# Risk management and calculative cultures

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## Abstract

Enterprise risk management (ERM) has recently emerged as a widespread practice in financial institutions. It has been increasingly codified and encrypted into regulatory, corporate governance and organisational management blueprints. A burgeoning literature of regulatory and practitioner texts is indicative of the apparent diversity of ambitions, objectives and techniques that constitute the ERM agenda. Making sense of these developments is a challenge. This paper presents field-based evidence from two large banking organisations suggesting that systematic variations in ERM practices exist in the financial services industry. The cases illustrate four risk management ideal types and show how they form the 'risk management mix' in a given organisation. Further, drawing on the literature of the roles and uses of management control systems (MCS), the paper explores how ERM achieved organisational significance in the studied settings. The findings are indicative of the current co-existence of alternative models of ERM. In particular, two types of ERM models are postulated: one driven by a strong shareholder value imperative (*ERM by the numbers*), the other corresponding to the demands of the risk-based internal control imperative (*holistic ERM*). This paper explains the differences in the two risk management mixes pointing towards alternative logics of calculation (Power, 2007), which I conceptualise and describe as different *calculative cultures*. The study suggests that calculative cultures, which in these cases shaped managerial predilections towards ERM practices, are relevant, albeit so far neglected, constituents of the fit between MCS and organizational contexts.

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## 1. Introduction

'One of the things we have been struggling with over the last couple of years is how best to integrate meaningful high-level risk information into the strategic planning process. … The reason why the risk management function is called 'Strategic' is that the purpose should really be top-level coverage.'
(Chief Risk Officer, Strategic Risk Management, Gotebank)

'Most of the people doing strategy [and planning] don't understand risk. Most of the risk people don't understand strategy. …People who do strategy [and planning] know they have to work out economic profit and they know they have to work out how much risk is involved, but they are not very interested in it. They are more interested in income and what is going to happen to the market place. They don't want to get involved with risk all the time. The risk people spend all this time on calculating how much risk they have got and they don't look at the bigger picture. Getting both sides to talk to each other is the hard part.'
(Assistant Director, Group Strategy and Planning, Fraser Bank)

Making risk management strategic is a common pledge vowed by a string of chief executives who are currently taking the helm at troubled banking enterprises, weighed under the highest losses reported in recent credit history. The importance of making risk management 'count' in high level strategic decisions is perhaps the most agreed upon lesson that industry actors are taking from the current credit crisis. As the Wall Street Journal commented on 15 November 2007: 'After an era of go-go growth that led firms into profitable but chancy areas like mortgage securities, the industry is moving toward the kind of leader who gets down into the nitty-gritty of risk management.'

Indeed, the rise of risk management in recent years has drawn attention by several commentators who have been marvelling at the increasing spread and codification of risk practices under the term enterprise risk management (ERM). Noting the 'risk management explosion', in 2003 Michael Power proposed that ERM might have emerged as a 'world model': 'If we were to imagine the creation of a new banking organization, we know that it could not be founded without rapidly adopting the mission and principles of ERM.' (Power, 2003a: 10.) International bank capital regulation and corporate governance are two areas where the prominence of ERM was particularly ubiquitous. The Basel Committee, leading the reform of banking supervision, endorsed enterprise risk management as an umbrella notion that can accommodate the techniques required for bank capital adequacy calculation: '…integrated firm-wide approaches to risk management should continue to be strongly encouraged by the regulatory and supervisory community.' (BIS, 2003b: 2.)

Many banks have adopted the mission and principles of ERM (PricewaterhouseCoopers, 2005, 2007; Deloitte, 2007). Yet we know little of how enterprise risk management works in action. Several questions are unanswered. What do risk managers do and what functional and structural arrangements organise their activities? What degree of organizational significance do risk managers conduct? How are risk control systems used by decision makers? Similar questions are being asked in the wake of the current crisis of confidence in the risk management capabilities of banks implicated in the credit debacle (Treasury Committee, 2007a, 2007b). As regulators and policymakers search for the answer in the spotlight of media and public scrutiny, this paper looks behind the scenes of risk management in its actual

organizational settings, to examine the organizational processes through which the 'risk voice' is made influential, or not, as the case may be.

