Risk management–control system interplay: case studies of two banks

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Abstract

Purpose – This study explores the interplay between risk management and control systems in banks, specifically investigating the managerial intentions underlying the design of management control systems.

Method – This study is based on 31 interviews with personnel of two banks in a European country.

Findings – The main finding is that belief systems drive the interplay between risk management and control systems in the studied banks. In several instances, belief systems and boundary systems were operating complementarily. Cross-case analyses of the two banks demonstrate that risk management (i.e. the Basel II Accord) replaced established operating procedures for loan origination and portfolio monitoring at the first bank, whereas senior managers suppressed Basel II to maintain established loan origination and portfolio monitoring procedures at the second one.

Originality – This is one of very few studies investigating the interplay between risk management and control systems in banks.

Keywords Bank, Basel II Accord, Commercial lending, Management control systems, Risk management

1. Introduction

Risk management (hereafter RM) is a phenomenon characterized by counting and quantification (Power, 2004) and is expected to influence control systems. This influence has been examined in special issues of journals emphasizing that RM is not necessarily an isolated phenomenon, and that studies could suffer from treating it as such (Soin and Collier, 2013). Arena and Arnaboldi (2014) observe that practitioners have explored this area for some time. Related to this, Gooneratne and Hoque (2013) call for in-depth case studies of banks.

This study accordingly explores the interplay between RM and control systems in banks, specifically investigating managerial intentions underlying the design of management control systems. This research presents accounts of such intentions collected through semi-structured interviews. Previous empirical studies (e.g. Mikes, 2009; Wahlström, 2009) have concentrated their data collection efforts on comparing the attitudes and perceptions of groups of employees regarding the qualities of various RM standards. However, as Tessier and Otley (2012) suggest, research should separate the phenomenon of control system design from the qualities of control. The present investigation concentrates on commercial loans and credit risk,¹ paying particular attention to loan origination and loan portfolio monitoring. This focus is determined by the fact that previous studies treat various operations and risks in banks synoptically.

The case study banks have different RM approaches to the Basel II Accord (hereafter Basel II) (Basel International Standard, 2006). Other standards exist, such as enterprise RM (Mikes, 2009); however, Basel II is an enforced regulatory standard, which could be expected to leave senior managers with few design choice options. Moreover, Basel II is structured differently from the management control systems (hereafter MCS) previously investigated (e.g. Mundy, 2010; Soin *et al.*, 2002). Previous studies dealing with Basel II, especially that of Wahlström (2009), collected data before Basel II was introduced.² The present study collected data after the global financial crisis, when Basel II had already been implemented.

The study draws on Simons' (1990, 1994, 1995, 2000) levers of control (LoC) framework to investigate the managerial intentions underlying the design of MCS in banks. The LoC framework includes belief systems, boundary systems, diagnostic control systems, and interactive control systems. In recommendations for future research, Mikes (2009) suggests that there are special reasons to explore the interaction between RM and control systems using the LoC framework. Mundy (2010) argues that the framework is concerned with various uses of control systems. A distinctive feature of the framework is that it provides a holistic view suggesting that control systems interplay, or work together. This is confirmed by Berry *et al.* (2009), who suggest that Simons broadened the role of MCS through his focus on balancing the levers of control. In addition, as Berry *et al.* (2009) observe, the LoC framework applies only at the senior management level, which is in line with the aim of this study.

The main research conclusion is that belief systems drive the interplay between RM in terms of Basel II and control systems in the case study banks. This result was reached despite the fact that banks are typically known for not being particularly entrepreneurial, and therefore not necessarily under the influence of belief systems. We also found that the complementarity of belief systems and boundary systems somewhat influences the interaction between diagnostic and interactive control systems. Moreover, the outcome of the interplay between RM and control systems varies between the case study banks with respect to loan origination and portfolio monitoring. The replacement of established operating procedures with Basel II RM measures was noted at one case study bank (Bank A), as was the suppression of Basel II and the enforcement of established operating procedures in the second case study bank (Bank B). Vollmer (2007) claims that by paying attention to variations when performing measurements and quantifications, researchers can become more aware of what else is at stake.

This paper contributes to the literature in several ways. First, recent research (Mikes, 2009, 2011; Wahlström, 2006, 2009) into RM and control practices has approached the investigation

through selected levers of control. However, the present paper conducts a more complete examination by applying the LoC framework, illustrating the implications of the interplay between multiple control systems in banks in response to Gooneratne and Hoque's (2013) call. This could advance development of better MCS theory concerning how design choices facilitate the achievement of objectives of performance control and maximization.

Second, there have been several calls to improve the LoC framework devised by Simons (1995). In particular, Ahrens and Chapman (2004) suggest that the framework does not specifically address how and why organizations might wish to blend technical and social controls. The present paper examines the reasons underlying such blending. On the one hand, such blending enables the bank to display its abilities, creating a superior image that attracts talented employees; accordingly, replacing old systems with sophisticated quantification technologies prevents strategic uncertainties at Bank A. On the other hand, in Bank B, not changing the responsibility structures and retaining the alignment between employee competences and technical requirements keeps the costs down.

Third, the present examination of managerial intentions contributes to the small but growing body of research into RM and control systems (Arena and Arnaboldi, 2014; Soin and Collier, 2013), complementing research into attitudes towards and perceptions of RM (Mikes, 2009, 2011; Soin, 2004; Wahlström, 2006, 2009).

The paper is structured as follows: section 2 presents the theoretical and empirical frame of reference; section 3 describes the research method; section 4 presents the research findings, including comments by interviewees; and section 5 concludes the paper.

2. The frame of reference

2.1 Interplay

Accounting can have various organizational and societal purposes (Burchell *et al.*, 1980). The use of accounting information in organizations as a surrogate measure by which operational activities are controlled can be labelled “management control” (Otley and Berry, 1994). Management control typically operates through systems – hence, MCS (Otley, 1980). Simons (1994) defines MCS as comprising “the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities” (p. 170).

