tr>
<tr>
<td>Currently being revised as a result of the financial crisis and changing regulations</td>
<td>1.15</td>
<td>1.00</td>
<td>1.00</td>
<td>1.09</td>
</tr>
</tbody>
</table>
5. In which of the following areas (if any) has there been the most change since the crisis.

<table>
<thead>
<tr>
<th>Area</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit risk</td>
<td>2.85</td>
<td>3.00</td>
<td>4.00</td>
<td>1.27</td>
</tr>
<tr>
<td>Market risk</td>
<td>2.70</td>
<td>3.00</td>
<td>3.00</td>
<td>1.26</td>
</tr>
<tr>
<td>Liquidity risk</td>
<td>3.05</td>
<td>3.00</td>
<td>4.00</td>
<td>1.61</td>
</tr>
<tr>
<td>Operational risk</td>
<td>2.65</td>
<td>3.00</td>
<td>4.00</td>
<td>1.27</td>
</tr>
<tr>
<td>Strategic risk</td>
<td>2.95</td>
<td>3.00</td>
<td>3.00</td>
<td>1.18</td>
</tr>
<tr>
<td>Reputational risk</td>
<td>2.68</td>
<td>3.00</td>
<td>2.00</td>
<td>1.49</td>
</tr>
<tr>
<td>Other</td>
<td>0.83</td>
<td>0.00</td>
<td>0.00</td>
<td>1.79</td>
</tr>
</tbody>
</table>

6. What do you consider to be main barriers/challenges to effective risk management in your organization?

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>No major challenges at present</td>
<td>1.80</td>
<td>1.00</td>
<td>1.00</td>
<td>1.47</td>
</tr>
<tr>
<td>Uncertainty over future regulation</td>
<td>3.95</td>
<td>4.00</td>
<td>5.00</td>
<td>1.28</td>
</tr>
<tr>
<td>Insufficient risk management processes, procedures, and tools</td>
<td>2.30</td>
<td>3.00</td>
<td>3.00</td>
<td>1.17</td>
</tr>
<tr>
<td>Poor communication throughout the organization</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>1.21</td>
</tr>
<tr>
<td>Lack of expertise at the board level</td>
<td>2.40</td>
<td>2.50</td>
<td>3.00</td>
<td>1.43</td>
</tr>
<tr>
<td>Insufficient real time data (i.e. insufficient management of information systems)</td>
<td>2.35</td>
<td>2.00</td>
<td>1.00</td>
<td>1.53</td>
</tr>
<tr>
<td>Lack of strong leadership in the risk management function</td>
<td>2.10</td>
<td>1.00</td>
<td>1.00</td>
<td>1.68</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>0.53</td>
<td>0.00</td>
<td>0.00</td>
<td>1.33</td>
</tr>
</tbody>
</table>
7. How effective is your organization in each of the following areas.

<table>
<thead>
<tr>
<th>Area</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall risk expertise.</td>
<td>3.70</td>
<td>4.00</td>
<td>4.00</td>
<td>1.03</td>
</tr>
<tr>
<td>Board level expertise (in regards to risk management).</td>
<td>3.85</td>
<td>4.00</td>
<td>4.00</td>
<td>1.31</td>
</tr>
<tr>
<td>Risk function expertise at the operational level.</td>
<td>3.55</td>
<td>4.00</td>
<td>4.00</td>
<td>1.15</td>
</tr>
<tr>
<td>Integration of risk management across divisions/functions.</td>
<td>3.05</td>
<td>3.00</td>
<td>3.00</td>
<td>1.10</td>
</tr>
<tr>
<td>Real time risk management.</td>
<td>2.84</td>
<td>3.00</td>
<td>3.00</td>
<td>1.12</td>
</tr>
<tr>
<td>Installing/maintaining risk aware culture.</td>
<td>3.45</td>
<td>4.00</td>
<td>4.00</td>
<td>1.10</td>
</tr>
<tr>
<td>Risk training at all levels.</td>
<td>2.75</td>
<td>3.00</td>
<td>3.00</td>
<td>1.12</td>
</tr>
<tr>
<td>Internal controls.</td>
<td>3.45</td>
<td>4.00</td>
<td>4.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Risk reporting.</td>
<td>3.45</td>
<td>4.00</td>
<td>4.00</td>
<td>1.10</td>
</tr>
<tr>
<td>Aligning risk management, internal controls and auditing.</td>
<td>3.25</td>
<td>0.24</td>
<td>3.00</td>
<td>3.00</td>
</tr>
</tbody>
</table>

