Risk Management and Management Control Systems Integration in Banks: The Role of Regulation and Strategy

Jason Crawford a, Fredrik Nilsson b.

a) Department of Business Studies, Box 513, Uppsala University, 751 20 Uppsala, Sweden.
email: jason.crawford@fek.uu.se (corresponding author)
b) Department of Business Studies, Box 512, Uppsala University, 752 20 Uppsala, Sweden.
email: fredrik.nilsson@fek.uu.se

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ABSTRACT

The rise and expansion of risk management in banks in the last two decades has had a profound impact. New processes, tools and IT systems have been introduced aimed at enhancing internal control, information quality as well as reporting and disclosure practices. These regulatory derived developments would suggest that risk management's relationship with management control is strengthening. Despite the growing number of academic publications, we still know very little about the degree of risk management's integration with management controls. This paper addresses this important gap in the literature by examining how and why regulation and strategy influence the degree of risk management's integration with management control over time and across three integrating dimensions first presented by Gond et al. (2012). Using empirical evidence from a case study of a large European bank, we identify and discuss changes in the relationship between regulation, strategy and the three dimensions over time. In addition, we offer the reader deep empirical descriptions of the challenges associated with integrating risk management as part of the wider control system in a banking context.

Keywords

Integration; management control systems; regulation; risk management; strategy.

1. Introduction

In the 1950s Russel B. Gallagher extolled the virtues of risk management as a 'New Phase of Cost Control,' hypothesizing the benefits of integrating risk management and more traditional management practices to improve the internal functioning of organizations. This was in the context of newly emerging trends such as increasing legal and risk exposures, rising costs and increasing interest by external actors in management practices (Gallagher, 1956). Sixty years later we still know very little about the interactions of risk management with management control, especially in a banking context (Van der Stede, 2011). While there has been extensive research on individual mechanisms of control, for example of how they are affected by strategy (Otley, 2016), our knowledge about how or why certain controls combine together is limited (Bedford and Malmi, 2015; Grabner and Moers, 2013).

Risk management has evolved dramatically at the hands of banking regulation from being something of a peripheral concern to becoming a significant feature of management practices, particularly after the 2007-08 financial crisis. Banks and risk taking are synonymous with each other, but what is defined as good management has been externalized, restated and reintroduced into banks in successive waves of regulation since the late 1990s, all in the name of stabilizing and securing financial institutions (Mikes, 2011). This has created challenges for banks as they translate principles into methodologies and frameworks that meet supervisory approval. In some cases it has led to the compartmentalization of risk types into specific areas of highly technical competences while in others, more holistic approaches have been taken where in despite of stated governance borders, organizational design has increased risk management's span of influence and support for activities in the wider task environment (Kaplan and Mikes, 2014).

While acknowledging that there has been considerable criticism of risk management's contribution beyond regulatory compliance (Hopwood, 2009; Power, 2009) this criticism has come in the absence of understandings gained from rich empirical case studies examining to what extent risk management influences decision-making within organizations in general and financial institutions in particular (Hall et al., 2015; Van der Stede, 2011). To think of risk management as something that exists in a parallel but separate universe from management control, thus having

little effect on strategy formulation and implementation is counterintuitive (Bhimani, 2009) especially when one acknowledges financial institutions' ongoing efforts to evolve calculative practices as well as pledges of commitment by senior bank executives to make risk a strategic issue (Mikes, 2009). There are also examples in the literature showing how integrated control systems (e.g. integration of management control and production control) facilitate strategy formulation and implementation through more informed strategic, tactical and operational decision-making, ultimately leading to a strong competitive position (Jannesson et al., 2014). Hence, integration of risk management and management control systems is of importance when formulating and implementing strategies.

In theorizing integration between strategy and sustainability, Gond et al. (2012) clarify the processes whereby different control systems can be integrated via three dimensions of integration: *Technical*, *Organizational* and *Cognitive*. While the first two dimensions have been the subject of extensive academic research (see Berry et al., 2009), the third dimension is underexplored, and we, along with Gond et al. (2012), posit that it shows great promise in furthering our understanding of integration, as it moves beyond the exploration of controls which have "form" to include a dimension that is both elusive yet powerful in terms of its dynamic characteristics as part of this tri-dimensional constellation. It is here that we take our point of departure, albeit from a risk management and not a sustainability-management perspective.

The paper will draw on evidence from the literature showing how and why strategy affects the design and use of management control (Kober et al., 2007; Otley 2016). Hence we consider the main objectives of management control to be the formulation and implementation of strategies (Simons, 1995). Even though risk management has been shown to be affected by strategy, it is also affected by regulatory demands (Mikes, 2011). Because strategic and regulatory demands on risk management can differ there are reasons to expect that the integration of management control and risk management is affected. Demands from strategy and regulation can in certain situations promote efforts to integrate risk management with management control, while in other circumstances tensions between strategic and regulatory demands could frustrate their integration. The latter case can be expected to lead to a situation in which the benefits of using risk management in combination with management control – for example when analyzing a

proposed business strategy and the risks following that strategy – is not utilized and leads to less informed decision-making compared to when integration is present (Grabner and Moers, 2013). Following this line of reasoning and the limited knowledge of the nature of these important relationships, the overall objective of this paper is to examine how and why regulation and strategy influence the degree of risk management's integration with management control over time and across the three dimensions of integration in a bank.

Research in this area should be of interest to academics as well as practitioners for a number of reasons. Drawing on Gond et al. (2012), we intend to explore the three dimensions of integration over time. We do so by presenting and analyzing empirical evidence gained from a longitudinal multilevel case study at a large European bank; considered to be an industry leader in the integration of sophisticated risk management practices. This should give the reader a better understanding of the relationship between the three dimensions of integration and also contribute theoretically to a better understanding of the role of regulation and the influence of strategy on integration.[1]

The remainder of the paper is structured as follows. In section two, the literature review and research questions are presented. In section three, the reader is provided with an overview of the research design. In section four, the integration of risk management and management control – and the role of strategy and regulation in that connection – are charted in the period 1993-2015. Section five presents the discussion and section six provides the reader with the conclusions and avenues for future research.

2. Literature review and research questions

2.1. Regulation and risk management

There has been a surge of regulatory pressure on financial institutions for over two decades now, evident in the issuance of corporate governance and institutional regulatory prescriptions and

[1] The term *role* is here to be understood as the various ways in which strategy and regulation influence risk management's integration with management control systems leading to certain integration outcomes.

frameworks such as the Cadbury Report (1992), COSO[2]: Internal Control-Integrated Framework (1992), COSO: Enterprise Risk Management—Integrated Framework (2004), the Basel Accords (1998, 2004, 2011), and the Sarbanes-Oxley Act (2002) in the United States. These have all culminated in a collective push to embed risk management and governance structures into financial institutions, constructing a widely accepted view that organizations who embrace risk management do so as a public demonstration of good management, for which they are extolled (Hall et al., 2015; Lundqvist, 2014; Miller et al., 2008; Soin and Collier, 2013).

At the conceptual level, early thoughts on economic idealism went on to shape and influence the operational strategies for the regulation and management of risk in organizations (Bhimani, 2009), which generally led to the treatment of risk as a category separate from uncertainty. Risk was treated as known chance or measurable probability, and uncertainty was treated as indeterminable chance or unmeasurable probability (Knight, 1921). However, in the banking industry risk and uncertainty are very much bound together, and strategizing around the management of risk (i.e. risk transfer) and uncertainty led to the proliferation of a wide range of financial instruments in a bid to manage risk and returns, with many innovations falling through regulatory gaps up until the 2007-08 financial crisis (Hall et al., 2015).

As the financial crisis unfolded, organizations and banks in particular were severely criticized for the failure of risk management, not due to insufficient technical processes, rather due to a lack of robust risk governance (Lundqvist, 2014; Woods, 2009). Financial institutions have been experiencing increasing stakeholder demands to shift from traditional risk management practices[3] towards enterprise risk management (ERM), encouraged by governance and bank capital regulation, promoting firm-wide approaches, despite the absence of a broadly accepted definition of ERM[4] in terms of what it encompasses, how it works or the implications for practice (Caldarelli et al., 2016; Kaplan and Mikes, 2014; Mikes, 2009; Tekathen and Dechow, 2013; Van der Stede, 2011). This lack of understanding has not stood in the way of the development of

[2] See Appendix 1 for a glossary of terminology.
[3] Lundqvist (2014, p. 128) defines traditional risk management in the following terms: 'entails individually or in a silo identifying risk, measuring risk, monitoring, and perhaps reporting on risk but with little formality, structure, or centralization'.
[4] Since ERM is an elusive concept lacking any accepted definition, this paper will use the term risk management when discussing the type of firm-approaches that are sometimes labeled ERM.

prescriptions and frameworks on how to link risk with performance, risk with strategy (Kaplan and Mikes 2012) or adapt organizational structures to manage risk, all part of the global debate on effective risk management design (Giovannoni et al., 2016).

The regulatory derived shift towards holistic risk management has, as Soin and Collier (2013) point out, significant implications for those concerned with management control and there have been several discussions about the relationship between enterprise risk management and strategy, bound up in institutional dynamics and having implications for decision-making, control and accountability (Arena et al., 2010; Meidell and Kaarbøe, 2017). One example is the emergence of "governance risk" in the banking industry, which has encouraged the introduction of new structures, rules, responsibilities and lines of authority as well as rules and procedures for decision-making (Van der Stede, 2011). The aim of these regulatory promoted efforts is to encourage organizations to "unite" systems, process and people at different organizational levels (Lundqvist, 2014), and they can be interpreted as attempts to ensure the achievement of strategic aims and sustainable success (Van der Stede, 2011). Given the mix of risk management practices currently in evidence, achieving such aims will depend more on achieving a fit between these practices and the specific context through innovation and experimentation rather than the imposition of a universal risk management system (Kaplan and Mikes, 2014).

A similar line of reasoning is followed by Power (2009), who is critical of aspects of risk management that tend to isolate rather than integrate the management of risk, a view shared by Hopwood (2009). In particular Power (2009) points to a singular notion of risk appetite within organizations, the limitations of a box-ticking type of risk management encouraged by regulatory based compliance demands, and the weakness of regulatory efforts to expand support for organizational interaction and dialogue, which can destabilize opinion and create challenges to existing business models. It is important to note the wide variation in practices that exists and while there are a limited number of case studies thus far, there are several examples of the risk management function contributing to a better understanding of uncertainty in relation to the organization's strategy (i.e. corporate and business) and the external environment (Kaplan and Mikes, 2014) as new models to measure probability emerge. Several other researchers (e.g. Collier and Berry, 2002; Gond et al., 2012) have also raised the significance of what are broadly

labelled as heuristics (cf. Kahneman and Tversky, 2000) among certain organizational groups and key actors, which influence engagement with newly emerging controls, determining to what extent these controls' "language" (produced by statistical, analytical and descriptive tools) may take hold in any given context, gaining influence and visibility in organizational spaces traditionally reserved for management accountants, business controllers and members of the executive board (Collier et al., 2007). On the other hand, Kaplan and Mikes (2014) make the point that the deliberate introduction of highly intrusive risk management practices can actually be a way of counteracting individual and organizational heuristics about how to manage risk exposures.

Two studies that show the significance of heuristics in risk management are Mikes (2011) and Hall et al. (2015). Mikes (2011) points to the differing approaches towards risk calculation, bound up in different calculative cultures that are either dedicated to risk measurement (quantitative enthusiasts) or risk envisionment (quantitative skeptics), the latter seeking to offer advice to top management on emerging risks of operational and strategic importance as they spread their influence further out into the organization. Hall et al. (2015) note the importance of situated dynamics where risk management's integrative success is dependent on tool making and sharing in conjunction with communicative ability across internal organizational boundaries. Therefore, the mediating ability of different experts in their respective roles, and how it may change over time, is an important determinant of risk management's integration with management control (Giovannoni et al., 2016; Jordan et al., 2013; Kaplan and Mikes, 2014).