The assumption that MCS do not operate in isolation (Chenhall, 2003) and may influence one other – for example, through reinforcement or circumvention (Falkenberg and Herremans, 1995) and complementing or substituting (Milgrom and Roberts, 1995) – provides underlying support for this recent assessment:

We have relatively little understanding about the (complex) interrelation between risk, risk management and management accounting and control practices. (Soin and Collier, 2013, p. 83)

The interplay implies both benefits and costs because, as Grabner and Moers (2013) indicate, the value of one control system depends on the use of another control system, and vice versa. Regarding benefits, Arena and Arnaboldi (2014) conceptualize that by integrating RM with accounting systems, firms could improve their goal achievement and monitoring capabilities. The indication of both benefits and costs resulting from the interplay highlights the importance of internally consistent design choices (Drazin and Van de Ven, 1985). In theory, managers try to maximize performance by simultaneously making design choices for multiple control systems and avoiding small alterations in control systems that may affect the efficiency of operational procedures and even have negative consequences (Grabner and Moers, 2013; Milgrom and Roberts, 1995). As a result, organizations may resist changes that threaten internal

consistency, even at the expense of the superior environmental fit of individual components (Bedford and Malmi, 2015).

Moreover, to achieve effective control, organizations beginning from various starting points and adapting to unique and fundamental developments may make different design choices (Tessier and Otley, 2012). It is important to view organizations as artefacts constructed for certain purposes, and not to take relationship patterns as given (Otley and Berry, 1980). This is confirmed by Bhimani (2009), who emphasizes that, in accounting research, a general notion is that modes, styles, and forms of control practice are both context specific and organizationally dependent.

The current understanding of how RM and various control systems interact in banks is presented in early works, such as Soin's (2004) unpublished study, which includes interviews with compliance officers and regulatory officials, and document studies. More recent publications have presented case studies of banks (Mikes, 2009, 2011; Wahlström, 2006, 2009), addressing certain notions of the interplay between RM and selected control systems. For example, Mikes (2009, 2011) examines typologies grounded in cultural differences (e.g. quantitative enthusiasm vs. quantitative scepticism), subsequently relating these to diagnostic and interactive control. Wahlström (2006) highlights opportunities for cybernetic control (Malmi and Brown, 2008, p. 292) provided through the quantification of operational risk. He also compares management accountants' (e.g. risk specialists') perceptions of the process of specifying operational risk measurement with how decision makers perceive the quantification of operational risk (i.e. administrative control; Malmi and Brown, 2008, p. 293). Wahlström (2009) touches on organizational design when investigating perceptions of the structural impact of Basel II on the case study banks' management styles. As a control device, organizational design can encourage certain types of contacts and relationships (Alvesson and Kärreman, 2004; Malmi and Brown, 2008). Nevertheless, these studies have disregarded the potential of

introducing a more complete control system perspective. Moreover, Mikes (2009, 2011) and Wahlström (2006, 2009) independently chose to emphasize the tensions between groups of employees (e.g. decision makers vs. risk specialists). However, we lack relevant insights into the influence of RM on multiple control systems.

2.2 Managerial intentions

Simons (1990) argues that while organizations may adopt similar MCS, their use varies because of the human actors who select them and interpret their intentions. He demonstrates that the selection and implementation of MCS are strategic decisions related to managerial intentions.

Managerial intentions relate to the objectives of control and can range anywhere between compliance and performance (Tessier and Otley, 2012). The different emphases on compliance and performance may also result from different political and social interactions (Langley, 1989; Miller, 2001). Managerial intentions also relate to the need to pay attention to systems. Moreover, adopting a new system can both offer benefits and create costs. For example, the formal control systems that managers use to intervene in their subordinates' decision-making are defined as interactive control systems by Simons (1995). Using these systems, senior managers, who require regular access to system-generated information, must pay constant attention to strategic uncertainties. This focus requires a specialist function that prepares and interprets the information sent to managers (Simons, 1990). An interactive system thus requires more immediate attention by senior managers, demanding more sophisticated systems and resources. As a caveat, interactive systems can reduce the discretion of subordinates. For example, Udell (1989) observes that loan monitoring departments in banks limit the discretion of loan officers, who are more systematically monitored than in the absence of such departments.

Managerial intentions mean that MCS have different purposes at different organizational levels (e.g. operational vs. strategic; Tessier and Otley, 2012). The operational level typically

requires that the principles of rationality dominate information collection and use (Langley, 1989). According to Mikes (2009), risk quantification may provide consistency at the operational level and ambiguity at the strategic level. Managerial intentions also mean that MCS may emphasize different types of control, such as technical versus social (Tessier and Otley, 2012) or formal versus informal (Otley and Berry, 1980; Parson, 1960; Schein, 1993). Technical controls include the specification of standards, task performance, staff organization, output controls, and cybernetic controls that feature coercive formalization (Malmi and Brown, 2008). According to Adler and Borys (1996), coercive formalization is intended to create a foolproof system. Social controls include emotional and affective beliefs, norms, values, and culture (Alvesson and Kärreman, 2004; Malmi and Brown, 2008; Ray, 1986; Simons, 1995). Social controls feature enabling formalization (Adler and Borys, 1996) intended to allow employees to handle risk more effectively. Consequently, there is less focus on creating a foolproof system.

2.3 The uses of different control systems

Simons (1990, 1994, 1995, 2000) presents the LoC framework in terms of four levers of control, i.e. belief, boundary, diagnostic, and interactive control systems. Simons (2000) notes that the four levers of control are jointly critical and have dynamic tensions that require balancing.

Belief systems

These are defined as follows:

The explicit set of organizational definitions that senior managers communicate formally and reinforce systematically to provide basic values, purpose, and direction for the organization. (Simons, 1995, p. 34)

The key design variables of belief control systems are the company's core values, which are intended to motivate employees to seek new opportunities and to allow individual creativity.

Boundary systems

These are defined as follows:

Formally stated limits and rules that must be respected ... like brakes on a car: without them, cars (or organizations) cannot operate at high speeds.
(Simons, 1995, p. 41)

The key design variables of boundary control systems are the risks to be avoided. These systems are intended to constrain behaviour within defined boundaries that the belief control systems achieve through momentum (Simons, 1995).