Risk techniques were developed by financial institutions to address the issue of capital adequacy (how much capital cushion should a bank hold?) and the internal allocation of capital to business units (how much capital should individual business units carry?). The amount of capital reserved by banks is a key regulatory and managerial concern in the financial services industry. Risk techniques determine adequate capital requirements in proportion to the amount of risk taken, suggesting that banks should reserve more capital for higher risk-businesses and carry less capital for less risky ventures. Not derived from accounting principles, but from 'economic calculations' of risk, the risk-based capital amounts rarely coincide with the traditional accounting capital figures that banks carry in their books.

The risk-based capital calculations are furthered by a new controller group, risk managers, as internal representations of risk profiles, complementary to accounting capital. Risk capital calculations may or may not get acted upon and put into action to determine *actual* capital allocations in the course of the planning process. In case they do, they add a new facet to accountability. Risk-based capital allocations open the possibility for capturing the so called *risk-adjusted* returns that individual business units (or a group of companies) earn. Their technical novelty is that the accounting capital amounts used in the performance metrics are replaced by the *risk capital allocations*: thus, risk-adjusted return represents a departure from, and a complementary performance measure to, traditional accounting metrics.

Given that the suggested applications of ERM in financial institutions belong to the realm of financial decision making and management control, it is somewhat puzzling that accounting researchers have so far given little attention to the subject. All the same, the literature of management control systems can help us make sense of enterprise risk management. In return, the existing body of work on management controls should be enriched by exploring ERM as another facet of organisational control and accountability. The common area of interest is the roles and organizational significance of calculative practices.

Twenty years ago accounting was viewed mostly as a technical subject and little was known of 'the organizational processes … through which the technical achieves its potential' (Hopwood, 1983: 291). Recognising this, a number of important manifestos called for an organizational, rather than a singularly technical approach to accounting research (Burchell et al. 1980; Hopwood, 1983). Subsequent studies illuminated the roles that calculative practices play and the intended and unintended consequences they have. These studies can be called upon in the course of exploring and scrutinising the roles and organizational significance of risk management.

The objective of this paper is twofold: First, it conceptualises and synthesizes the diverse practices described by the normative literature on ERM. Second, based on notions developed in the management control literature of how calculative practices achieve organisational significance, and extensive field evidence, the paper explores the forms and uses of ERM and the roles that risk managers have come to play in actual organizational settings.

The focus on banks has a caveat emptor: Risk management here (supposedly) addresses the question of bank capital adequacy, which is a regulatory requirement not faced by non-financial institutions. As the observed risk managers, however, will be shown to have wider objectives, and try to become involved in strategic planning, performance management and control, the study has implications for all risk managers who cast their nets wide and cultivate strategic control ambitions. These cases may have implications for not only banking specialists, but also for the theory and practice of enterprise risk management in general, as a corporate governance and management control discipline.

A significant challenge for new control systems rising to organisational significance is the need to establish their own voice and language in order to provide organisational debates with their representation of economic motive and possibilities for action (Hopwood, 1987; Roberts, 1990; Dent, 1991; Scapens and Roberts, 1993). In these studies accounting is shown to command organizational significance through the force of its 'language', which enables users to shape organizational agendas, direct scarce top managerial attention and mobilize action. The studies also highlight that different control systems are being furthered by different occupational and functional groups, who compete for 'dominance' over other control groups in influencing decision making at various organizational forums. In these struggles, the language of control becomes significant and, possibly, a source of power. As Dutton (1997) notes, 'in an organizational context, intentional and unintentional usage of language to frame an issue mobilizes different groups of managers to invest in the issue. These framings, in turn, reflect different understandings of an issue and result in different patterns of attention allocation.' (Dutton, 1997: 90.)

Perhaps nowhere is the 'usage of language' as prevalent as in current developments in the risk management discipline. The spectrum of techniques ranges from statistical loss estimating tools, shrouded in analytical mystique to more descriptive, judgmental 'mappings' of risks into probability-impact matrices. Given that risk management in financial services firms is advocated in both forms (as a highly analytical loss-prediction tool as well as a 'strategic' risk mapping tool) its take-up rate and uses must, to a great extent, depend on top management's appetite for, or resistance to, highly analytical (or highly judgemental) information systems. Consequently, while a risk modelling technique might be successfully adopted in a highly analytics-friendly management culture, it might fail to resonate with one that takes a more cautious, incredulous approach to the benefits of quantitative modelling.

Accordingly, this paper emphasises the role of alternative logics of calculation (Power, 2007), which I conceptualise and describe as different *calculative cultures*. I suggest that calculative cultures shape managerial predilections towards ERM practices, and serve as important constituents of the fit between risk control systems and organizational contexts.