All of these studies convey an important message, which is summed up by Kaplan and Mikes (2014, p. 9) when they state that "[t]he effectiveness of risk management ultimately depends less on the guiding framework than on the people who set it up, coordinate and contribute to risk management processes" . We interpret this in terms of emphasizing the importance of continual coordinated design and efforts in the pursuance of risk management's integration with management control. This is perhaps one of the greatest challenges that organizations face as they attempt to achieve and maintain a fit between a highly dynamic external environment and the technical, organizational and cognitive integrating dimensions, dimensions that through control

system design may lessen the integrative complexity of cognitive structures (Hedberg and Jönsson, 1978).

In summation, there have been surprisingly few notable forays into the complex relationship between regulation and risk management from a management control perspective. (Bhimani, 2009; Sion and Collier, 2013). The review shows that the focus of the literature has been on the management of risk as part of formalized governance practices. There has been less focus on the management of uncertainty from a strategic perspective, or the engagement of accounting in hybridized practices where risk encounters and relates to a wider range of control systems (Miller et al., 2008) such as budgeting for example (Collier and Berry, 2002). Very few studies focus on the regulatory—risk management relationship from a banking industry perspective, which is surprising, given that banks are highly complex, have been exposed to extended regulatory pressure and levels of scrutiny, and offer interesting empirical case settings to study such relationships (Benston, 2004; Breton and Côté, 2006; Van der Stede, 2011). We can thus conclude that the gaps in the literature are broad and reflect to some extent the early demarcation of risk and uncertainty, a conceptual boundary that is hardly reflective of the complex contextual dynamics evident in banks. Next let us turn our attention to the relationship between strategy and management control systems, which has been the subject of extensive research.

2.2 Strategy and management control systems

Management control is not regulated to the same extent as risk management, giving more leeway when designing and using the former. Management control can therefore be expected to have a stronger alignment with the unique situation of the organization compared to risk management (Bhimani and Soonawalla, 2005; Crawford et al., 2017). A large number of studies show that this alignment can be captured and analyzed by studying the relationship between the organization's strategy and the design and use of the management control systems (e.g. Chapman, 1997; Langfield-Smith, 2007; Otley, 2016). Even though this influential stream of research, using contingency theoretical arguments, has contributed to a better understanding of this relationship (Miller and Power, 2013), ambiguous results still exist. As pointed out in Jannesson et al. (2014), several explanations have been presented with suggestions on how to improve the

operationalization of the strategy construct (Kald et al., 2000), improve the operationalization of fit (Gerdin and Greve, 2004) and improve statistical analysis (Gerdin and Greve, 2008).

There are also researchers that approach the matter of explaining the contradictory results from a different angle, emphasizing that management control-systems and what affects them have usually only been studied at one organizational level at the time (i.e. corporate, business or functional level) (Luft and Shields, 2003). As discussed in Jannesson et al. (2014) most of the studies using contingency theory as the theoretical starting-point do not have a multi-level research-design in which it is possible to study how, for example, the overall corporate management control system affects control systems at the business and / or functional levels. They also point out that management control is related to other control systems, most noticeably production control. Since these systems are integrated, at least to some extent, it can be expected that management control affects production control and vice versa. According to the authors (ibid) integrated control is of instrumental importance when formulating and implementing competitive strategies. They build their argumentation on the following definition of integrated control and its relationship to strategic management (Nilsson and Rapp, 2005, p. 92).

> Integrated control exists when strategic planning and follow-up at each organizational level are coherent throughout the firm. The purpose of integrated control is to facilitate the exchange of information between different organizational levels and decision-makers concerning strategic, tactical, and operating decisions. […] For example, it becomes easier to analyze the impact of activities in the value chain, together or separately, on the competitiveness and, ultimately, the performance of the business units and the corporation as a whole. In this way, it is possible to co-ordinate strategic planning and ongoing follow-up, thus improving the chances of achieving strategic congruence and of successfully implementing the strategies of the firm. To put it another way, integrated control facilitates the establishment of a high degree of internal fit, that is, of congruence between the strategies, internal structures, and expected performance of the firm.

According to the argumentation in the quote above, integrated control contributes to more informed decisions at all level of the organization because it will facilitate the exchange of

information between the systems, or in the words of Gond et al (2012, p. 209) provide "methodological links". There is also an implicit assumption, in line with Grabner and Moers' (2013) analysis of management control interdependencies, that the benefits of management control is enhanced if it used together with production control and the over way around.

Poth (2014, 2015) is an example of a study that analyzes and problematizes integrated control and how it affects strategic management in an insurance company. In a longitudinal case-study, covering the time-period 1995-2010, Poth is able to show how a lack of strategic congruence (i.e. mutually consistent corporate, business and functional strategies) contributes to making the creation of an integrated control system difficult to achieve in the corporate group. As a result, the group did not coordinate activities in an appropriate way and because of that their competitive advantage deteriorated (i.e. group performance compared to average market performance). Poth argues that this case shows that integrated control is difficult to achieve without strategic congruence.

From the discussion so far we can conclude that there is an increased awareness that different control systems affect one another and also that this affects the alignment between strategy and management control. In this connection, it is also important to stress that the integration of control systems is often described as something worth pursuing. In general these types of studies, advocating integration, focus on the advantages and put less emphasis on how integration is going to be achieved and what the possible effects can be. This is explicitly stated by for example Taipaleenmäki and Ikäheimo (2013), who believe that the advantages of integrating financial accounting and management control are significant and that new information technology, among other things, makes such integration much easier than before. Malmi and Brown (2008) also seem to believe that the relationships between control systems should be recognized since they describe management control as consisting of a package of different control mechanisms. Unfortunately the authors are not very detailed about the relationships between different control mechanisms even though it should be understood that "the concept of a package points to the fact that different systems are often introduced by different interest groups at different times, so the controls in their entirety should not be defined holistically as a single system, but instead as a package of systems" (ibid, p. 291). In some recent empirical studies of control packages there is

evidence of relationships between some, but not all control systems (Bedford et al., 2016; Bedford and Malmi, 2015; Otley, 2016).

Risk management, as pointed out in the previous section, is important in strategic management and therefore closely related to management control. In other words, risk management information is, or should at least be, vital when strategies are being formulated and implemented. Without knowing the risks, it is very difficult to evaluate the strengths and weaknesses of a specific strategy and even more difficult to relate the strategy to the risk appetite of the organization. Hence, from a strategic perspective risk is not necessarily something that should be avoided. Because of the importance of risk management, not least in the financial industry, and its prominent role vis-à-vis other control systems, Kaplan (2011) finds it surprising that our knowledge of risk management practices is rather limited. Therefore it is promising that we can observe an increasing interest in how risk management is related to management control and especially how these two information systems can be integrated (Van der Stede, 2011).

At the same time, and as pointed out above, the strong regulatory forces affecting the design and use of risk management, especially following the 2007-08 financial crisis, seem to be more oriented towards minimizing risk exposures in banks. The authorities give limited, if any, consideration to how new regulations affect already-existing risk management systems in banks and if the alignment with the management control systems and strategies pursued is disrupted by implementing those regulations. The focus seems to be on compliance and avoiding excessive risk taking (Elliot, 2015). These tendencies could lead to a situation in which risk management and management control begin to separate or decouple from each other, creating parallel control regimes where some degree of integration existed previously. Another possible development is that risk management procedures, driven to varying degrees by outside demands from regulators, affect the management control system and its alignment to strategy. Both these developments can be harmful. It is therefore important to study how risk management and management control are related and especially to what extent they are integrated.

2.3 Integrating dimensions

The literature review presents several meanings of integration. The one we use is based on Lawrence and Lorsch (1967, p. 4): the integration of risk management and management control across one or more dimensions of integration (technical, organizational and cognitive) in the process of achieving unity of effort amongst the various subsystems in the accomplishment of organizational objectives. This definition is further developed by using the three integrating dimensions introduced by Gond et al. (2012).

Technical Integration: is understood in terms of the existence of methodological links between risk management and management control systems. These methodological links can be in the form of a "common calculability infrastructure" where information can be gathered from both systems. Gond et al. (2012) emphasize the importance of considering individual practices, and we therefore focus on the development and adaption of tools, frameworks and systems.

Hall et al. (2015) point to the importance of the development of risk tools (i.e. Economic Capital Frameworks, Risk Reports, Risk Appetite Statements, Key Risk Indicators) as well as the adjustment of those tools over time, influencing their compatibility and linkage with other controls such as planning or cybernetic control to enhance communicability and shared understandings (i.e. translation of numbers into qualitative interpretations such as risk maps and stories). To mediate interactions between risk control and the business organization, technologies are important (Power et al., 2012).

Organizational Integration: is understood as efforts to clearly define the formal organizational structures e.g. independent risk organization, as well as the roles of organizational actors. In line with having an increasing emphasis on the practice perspective, Gond et al. (2012) also raises the significance of actors' practices, stating that "organizations can reach a form of systemic integration, irrespective of the level of systems' technical integration" (ibid, p. 209).

Clearly defined organizational structures and roles can support the socialization of different organizational participants such as risk officers and business controllers in shared communities of

practice. The physical proximity of different groups (i.e. risk and business controllers) can influence the manner and frequency of risk and business actors interacting with each other and also determine how the character of those interactions may change over time. Organizational integration may increase the propensity for risk issues to enter the cognitive space, potentially creating the conditions for actors to shift from automatic to deliberate forms of cognition where existing frames or heuristics can be re-assessed through rigorous and critical thought as interactions beyond governance boundaries (3LoD) are encouraged. As Kaplan and Mikes (2014) point out, isolated risk management functions can eventually become embedded in business units over time as risk actors accumulate business-relevant information and knowledge, putting that knowledge to use to address rapidly evolving strategic risks.

Cognitive Integration is understood as "common frames of reference" or "shared perceptions of reality" that emanate from information produced by risk management and management control systems, which create the conditions for exchange between different groups of actors laterally as well as vertically throughout the organization. By promoting knowledge exchange and redefining cognitive boundaries (Gond et al., 2012) the transfer of skills can take place.

Several researchers point to the importance of decision-making forums such as incident committees or product-approval committees in offering space and exchange opportunities for accountants, senior executives, and risk controllers to come together and potentially create the nuclei to new understandings and altered perceptions among various groups (Giovannoni et al., 2016; Hall, 2015; Kaplan and Mikes, 2014; Mikes, 2011). Although these are valuable contributions, several interesting questions remain, for example: To what extent do combinations of different control mechanisms facilitate or frustrate the re-mapping of cognitive structures towards the acceptance of risk management as an area of strategic importance under certain conditions? To what extent is a high (low) level of cognitive integration desirable and at what organizational level? The latter question is particularly pertinent when one acknowledges the challenges of achieving a fit between regulation, strategy and cognitive frameworks, acknowledging the integrative complexity of the latter. Neither regulation, strategy or cognitive frameworks are static; they change at different rates. This has implications for the design of information systems amongst other things (Busch, 1997; Hedberg and Jönsson, 1978).

From an accounting theory perspective one of the challenges has been to understand how "accounts" are supported in group and individual cognitive structures used in decision-making. More specifically, to what extent does accounting theory (based on the logic of consequence) compete with other private logics (baes on the logic of appropriateness) in determining a solution to a task or problem (Busch, 1997; Birnberg et al., 2006)? In some cases, where the focus is on controlling output, there might be no competition; in others the gap between public and private theories at a group or individual level can be quite significant if we think of it in terms of controlling behavior (Poth, 2014). This may not necessarily be negative, but it offers distinct advantages in the decision-making process as different groups of "practice communities" challenge one another based on their interpretation of underlying accounts (Tekathen and Dechow, 2013). It also has to be recognized that depending on the complexity, of "accounts," grasping the reality may be difficult or impossible given limitations in cognitive capacity. Sophisticated tools such as economic risk capital is just one example of the underlying complexity of highly technical practices that are largely unfamiliar to business managers, tending to prove difficult to comprehend for a wider audience other than the economists and engineering scientists working directly with them (Elliott, 2015; Hall et al., 2015).