Diagnostic control systems

These are defined as:

Feedback systems used to monitor organizational outcomes and correct deviations from preset standards of performance. (Simons, 1995, p. 59)

The key design variables of diagnostic control systems are the critical performance standards intended to provide information about whether strategies and goals will be achieved. Diagnostic control systems are closely related to ideas of cybernetic control and management by exception. The definition of diagnostic control systems is also related to Robert Anthony's (1965) conceptualization of MCS:

... the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives. (p. 17)

Interactive control systems

These are defined as follows:

The formal information systems that managers use to personally involve themselves in the decision activities of subordinates. (Simons, 1995, p. 95)

The key design variables of interactive control systems are the strategic uncertainties that are intended to focus attention on "the emerging threats and opportunities that could invalidate the assumptions upon which the current business strategy is based" (Simons, 2000, p. 215). Beyond focusing attention, interactive control systems can be established for three functions (Simons, 1990): *signalling* allows the organization to make decisions; *surveillance* guides the organization in its search for surprises and intelligence; and *decision ratification* is needed when policy decisions commit the organization and its resources.

As Simons (1994) argues, it is the character of communication processes, rather than their technical features, that determine whether MCS are selected for diagnostic or interactive uses. Making a control system interactive requires that senior managers take several steps to ensure the systems are important, intensively used throughout the organization, and provide opportunities for face-to-face meetings with subordinates. Similarly, Burns and Stalker (1961) observed that interactive control systems are primarily related to flexibility and to intensive, free-flowing communication.

2.4 Management control systems in banks

Research has demonstrated that highly formalized control systems are generally appropriate for environments with high levels of certainty and for conservative organizations (Chenhall and Morris, 1995). Gooneratne and Hoque (2013) assert that applying MCS in the service sector may pose particular control challenges due to the nature of the operations and production environment, which are characterized as intangible. Meanwhile, banks are organizations that are not particularly entrepreneurial, instead being preoccupied with counting and quantification (Collier, 2005; Mikes, 2011).

Over time, changes have motivated banks to examine various types of MCS. Soin and Scheytt (2008) point to the deregulation of the banking industry in the 1980s and the subsequent decrease in banking profits. Given such changes, banks began to pay greater attention to cost and efficiency. This in turn encouraged the implementation of various MCS, such as activity-based costing, total quality management, and other budgetary practices and performance measurement systems (Malmi and Brown, 2008). Moreover, the 1990s brought new types of MCS. Power (2007) describes the calls for RM; for banks, this has meant a shift in focus from capital budgeting of costs to control of enterprise risk over time (Berry *et al.*, 2009).

2.5 Basel II

Basel II was released in 2004. It was due to be implemented starting at the end of 2006³ and was presented as an improved standard for controlling credit risk. The Basel Committee on Banking Supervision (October 2010, p. 17) states that “Basel II ... improved the measurement of credit risk”. In particular, the goal of Basel II was to increase senior managers’ motivation to monitor risks by raising the level of responsibility from the operational to the strategic level. The Basel Committee report makes this point:

[§728] Bank management is responsible for understanding the nature and level of risk being taken by the bank and how this risk relates to adequate capital levels. (Basel International Standard, 2006, p. 205)

To achieve this improvement, Basel II requires the installation of centralized and independent risk control offices, such as those housing specialized management accountants at bank headquarters (Soin and Scheytt, 2008). Such offices are expected to provide system-generated information identifying “symptoms” (Vollmer, 2007) so that management and boards of directors can intervene in decision-making and monitor risk – taking “action at a distance” (Robson, 1992).

The provision of information differing from typical RM information is based on a particular type of “counting” (Power, 2004). This is confirmed by Soin (2004), who observed in a pilot study that RM does not use traditional management accounting techniques. The counting includes quantifying information based on past performance (e.g. accounting statements, credit records, and other historical data) and further mathematical extrapolations using statistics to predict future return distributions (McGoun, 1995). The processing, which should produce an average of the probabilities of risk over time, makes the future predictable through exercises controlled by mathematics, where foresight into the future is expected to benefit current decision-making. There are several familiar types of risk-based measure, such as internal ratings and value at risk (Jorion, 2009). The use of risk-based measures with respect to the two control issues, loan origination and portfolio monitoring, is addressed as follows by Basel II:

[§734] Internal risk ratings should be adequate to support the identification and measurement of risk from all credit exposures. (Basel International Standard, 2006, p. 206)

[§735] The analysis of credit risk should adequately identify any weaknesses at the portfolio level, including any concentrations of risk. (Basel International Standard, 2006, p. 206)

3. Method

3.1 Research approach

The case study design chosen for this research is appropriate for investigating contemporary phenomena within a real-life context (Yin, 2008). This context offers researchers learning opportunities that Kaplan (2011) claims can be discovered when they cease analysing data that others have produced and instead leave their offices to conduct field research. This case study follows the functionalist tradition in accounting and control studies (Otley and Berry, 1994). We derived the theoretical concepts primarily from the LoC framework, and structured the empirical data around the implications of Basel II for loan origination and loan portfolio monitoring.

3.2 The two case study banks

The banks studied here are two of the four largest domestic banks in a European country. The banks, which are outlier cases, are identified in this paper as Bank A and Bank B. Bank A, which is the country's second largest in terms of total assets, has two main business lines: investment and retail banking. Bank B, which is the country's largest in total assets, has a small investment banking department. While both banks focus on commercial lending, they have different processes for loan origination and loan portfolio monitoring. Since 2006, Bank A has started to centralize its business processes, while Bank B used a decentralized organizational design. Bank B also boasted of its cost efficiency compared with the other large banks, measured yearly through specific accounting measures.

At the time of this research, Bank A was renowned for its leading implementation of Basel II and had achieved the advanced level of compliance with the supervisory authority in terms

of credit risk calculations. Bank B had implemented the standardized compliance approach, which is less sophisticated in terms of credit risk calculations.⁴ These different levels of RM were assumed to affect the various control systems in the case study banks in different ways.

The banks also differed in their resilience to financial crisis. In the 1990s, following a national financial crisis, Bank A's shareholders had to rescue the bank with substantial capital injections. During the global financial crisis, Bank A's exposure to foreign operations resulted in large loan losses. Because of these losses, Bank A took two actions. It asked for and received more shareholder capital injections and it participated in the national government rescue programme. Bank B was also severely affected by the national financial crisis in the 1990s. However, Bank B survived that crisis without having to participate in the national government rescue programme. During the recent global financial crisis, because Bank B had solidified its liquidity position much earlier than had other banks in the country, it required neither government nor shareholder rescue. As such, the case study banks' resilience to financial crisis was assumed to result from an appropriate balance between different control systems.