The first organisation (henceforth referred to as *Gotebank*) possessed an ERM function that corresponded to a highly sceptical top managerial attitude to risk quantification (ERM adherents as *quantitative sceptics*). Here the computational role of risk

techniques was underplayed, and emphasis fell on their use as a learning tool. Senior risk officers acquired power to set board-level agendas and assumed a role in high-level strategic decision making. Their ambition was to restrain excessive risk-taking resulting from expansionist business strategies. The remit of ERM included 'strategic' and 'operational' issues that were not necessarily quantifiable, but were perceived as threats to key strategic objectives.

The second organisation (henceforth *Fraser Bank*) was driven by a strong enthusiasm for risk quantification (ERM adherents as *quantitative enthusiasts*). A consensus agreement was built around the ability of risk numbers to reflect the underlying risk profiles. This case evidences risk management not only as a tool of computation, but also as ammunition to diverse organisational actors who mobilised risk numbers in the process of negotiating intra-group capital allocations. Thereby risk managers became involved in the strategic planning and performance measurement process. However, risk people were excluded from the discussion of non-quantifiable strategic and operational issues and were denied influence on discretionary strategic decisions.

## 2. Setting the scene

*Management control innovations as assemblies of practices*

Raising an important milestone on the road of corporate governance developments, the Committee of Sponsoring Organizations of the Treadway Commission (COSO) defined ERM as

> '… a process, effected by an entity's board of directors, management and other personnel, applied in strategy setting and across the enterprise, designed to identify potential events that may affect the entity, and manage risks to be within its risk appetite, to provide reasonable assurance regarding the achievement of entity objectives.' (COSO, 2004: 6.)

This description calls into mind Anthony's widely-quoted definition of management control: 'the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives.' (Anthony, 1965:17) With the emphasis placed on the strategic role of ERM ('applied in strategy setting… to provide … assurance regarding the achievement of entity objectives'), ERM is being advocated as a strategic management control system. Thus ERM echoes the ambitions of such management control practices as value-based management, activity-based management and the balanced scorecard.

A common feature of recent control system innovations is that they constitute an assembly of practices. Various normative techniques and conceptual innovations are being advocated under the umbrella of the very same management control concept, as observed by empirical-conceptual studies of the Activity Management assembly (Gosselin, 1997) and in the evolution of the balanced scorecard (Kaplan & Norton,

1992, 1996, 2001, 2004; also summarized as an evolution by Speckbacher et al. 2003).[2]

In a given organisation, various risk management practices form a constellation, a *risk management mix* that corresponds to the particularities of the organisation and its context.

### *2.2. Patterns in the use of management controls*

The strand of organizationally grounded management control studies (Hopwood, 1987; Dent, 1987; Simons, 1990, 1991; Ahrens, 1996; Chapman, 1998; Mouritsen, 1999; Bhimani, 2003) suggests that systematic variations in ERM practices may exist. Similarly, the roles and uses of risk management practices can be diverse and contingent. Burchell et al. (1980) provides a powerful conceptualization of the roles that accounting (and calculative practices in general) may plausibly play in organizational settings. They postulated four ways in which accounting can be constitutive of organizational decision making: (1) accounting as a tool of computation, (2) accounting control as a facilitator of learning, (3) accounting as an information system providing 'ammunition' to competing organizational fractions in budgeting and performance discussions, and (4) accounting as a post-hoc rationalization of intuitively made decisions. Empirical studies such as Ezzamel and Bourn (1990) and Abernethy and Brownell (1999) have applied this framework to illuminate the roles of accounting information systems in organizations experiencing financial crisis and strategic change, respectively.

Burchell et al. (1980) is a useful starting point for the discussion of the roles and organizational uses of enterprise risk management. The practitioner risk literature suggests that developments in risk quantification allow risk people to measure and aggregate risks. However, the field-studies presented here show that many organizational actors consider risk to belong to realms beyond computation, and mobilize risk controls to serve other ends such as learning and 'ammunition' to capital allocation debates. Further, with senior risk officers claiming access to non-quantifiable risk issues that clearly lie outside the scope of computational decision making, even risk people are divided in their reliance on, and use of, quantified risk methodologies.