Dynamics of integrating mechanisms: When using "dynamics" we are referring to the three dimensions first identified by Gond et al. (2012) and how they change over time. As the dynamics change we assume that this will also affect the "role" of strategy and regulation. In that sense we understand "role" in terms of either supporting or frustrating risk management's integration with management control systems.

There are varying levels of inter-dependence between the three dimensions of integration and one could expect shifts in those inter-dependencies over time as the organization responds to actual and anticipated environmental changes and adjusts to maintain a fit. Contra to the view of Gond et al. (2012), that there can be systemic integration irrespective of the degree of the systems' technical integration, we question whether this is actually possible in the financial industry, given that banks are essentially technology companies.

Table 1: Management control and risk management mechanisms[5]

ELEMENTS	STRATEGY – MANAGEMENT CONTROL MECHANISMS	REGULATION – RISK MANAGEMENT MECHANISMS
Planning	Long Range Planning – goals and actions for medium to long term, strategic focus (Poth, 2014). Action Planning – goals and actions for next 12 months, tactical focus (Poth, 2014).	Economic Capital Framework (Hall et al., 2015; Mikes, 2009). Early Warning System (Hall et al., 2015). Stress Testing (Kaplan and Mikes, 2014).
Cybernetic	Budgets (Lindsay and Libby, 2007). Financial Measures (Webb, 2004). NonFinancial Measures (Webb, 2004). Hybrids (Davis and Albright, 2004).	Risk Adjusted Return on Capital, RAROC (Mikes, 2009). Risk Trend Indicators (Mikes, 2009). Risk Maps, Risk Reports (Hall et al., 2015; Jordan et al. 2013). Risk Tracking and Limit Setting [VaR & RAG] (Hall et al., 2015; Mikes, 2009).
Reward/ Compensation	Attachment of rewards/compensation to the achievement of goals (Ittner et al., 2003).	RAROC linked remuneration (Mikes, 2009).
Administrative	Organizational Design and Structure (Poth, 2014). Governance Structures – internal auditing (Arwinge, 2014). Procedures and Policies – internal control (Arwinge, 2014).	Independent risk organization and CRO function. (Mikes, 2009). Embedded risk managers (Kaplan and Mikes, 2014). Mission and Value Statements, Risk Registers (Kaplan and Mikes, 2014). Process Controls i.e. Trading Limits (Kaplan and Mikes, 2014).
Culture	Values (Lindsay and Libby, 2007). Clans (Lindsay and Libby, 2007). Symbols (McGoun, 2004).	Risk Culture – organic or engineered cultural change. Identification of where behavioral change is required. Presence of risk culture champions (Power et al., 2012). Risk Management: Punitive vs. learning approaches of RM in practice – reinforcing or challenging values and beliefs (Mikes, 2009). Tone from the top (Hall et al., 2015).

[5] Some studies in the left-hand column are using theoretical perspectives other than contingency theory.

Finally and in order to promote clarity in the discussion so far, we provide a summary of the risk management and management control mechanisms taken from the literature review at the end of this section (Table 1). These mechanisms are grouped under five main elements of control first presented in a conceptual framework by Malmi and Brown (2008). We group them together based on their potential fit given their characteristics. The table shows the complexity of management control and risk management when a holistic view is applied. It is also obvious that attempts to integrate management control and risk management will be a challenge. One possible explanation is that management control is assumed to be affected mainly by the organization's strategy and risk management mainly by regulation and that these drivers do not necessarily lead to the same requirements on the control systems. In addition, it can be assumed that the alignment between strategies, regulations, and the control systems is an ever-changing process affecting the dynamics between the three dimensions of integration. With this a backdrop, the following two research questions are formulated:

RQ 1: How and why is risk management's integration with management control influenced in banks over time? More specifically; what are the respective roles of regulation and strategy?

RQ: 2: What are the dynamics between the three integrating dimensions over time?

3. Research design

3.1 Site selection

Banks have extensive experience in risk management, bringing about industry-leading innovations, with those at the forefront going on to capture the attention of regulators. Those early innovations later went on to inform successive waves of regulations such as the Basel Accords. Banks have also been subjected to a regulatory field that has become increasingly prescriptive and intrusive, as there have been increasing calls for transparency of risk management and governance activities (Bhimani, 2009). In conclusion banks offer a suitable context in which to study and answer the questions that we have posed. The paper also answers to

calls for more research of management control and risk management practices in the banking sector (Benston, 2004; Gooneratne and Hoque, 2013; Van der Stede, 2011).

The case example Norbank, is recognized within the financial industry as having one of the most sophisticated approaches to risk management dating back to the early 1990s and remains one of the few large banks in Europe to have approval from the supervisory authorities to use an advanced measurement approach (AMA) for operational risk. From a theoretical sampling perspective (Eisenhardt and Graebner, 2007), Norbank was considered particularly suitable for exposing and extending the relations between the concepts under study. Since the dynamics between the integrating mechanisms would be covered it was of utmost importance to choose a case which enables us to study the process of change for an extended period of time. In all these respects Norbank fulfilled our requirements.

While acknowledging the challenges of theory development from single cases, one must not forget that a single case, such as the one presented in this paper, offer a rare opportunity to study integration in a bank in detail (Eisenhardt and Graebner, 2007; Van der Stede, 2011). Single-case studies in process research can overcome replication and comparison issues by employing different strategies, which we have done by using a temporal bracketing strategy in this paper, comprising three temporal observations (Langley et al., 2013). This offers replication and comparison opportunities, as the temporal brackets can be compared and contrasted with each other (Langley, 1999).

3.2 Data collection

Data was collected over a twenty-one-year period given that the developments under study were likely to evolve over time (Hall et al., 2015), particularly over several strategic and regulatory episodes. It was also important to go back far enough to include other factors such as the near collapse of Norbank in 1992/93, given that this could potentially influence risk management integration with management control systems. Annual reports, interviews and observations were used as the basis for gathering process data as is common for many case-based research strategies (Eisenhardt, 1989). This provided us with a varied and rich source of data spanning a prolonged

period of time that is characterized by historical accounts as well as contemporary descriptions of recent events as retold by interviewees (Eisenhardt and Graebner, 2007).

Annual reports were found to be useful especially in temporal brackets one and two, as they provided the means of tracing chronological developments over time. They also acted as a means of identifying changes or breaks in patterns over time in different parts of the organization (Langley et al., 2013). They capture a point in time in an organization's history that is not subject to change at a later date and which resists the challenges that recollection presents in interviews, especially in circumstances where interviewees are asked to remember what happened two decades earlier. Annual reports are subject to accounting, ethical and legal standards through the auditing process, which is verification of accuracy and representativeness when viewed from a data-quality perspective.

Another important source of research data was interviews. Norbank was first contacted in 2013 to gain access to carry out an explorative study, on controlling IT in light of increasing regulatory demands. After completion of the explorative study contact with the bank continued and a meeting was scheduled with the Head of Group Financial Management, which resulted in an access agreement for a subsequent in-depth study. The project was presented to the Head of the Group Risk Office and a confidentiality agreement was signed in the spring 2014 at the bank's request.

Thirty interviews were conducted by one of the researchers between 2013 and 2015, at which saturation point was reached. The interviewees represented all three organizational levels: corporate, divisional and business-unit level. They also included several representatives from the risk organization, e.g. risk analysts and controllers as well as their equivalents in the business organization e.g. business analysts and controllers.[6] This afforded us an opportunity to look for evidence of vertical as well as lateral integration of risk management and management control systems across all three dimensions of integration (organizational technical and cognitive) as well as providing an opportunity to hone in and expand upon evidence found in the annual reports.[7] Of

[6] See Appendix 2 for a list of interviewees.
[7] See Appendix 3 for sample interview questions.

the thirty individuals interviewed, nine had been employed by the bank in different positions during all three temporal brackets, making cross-data comparisons possible. The length of the interviews ranged from forty-five minutes to two hours. The interviews were recorded and later transcribed by the interviewer. When the transcripts were completed, they were sent to the interviewees to be checked with an invitation for further comment. In addition to annual reports and interviews, a senior executive also provided internal documents used in internal training of business controllers and divisional CFOs.

3.3 Data analysis

As this study covers how things evolve over an extended time period as well as why they evolve in this way, we immediately faced a complex task, how not to drown in data. Given that the study spans the period between 1993 and 2015 we amassed a significant amount of raw data, and had to find a way of structuring it in terms of relevance. An initial analysis of the empirical data covering that period is presented in an earlier working paper.[8] The present paper is a new analysis based on additional data in the form of follow-up interviews as well as a systematic review and coding process of Norbank's annual reports from 1994-2015 in accordance to the illustrative model.

The interview transcripts alone amounted to approximately four hundred and twenty pages of text. Instead of opting for a simple process model to assist us (Langley, 1999) we instead developed our own illustrative model where the analytical concepts under consideration (regulation, strategy, risk management, management control) were structured according to our understanding gained from experiences in the field of how they related to each other over time as well as with reference to the literature. We used this as our starting point. Several early attempts were made at developing a simple process model but were thwarted by the fact that the context that Norbank was a central part of had changed significantly over the period, making early attempts at identifying and mapping clear linear progressive relationships difficult in the extreme.

[8] The authors and the title of the paper are not shown here since that would compromise the review process. It will be added, if and when, the paper is accepted for publication.

Therefore we had to engage a narrative and thereafter a temporal bracketing strategy to make sense of the data given the complexity of the case (Langley, 1999).

We collected and read in detail all annual reports. Annual reports from 1990-1993 were read to provide background information to the case that opens up temporal bracket one. The annual report data from 1994-2015 were systematically coded into the following fields: regulation; strategy; management control systems; risk management and the three dimensions of integration. This was a process that took several months and resulted in an eighty-four page document.

Codifying the data for regulation and strategy was relatively straight forward, although it was necessary to read, and then filter, for the most relevant regulations (i.e. Basel I, II and III), as well as codes of corporate governance. For strategy, we also searched for operationalized equivalents of corporate and business strategies. To be able to empirically and analytically separate activity-/ knowledge-sharing from portfolio managers, Porter's (1987) corporate strategy typology was used. To be able to empirically and analytically separate cost leadership from differentiation Porter's (1980) business typology was used. When it came to risk management and management control systems, data that fitted the mechanisms identified in Table 1, was included in the analysis. However, this was not altogether a straightforward exercise since the mechanisms and their underlying control activities changed over time, requiring us to go back and forth between the annual reports and the summary document in an iterative process to make sure we had extracted all the data, while taking care not to omit issues of potential significance. The same can also be said for the dimensions of integration. Here we included data that was interpreted as being consistent with the definitions provided in Section 2.3. We identified the technical and organizational dimensions of integration from data in the annual reports supported by interview data. For the cognitive dimension of integration we have used proxies to identify changes in the "conditions of exchange" over time, for example how often risk controllers met with business controllers or the number of new product and service committee meetings (PASAP). In addition, we used interviews as a means of gaining insights into changes in the "social context" that could be attributable to risk management's integration with management control via the cognitive dimension, i.e. how risk management was influencing interviewees' thinking as conveyed to us during the interview process (Birnberg et al., 2006). When this exercise was completed, we began

writing a chronological narrative, the third version which reached a high level of accuracy and consistency when validated against the interview transcripts. The third version of the narrative then formed the basis for the employment of a temporal-bracketing strategy.

While the narrative strategy focused on stories, meaning and mechanisms, the temporal bracketing strategy focused specifically on mechanisms alone. Temporal bracketing afforded a means of transforming data into what Langley (1999) refers to as a series of more discrete but connected blocks. It also proved useful when examining how actions in one bracket led to changes in Norbank's context that affected actions in other brackets, which was a central consideration. The decision to form the brackets as they now appear in the paper was taken as the work with the narrative strategy was coming to an end and as we uncovered certain clear elements of continuity, i.e. no significant changes to regulation. In addition we also uncovered certain elements of discontinuity, i.e. there had been a change to the corporate and (or) business strategies. This extensive analysis exercise provided the basis for sections five and six of the paper and afforded us the opportunity to identify the reoccurrence of theoretical mechanisms over time, see Langley (1999).