3.3 Data collection

Between June and August 2010, 31 semi-structured individual interviews were conducted. *The interviewees were selected for their knowledge of commercial credit operations, credit risk, control systems, and RM. See Appendix A for a list of the interviewees with their job descriptions and interview dates.*

The interview questions targeted four thematic areas (see Appendix B). Two researchers (i.e. the author and a research colleague) jointly conducted the individual interviews. Using two researchers permitted active interviewing and increased our access to the interviewees' "interpretative capabilities" (Holstein and Gubrium, 1997, p. 122). The interviews were conducted in face-to-face settings. According to Tucker and Parker (2014), face-to-face interviews provide the greatest likelihood that the interviewee will provide information and

respond to complexity. The interviews, which lasted 45–60 minutes, were digitally recorded and later transcribed. In addition, we studied the banks’ annual reports from 1990 to 2010.

3.4 Data analysis

Data analysis began with the interview data, which were compiled in text-based transcripts. This text and the field notes taken in the interviews were first read, then archival data from annual reports were added to the analysis. The analytical steps were iterative, although they are presented here as separate steps.

The first step focused on the implications of Basel II in terms of changes in responsibilities, specialist functions, and the system-generated information in terms of the risk-based measures that the two banks used for commercial lending. The second step entailed examining the descriptions of the loan origination and loan portfolio monitoring processes using the interviewees’ accounts. Indications of diagnostic control systems and interactive control systems were noted.

The third step included interpretation of the underlying meaning (Holstein and Gubrium, 1997), which allowed identification of boundary systems and belief systems. Because the interpretations were based on multiple actors’ intentions in particular social settings, this step in the analysis also included the “critical interpretation” (Alvesson and Sköldberg, 2009, p. 250) of managerial intentions underlying design choices.

The analysis takes account of the senior bank managers’ subjective interpretations, making these case studies “interpretations of interpretations” (Scapens and Roberts, 1993). In an effort to illustrate managerial intentions, most of the quoted statements *were made by senior managers*. All interview quotations presented here were translated into English by the authors.

4. Findings

4.1 Bank A

Risk control organization

At the time of this study, Bank A had a risk control office that employed approximately 200 specialists. This office, the largest risk control office of any bank in the region, was divided into several functional teams. Of the 85 risk specialists on the credit analysis team, one was in charge of the risk quantification of the loan portfolio. The other team members communicated with management and the supervisory authorities.

The following statement describes one senior manager's confidence in the "analytical machine" as a reaction to the strategic uncertainties that the bank had previously experienced:

We have an extremely, what should I say, dominant analytical approach towards risk taking. We used to be the number one most profitable bank in the world. Then, in the nineties, we were badly hurt. Since then we have built up a very, some say weighty and expensive, advanced analytical machine that supports us in all our risk taking. I am very proud of our capability and our willingness to make these investments, because now we have the force and power to understand our borrowers. (Director of Commercial Credit, Large Accounts, Bank A)

This senior manager's confidence in the bank's analytical machine is interpreted as evidence of management's subjective view of technical control. Technical controls include specifications of standards, output controls, and cybernetic systems (Malmi and Brown, 2008).

As the interviews reveal, Bank A's senior managers present an image of the bank that highlights the bank's superior qualities. According to one senior manager, this image is needed to attract the most qualified and talented potential employees:

The people who work on the business side are people with majors in business administration from Ivy League schools. Just like myself. (Vice-President of Credit and Director of Group Risk Control, Bank A)

Risk-based measures

By 2005, Bank A had adopted several risk-based measures, such as risk-weighted assets, the probability of default and loss given default according to internal rating models, and centralized measures. The bank's annual reports indicate that, at the time of this study, these measures covered about 70% of the bank's commercial lending, except for loans to very large firms. The

intensive use of risk-based measures, based on this percentage, was interpreted as evidence of the use of interactive control systems:

Regarding credit risk, there are the standard, foundational, and advanced levels ... for this bank, it was foundational in 2005 ... and we are about to qualify for the advanced level in 2010. Regarding commercial loans, this bank is qualified for the “through-the-cycle” method ... We are the only one [i.e. bank] that uses the through-the-cycle method – that is, we take into account both the business and the financial risk. (Credit Risk Analyst, Bank A)

As the Credit Risk Analyst describes, risk quantification technologies are expected to capture variances in business cycles and shifts in macroeconomic conditions. The presence of technologies that enable the monitoring of environmental shifts were interpreted as evidence of the use of interactive control systems.

Loan origination

At Bank A, commercial loan origination begins when loan officers, who meet the potential borrowers, review relevant information about them. When a loan request exceeds EUR 10 million, a credit analyst assists the loan officers with information collected during personal visits to the borrower’s place of business. In the next step, the loan officers prepare memos for the centralized decision committees at bank headquarters. These committees consist of three to five senior loan officers who have specialized training in various industries and types of contracts. According to the interviewees, loan officers were previously constrained by a limit system that set a maximum loss amount, allocated among the largest borrowers, segments, industries, countries, etc. However, the limit system was replaced with credit ratings.

The credit rating, or measure of the probability of default, is indicated on a rating scale and is given to the decision committees. The decision committees refer to the memos from the loan officers and to the credit ratings in deciding whether to approve or reject loan applications. There may also be discussions in which the loan officers describe the relevance and value of the credit ratings to the decision committees:

The loan officers prepare all the information for the decision committees. Then the loan officers present the ratings. For example, an officer could say that this case is in a rating class of eight [of 16]. Then the officer tries to convince the committee to approve the suggested rating. (Credit Risk Specialist, Bank A)

The link between Basel II and the decision committees is that the committees are supposed to use risk-based measures ... they also document decisions and act in a much more organized way. It’s really good because it improves our communication capacity and transparency. (Vice-President of Credit and Director of Group Risk Control, Bank A)

The use of credit ratings suggests that the risk-based measures have several functions in the interactive control systems. First, the credit rating is used for signalling and in making decisions on loan originations. Signalling, which allows the bank to make decisions through “cues”, is a function of interactive control systems (Simons, 1990). Second, the credit rating is used for face-to-face communications between operational and managerial staff, which is a requirement in an interactive control system. Third, the credit rating is used for decision ratifications that dictate certain behaviours in the day-to-day activities of the credit operations.