[2] Gosselin (1997) defines Activity Management as the effective and consistent organisation of activities via three levels of practices: activity analysis (AA), activity cost analysis (ACA) and Activity Based Costing (ABC). The control assembly is defined so that later levels subsume the previous ones. Speckbacher et al. (2003) describes the evolution of the Balanced Scorecard pointing to three types of BSC. Type I is the original Kaplan and Norton (1992, 1996) concept of a performance measurement system that encompasses the financial as well as the non-financial aspects of performance. Type II is a strategic performance measurement system that describes strategy via cause-effect relationships, as in Kaplan and Norton (2001). Type III is a strategic management system that does not only map the strategy into performance measures, but also furthers strategy implementation by linking it to incentives. Speckbacher et al. (2003) and Gosselin (1997) provide empirical evidence that adopters systematically vary according to which of the various types of BSC or Activity Management practices they implemented.

Simons (1990, 1991) deepens our understanding of the roles and uses of management control systems and how they might acquire organizational significance. *Interactively* used calculative practices lie at the heart of strategic control and are constitutive of strategy formulation, as top managers, by using control systems interactively, actively foster the emergence of new strategies from grass-root initiatives. Other control practices that are used *diagnostically* only receive top management attention when outcomes fall outside predetermined control limits.[3] Linking Burchell at al. (1980) with Simons (1990, 1991), I argue that management controls may acquire strategic significance both in an interactive and a diagnostic capacity. If interactive controls indeed address the key strategic uncertainties and foster organizational learning, they guide decision makers' judgment under ambiguity (as 'learning machines' do in Burchell et al., 1980). The significance of interactive controls is that they make various organizational actors aware of emergent risks, and thereby shape both high-level discretionary decisions and emergent strategies. Diagnostic controls, which top management regard as relevant and reliable in their 'computation' role, can become part of the performance evaluation system. Linked to incentive systems, diagnostic controls can be very powerful as they will shape organizational motivations, behaviours and agendas.

The field studies presented here show how risk controls became an integral part of the management process (i.e. strategic planning, performance measurement and discretionary strategic decision making), albeit selectively. The case of Gotebank demonstrates the interactive use of certain risk controls. These risk controls were organizationally significant in the sense that they genuinely received top managerial attention and shaped the decision making agenda. The case of Fraser Bank showed how risk controls became significant in a diagnostic capacity in a context where no risk controls were used interactively. Here risk controls became integral to the performance measurement process, in a way the same risk tools were not at Gotebank. By measuring *risk-adjusted* performance, Fraser's diagnostic risk controls influenced the budgeting process. Such differences in the forms and uses of the observed risk control practices call for an examination of the contextual drivers.

### *2.3. The role of managerial context*

Risk management tools tend to be highly analytical, data-driven techniques. These are likely to strike a different chord in different managerial cultures. Bhimani (2003) finds that crucial to the perceived success of a management information system innovation is the alignment between the cultural premise of the new control system and the predilections of intended users for the particular numerical and procedural approach. Indeed, when considering the merits and limitations of risk management tools, Gotebank's senior risk officers held remarkably different views from those held by their peers at Fraser Bank.

[3] Simons (1990, 1991, 1994) argues that accounting and other control systems may be designed and used with a dual objective: first, to help strategy implementation, and second, to foster organizational learning and guide the emergence of new, grass-roots strategies. His empirical study of the US health care products industry shows that top managers design and select control systems to complementary ends: diagnostic and interactive use.

To explicate these differences in user predilections, I introduce the notion of *calculative cultures*, capturing senior managerial attitudes towards the use and limitations of highly analytical calculative practices in an organization. Distinguishing between *calculative idealism* and *calculative pragmatism*, Power (2003b and 2007) helps us to conceptualize very different managerial attitudes towards analytical models. My objective is to empirically explore and conceptually develop these notions in order to capture the salient managerial attitudes towards the highly analytical calculative technologies discussed here. I argue that, given their institutional and professional backgrounds and through initial encounters with ERM practices, senior risk officers develop personal philosophies about the *manageability* of risks, and shape the composition of the risk management mix accordingly. Thus a particular calculative culture both influences and is influenced by senior managers' choice and use of analytical models.