4. Norbank Case

4.1 Temporal bracket one: 1993–2000

Early in 1993 Norbank introduced a new organizational structure where the banks operations were grouped into two divisions, one taking care of private customers and SMEs (Division A) and the other taking care of institutional and corporate clients, acting as an independent investment bank (Division B). Norbank also had an entity consisting of a number of real estate companies (Division C). This portfolio management strategy meant that the potential to realize synergies between the divisions was limited. Division A had a business strategy characterized by cost leadership while Division B had a differentiation strategy.

The introduction of a new organizational structure was an outcome of a recent internal financial crisis where Norbank suffered heavy lending losses and an eroded capital base and had begun the

process of applying for government support – which they subsequently withdrew. Norbank had large exposures to corporate clients and in light of growing competition it was becoming necessary to be able to price products in the bank's credit business more keenly than their competitors if it was to gain a competitive advantage in a context where the European banking industry was deregulated. It was also becoming increasingly important to control the cost base, and a significant element in that work was to be able to better understand and price risk accordingly. Norbank introduced cost controls to curtail the ever-expanding cost base.

> This bank has a history of not being so risk aware in the past; people have been focused on doing business, making money and not thinking about risk. If you compare to Easbank, Easbank is very well known for risk awareness in their culture, you can almost feel the risk culture in the walls, so you should be very careful, cautious, don't take any excessive risk, it's a part of your employment and this has not been the history in Norbank and for that reason in the past we have had high volatility in the result based on individual losses, but this has changed due to the work of the risk control group. (Senior Risk Manager)

In 1994 Norbank formed the central group risk function, which was tasked with creating a risk management and control system (RMACS) for all the risks that the bank's business activities gave rise to. A project was initiated and for the first two years the project team focused on developing metrics for transactions in the credit business, in particular the pricing of large corporate deals. The bank called their methodology return on capital at risk (ROCAR). This project was also being carried out in parallel with the development of a performance management and control system (PMACS) for the improvement of decision data for planning activities. RMACS would provide information to enhance the performance of cybernetic controls in the bank as risk-adjusted capital calculations were developed and rolled out.

The bank also established a separate unit "Norbank DATA," which was developing IT systems in close co-operation with the bank's business units at the same time as group risk control was made responsible for the development of new systems for business control, including risk control systems. This was at a time when executive management had strategic ambitions to become market leaders in the areas of savings, asset management and electronic banking. The asset and

liability committee (ALC) was now responsible for the group's overall risk policy. Even though group risk control (GRC) acted independently of the business, they collaborated closely with the ALC, treasury and the divisions.

Meanwhile Division B formed a new risk control unit as a means of monitoring all positions taken in its equities trading. The development of the unit was in line with the business strategy as the division aimed to become the leading international investment bank in the region. To be able to meet clients' demanding needs, they would have to have an international platform, be able to deliver industry-leading financial innovations, and have a high degree of technical competence.

In 1996 Norbank divested Division C, as it could not realize synergies, and instead began to focus more on developing technical competences as well as extending their geographical reach, as they diversified further through mergers and acquisitions into the areas of merchant banking and asset management, two growth markets. These efforts were partly undertaken to align the group to the wider restructuring of the European financial sector, but also to be able to continue to service institutional clients as they expanded their own international presence. As extended geographical reach and increased technical competence were achieved in the investment bank division, senior executives began to think about how to transfer those skills into business units who were serving SME's and private customers in Division A. At the same time Norbank redesigned the employee profit-sharing system by linking it to return on business equity.

In 1997 Norbank announced a new corporate strategy after an analysis of how they could meet the challenges of deregulation and internationalization. A new portfolio-management strategy was formulated with an emphasis on restructuring and consolidation but also the broadening of Norbank's existing platform through mergers and acquisitions. The creation of a new financial services group with seven decentralized business areas responsible for profit generation and allocation to underlying business units came into being, in part due to Norbank's merger with a large insurance company as well as the acquisition of a banking firm operating in asset management. In tandem with the ongoing restructuring efforts, the group appointed a new Chairman and a new CEO, who thereafter worked to transform Norbank from a regional into a European bank.

Several changes were made in the organizational structure in terms of risk management and governance. The governance structure for the Norbank group was clarified; the group risk and group credit functions were merged together to create group risk control and credits, a change that essentially integrated elements of risk management into traditional decision-making structures. The decision to integrate group risk and credits was taken to further refine the bank's risk management. These efforts were also made to prepare for a new financial industry environment, given that there was widespread financial-sector restructuring going on in Europe. In addition, the bank's cost base had risen to unacceptable levels in an environment where margins where shrinking.

In order to execute the portfolio management strategy successfully, an analysis pointed out that a number of changes would be required, especially in the areas of cost reductions, capital efficiency and integration: Changes would be required to accounting systems and work methods in order to provide increased accessibility as well as new accounting information; new working methods would be required to improve the distribution of the groups services in a more cost effective way; and there would need to be a review of existing working practices of functions and units. By 1998 group risk control had developed portfolio and group level risk-adjusted metrics, which gave the use of the ROCAR a new impetus, especially in its use in the business units. They also created a new position "Head of Group Operational Control" long before operational risk[9] was included in the Basel Accords. A senior risk manager describes the relationship between risk management and cost efficiencies:

> You have to create incentives not only for senior management but also for general staff members to actually be prudent and run their business in a safe manner, and the question is – where is the borderline between cost efficiency and risk? If you spend too much effort on control and risk management you can't price your product in a competitive way.

Norbank was now using economic capital. Risk-adjusted return on capital facilitated the development of key performance indicators (KPIs). ROCAR also had the effect of getting the

[9] Operational risk was not included in the Basel Accords until Basel II was published in 2004, although operational risk was being discussed extensively within the banking industry and within COSO since the early to mid-1990s.

business units to alter their thinking in relation to risk adjusted pricing, acting as a control mechanism to manage costs and capital efficiency. It would facilitate group-level management's identification of business segments that they wanted to grow; it was a key determinate of the banks pricing strategy particularly in mature markets; and it encouraged the individual business units to begin using risk mitigating techniques as they would receive a capital reduction if they had a good internal control environment or a capital add-on if they did not. In the beginning of the ROCAR project, the project team's intention was that it could be used as the main decision tool for the bank, but upon later reflection the project manager realized that it should not be the only decision-making tool due to the challenges of following the methodology in certain sectors (i.e. where the market set the price and where loose control was favored in growing business segments). This would suggest that risk management's integration with management control systems was influenced depending on the business strategy in place within each of the business areas.

In 1998 alone, Norbank's IT costs represented 21% of the group's total costs. IT-systems development was a critical success factor to Norbank's corporate portfolio management strategy. According to the 1998 annual report, IT-systems development allowed access to the total competence of the group. The intranet alone had over 500,000 screen pages of information available to all staff and categorized by business areas/units. Norbank put considerable emphasis on the importance of collective knowledge and working in project groups as a means of attempting to transfer skills laterally throughout the decentralized group structure. The transfer of skills via technical integration was also viewed as a means of potentially tackling the diversity of cultures (diversity of cognitive frames) that existed within the group, a product of the various mergers and acquisitions that took place over the preceding few years. As risk management and management control systems became increasingly technically integrated, it was thought that this would connect the group's management and employees through a set of common group values.

By the end of the decade the corporate strategy was focused on growth and the broadening of the group's organizational platform through mergers and acquisitions to reach even further into Europe. The platform would be the basis upon which they would try to realize a number of ambitious stretch goals by 2004. The capital at risk (CAR) steering model had established itself

within the group, and the estimated risk capital requirement was followed up continuously against the reported equity of the group. The ratio between the banks actual capital and risk capital requirement (under Basel I) was a key metric in determining the capacity of the group to take on additional risks in different business areas as well as new transactions.

Risk-adjusted metrics were now also being used in the performance reviews of the different business areas. Business areas that were not meeting profitability requirements set at group level could now be followed up and adjustments made in terms of pricing, cost levels or business mix. While the risk control functions were decentralized, Group Risk Control was a participant at each business area's planning, budgets and compensation meetings. Linking IT to business controls was considered to be of central importance, operationally and strategically, and the appointment of a Chief Information Officer in 1999 reflected this. Internet banking facilitated geographical reach, but also emerged as a new and expanding distribution channel to the entire customer base.

The Norbank group's modified portfolio management strategy had positive regulatory capital saving effects. The new organizational structure with diversified business areas resulted in a capital reduction of 24%, and the diversification between the seven business areas led to a further 26% reduction. Regulatory capital demands promoted the attractiveness of having a corporate portfolio management strategy, but this created challenges for the bank in terms of efficiency as new entities were acquired and others were divested in a relatively short space of time, making synergies difficult to realize. In 1999 alone costs had increased 16% from the year previous, making cost reduction a top priority. Those cost savings were targeted for business areas with cost leadership strategies, operating in mature markets where margins were already depressed.

By the year 2000, the restructuring of the European financial sector continued through mergers and acquisitions. There was a demand for more efficient capital markets as an outcome of globalization, deregulation, EMU common currency and investments in new technology. In order to continue to make profits in line with shareholder expectations, economies of scale would have to be reached in terms of size and number of customers. The management control model of the bank continued to evolve by developing new metrics for different elements (i.e. securitizations, credit derivatives) that affected the capital level and relevant ratios; weighing those against

expected shareholder returns, regulatory capital requirements and capital required to execute the corporate level strategy. This year was also marked with intensive work in integrating the new German and Baltic subsidiaries' operations into Norbank. One aspect of that work was integrating Norbank's credit organization model into the subsidiaries as well as risk level calculations and reporting practices, which required the implementation of quality improvement processes to aid integration.

Dramatic structural changes had taken place in a very short time, in the period between the end of 1999 and the end of 2000 alone, the number of employees had increased by 53%. In 1999 75% were based in the group's home country, but by the end of 2000 this had dropped to 45%. This illustrates the significant transformation that Norbank had undergone in temporal bracket one, as well as the challenges that such an inflow of new entities as well as new management and employees can present in terms of integrating risk management and management control systems across the three integrating dimensions. By the end of the period environmental turbulence was on the horizon, the global stock market went into a downturn in 2001, bringing with it a national and international economic recession, which necessitated an internal review of corporate- and business-level strategies.

4.2 Temporal bracket two: 2001-2005

In 2001 the context in which Norbank was operating had changed significantly. The global stock market went into decline, exposing the Norbank group, as well as its corporate and institutional clients. A review of the existing portfolio management strategy was triggered in light of changes in the macro-economy but also due to the failed merger between Norbank and another bank. Shortly afterwards a group consolidation program was initiated based on three pillars: (i) Increasing customer satisfaction (ii) Improved cross-selling throughout the group and (iii) Increased cost efficiency. The latter had the aim of reducing costs by €26 million per annum from 2003 onwards. Norbank had stepped out in front of the financial convergence of the EU by expanding its presence in Europe, but it was becoming clearer to senior management that they needed to integrate the group's activities in other parts of Europe with business areas in their

domestic base if they were to increase the synergy potential of the group as a whole and realize the goals set out in the three pillars that the revised corporate strategy was built upon.

The ROCAR model had now been extended to include market and operational risks using sophisticated methodologies, and Internet-based risk management tools were introduced into the merchant banking business area as well as transaction tools in the trading area and foreign exchange in particular. Although operational risk metrics were not yet used in transaction pricing, ROCAR figures were now published internally for each business area every quarter, by individual risk type and business unit, and they were embedded in Norbank's planning process. Risk adjusted metrics were also used for pricing some of the banks transactions and services. Profitability was measured by comparing the reported results to the allocated capital in each business area, making comparisons of risk-adjusted returns from each business area possible. In the planning process, management set the return requirements for allocated capital, which were followed up during the year along with actual risk levels.