8. How often do you….

<table>
<thead>
<tr>
<th>Activity</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>... compute your risk exposures?</td>
<td>1.60</td>
<td>0.26</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>... evaluate existing risk management practices?</td>
<td>4.30</td>
<td>0.28</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>... evaluate existing risk management measurement models?</td>
<td>4.55</td>
<td>0.30</td>
<td>5.00</td>
<td>5.00</td>
</tr>
<tr>
<td>... publish internal financial Risk Report for the Executive Board?</td>
<td>3.20</td>
<td>0.26</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>... publish internal financial Risk Report for the Supervisory Board?</td>
<td>3.70</td>
<td>0.26</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>... prepare ad-hoc reports for internal use?</td>
<td>2.70</td>
<td>0.31</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>... send reports to regulators?</td>
<td>3.65</td>
<td>0.37</td>
<td>4.00</td>
<td>4.00</td>
</tr>
<tr>
<td>... prepare ad-hoc reports for regulators?</td>
<td>3.85</td>
<td>0.44</td>
<td>4.00</td>
<td>6.00</td>
</tr>
</tbody>
</table>
9. Since the subprime crisis (after Lehman) …

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>... our RM became more holistic.</td>
<td>2.40</td>
<td>2.00</td>
<td>2.00</td>
<td>1.27</td>
</tr>
<tr>
<td>... our RM became more dependent on models.</td>
<td>1.45</td>
<td>1.00</td>
<td>1.00</td>
<td>0.83</td>
</tr>
<tr>
<td>... compensation in our organization decreased.</td>
<td>2.10</td>
<td>2.00</td>
<td>1.00</td>
<td>1.52</td>
</tr>
<tr>
<td>... compensation structure (variable part) is better linked to a long term performance.</td>
<td>2.00</td>
<td>2.00</td>
<td>1.00</td>
<td>1.34</td>
</tr>
<tr>
<td>... claw-back measures were introduced into compensation structure.</td>
<td>1.40</td>
<td>1.00</td>
<td>1.00</td>
<td>1.14</td>
</tr>
<tr>
<td>... compensation is unchanged.</td>
<td>3.00</td>
<td>3.00</td>
<td>3.00</td>
<td>1.65</td>
</tr>
<tr>
<td>... our organization increased RM training efforts.</td>
<td>2.70</td>
<td>3.00</td>
<td>3.00</td>
<td>1.17</td>
</tr>
<tr>
<td>... risk averse culture was strengthened in our organization.</td>
<td>2.75</td>
<td>3.00</td>
<td>3.00</td>
<td>1.16</td>
</tr>
<tr>
<td>... our organization implemented the risk-based auditing function.</td>
<td>1.59</td>
<td>1.00</td>
<td>1.00</td>
<td>1.46</td>
</tr>
</tbody>
</table>

10. In our organization we see the most benefit from:

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directive controls</td>
<td>2.75</td>
<td>3.00</td>
<td>2.00</td>
<td>1.29</td>
</tr>
<tr>
<td>Preventive controls</td>
<td>4.05</td>
<td>4.00</td>
<td>4.00</td>
<td>0.85</td>
</tr>
<tr>
<td>Detective actions</td>
<td>2.75</td>
<td>3.00</td>
<td>4.00</td>
<td>1.33</td>
</tr>
<tr>
<td>Corrective actions</td>
<td>2.84</td>
<td>3.00</td>
<td>3.00</td>
<td>1.01</td>
</tr>
<tr>
<td>Other</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

11. Which recent regulations had the most impact on your organization:

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equity regulations</td>
<td>2.15</td>
<td>2.00</td>
<td>1.00</td>
<td>1.50</td>
</tr>
<tr>
<td>Liquidity regulations</td>
<td>1.85</td>
<td>2.00</td>
<td>1.00</td>
<td>1.14</td>
</tr>
<tr>
<td>Cross-border regulations</td>
<td>2.90</td>
<td>3.00</td>
<td>5.00</td>
<td>1.80</td>
</tr>
<tr>
<td>Other</td>
<td>0.70</td>
<td>0.00</td>
<td>0.00</td>
<td>1.49</td>
</tr>
</tbody>
</table>
12. To what extent do you agree/disagree with the following statements?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We label the recent regulatory changes as something positive.</td>
<td>2.60</td>
<td>2.50</td>
<td>2.00</td>
<td>1.05</td>
</tr>
<tr>
<td>We view the recent regulatory changes with positive future implications for us.</td>
<td>2.40</td>
<td>2.00</td>
<td>2.00</td>
<td>1.31</td>
</tr>
<tr>
<td>We feel that there is a high probability of gaining a great deal from the recent regulatory changes.</td>
<td>2.05</td>
<td>2.00</td>
<td>2.00</td>
<td>1.00</td>
</tr>
<tr>
<td>We label the recent regulatory changes as something negative.</td>
<td>2.85</td>
<td>3.00</td>
<td>4.00</td>
<td>1.42</td>
</tr>
<tr>
<td>We view the recent regulatory changes with negative future implications for us.</td>
<td>2.80</td>
<td>3.00</td>
<td>4.00</td>
<td>1.51</td>
</tr>
<tr>
<td>We feel that there is a high probability of losing a great deal from the recent regulatory changes.</td>
<td>2.30</td>
<td>2.50</td>
<td>3.00</td>
<td>1.30</td>
</tr>
<tr>
<td>We feel we have the capability to address the recent regulatory changes.</td>
<td>4.00</td>
<td>4.50</td>
<td>5.00</td>
<td>1.34</td>
</tr>
</tbody>
</table>