Portfolio monitoring

As a result of the creation of the risk control office, the monitoring of credit portfolios had partly become the responsibility of the risk specialists. Lines of responsibility for loan officers were then altered. As part of its responsibility, the risk control office sends reports on the loan portfolios to senior management every year. These reports state the total credit limits and the rating class migrations. Such information permits the diagnostic use of risk-based measures, including management-by-exception, such as the comparison of outcomes, preset objectives, and performance variances (Anthony, 1965). One representative from this office explains the reason for the frequency of the reports:

... credit risk is appreciated ... because it is often subject to long, slow movements. They are mostly traditional term loans, which have durations of three or more years. (Credit Risk Specialist, Bank A)

In the following comment, a senior manager explains why the use of risk-based measures is expected to support the search for information needed for loan portfolio monitoring.

We [i.e. the risk control office] model [credit risk] as our contribution. By taking a more objective view in different situations ... we can decide to act more aggressively in particular situations and more defensively in other situations with the loan portfolio. (Vice-President of Credit and Director of Group Risk Control, Bank A)

Such information was expected to facilitate surveillance of the commercial credit operation's strategy. Surveillance is a function of the interactive control system that guides the organization in its search for surprises and intelligence (Simons, 1990). We also observed that the use of risk-based measures allowed management to monitor the credit risk concentrations in portfolios and to offset unwelcome credit risk in the financial markets. A Credit Risk Specialist confirmed that credit risk is largely collateralized.

The project manager in charge of Basel II implementation explained that besides compliance with regulatory requirements, the use of risk-based measures gives the board members the tools they need for decision ratification. Simons (1990) defines decision ratification as an action necessary when policy decisions commit the organization to a strategic direction.

Risk measurement has become a tool to help guide the business planning ... as the board and senior management have started to use the tools.
(Project Manager of Basel II Implementation, Bank A)

Accordingly, the board sets Bank A's commercial lending policies and the strategic direction for operations.

Table 1 summarizes the main findings pertaining to Bank A.

	Levers of Control	Managerial intentions	Use of Basel II	Consequence of interplay
Risk control	Boundary	Replace the standard procedures	Like an analytical machine	Establishment of comprehensive specialist function
	Belief	Subjective view of technical control	Use of risk-based measures reflects the bank's superior merits	Recruitment of talented individuals from Ivy league schools
Risk-based measures	Interactive	Early adoption of sophisticated technologies	Risk-based measures used with high level of intensity	Establishment of first- and second-order measurement capabilities
Loan origination	Interactive	Face-to-face communication between loan officers and decision committees	Use of risk-based measures to inform decisions	Replacement of previous limit system
	Boundary	Increase transparency and improve behavioural control in decision processes	Application of documentation requirements of Basel II	New administrative processes for decision committees
Portfolio monitoring	Diagnostic	Increase objectivity	Risk reporting on periodic basis to management and board	Risk specialists instead of loan officers in charge of reporting on portfolios Board and senior management more involved in strategic actions concerning risk
	Boundary	Maintain formal control through top-down directions	Use of risk-based measures to set the strategic direction for operations and business planning	
	Interactive	Avoid unwelcome risk	Use of risk-based measures for collateralization	

4.2 Bank B

Risk control organization

At the time of this study, Bank B maintained a risk control office at bank headquarters that employed about 50 risk specialists. Of these specialists, ten dealt with credit risk. They were mainly responsible for the external reports sent to the supervisory authorities and for loan

portfolio monitoring. Bank B was slower to embrace Basel II than other banks in the country.

One senior manager explains why:

A former chief executive officer didn't like quantified risk information at all. Then we used to face our borrowers and assess their creditworthiness in person. Now suddenly we had to bring in a physicist to do the job. He found it awkward. So from the start, there was resistance, especially at the management level. (Director of Treasury, Bank B)

This comment illustrates how the senior-level managers of the bank can exert social control.

Ray (1986) states that social controls include features that appeal to employees' emotional and affective characteristics. This discursive authority – legitimated by referring to a higher-ranked officer and projected onto subordinates – illustrates how senior managers subjectively approve few changes in the standard operating procedures. According to Hedberg and Jönsson (1978), standard operating procedures are intended to make the behaviour of organizations more consistent over time.

The next statement supports the idea that such subjectivity – constituted by the “norm” (Alvesson and Kärreman, 2004) of decentralization – sets a certain limit on top-down management of the branch offices.

We have a high degree of decentralization and give considerable autonomy to the branch offices. So you could call us firms inside firms. Each branch office is, of course, managed by certain rules and instructions. However, each office is also in charge of its geographic territory. So each branch office independently determines its set of product offerings and decides on the customers it wishes to work with. (Vice-President of Finance, Bank B)

Risk-based measures

According to the interviewees, several risk-based measures were introduced, such as the internal rating, economic capital, and risk-weighted asset measures. According to the bank's annual reports, by 2010 it was thought these measures would be used for at least 90% of the small and medium-sized commercial clients. An exception was made for the largest commercial clients. The coverage of risk-based measures for various borrower segments indicated interactive use of the measures.

Loan origination

For the origination of commercial loans, loan officers at branches initiate the evaluation of loan applications and then approve/reject applications independently of bank headquarters. In this process, loan officers subjectively evaluate loan applicants using an internal rating model that Bank B has used since the 1980s. This model consists of two scales, each with four grades: one

scale is for repayment capability, the other for future business prospects. In addition, collateral is evaluated. Maximum potential loan defaults are capped for each loan officer and each branch manager. If a loan exceeding the potential default limit receives preliminary approval, the regional office reviews the application. According to the Vice-President of Credit, for very large loans, a group of nine senior credit officers and bank senior managers also reviews the prepared memos at bank headquarters.⁵

Additional evidence that belief and boundary systems are operative is provided by the fact that all interviewees think that Bank B manages credit risk by requiring that loan officers take conservative and cautious positions:

Our guarantee is that credit assessments and decisions are made with great attention to caution and well-thought-out positions. The “model makers” have made us believe that you should not trust the first line [i.e. loan officers]. Those people only want to make deals and make money. Of course, this is only partially true. Instead, we should trust the second-line control [i.e. the risk specialists]. The risk specialists are separated from the business operations because they are supposed to be more objective and should manage the risks. (Retired Vice-President of Finance, Bank B)

Furthermore, we found evidence of business conduct boundaries that indicate that risk control is disconnected from decision-making:

That decision is made at the branch offices. It’s something that we [i.e. the risk control office] don’t get involved with. We don’t own the risks, and we are not responsible if things go wrong ... which means assigning the blame to the models [i.e. risk-based measures] a little. (Head of Group Risk Control, Bank B)

This statement hints at the idea that the use of risk-based measures is limited to the control of operational performance and that senior managers expect no alteration in lines of responsibility.