There was a distinction made between the use of tight and loose control in the different business areas. Corporate and retail businesses operating in mature markets were tightly controlled in terms of costs and capital efficiency, while the life and asset management businesses, which operated in a growth market, were given a freer hand. By 2002 European banks had lived with a lack of sensitivity of capital risk weights for credit portfolios under Basel I, but a change in regulations created new opportunities under Basel II to develop and use Norbank's own internal models for credit and operational risk. The corporate governance agenda was on the rise, and there was increasing interest in how banks were being managed and controlled. A number of new procedures and policies including ethical guidelines to influence the organizational culture as well as rules regarding employees' own share transactions were introduced. A senior business manager describes the first-hand impact of the regulatory shift as follows:

> It is a big difference between now and how it was ten to fifteen years ago, especially if you take discretionary portfolios. When we worked with discretionary portfolios in the 1990s there were no hard regulations, so every manager who was working with mandates could do whatever they wanted almost, but today regulation has been tightened up since 2003,

> 2004 with all the regulation coming from the EU, so it's quite a big difference now. What we can and cannot do is very tightly regulated.

By integrating Norbank's services across borders – an objective of the corporate level strategy – the bank attempted to align itself with the financial and economic convergence of Europe, by increasing the group's reach as well as its competence. By the end of 2002 the bank had reached its €26 million cost-savings target, but as the period of deregulation was coming to an end, new challenges had to be faced.

The discussion on corporate governance internationally was taking off with the publication of the Higgs report in the UK and the Åsbrink committee in Sweden. The latter presented proposals on the restoration of confidence in business communities and a call for the development of a code of corporate governance. Capital-adequacy regulations (Basel II) were being finalized between the Basel Committee and the EU. Regulation on disclosures, insurance and financial conglomerates were also emerging. New national banking legislation was to be introduced, and there was the upcoming introduction of accounting standards for the valuation and disclosure of financial instruments (IAS 32 and IAS 39), for which the bank would incur costs for integration of new accounting standards with existing practices.

Norbank's ambition of becoming "One Norbank" was managed through a number of processes and initiatives. The group's optimization and integration process set about reviewing which subsidiaries and business lines would be managed by each division as well as the reorganization of newly acquired entities so that they matched the business model. There were also efforts to promote the common values of the group as a means of continuing the work of creating a corporate culture across organizational and geographical borders. Norbank began to describe the former risk-based management and control model as the corporate governance mode of the bank, detailing how Norbank's activities were managed, controlled and followed up according to policies and instructions. At the time, the group's business model was predominately built on the same concepts as the capital-adequacy rules, which limited the extent of required changes to customer contacts and market offerings, not to mention that capital planning was integrated into strategic planning.

From 2003 onwards according to Porter's typology (1987) the corporate strategy was gravitating somewhere between restructuring and the transferring of skills, depending on where in the group one's vantage point was. This is not so strange perhaps, as Norbank either acquired or merged with a number of new entities (i.e. private banks, life insurance and card service companies), doing so to realize synergy potential over time. However, in order to realize synergies, some degree of risk management and management control systems integration is necessary before transferring of skills can occur. For example, the integration of merchant banking with Norbank's German subsidiary acquired back in 1999 meant that the group could now offer trading and capital market products on the German market while continuing to serve their own customers who expanded their interests into Germany. At the same time, however, the retail part of the subsidiary was under close scrutiny due to underperformance and was eventually divested in temporal bracket three. Also from 2003 the then CEO put increasing emphasis on the importance of creating a corporate culture espoused through common group values. In the following quote, a senior risk manager describes the dynamics between risk management and the administrative elements of the management control system as well as how they evolve over time in response to regulation:

> How people act is a lot about risk culture, how are the employees following the routines that we have set and how do they understand the consequences of not doing that. I think that is definitely part of risk culture and what signals do we send to people if they breach the legislation. We have had several incidents in the past where the risk culture hasn't been there. People have not understood that they have put Norbank in jeopardy with the decisions that they have taken. We can't have written instructions and policies for everything that could possibly occur; it also has to do with common sense. What kind of decisions can I take on my own and what kind of decisions can I not take on my own.

The consolidation program was further refined in 2003, but costs were still on the rise mainly due to restructuring costs in Germany, goodwill write-downs and staff costs due to new accounting principles and the introduction of a new performance-based program for parent-country staff. Norbank had a long history of management and employee incentivization, with compensation

components including base salary, widespread variable compensation based on short-term performance goals at group, business-unit and individual levels.

By 2004 executive management had realized that it was important to spend time and resources on integrating not only on the technical and organizational dimensions but also on the cognitive dimension. Even though Basel II had now been published but had not yet taken effect, Norbank was already analyzing risk-weighted asset (RWAs) levels according to the new framework and factoring in the findings to the group's long-term business- and capital-planning activities. The decade of deregulation had come to an end, and 2005 marked the introduction of several parallel regulatory changes in the areas of capital adequacy (Basel II), transparency (IFRS), insurance, and financial conglomerates. The chairman of the board took the opportunity in the 2005 annual report to point out the tensions between regulations and management and control of banks, warning for the potentially negative impact of regulations on banks' ability to focus on strategic and business goals as well as meeting shareholder obligations.

In advance of the implementation of the new code of corporate governance in mid-2005, an in-depth analysis of Norbank's control systems was undertaken, identifying and mapping the most critical areas in the financial-reporting processes. It also provided a means of assessing current routines and controls within different business areas. In order to make the organization more cohesive, the bank introduced Norbank license towards the end of the year, a common training program for all employees to enhance awareness and knowledge in relation to customer needs and product knowledge. The program was administered through e-learning modules, local workshops and cross-country/cross division competitions with a focus on sales. It would also facilitate greater awareness of Norbank's culture as it facilitated job rotation, networking and international exchange. The bank had now been expanding rapidly for a decade, but things were about to change again with the imminent entry of a new chairman and CEO.

4.3 Temporal bracket three: 2006-2015

In 2006 significant changes were beginning to take shape within the Norbank group. The recently appointed CEO made it clear that it was the ambition of executive management to create "an

integrated bank," to move away from a portfolio-management strategy towards a corporate strategy that according to Porter's typologies (1987) lay somewhere between transferring skills and activity-sharing. The business structure would also undergo change. The six existing divisions would be reduced to four from early 2007. They would have clearer mandates in terms of product, customer and geographical responsibilities. The new corporate strategy translated into the provision of universal service offerings in Norbank's domestic country, the Baltics and Germany, but a more focused offering in other markets, based on the bank's core strengths.

Rather than the divisions bringing forward solutions for a particular functional issue in isolation, three group-wide cross-divisional support functions (Group operations, Group IT and Group Staff) were established under the guiding principle of "one function one solution." This marked a shift from decentralized, largely un-coordinated activities in terms of processes and systems development as well as human resource allocation, to centralized functions, which avoided duplication, increased coordination and efficiency. Integration of different parts of the business would (according to the annual report): increase customer satisfaction, increase profitability, offer more complete services to customers, and result in more cost-effective operations.

From a business-strategy perspective, retail and life insurance divisions could be classified as having cost-leadership strategies, while merchant banking and wealth management divisions could be classified as having differentiation strategies. To coincide with the introduction of a new corporate strategy and organizational restructuring, Norbank also introduced a program aimed at achieving operational excellence in a number of areas called "One Norbank Style." As part of One Norbank Style, the bank invested in training and leadership programs in collaboration with universities with the aim of enhancing a common culture as well as putting an increasing emphasis on change and innovation. They also introduced a range of cost saving measures, with some savings coming from realizing synergy and scalability potential, while other savings would be realized from divestments in the Baltics and Germany. The cost-improvement program for the period 2006–2010, was estimated to deliver a total savings of €150–200 million.

In 2006 a number of new regulations were either amended or preparations were made for their introduction: MiFID, SEPA, Basel II, as well as national legislation on financial conglomerates,

the latter containing extra requirements concerning issues such as risk control and capital strength. The introduction of MiFID in November came about after the bank had adopted a new code of business conduct earlier in the year and presented plans for a new organization, two aspects central to MiFID regulation.

Norbank had long implemented an economic capital framework and the CAR Control Model (see Temporal Bracket 1) that it could further benefit from. The introduction of Basel II opened up the space to make an application to the national supervisory authority to use internally developed models for the quantification of various risks—VaR in 2001[10], IRB in 2006 and AMA in 2008. In order to be granted approval, Norbank would first have to make a number of changes to existing practices, namely the alignment and documentation of business processes, risk methods and stress scenario definitions. In December 2006 Norbank received a positive ruling to use the IRB approach for the reporting of banking, corporate and household mortgage portfolios in their home country as well as Germany and plans were underway to use the AMA approach for operational risk as it became available in 2008. In the same year, they also implemented an IT based infrastructure which was essentially a risk management information system (RMIS) to manage operational risk, security and compliance. RMIS enabled all staff to register risk related issues, and the system also provided the input to capital modelling under the AMA approach. It provided a means of gathering risk data in a structured manner for the first time.

Risk-adjusted returns (ROE) was now one of the key financial metrics for divisional assessment, and in 2006 existing financial targets were adjusted upwards, including ROE, Net Profit Growth, Core Capital Ratio and Dividend. New non-financial metrics in the form of customer-satisfaction indexes were also introduced in line with an increasing emphasis on customer satisfaction as part of the corporate- and business-level strategies. While regulatory capital was used as one measure of the capital buffers need to meet the banks risks, economic capital provided a more precise and risk sensitive measure for internal capital assessment and performance evaluation. While the group treasury was responsible for balance-sheet consumption costs, it was through the CFO that the relationship between risk management and management control was beginning to solidify. The CFO was responsible for the capital-assessment process, which was linked to overall

[10] The original VaR internal model was revised and approved by the supervisory authority in 2009.

business planning, assessment of divisional capital requirements in relation to the group risk profile and the proposition of a corporate strategy to maintain capital levels. The business planning process is explained by a business controller in one of the divisions:

> On the first business day of every month we do an estimate of where we think the result will land. We do that with the help of the finance department. They take in input from all different sites and also they use data from the accounting systems and then we meet up and discuss if we know anything special that we know will come for example one-off income or costs. The estimate is then sent to the CFO and I also send a report to the head of division on our view. We prepare a presentation regarding the result so that we can explain all the differences from the last quarter or last year. The information for the presentation comes more or less from group finance, so they prepare the presentation and send it to us and then we use our system called financial performance viewpoint (FPV) if we want to know more information about some specific cost and why is the base commission is up so much we can drill down in the system and see which business area it comes from, which site and so on. And then of course besides the audit meeting, we also have different reports to different business areas. On day six the result is signed off.

In 2007 the macro economic environment showed signs of rapid destabilization with the crisis in the US subprime mortgage market, which spread to other credit markets from Q3 onwards causing uncertainty for Norbank's private and corporate clients. There was also increasing competition in the international banking market where FX research and cash-management products were two important segments for the bank. Basel II introduced some changes in how the capital base was calculated, but the bank acknowledged that it had only a minor impact. The impact was largely positive in the sense that the bank's ratings strength increased, leading to lower funding costs and greater opportunities in the international capital markets – the decade of work with risk management was paying off.

The new organizational structure and group support functions went live in early 2007, and work continued on streamlining the bank's IT platforms, i.e. the automation of the bank's commercial lending business, shifting work from different sites' back-office systems to one central platform.

With four instead of six divisions, the line of responsibility for products and services globally was much clearer. There were also a number of mergers of subsidiaries with the parent company, and non-core products and distribution channels were ceased. There were also considerable divestment and restructuring activities in 2007, yielding substantial capital gains for the group. Again the 2007 annual report stressed the importance of the three global support functions facilitating the creation of 'one integrated bank' but also the integration of risk management and management control systems.