13. The regulatory changes will have significant effects on …

<table>
<thead>
<tr>
<th>Effect</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products and services</td>
<td>3.45</td>
<td>4.00</td>
<td>4.00</td>
<td>1.54</td>
</tr>
<tr>
<td>Capital structure</td>
<td>2.90</td>
<td>3.00</td>
<td>5.00</td>
<td>1.65</td>
</tr>
<tr>
<td>Organizational structures and internal processes</td>
<td>2.70</td>
<td>3.00</td>
<td>3.00</td>
<td>1.08</td>
</tr>
<tr>
<td>Risk management</td>
<td>3.10</td>
<td>3.00</td>
<td>3.00</td>
<td>1.07</td>
</tr>
<tr>
<td>Profitability</td>
<td>3.45</td>
<td>4.00</td>
<td>4.00</td>
<td>1.23</td>
</tr>
<tr>
<td>The overall business model</td>
<td>2.95</td>
<td>3.00</td>
<td>3.00</td>
<td>1.28</td>
</tr>
<tr>
<td>Culture</td>
<td>2.45</td>
<td>3.00</td>
<td>3.00</td>
<td>1.00</td>
</tr>
</tbody>
</table>

14. Facing regulatory changes, which of the following did you or will you substantially alter?

<table>
<thead>
<tr>
<th>Alteration</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Model/Product portfolio</td>
<td>2.85</td>
<td>3.00</td>
<td>4.00</td>
<td>1.42</td>
</tr>
<tr>
<td>Business Strategy</td>
<td>2.60</td>
<td>3.00</td>
<td>3.00</td>
<td>1.64</td>
</tr>
<tr>
<td>Organizational Structure (create new divisions, shift functions between divisions)</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
<td>0.97</td>
</tr>
</tbody>
</table>
## Risk Management at the Strategic and Operational Levels of Swiss Banks

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal Power Distribution (e.g., change in functional backgrounds of our top management team)</td>
<td>1.60</td>
<td>1.50</td>
<td>1.00</td>
<td>0.94</td>
</tr>
<tr>
<td>Risk Management practices and procedures</td>
<td>2.30</td>
<td>2.00</td>
<td>2.00</td>
<td>0.98</td>
</tr>
<tr>
<td>Internal Control Systems</td>
<td>2.60</td>
<td>3.00</td>
<td>3.00</td>
<td>1.05</td>
</tr>
</tbody>
</table>
CURRICULUM VITAE

GORAN OBLAKOVIC

EDUCATION

09/2009 - 02/2013:  PhD in Business Administration
                    University of St. Gallen (HSG), Switzerland

01/2007 - 12/2008:  Master of Science in Strategic Finance, and
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08/2002 - 12/2005:  Bachelor of Science in Business
                    Indiana University Southeast, USA

PROFESSIONAL EXPERIENCE

06/2009 - present:  Strategic Adviser
                    Local Administrative Group (LAG) “Una”, Dvor, Croatia

01/2007 - 04/2009:  Consultant
                    Blue Sky, Inc., Louisville, KY, USA

08/2008 - 02/2009:  Graduate Assistant
                    Indiana University Southeast, New Albany, IN, USA

01/2006 - 01/2007:  Executive Team Leader
                    Target Corporation, Evansville, IN, USA

01/2004 - 12/2005:  Sales Coordinator
                    Blue Sky, Inc., Louisville, KY, USA

05/1997 - 08/2002:  Logistics/Motor Transport Clerk, Language Assistant
                    United Nations Mission in Bosnia and Herzegovina, Brcko, Bosnia