We also found evidence that Bank B’s belief system, which it regards as unique among its peers, inspires employees to pursue opportunities:

In this bank, the credit officers don’t assess risk mechanically, as in many other banks. This bank differs from the other 99 largest banks in the world. Here, the first line has the luxury of taking some time to think about the pros and cons before making a decision. (Retired Vice-President of Finance, Bank B)

The control effects of this design were several, as discussed by a senior manager:

[Credit losses] are reported, and if you have too many it will limit your career. Of course, the culture is forgiving in terms of that. If you are trusted with making loans, then you are expected to be flawless. However, it is expected that you will learn from your own and others’ mistakes so as to avoid recurring losses. (Retired Vice-President of Finance, Bank B)

Portfolio monitoring

The interviewees explained that portfolio monitoring was an important responsibility of the loan officers:

We still don't have "model think" in the branch offices. Instead, these offices are supposed to conduct their own business and make the best deals they can get. At headquarters, we look at the aggregate portfolios afterwards. We don't instruct the branch offices to use any models. (Director of Treasury, Bank B)

Thus, some responsibility for monitoring portfolios is centralized. At Bank B's headquarters, a centralized credit group of nine credit specialists (senior loan officers plus the Vice-President of Credit) and the risk control office monitor credit portfolios. However, as the next statement suggests, there are explicit boundaries:

We have been very careful about ... separating the work. The risk control people aggregate credit risk at the group level. I work more closely with emerging issues. I don't bother about the risk control office. Of course, we meet and the office updates me on discussions. But there is a clear line of authority. They should never call an office to discuss particular issues. This goes for me and for the central credit office. (Vice-President of Credit, Bank B)

The interviewees described how the risk control office prepares the monthly reports. One manager, who was previously in charge of credit operations, describes these reports:

Often they're about verifying the totals for the bank. They're mostly about continuous control of the models and systems. In addition, there are the migration reports [segmented by country, size, and industry]. (Vice-President of Public Relations, Bank B)

However, the senior managers claimed they used established procedures when interventions were required:

We obtain a sense of the actual risks ... in the quarterly follow-ups. (Vice-President of Public Relations, Bank B)

At Bank B, manual procedures were employed for preparing the required information in the quarterly follow-ups. A regional manager, in describing the quarterly reports he prepares manually, suggests an explanation for the absence of risk quantification:

It [i.e. the report] has four categories: manifest, very strong, possible, or weak. In addition, the report includes information about when the customer was recruited. With the regional credit manager, I review the cases and report the ones categorized as manifest and very strong, and indicate which the branch office will take. This report is then disseminated at the group level. (Head of Regional Office 1, Bank B)

The description also reveals how the social boundaries and artefacts of previous systems still act as controls.

We also observed that, because of the character of the business processes, reliance on risk-based measures for capturing risk was limited. Consequently, risk-based measures include distorted information:

You cannot now suggest that the risks are too large or too small. The portfolio is so large and the intervening times in the chain of decisions for each credit case are so long and complex that you cannot see the whole picture. In any case, it takes three to five years before you can see the results of any measure. Of course, for a limited number of operations, it is possible, but not at the aggregate level of the bank. (Vice-President of Public Relations, Bank B)

Thus, the use of risk control information in monitoring portfolios by offsetting risk through collateralization was not approved of:

We don't trust in diversification in the sense that one puts together a bouquet of bad things ... in a portfolio ... you need the time to manage the emerging issues. Diversification cannot be better than its components – it is also more likely to be worse rather than better. This is the thing people often disregard when making theoretical models of a bank that constantly goes back and forth. [Note: The interviewee uses an expression that describes the sea breaking against the shore.] (Vice-President of Finance, Bank B)

Instead, senior management stated that an important control system was the bank's pension fund:

The bank's pension fund requires that the bank run its operations with a long-term perspective and to keep the risks low. (Retired Vice-President of Finance, Bank B)

Although Bank B's senior managers have limited the use of risk-based measures in monitoring loan portfolios, they stated that they also used the portfolio reports from the risk control office as long-term feedback. This meant that the senior managers looked only for deviations, illustrating the use of risk-based measures for diagnostic control. Moreover, the risk-based measures are used to control the pricing of loans (e.g. interest rates at the branch office level). More practically, the risk-based measures of Basel II and the cost accounting systems were integrated and provided internal transparency regarding the cost of funding.

When credit decisions are made, loan officers receive an additional cost-of-capital calculation related to the level of the risk [i.e. credit rating]. It's here that risk-based measures come into the picture. (Head of Group Risk Control, Bank B)

We interpreted this integration as an effort to achieve decision ratification in credit operations by committing the organization to using its resources efficiently. This exemplifies an interactive control system.

We [i.e. the finance department] benchmark all the branch offices against each other. The branch offices aim to perform better than one another and their competitors. So it is very important to have a control system that allows for a fair allocation of costs. (Vice-President of Finance, Bank B)

This account, although illustrative of how the use of risk-based measures supports the bank's internal benchmarking system, explains branch officers' behaviour. It also illustrates the managerial concern with cost control.

Table 2 summarizes the main findings pertaining to Bank B.