The transferring skills strategy formulated in 2006 had taken effect with explicit targets, e.g. profit growth, competitor leading ROE, customer satisfaction, dividend payout ratio as well as reaching an AA rating. There were also a number of key priorities set out under One Norbank Style, in the areas of productivity, quality, streamlining, mindset and culture. In conjunction with a review of financial targets Norbank also redesigned their rewards and compensation systems, which led to a gradual shift from short-term cash-based variable compensation in line with industry practice, to the introduction of a shareholder scheme for employees in 2008, a shift that may have been motivated by high staff turnover rates between 2006–2008. The targets illustrate the strategic reorientation that took place within Norbank at that time and which continued with the objectives highlighted in the following abstract taken from the 2008 annual report:

> Norbank continues to work with the integration of the group in order to increase cross-selling and extract cost synergies through a more efficient use of common resources. This also includes creating a group-common IT infrastructure. An integrated organization is crucial to enable Norbank not only to increase productivity but also to leverage the knowledge and expertise throughout the group for the benefit of the customers. The co-operation and knowledge-sharing between divisions have improved since the introduction of the new organization on the 1st of January 2007.

In 2008 the group received supervisory approval to use the advanced measurement approach (AMA) to calculate regulatory capital for operational risk, one of the few banks in Europe to receive such an approval. This was a significant achievement for Norbank and in line with the focus areas within the "One Norbank Way" program. It was also an outcome of the accumulated

knowledge and expertise in relation to risk management that had been ongoing since the early 1990s, knowledge and expertise that was a necessary prerequisite given that serving large corporates and institutions had high inherent risks but also higher levels of profitability. In the first quote a senior risk manager explains the motivation and benefits of applying for AMA status:

> The incentive for becoming AMA is partly capital, it means that for AMA banks for the most part not all, but in our case and most cases you need to set aside less operational capital than would have been the case had we not had the AMA approval, but that's only part of the incentive, in fact another incentive is the fact that it gives a more solid internal framework for mitigating operational risk and its quite helpful for discussions in different parts of the bank including with management and the board, to be able to point out that we have an AMA approval and we have certain obligation to live up to in order to keep that approval.

> It's really quite simple, a couple of years ago the corporate statement was client quality, customer quality, it still is but these things go in trends so it's not used quite as often but of course quality to the customer that is extremely important for any organization that sells something.

In addition to gaining AMA approval in 2008,[11] the bank took further steps to strengthen the group's market-risk-control unit due to market volatility brought about by the financial crisis. Norbank recruited additional staff that had a high level of expertise and tenure in other financial institutions and implemented a number of both centralized and standardized market-risk-control practices. A global head of market risk was also appointed to head up the unit. The following year Norbank modified their VaR model to include new risk parameters as well as increased levels of granularity. This had the effect of bringing increased risk sensitivity measures into trading activities and also improving pricing accuracy.

[11] The granting of advanced ratings or measurement approaches by the supervisory authorities is seen as a "seal of approval" of banks' management and control practices (Schenk and Mourlon-Droul, 2016). AMA approval is viewed externally and internally within the bank as an indication that the operational processes are of a high standard.

In 2009 Norbank faced a number of critical challenges. In late spring Norbank entered into a state guarantee scheme that expired in the autumn without Norbank having to use any of the guarantees. There was also some external controversy aimed at the handling of certain activities within the Norbank group—namely issues related to its Baltic operations as well as criticism from customers, shareholders and politicians regarding the design of the bank's remuneration systems. Norbank's Baltic operations were facing considerable challenges due to the macro-economic downturn in the region, magnified by the global financial crisis and efforts to contain the situation were taken. There were also several assurances in the annual report about efforts to strengthen the internal control environment by introducing a range of new administrative controls. In December of 2009 the Basel Committee presented proposals for Basel III, all part of the regulatory overhaul. This would eventually introduce higher capital requirements, increased transparency, the introduction of a new short-term liquidity-coverage ratio (LCR) as well as the net stable funding ratio (NSFR) to shift banks towards longer term funding of on- and off-balance-sheet activities. In addition, the national regulator was also about to introduce a new regulatory framework for remuneration within the financial sector.

While the CEO was supportive of moves to make the global financial system more resilient, they impressed the importance of maintaining principles based risk frameworks when compared to rules-based regulation. To give some indication of the changes that were underway the Head of Group Financial Management at Norbank explains the potential effects of regulatory evolvement:

> It is worth noting that there has been some sort of evolution in the regulatory framework since the crisis, Basel I was somewhere in the region of sixty pages or something like that, now there is around sixty pages plus a day almost when you take all that is produced by FSB, Basel, EBA, and local regulators in all the countries that we are involved in […] Now there has come the third phase in all of this. Now they are just not concerned about the ratios that we fulfill, they are not just concerned about the reports that we send in, they have lifted their head and ask what does your processes look like in order to generate those reports, is there just as good quality for your risk data as there is for your external reporting data? Have you the ability to control the bank and see what you need to see in order to control the bank in a crisis situation. Now they are beginning to be very intrusive and this

> will come to have fundamental consequences for our systems. Earlier as a bank you could come quite far with just having good external reporting routines and processes, there was no one who cared about how it looked in the inside with controls, but now they are interested to the highest degree - they want to see if you have the ability to analyze your own balance sheet. I would go as far to say that this is in fact a paradigm shift.

In 2010 Norbank outlined further plans to expand its corporate and wealth-management activities, although this would now be achieved through organic growth rather than large-scale mergers and acquisitions. The bank also divested operations in France and its retail business in Germany. New regulations on rewards and compensation were implemented and Norbank also started a large-scale IT-infrastructure modernization program, which would run until 2015, with an estimated budget somewhere in the region of € 500 million. The intention was to reduce the overall number of applications, isolate old code and build a new group-wide Internet bank.

Clearer demarcation of roles and responsibilities of different functions supporting the business were introduced, and in addition a risk governance framework was developed based on the three-lines-of-defense model (3LoD). In 2010 the board appointed a Chief Risk Officer, responsible for independent risk control, portfolio analysis and credit approval. A product and service approval process (PASAP) was launched, which gave the risk organization direct input into business activities, processes and system changes as well as product and service development, and all staff were now obliged to register risk incidents in the group-wide risk management IT system (RMIS). Regulatory additions to influence capital and liquidity levels as well as changes to funding practices under Basel III would raise the complexity of balance-sheet management exponentially. Therefore, it became necessary for Norbank to centralize the management of balance-sheet consumption costs (i.e. liquidity management) to group treasury who were working on the development of a sophisticated internal funds transfer pricing (IFTP) model that would become a central financial-control mechanism used throughout the group. The Head of Group Financial Management explains:

> I would say that IFTP is 90% of the answer to the problem. We have engineering physicists, super quantitative people and they can calculate all these things so that

> colleagues out in the business can just focus on knowing the clients, getting the products out there and selling what is possible to sell, but obviously sometimes when there is a regulatory shift like net stable funding ratio (NSFR) and securities finance assets, the price that we give our colleagues, sometimes it's above the price they are charging, so there is a very intricate balancing act.

The shockwaves of the 2007–08 financial crisis were still evident in Europe in 2011 as financial markets experienced uncertainty and volatility. This in combination with a new regulatory framework[12] for capital and liquidity meant that Norbank was forced to take action to reduce costs and increase stability in terms of growth, which would orientate the corporate strategy increasingly towards sharing activities. In 2011 a flat-cost target was introduced and in 2012 it was lowered further. Norbank undertook a number of other measures to increase efficiency, i.e. outsourcing of certain assignments, and introduced a new holistic management process based on three main aspects; (i) growth, mix and risk of business volumes, (ii) capital, funding and liquidity (iii) profitability (ROE), all linked to planning at corporate and business-unit level. In addition, Norbank introduced a range of training and cross-group collaboration activities.

In 2012 work continued in terms of preparations for the implementation of Basel III as well as OTC and derivative trading and international direct-debit payments regulations within the single Euro payments area (SEPA). Norbank established the risk and capital committee (RCC) tasked with supporting the board in assuring the proper management of the group in terms of risk identification, assessment and mitigation as well as the continual monitoring of capital. In 2012 the bank also changed the former group credit committee into the group risk committee, now covering all types of risks and giving it the capacity to evaluate portfolios, products and clients from a comprehensive risk perspective.

Control over the group from 2012 onwards was much framed in terms of the new corporate governance structure with specific priorities: a closer working relationship between IT and business activities and alignment of IT development with business priorities. These developments

[12] It is also important to acknowledge the myriad of regulations affecting Norbank beyond Basel III: the Companies Act, the Annual Accounts Act, national stock exchange regulations, National Code of Corporate Governance and the Banking and Financing Business Act.

increased risk management's integration with management control systems. The cost cap that was first introduced in 2011 was extended to 2014 and lowered further. In the 2013 annual report the chairman issued yet another warning about the implications of introducing a large number of new regulations under a short period of time. There was also concern about national approaches to the mortgage-lending market and increased requirements for amortization by lenders as well as additional regulatory requirements imposed by the national supervisory authority beyond that contained in the capital requirements directive, CRD IV. New requirements for high frequency standardized reporting were also on the way in the form of common reporting standards, COREP.

2014 marked the toughest year from a regulatory perspective to date. The negative implications of over-regulation as cited by the chairman were beginning to show. In particular, higher costs of capital and liquidity resulted in higher lending costs. He also stressed that caution was required in light of Basel Committee discussions, signaling a rowing back from a decade of industry-led advancements in internal risk modeling, towards capital floors in combination with greater scrutiny and restrictions on model parameters and assumptions.

The low to moderate influence of regulation on risk management's integration with management control had now been superseded by a regulatory field characterized by multiple high-impact regulations that were shifting away from a principles-based approach towards a rules-based approach. The bank set up a new regulatory office within group compliance to manage the regulatory project portfolio, which was somewhere in the region of 90 projects a year. The relationship between risk management and strategy became more solidified as the risks associated with Norbank's corporate and business strategies were now assessed by the chief risk officer function. The risk governance framework had evolved considerably, evident in the increasing number and range of policies and instructions issued internally over time that covered everything from procedures for the board, to the segregation of duties, to ethics in banking practice. However, by 2014 Norbank's performance had improved, as they exceeded their ROE and dividend targets and they also saw considerable improvements in both retail as well as corporate and institutional customer ratings scores. Common tier-one capital had increased, and both employee engagement and performance excellence had improved.

5. Discussion

5.1 The Role of regulation

We find that the role of regulation has changed significantly over the three temporal brackets. In temporal bracket one, regulation had little influence on risk management's integration with management control. While we acknowledge the introduction of Basel I in 1988, banking regulation before that was mostly focused on monetary policy rather than financial stability and risk management. The degree of regulation imposed on banks up until the issuance of Basel II was limited to holding capital in proportion to their total assets weighted according to credit risk. So why, by the end of temporal bracket one, did Norbank have several risk management mechanisms in place, which were technically and to a lesser extent organizationally integrated with the planning, cybernetic, and rewards and compensation mechanisms (see Table 1) of Norbank's management control system? There are two main reasons. The first is related to strategy and the role of organizational actors, and the second is connected to risk management innovation at the industry level in the 1990s.

In temporal bracket one, Norbank had recently emerged from a crisis. In this disturbed state, a space opened up, where the incoming CEO realized that in order to be able to execute corporate- and business-level strategies, technical integration (Ittner et al., 2003; Poth, 2014) with risk management and the formal mechanisms of management control systems would be necessary. This realization emerged as an outcome of dialogues between senior executives and a small number of experts from the group risk function. The risk experts were actively following, as well as contributing to, risk management innovations at the industry level. This vantage point offered an opportunity to assess the myriad of tools, frameworks and systems being experimented with in other banks, to see what was working, as well as what was catching the attention of the Basel Committee at the time (see Giovannoni et al., 2016; Kaplan and Mikes, 2012). In gaining this knowledge and experience, the "situated dynamics" (Hall et al., 2015) supported the creation of early "common frames of reference" (Gond et al., 2012) between the group of risk experts and the CEO that in turn gave rise to the RAROC project.