Under calculative idealism, adherents aim to manage risk 'by the numbers', replacing judgmental risk assessments with risk quantification. Adherents (henceforth *quantitative enthusiasts*) tend to agree that risk measures are capable of reflecting the underlying economic reality well enough to induce requisite economic behaviours in the light of these. Therefore they put a high priority on building, maintaining and improving the 'robustness' and accuracy of their analytical models.
Under the alternative logic of calculation, calculative pragmatism, adherents place a much lesser degree of 'trust in numbers' (Porter, 1995) produced by risk analytics. They (henceforth *quantitative sceptics*) regard risk figures as trend indicators, which they seek to complement, and often overwrite by senior managerial discretion, experience and judgment. Quantitative sceptics are weary of promoting risk control as an 'answer machine' (Burchell et al., 1980). For them risk control is akin to a devil's advocate system, to be mobilized in order to challenge taken-for-granted assumptions and foster organizational learning.

Given that top management's personal philosophies about the manageability of risks are shaped by their institutional backgrounds (Mikes, 2007), our exploration must take note of the potential influence of external institutional pressures on the selection and use of ERM practices. In this paper I detect these influences indirectly, through their mark on particular ERM practices in the normative literature. The agents and discourses through which the normative institutional requirements are mediated into the organisational choices were outside the scope of the study. Nevertheless, two powerful contemporary corporate governance concerns will be implicated in the analysis of normative ERM practices: the *shareholder value drive* and the *risk-based internal control imperative*. These represent different approaches to corporate governance. The *shareholder value drive* emphasises the role of control systems in the measurement of shareholder value, and advocates control practices that are designed explicitly to promote value creation. The adherents of the *risk-based internal control imperative* further control practices that are designed around the wider strategic objectives of the firm, including the non-financial aspects of performance. The focus is on maintaining appropriate business conduct and accountability. Advocates pursue the achievement of these objectives via internal (formal and informal) controls, designed over processes that constitute risks to these objectives.

The proposed discussion framework (summarized in Figure 1) brings together a number of elements that the case presentations will explicate. The analytical challenge

of the paper is to draw upon these elements and show how they fit together and create a plausible story that explains the variations found in the design and use of the two risk management mixes. This framework helps one to describe a particular constellation between ERM practices, and their uses and roles in a given managerial context. However, this type of study (referred to as 'Type 1' contingency study in Fisher, 1998) must be particularly cautious about suggesting causality or equilibrium implications. My interest is in tracing associations, leaving open the possibility that calculative cultures can be *constituents*, and at the same time *constituted of*, the particular forms and uses of the control systems observed.