	Levers of Control	Managerial intentions	Use of Basel II	Consequence of interplay
Risk control	<p>Belief system</p> <p>Boundary systems</p>	<p>Maintain face-to-face interaction with customers</p> <p>Lack of appeal of risk quantification</p> <p>Maintain the norm of decentralization</p> <p>Initiate few changes in structures</p>	<p>Use of risk control resources in reporting to the supervisory authority</p>	<p>Establishment of new specialist function, but limited in size</p> <p>Slower to achieve compliance</p>
Risk-based measures	Interactive	Achieve compliance	Risk-based measures used with high level of intensity but not for all client types	Establishment of first- and second-order measurement capabilities
Loan origination	<p>Interactive</p> <p>Boundary systems</p>	<p>Face-to-face communication between loan officers and clients</p> <p>Avoid altering lines of accountability</p>	<p>No use of risk-based measures to inform decisions</p>	<p>Reinforcement of previous rating system.</p> <p>Reinforcement of the limit systems</p>
Portfolio monitoring	<p>Boundary</p> <p>Belief</p> <p>Diagnostic</p> <p>Interactive</p>	<p>Avoid building a superstructure in order to keep costs down</p> <p>Avoid blame games between business side and risk control</p> <p>Avoid distraction and delays for actions concerning credit risk and have the loan officers and branches in charge of loan monitoring</p> <p>Management didn't envisage the opportunities presented by advanced risk-based measures</p> <p>Maintain the decentralized approach to the business model and provide discretion</p> <p>Additional feedback to senior managers</p> <p>Allocate costs fairly to branches</p>	<p>No use of risk-based measures in monitoring portfolios</p> <p>Risk specialists in charge of risk quantification and reporting on periodic basis to management and board</p> <p>Use of risk-based measures as cost inputs</p>	<p>Reinforcement of the manual procedures</p> <p>Reinforcement of existing procedures</p> <p>Suppression of risk-based measures</p> <p>Parallel systems for portfolio monitoring</p> <p>Complements the cost accounting systems</p>

5. Discussion and Conclusions

This paper's findings highlight the interplay between RM and control systems in banks and add nuance to the findings of comparable studies (Mikes, 2009, 2011; Wahlström, 2006, 2009). The findings from the first case study, of Bank A, indicate confidence in technical control from the outset. This made it possible to develop a comprehensive risk control office. In the interplay between RM and control systems, the belief system positively reinforced the elevated status of "cybernetic systems" (Merchant and Van der Stede, 2007). Furthermore, Bank A presents a superior image relative to other banks and thereby attracts talented employees. According to Malmi and Brown (2008), the influence of belief systems is obvious when "organisations deliberately recruit individuals that have particular types of values which match with those of the organisation" (p. 294). Descriptions of a senior manager's ideas about the disadvantages of risk quantification in the second case study bank (Bank B) provide an illustration of low confidence in technical control. Instead, the emphasis on social control, exemplified by senior managers' clinging to "yesterday's perceptions" (Hedberg and Jönsson, 1978), has resulted in limits being imposed on the operation of the risk control office. Social controls are defined by the extent to which workers influence one another to retain the traditional modes of operation (Alvesson and Kärreman, 2004; Malmi and Brown, 2008). A conclusion from the two cases is that the belief system – expressed through the emphasis on technical control (Bank A) and social control (Bank B) – seems to drive the interactions between RM and control systems, and is key in explaining why Bank A employs four times more risk specialists than does Bank B. This finding regarding Bank A's emphasis on comprehensive risk control, operating at bank headquarters, is supported by the study of Wahlström (2009), who found that Basel II was perceived as increasing the centralization of banks.

The findings of the second case study, however, suggest a need to refine the conclusion regarding increased centralization. By retaining its norm of decentralization, Bank B did not

abandon its belief system in response to political pressure on banks to implement Basel II. Hence, the role of belief systems is more straightforward than would be expected from the literature, suggesting that banks are not particularly entrepreneurial firms, and not necessarily under the influence of belief systems (Collier, 2005). Furthermore, Mikes (2009, 2011) has found that culture, which draws on belief systems, is the most important control system in influencing the extent to which banks are enthusiastic or sceptical regarding quantitative RM. In support of Mikes' (2009, 2011) conclusion, belief systems seem to drive the interactions between RM and control systems, and therefore might be fundamental in explaining the case outcomes.

Moreover, the findings illustrate the diverse use of risk-based measures. At Bank A, the use of risk-based measures is in line with senior managers' preference for employing sophisticated quantification technologies and capabilities, imposing boundaries on the old systems for loan origination and portfolio monitoring. To some extent, this has allowed Bank A to relate better to its customers (cf. a foolproof system; Adler and Borys, 1996). At Bank B, senior managers operate with the explicit intent of preventing the transformation of the operating procedures to match Basel II. The findings regarding Bank B illustrate several examples of the use of boundary systems for the operational units, headquarters, and risk control office. Senior managers think it is more important to use the bank's existing credit-rating system than the risk-based measures provided by Basel II. The goal was to maintain the match between employees' technical expertise and capabilities, task requirements, and the key driver of job satisfaction, exemplified by references to loan officers' discretion and compensation system. In addition, by not altering the lines of responsibility for portfolio monitoring, the bank avoids surprises in the monitoring process and the distortion of information by having fewer people monitor the borrowers and their loans. To a degree, the intention was to reap the benefits of having the loan officers handle risks by themselves, giving them the freedom to pursue opportunities within

acceptable limits (cf. enabling formalization; Adler and Borys, 1996). The more Bank B maintains its standard procedures, the less need there is to create a sophisticated superstructure for monitoring branch officers' performance through the installation of a comprehensive risk control office. This essentially means lower costs of operation. In sum, we noted the suppression of Basel II and its associated risk-based measures at Bank B.

The boundary system was seen to serve an important role in determining to what extent risk-based measures were used. As Simons (1995, p. 45) notes, boundary systems are responses to incidents that raise awareness of risk. In his study of how various bank employees perceive the impact of Basel II on management style as ranging from centralization to decentralization, Wahlström (2009) focused on organizational design, drawing on the boundary system as the starting point. The interaction between RM and control systems in terms of the use of risk-based measures is also of great importance in determining the performance level of an organization. At Bank A, senior managers pursued Basel II in an effort to avoid strategic uncertainties, which had troubled the bank previously. This notion recalls Mikes' (2009) suggestion to explore whether the use of risk-based measures is motivated by senior management assessment of the key strategic uncertainties of their organization. Meanwhile, Bank B was achieving cost efficiency, which motivated the suppression of Basel II.