In temporal bracket two we find that strategy, not regulation, was influencing risk management's integration with management control, but in contrast with temporal bracket one, a number of new developments within the regulatory field were taking place, though they as yet had had limited impact, such as the finalization of Basel II but also regulation on disclosures, insurance and financial conglomerates and the introduction of a national code of corporate governance in 2005. These were significant developments, as they signaled increasing external interest in the internal management and control practices of banks, which would alter the dynamics between the three integrating dimensions evident in temporal bracket three. They were also developments that would promote strategic preferences which would further drive risk management's integration with management control.

The role of regulation in temporal bracket three departs significantly from that observed in temporal brackets one and two. The introduction of Basel II and incentives to adopt sophisticated risk management practices now meant that the capital-reduction benefits associated with the corporate-level portfolio-management strategy could be achieved by applying for permission to use sophisticated internal risk measurement approaches — so if anything Basel II had increased strategic flexibility at the corporate level, and in part influenced the shift from a portfolio-management strategy to transferring skills at the beginning of temporal bracket three. The publication of Basel II also increased the influence of risk experts within Norbank, promoting the reallocation of resources towards regulatory-derived risk management projects, which might not have been the case otherwise.

These new governance risk developments would encourage the further extension of the "common calculability infrastructure" (Gond et al., 2012), putting increasing emphasis on risk management's integration with management control. We find several examples of further integration in the technical dimension, as additional tools, frameworks and systems were implemented. We also find that risk management integration along the organizational dimension, and to a lesser extent the cognitive dimension, increased dramatically in temporal bracket three, evident in the strengthening of the risk governance framework (2008), by the appointment of a CRO in 2010 and embedding risk managers in each division, and the establishment of a regulatory office in 2014 (Kaplan and Mikes, 2014).

In light of the 2007–08 financial crisis, risk management integration with management control systems accelerated, as it become increasingly important to outwardly demonstrate good management to the public, to rating agencies, the government and shareholders alike (Soin and Collier, 2013), and we find clear evidence in temporal bracket three to suggest that regulation was encouraging Norbank to unite systems, processes and people at different organizational levels (see Lundqvist, 2014), but in a unique way linked to corporate- and business-level strategies rather than a standardized way, up to the introduction of Basel III at least. From 2013 and the introduction of Basel III, tensions were beginning to emerge that were threatening the further integration of risk management with management control. The shift from principles- towards rules-based regulation and the introduction of the new capital, liquidity and funding requirements significantly increased the complexity of the regulatory context. Norbank took several steps to insulate business and functional levels from this complexity through several initiatives such as the development of a sophisticated IFTP model as well as the establishment of a regulatory office in 2014.

5.2 The Role of strategy

Up until the financial crises in the early 1990s, Norbank operated in a relatively stable environment in an industry where margins where high even in mature markets. This compensated for bank inefficiencies and undermined the need to develop more sophisticated risk management approaches to maximize capital efficiency, reduce costs, accurately price risks and link risk, performance and rewards. The drivers that shifted managerial attention towards promoting risk management's integration with management control were not sufficiently strong until 1994 to make integration an issue of strategic priority, simply because it was difficult to foresee the shift from a stable to a turbulent environment that was about to take place.

From 1994 onward risk management moved from low to high strategic relevance for tactical as well as operational decision-making, and as we pointed out in the last section, this is why risk management was integrated with several of the formal management control mechanisms by the end of temporal bracket one. In contrast to the later part of the 1980s and early 1990s, capital efficiency, cost reductions, improvements in quality and peer-leading financial performance

meant that return on equity and dividends all became central features of Norbank's corporate strategic objectives. It continued to be so in temporal bracket two and further extended in temporal bracket three, increasing the significance of non-financial and hybrid performance measures also (Webb, 2004). While we already have given examples of how regulation can influence strategy in the previous section, it is also important to consider in more detail how and why corporate- and business-level strategies promote (or demote) different dimensions of integration over time.

In temporal bracket one the portfolio-management strategy at the corporate level coupled with cost-leadership and differentiation business strategies respectively in divisions A and B largely limited risk management's integration with management control systems to the technical dimension. While we acknowledge evidence of isolated examples of organizational integration, e.g. establishment of a group risk function (1994), group risk and credits (1997) and head of operational risk (1998), much of their attention and focus was geared towards developing a "common calculability infrastructure" (Gond et al., 2012) rather than any significant degree of systemic integration below the corporate level—meaning that organizational integration was low. Evidence of strategic incongruence between the corporate- (portfolio management) and business-level strategies (cost leadership and differentiation) (Jannesson et al., 2014; Poth, 2014) was making risk management's integration with management control difficult, and despite efforts to consolidate the group, strategic incongruence was causing risk management—management control disintegration when viewed from the corporate level.

In temporal bracket two there was a shift, and the corporate-level strategy gravitated from portfolio management to somewhere between restructuring and transferring of skills after 2003. Norbank renamed the group's existing risk-based management and control model, which became the corporate governance model (Arwinge, 2014), and in doing so considerable efforts were made to define and clarify formal organizational structures as well as the respective roles of different committees, functions and officers. In addition, clearer definitions regarding how activities would be managed, controlled and followed up were introduced —in line with existing and new policies and instructions. There were also aspirations to cognitively integrate risk management and management control at the business-unit level, but cognitive integration remained low, as it was

thought that this could be achieved mainly via technical integration, overcoming geographical and cultural differences between the various entities: more specifically codifying risk management into IT-based control and front-office support systems.

In temporal bracket three Norbank's corporate-level strategy lay somewhere between transferring skills and activity sharing, and the incoming CEO placed growing emphasis on increasing the synergy potential between the four divisions now supported by three cross-divisional support functions. There was a marked shift towards the increasing emphasis of risk culture from corporate level, marked in the tone from the top (Hall et al., 2015), and there was a shift in the design of cybernetic controls to increasingly include non-financial measures and hybrids (Davis and Albright, 2004; Webb, 2004). It is here that we find evidence of a significant increase in risk management's integration with management control systems across all three dimensions, especially from 2008 onwards. The relationship between risk management and strategic as well as business-level objectives strengthened during the third temporal bracket with the introduction of a holistic management model in which risk management was a central feature.

We also find that cognitive integration increased significantly in temporal bracket three, but the degree and character of cognitive integration varied substantially depending on the business-level strategies in place. In the retail division, for example, risk management's integration with management control was characterized by a high level of technical and organizational integration towards the end of temporal bracket three but a low level of cognitive integration. In the merchant-banking and wealth-management divisions, the level of cognitive integration was high, particularly from 2010 onwards. We find that in a situation where a cost-leadership strategy is in place, a high level of cognitive integration at the business level may not be deemed necessary or desirable, particularly when products are standardized, volumes are high, and where the input costs are calculated centrally. In this case, risks can be effectively managed via technical integration (i.e. front-office IT-based support systems), while management control has a focus on output. If we compare this to a case where a differentiation business strategy is in place, particularly where products have a high level of uniqueness, volumes are low and product input costs are calculated locally, technical integration is less effective, while management control systems have a focus on behavior, making cognitive integration more desirable, not least to avoid

a gap between public and private theories of how to act, which can potentially lead to highly damaging risk-taking behavior (Birnberg et al., 2006; Busch, 1997; Poth, 2014).

5.3 Integrating dimension dynamics

There are several examples of inter-dependencies between the three dimensions of integration as well as of shifts in those inter-dependencies over time. In temporal bracket one, the technical dimension was most prominent while the organizational dimension was low. Why? The corporate-level strategy, the geographical spread of the group's various entities and the high costs of organizational integration favored technical integration, at least in the beginning. A low level of organizational integration was sufficient at the time in order to be able to provide ample formal organizational structures to allow the small group of people working in the recently established group risk function the opportunity to develop the first methodological links between risk management and management control systems. As their work on developing tools, frameworks and systems reached an advanced stage, additional support in the form of organizational integration was then necessary, as was the establishment of new roles. This suggests a strong inter-dependency between the technical and organizational dimensions of integration.

In contrast with Gond et al. (2012) we find that a high level of integration on the organizational dimension cannot be reached if technical integration is low. As the common calculability infrastructure begins to produce information from both systems, organizational integration is necessary, otherwise there is a risk the information produced would remain siloed and isolated away from strategic and operational decision-making as it is argued is often the case where banks' ambitions are limited to regulatory compliance (Lundqvist, 2014). On the other hand, if organizational structures were put in place but there was no methodological links between risk management and management control, then risk management would not reach strategic importance, and in the absence of regulation, as was the case in Norbank, the continuance of such structures would not be supported by top management. We therefore find that technical integration and organizational integration affect one another. What about cognitive integration?

We find that cognitive integration as demonstrated by the scope and frequency of meetings between risk experts and business managers was low in temporal bracket one and limited to the corporate level. In temporal bracket two, we see the further evolvement of technical integration but limited evolvement of organizational and cognitive integration. The corporate-level strategy in existence at the time promoted technical integration and impeded organizational and cognitive integration. For organizational integration, this was about to change, as the corporate governance agenda at the macro level was gathering pace towards the end of temporal bracket two. These macro-level developments would change the dynamics between technical and organizational integration that existed up to that point, pushing organizational integration ahead of technical integration. Cognitive integration remained low below the corporate level. It was either absent or codified into front-office IT-based support systems where the focus was on controlling output and not behavior (see Poth, 2014).

In temporal bracket three, we find a dramatic shift in the dynamics between all three integrating dimensions due to strategic and regulatory influence. In temporal brackets one and two, we found high levels of inter-dependencies between technical and organizational dimensions. This shifted after 2010 as the inter-dependencies between organizational and cognitive integration increased. The scope and frequency of meetings between risk managers and business managers increased dramatically, supported by formal organization structures and the provision of new information flows from both risk management and management control systems. That is not to say that technical integration declined; rather it reflects changes in regulation and strategy, which had the cumulative effect of putting increasing emphasis on organizational and cognitive integration to maintain a fit with changes in the external environment.

We also find that there is a marked difference in what we refer to as the durability of the three integrating dimensions. Technical and organizational dimensions find their basis in systems, structures and roles that are tangible, have a degree of longevity and are verifiable to wider audiences both inside and outside the organization. In contrast, the cognitive dimension finds its basis in individual and group shared perceptions of reality, perceptions that are subject to continuous change and ongoing reinterpretation. In the case of Norbank, we find that the bank made increasing efforts to engineer cultural change as a means of managing perceptions at

different levels by developing a new risk culture and appointing embedded risk champions in each division (Kaplan and Mikes, 2014; Power et al., 2012) marking a close relationship between culture and cognition. However, as the number and complexity of regulations increased, it became ever-more difficult to maintain cognitive integration at lower organizational levels.

6. Conclusions and avenues for future research

It can be concluded from the empirical evidence presented in this case study that both risk management and management control systems are affected by strategy in accordance with previous studies (e.g. Bhimani, 2009; Mikes, 2009; Mikes, 2011). Even though these studies recognize the importance of strategy, they do not show how it affects risk management's integration with management control. Hence, the present study adds new insights to the literature of why and how the strategic orientation (i.e. the corporate and business strategy) affects the integrating mechanisms as well as the degree of integration. Particularly, it contributes to the theoretical development of the Gond et al. (2012) framework of integration by explicitly adding a strategic dimension.

The case study shows that strategy influences the integration of risk management with management control systems along the three integrating dimensions. When knowledge-sharing is emphasized at the corporate level, it becomes increasingly important that information necessary for strategic, tactical and operational decision-making can be exchanged between different organizational levels and control systems in an efficient manner, otherwise coordination and ultimately the realization of potential synergies will be hampered (Jannesson et al., 2015). In a bank, synergies in the form of knowledge-sharing are particularly important, especially for ensuring that decisions made are in accordance with the appropriate risk appetite and objectives (e.g. capital efficiency, cost effectiveness and profit-margin), related to the business strategies being pursued. This will increase the need for a technical, organizational and cognitive integration of risk management and management control. Regarding the business unit level it can be concluded that the level of product and service standardization (i.e. a cost leadership strategy) drives technical and organizational integration. Product and service uniqueness (i.e. a

differentiation strategy) drives cognitive integration. The argument is that decision-rules for non-standardized products and services are difficult to automate.