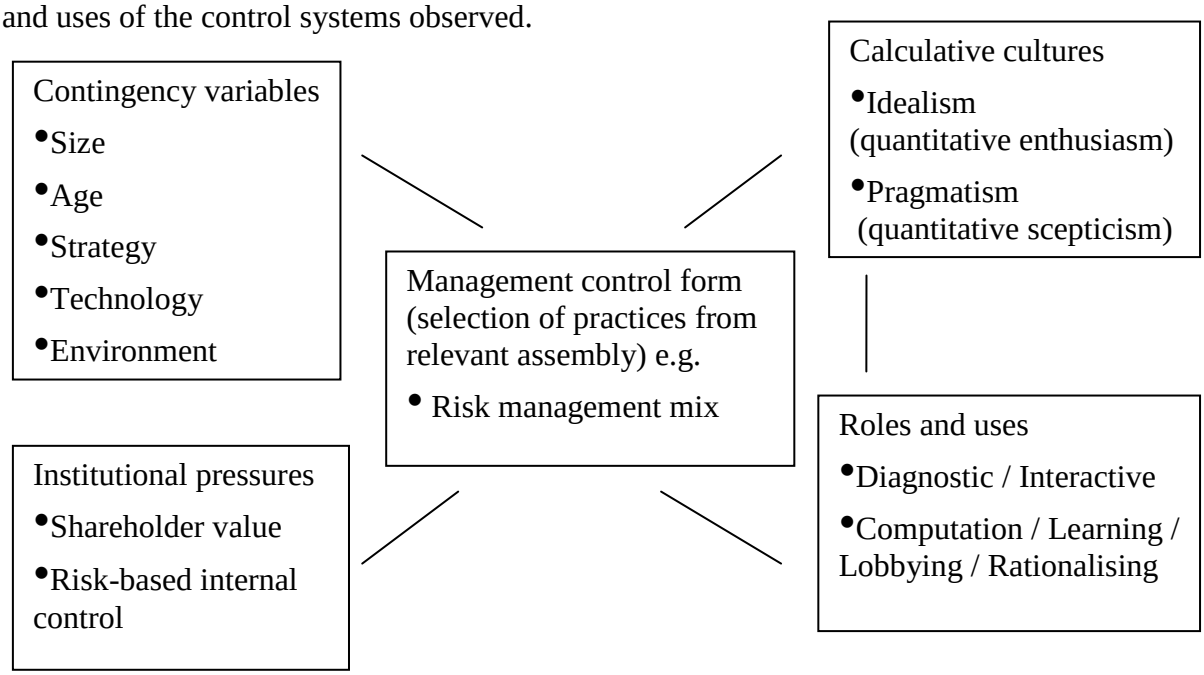


Figure 1. The risk management mix - elements of explanation

*2.4. RESEARCH DESIGN*

The field-study companies referred to as Gotebank and Fraser Bank are typical of the large financial organisations that had embarked on risk management projects seeking control not only over individual risk types and the capital adequacy of the bank, but also over the strategy and the risk taking capacity of their business units.

The site-selection process was not random. Both banks had a reputation of having 'leading edge' risk management organisations. Their balance sheet size was similar, so was the scope of their business activities, spreading from retail banking to corporate, investment banking and wealth management services. Fraser Bank differed in an important aspect – it was an ardent advocate and practitioner of value-based management (VBM), which had implications for the design and use of its risk management systems. Gotebank, on the other hand, was not known to practice a value-based management ethos. During the process of negotiating access to the organisations it emerged that the presence of VBM in one bank (and the lack of it in the other) allows the study to explore organisations in apparently similar circumstances following different management policies and using different systems. The use of contrasting observations from multiple cases is not alien to field-based accounting research (Ahrens, 1997). By drawing out similarities and contrasts between 'matched

pairs' (Ahrens and Dent, 1998), the researcher can move systematically from field material through interpretation to explanation.

The primary source of data for the study was seventy-five in-depth interviews with senior finance, lending, strategy, controlling (management accounting) and risk management staff (see Appendix 1 for a list of the interviews). The second source of data was direct observation of risk management in action. Gotebank provided me with an office in the central risk management department during my visits so that I could observe the staff at work and participate in informal meetings, lunchtime get-togethers and chats at the coffee machine. Fraser Bank allowed me to attend an internal risk policy workshop, in which they reviewed and discussed their risk management framework. Within the boundaries of confidentiality, the banks provided historical and other source documents, such as annual reports, presentations and internal reports, which constitute an additional supply of data.

As the department at Gotebank was relatively new, and Fraser Bank was then undergoing a reorganisation, the risk staff in both banks showed a great interest in the study. They were keen to exchange information on how top management and others perceived their activities. All in all, the opportunity to be acquainted with a small, but significant aspect of life at the banks was there.

The cases analysis is the result of the patterning of the field material, which gradually took shape over the research and writing period. I examined and re-examined observations and gathered more field material at each stage of the field work, to ensure, as far as possible, 'that the patterns adequately represent the observed world and are not merely a product of [the researcher's] imagination' (Ahrens and Dent, 1998:9). The point of departure from the field came when, similar to Dent's experience (Dent, 1991), it became clear that interviewees' views were predictable, given knowledge of their function (accounting, strategy, risk management etc.). By participating in international practitioner events, I found that the roles and perceived influence of risk officers from other financial organisations appeared to echo the lessons learned from the cases. After completing the two case studies, I conducted twenty further interviews to check on the feasibility of the results with a number of senior risk officers in banks similar in spread and scope to the ones presented here. It appears that the cases of Fraser Bank and Gotebank display relevance for peer practitioners, reflecting the field researcher's ambition to uphold external validity, as suggested by Bruns and Kaplan (1987).

However, 'instead of speculating directly about the larger population' (Atkinson and Shaffir, 1998: 62), the ambition of the study is to illuminate the design and uses of risk management in situ. The strength of such research (over other approaches trading off depth for breadth) is its potential for making significant advances in the conceptual development of a managerially relevant phenomenon (Bruns and Kaplan, 1987), in this case, the diverse forms and workings of risk management.

The rest of the paper is organised as follows. The next section conceptualises ERM as an assembly of practices, which can be grouped in four ideal types with reference to their institutional origins, techniques and ambitions. Next, presenting the case studies, the paper turns to describe and explain developments in the risk management mix of

the studied banks. A discussion of the implications for the further development of risk management and future research in this area will form the concluding parts.