Furthermore, as illustrated by both case study banks, internal consistency in the use of risk-based measures was pursued. As Grabner and Moers (2013) indicate, a major issue in designing MCS is to have systems that are internally consistent producing desired outcomes and/or maximizing performance. If we take Bank B as an example, the findings indicate that, at the operational level, loan officers use manual rating systems to inform decisions (i.e. signalling; Simons, 1995) and are limited in their use of risk-based measures for loan origination purposes. At the strategic level, senior managers use manually prepared reports from the operations and avoid risk-based measures for interventions in the process of loan portfolio monitoring (a

function of interactive control systems; Simons, 1995). There was, however, an instance of decision ratification (a function of interactive control systems; Simons, 1995), and senior managers exploited an opportunity to exchange information between Basel II and the accounting system (cf. Arena and Arnaboldi, 2014; Soin, 2004). This was found to be an effective way of providing targeted information to improve the internal transparency of the cost of funding loans without risking information overload for employees at the operational level.

Given that the LoC framework assumes that the four levers of control operate in balance, the present study concludes that the interplay between RM and control systems is subject to the complementarity of the belief and boundary systems. According to Milgrom and Roberts (1995, p. 180), complementarity relates to “fit” or “system effects”. This conclusion was reached given the aforementioned emphasis on belief systems in the development of the risk control office, and given that boundary systems were believed to positively and negatively enforce the use of risk-based measures at Bank A and Bank B, respectively. Moreover, belief systems and boundary systems seem to regulate the interaction between diagnostic and interactive control systems.

This study has its limitations. It offers little detail regarding the specifications of the responsibility structures and risk quantification technologies that Basel II implies. Moreover, the case study banks may also use other MCS that may be irrelevant in the narrow context of this study of the interplay between RM and control systems.

In future research, it would be worth considering the required dominance of externally induced control systems, given the increased regulation in the banking industry following the global financial crisis (Basel Committee on Banking Supervision, 2010; O’Connor *et al.*, 2014). We noted that Basel II implies exploiting several risk-based measures for credit risk management at the operational and strategic levels at the two banks and covers the control issues of loan origination and portfolio monitoring. In terms of “making risk count” (Mikes,

2011), however, the differences between the two banks suggest the need for further research. Moreover, our attempt to address the aforementioned research gap calls for further research in bank settings other than commercial lending environments (e.g. investment banking), to better understand the interplay between RM and control systems in banks.

Appendix A – Interviewees

1. Interviewees at Bank A

	<u>Interviewee job titles</u>	<u>Interview date</u>
1	Director of Commercial Credit	2010-06-09
2	Head of Audit	2010-06-09
3	Head of Treasury	2010-06-10
4	Vice Director of Treasury	2010-06-10
5	Vice-President of Credit and Head of Group Risk Control	2010-06-11
6	Project Manager of Basel II Implementation	2010-06-14
7	Credit Risk Control Analyst	2010-06-14
8	Manager, Credit Risk Control	2010-06-15
9	Manager, Credit Card Risk Control	2010-06-15
10	Manager, Portfolio Analysis	2010-06-16
11	Credit Risk Control Analyst	2010-08-17
12	Manager of Credit Analyst Team	2010-08-19
13	Senior Board Advisor	2010-08-23
14	Manager of Insurance Division	2010-08-23

2. Interviewees at Bank B

	<u>Interviewee job titles</u>	<u>Interview date</u>
1	Vice-President of Public Relations	2010-08-16
2	Vice-President of International Business	2010-08-16
3	Manager, Credit Risk Control	2010-08-16
4	Head of Treasury	2010-08-17
5	Risk Control Programme Manager	2010-08-17
6	Client Manager, Bank Accounts	2010-08-18
7	Vice-President of Finance	2010-08-18
8	Head of Regional Office 1	2010-08-19
9	Vice-President of Credit	2010-08-20
10	Head of Audit	2010-08-20
11	Head of Group Risk Control	2010-08-24
12	Head of Market Risk	2010-08-24
13	Retired Vice-President of Finance	2010-08-25
14	Project Manager, Basel II	2010-08-26
15	Head of Regional Office 2	2010-08-30
16	Liquidity Risk Specialist	2010-08-24
17	Head of Operational Risk	2010-08-26

Appendix B – interview questions

Part one – The background of the interviewee

Part two – Risk and risk management

- What is the background of Basel II implementation?
- Describe the bank's risk control organization.
- How is the credit risk control organized?
- What risks in relation to credit risk are measured?
- How is credit risk measured?
- What credit risk models are used?
- What factors, variables, and criteria are considered in the models?
- How is the risk reporting done?
- How is risk control represented at the board/top management level?

Part three – Control systems

- How is the commercial lending operation controlled?
 - Give examples of particular systems that are used at management level and operational level, respectively.
- Describe the process for originating commercial credit.
 - How and why are risk-based measures considered in this process?
- How are commercial credit portfolios monitored?
 - How and why are risk-based measures considered in portfolio monitoring?
- How and why do the top management and board use risk-based measures?

Part four – Employees

- What is the background of staff recruited for commercial loan operations and for the risk control organization respectively?
- How long do the employees stay in their positions?
- What is the culture of the bank and how is it communicated to the employees?

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Endnotes:

¹ Studies demonstrate that commercial loans make up the major share of banks' outstanding loans and therefore represent potential credit risk (e.g. DeYoung, 2010). Credit risk, defined as the risk of loss due to default on a financial contract, comprises the dominant portion of bank risk. Studies also find that credit risk allows for sophisticated calculations and quantifications (Mikes, 2011) and fulfils the requirements McGoun (1995) stipulates for statistical stability, which is a key requirement for risk calculations.

² *Mikes' (2009, 2011) findings derive from two data collection periods. In her first study, she conducted 75 interviews between 2001 and 2004. In her second study, she conducted 53 interviews between 2006 and 2010 with managers who had for the most part been interviewed in her first study. Wahlström (2006, 2009) mainly conducted interviews in 2001 for his earlier study and collected data in 2006 for his later one.*

³ Banks were allowed a transition period in which to find suitable ways to implement the new regulations. In several European countries, banks had as long as three years to make the transition.

⁴ According to Basel II, credit risk can be calculated at three different levels of sophistication: the standardized approach, foundational internal rating-based approach, and advanced internal rating-based approach.

⁵ In 2010, 59% of the limits were set at the branch level, 34% at the regional level, and 7% at the group level (unreferenced annual report).