In addition to strategy, earlier studies have shown that regulation is of importance for how control systems are designed and used (e.g. Arwinge, 2014; Elliot, 2015; Mikes, 2009; Wahlström, 2009). Some of these studies (e.g. Arwinge, 2014; Elliot, 2015) conclude that requirements for uniformity can be far-reaching and actually threaten the ability of organizations to develop solutions to meet their particular requirements (i.e. the alignment of control systems and strategies pursued). Hence, the demands for uniformity could frustrate the integration of risk management and management control. Such a tension between demands for uniformity and uniqueness in control system design and use, and how it can make integration difficult, is well-known (e.g. Poth 2014).

However, in contrast to earlier literature the case study shows that demands for uniformity does not necessarily make the alignment between strategy and control system design and use weaker, nor does it hamper integration. Regulatory requirements are only one of several drivers affecting the whole system of controls (Grabner and Moers, 2013). Therefore integration is affected by how regulatory requirements are formed and implemented, but also which particular design and use of risk management that is best suited to the strategy and the management control system. In the present study regulation contributed to make conglomerate strategies (i.e. portfolio management) less attractive at the same time as the sheer amount of new regulations pushed the bank to further emphasize knowledge-sharing to increase cost efficiency but also to be able to implement the new regulations throughout the bank. These changes were in line with a strategic reorientation that had already started; to a large extent driven by increased competition in the financial sector. More significantly however, regulatory pressure led to risk management receiving a different level of attention from senior management as well as from employees within the bank, as shown by Arwinge (2014), for example. This in turn led to increased integration, and efforts to handle misalignment. As the literature review suggests, this type of holistic approach when analyzing control system integration in general (see Malmi and Brown, 2008; Otley, 2016) and holistic risk management in particular (Kaplan and Mikes, 2012; Soin and Collier, 2013) is useful.

The present study also adds to the literature on control system integration. Studies using a package view (Malmi and Brown, 2008) subscribe to the view that not all controls need to be coordinated (e.g. Bedford et al., 2016; Bedford and Malmi, 2015). Studies using a contingency-theoretical perspective adhere to the importance of internal and external fit and emphasize that all controls are coordinated in one system (Chenhall and Moers, 2015; Grabner and Moers, 2013). Irrespective of theoretical starting-points of the argumentation, the literature that explicitly or implicitly discusses integration does so mainly from a technical and / or organizational integration perspective (e.g. Jannesson et al., 2014). Gond et al. (2012) is one of the few researchers that offer an additional perspective. By introducing the concept of cognitive integration, it is possible to achieve a better understanding of the degree to which different information systems are integrated or not. As the present study shows, those three integrating dimensions are inter-dependent and influence each other over time. By showing how changes in regulations and strategic orientation influence specific integration mechanisms we contribute to the literature of what affects control system design and use in general, and to Gond et al. (2012) theorization of the integration construct in particular.

Future research on strategy and regulations influence on risk management and management control system integration is required. One step in such a research endeavor would be to further develop the tentative conclusions in this study by conducting several longitudinal case studies for comparison, with the objective to test them in a large-scale survey. A further contribution to existing contingency-based research would be to include the concept of cognitive integration into the literature. Doing so would extend contingency-based research to include actors who, as we have demonstrated in this study and as others have pointed out (Kaplan and Mikes, 2014), have a significant influence on risk management's integration with management control systems. In doing so cognitive integration could provide us with an analytical construct that can link structures and processes with actors and their practices, a link that thus far has been lacking in contingency theory based research.

Appendix 1 Glossary of terminology

ALC	Asset and Liability Committee
AMA	Advanced Measurement Approach (Operational Risk, Basel II)
Basel	Abbreviation: Basel Committee or Basel Accord (I, II, III)
CAR	Capital at Risk
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COREP	Common Reporting Framework
COSO	Committee of Sponsoring Organizations
CRD IV	Capital Requirements Directive
CSR	Corporate Social Responsibility
EBA	European Banking Authority
EMU	European Monetary Union
ERM	Enterprise Risk Management
FPV	Financial Performance Viewpoint (management accounting system)
FSB	Financial Stability Board
FX	Foreign Exchange
GRC	Group Risk Control
GRO	Group Risk Office
IFRS	International Financial Reporting Standards
IFTP	Internal Funds Transfer Pricing
IRB	Internal Ratings Based (Credit Risk, Basel II)
KRI	Key Risk Indicator
KPI	Key Performance Indicator
LCR	Liquidity Coverage Ratio
MiFID	Markets in Financial Instruments Directive
NSFR	Net Stable Funding Ratio
OTC	Over The Counter (OTC) or Off Exchange Trading
PASAP	Product and Service Approval Process
PMACS	Performance Measurement and Control System

RAG	Red Amber Green Status Reporting
RAROC	Risk Adjusted Return on Capital
RCC	Risk and Capital Committee
RMACS	Risk Management and Control System
RMIS	Risk Management Information System
ROE	Return on Equity
ROBE	Return on Business Equity
ROCAR	Risk Adjusted Return on Capital (Norbank specific term)
RWA	Risk Weighted Assets
SEPA	Single Euro Payments Area
VaR	Value at Risk
3LoD	Three Lines of Defense Model

Appendix 2 Interview List Norbank[13]

No.	Date	Title	Organizational Placement	Interview Duration
1	2013.10. 30	Head of IT	Norbank, Insurance Division	30 mins.
2	2013.11.14	Chief Information Officer (CIO)	Norbank, Asset Management Division	60 mins.
3	2014.05.23	Head of Group Financial Management	Norbank, Corporate Level	56 mins.
4	2014.06.30	Head of Operational Risk, Projects and Regulations	Norbank	21 mins.
5	2014.09.26	Head of Operational Risk, Projects and Regulations	Norbank	34 mins.
6	2014.10.17	Head of Operational Risk Control	Norbank, Group Risk Control	40 mins.
7	2014.11.06	Head of Risk Management	Norbank, Asset Management Division	58 mins.
8	2014.11.10	Head of Group Risk	Norbank; Group Risk Control	51 mins.
9	2014.12.17	Senior Capital Analyst	Norbank	49 mins.
10	2015.01.13	Group Risk Controller	Norbank, Group Risk Control	97 mins.
11	2015.01.15	Deputy CEO IM Subsidiary (Fund Products)	Norbank, Fund Product Subsidiary	70 mins.
12	2015.01.20	Global Head of Product and Distribution Strategy	Norbank, Asset Management	71 mins.
13	2015.02.02	Head of Product Management, IM Subsidiary	Norbank, Fund Product Subsidiary	52 mins.
14	2015.02.03	Head of Active Trading	Norbank, Asset Management, PB Unit	44 mins.
15	2015.02.17	Fund Account and Contract Manager IM	Norbank, Fund Product Subsidiary	46 mins.
16	2015.02.17	Senior Quantitative Analyst	Norbank, AMD, Global Analyst Team	51 mins.
17	2015.02.19	Private Banker	Norbank, Asset Management, PB Unit	40 mins.
18	2015.02.20	Head of Business Development and Client Support	Norbank, Asset Management, Institutional Clients Unit	53 mins.

[13] Where this symbol appears beside the interview number on the left * it denotes that this was a follow up interview.

19	2015.02.25	Equity Sales, Active Trading	Norbank, Asset Management, PB Unit	39 mins.
20	2015.02.25	Client Executive, Institutional Sales	Norbank, Asset Management, PB Unit	36 mins.
21	2015.03.04	Portfolio Manager/Treasurer	Norbank, AMD Investment Management Treasury	39 mins.
22	2015.03.09	Portfolio Manager	Norbank, AMD, Investment Management Treasury	46 mins.
23	2015.03.11	Portfolio Manager	Norbank, AMD, PB Unit	39 mins.
24	2015.03.13	Operational Risk and Business Coordinator	Norbank, AMD, PB Unit	36 mins.
25	2015.04.09	Assistant, Family Office Private Banking	Norbank, AMD, PB Unit	34 mins.
26*	2015.05.07	Group Operational Risk Controller	Norbank, Group Risk Control	48 mins.
27*	2015.05.11	Head of Risk Management	Norbank, AMD	46 mins.
28*	2015.09.15	Head of Group Financial Management	Norbank, Corporate	44 mins.
29	2015.09.30	CFO and Business Controller (Joint interview)	Norbank, Asset Management	50 mins.
30*	2015.10.22	Business Controller	Norbank Asset Management	62 mins.

Appendix 3 Sample interview questions

Corporate Level Management	• Can you give me overview of more recently issued regulations that are influencing how the bank is managed? Basel Accords in particular? • How are the regulations that you mentioned influencing the banks strategies and control systems? • What challenges are there in terms of adapting existing IT systems to meet regulatory demands? • Your answer suggests that there is increased pressure to integrate different IT systems. Can you explain how the bank is working with this? • The Internal transfer pricing model—how has the model evolved since Basel III and what are the effects of this model on behavior? • You mention that the bank is becoming increasing regulatory steered, how does the bank actively work with these external pressures?
Risk Managers Group Level	• Can you describe the changes to how risk is managed in the bank over time? • What are the implications of moving from a non-systematic risk management approach to a systematic approach—as you describe? • In which ways have changes to risk management since 2006 influenced performance? • Risk information systems provide the possibility to see patterns and carry out analysis. Does this work contribute to strategy development at different levels? • Can you describe the relationship between the risk management information systems and their level of integration with other control systems in the bank? • How are risk reports used by top management in decision-making? • In what way are risk management practices related to management controls such as the planning or budgetary process? • What are the implications of internal capital allocation volatility as you describe—for the business units?
Risk Managers and Controllers	• How have risk management practices inside the bank been influenced by regulation over time? • From your perspective what does the securing of AMA give in terms of competitive advantage over the banks competitors? • You mentioned KRIs, what is the relationship between KRI's and other performance metrics (KPIs)? • What are the challenges and opportunities in your role between the business and risk control? How do you work towards a more collaborative approach? • To what extent does your role influence the business strategy, the controls and the dialogue around risk management in the different business units? • Does (reference to a previous comment) that signal that the business units are taking more responsibility to integrate risk management into their daily work or? • What are the main benefits coming from the ORM framework and how have those benefits changed since AMA approval—particularly in relation to performance, value creation and influence on the corporate and business strategies?
Business Managers and Controllers	• Can regulation be a source of competitive advantage, if so how? • Is regulation having an effect on product and service offerings, explain? • Can you give me an overview of the steering model used here in the division? • I understand that there is a three year and one year planning process, how do they work in practice, what does the process look like, what tools are used? • In what way are risk management practices related to management controls such as the planning or budgetary process? • You mentioned the use of scorecards, to what extent are they used and what parameters contained in the scorecards? • From a control perspective, how do you balance performance, risk and rewards — how do you incentivize a sales team for example so that their performance is in line with the risk appetite? • If I understand correctly your team have been involved on a large project mapping risks and costs, can you tell me about that work? • To what extent do hard and soft accounting information, financial metrics, cost calculations and other information contribute to understanding fund positions, in relation to the risk-performance-reward relationship? • The FPV system that you mentioned, that carries all the KPI's that you mentioned but does it carry other information such as risk metrics and how is that used within the division?

Divisional Employees	• If we begin by you describing your background within the bank and your current position and what that entails? • Can you describe in more detail the changes that you mentioned since 2009 and to what extent regulation has contributed to those changes? • You mentioned that the structure has become much clearer, what were the driving forces behind that? • Is there a certain amount of discretion for correcting errors yourself before they would have to be entered into a risk incident process? • Has the relationship between you and your clients changed because of these developments (regulatory required client documentation)? • Is there a dialogue between the sales department and the regulatory department in order to exchange knowledge? • Can you tell me about your interactions with risk management in practice and what ways risk management influences your daily tasks? • When you need to take the business in more innovative directions, into new products for example how do you reconcile the views from risk management with the need to provide new solutions to clients? • In terms of operational risk, how would you describe your awareness and that of your colleagues? Has the tolerance for error changed over time?

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