## 3. Making sense of enterprise risk management

Normative and technical texts are suggestive of four ideal types of risk management, all of which qualify as *enterprise-wide*, but vary in terms of their focus and purpose.

### *3.1. Type I: Risk silo management*

Over the past decade there have been significant advances in the risk measurement capabilities of financial institutions (Garside and Nakada 1999; Marrison 2002). At the heart of the practitioner literature's most salient risk management ideal type is *risk quantification*, the rendering of an increasing number of risk types susceptible to quantification, measurement and control. The discussions of the measurement and control of risk tend to cluster around concrete risk types, such as market, credit and operational risks. The following commonly quoted definitions apply for the main risk categories (Drzik et al., 2004). *Market risk* arises from changes in the value of financial assets and liabilities due to volatility in market prices (interest rates, currencies, equities, commodities). *Credit risk* arises from changes in the value of assets and off-balance sheet exposures due to volatility in default rates or credit qualities. Bancassurance firms and insurers add the additional category of *insurance risk*, which arises from volatility of insurance claims around the expected level of claims. *Operational risk* has long been defined as a residual category, one that captures all of the risks not covered in the first three categories.

As mastering risk measurement in the various risk silos appears to be the first risk control challenge in financial institutions, I express the first ideal type as *risk silo management*, encompassing the measurement and control of risk of various types across the organisation.

The most frequently cited technique of risk silo management is v*alue-at-risk* (Jorion, 1997). It is a statistical measure of unanticipated loss, derived from the loss distributions of different risk types that institutions track (e.g. market losses, credit losses, operational losses, insurance losses). Value-at-risk received critical examination from several papers that point out the sensitivity of its results to assumptions made about the continuity of historic trends and liquidity levels in financial markets (Engel & Gizycki, 1999; Danielsson, 2002). While the concept of value-at-risk is applicable for all risk types, other risk silo management models exist to calculate credit and operational risk from various additional perspectives. For example tailored credit risk models gauge the probability of default and the expected credit loss (Marrison, 2002) in various loan portfolios. Operational risk presents risk silo managers with the greatest quantitative challenge. Most institutions are still in the early stage of learning about operational losses by establishing databases that collect information on risk materializations. At this stage only the more frequent operational risks lend themselves to modelling.

Nevertheless, advances in risk silo management have increasingly influenced the design of the international bank regulatory framework. The so-called *Basel rules* require banks to set aside regulatory capital that must reflect the amount of risk they

take, calculated as the aggregate of risks measured in the risk silos. The current regulatory framework is being replaced by a new one, *Basel II*, which recognizes recent developments in risk silo management while challenging banks that are lagging behind in terms of their risk measurement capabilities. Basel II differs from Basel I in two respects. The first difference is in the recognition of risk silos it advocates to be measured- along with market and credit risk, it now includes operational risk as well. The second difference is in the measurement options that are outlined for banks. These stretch the measurement capabilities of even the most advanced banks, especially with regard to the *advanced measurement approach* (AMA) to operational risk. Thus the Basel II framework is an important driver of ongoing and further risk silo management initiatives within banks.

### *3.2. Type II: Integrated risk management*

*Risk aggregation* has been a challenge to risk practitioners for a long time. This was largely due to the variety of risk measures applied to the different risk silos, and the correlations that exist between risks. The recent development of a common denominator measure for market, credit and operational risks enables firms to aggregate their quantifiable risks into a total risk estimate. The emerging common denominator of quantifiable risks is called *economic capital*. Economic capital (also known as *economic risk capital*) is a statistically estimated amount of capital that could be used to cover all liabilities in a severe loss event (given a specific confidence level), such as an unexpected market, credit, operational and/or insurance loss. The conceptual appeal of economic capital methods, as recognised recently by the regulator, is that 'they can provide a single metric along which all types of risks can be measured' (BIS, 2003: 6).

Economic capital, as the common denominator for the measurable risk types, creates a consistent and comprehensive framework, or at least the appearance of it, in which risks can be compared and aggregated, enterprise-wide. Further, economic capital can be set to constrain the risk capacity of business initiatives and profit centres, serving as a tool for limit setting and control.

The economic capital framework gives rise to a new risk management ideal type, *integrated risk management.* It is defined here as a risk management approach that applies the economic capital framework for the measurement, comparison, aggregation and control of risks.

The Basel Committee has legitimised the economic capital methodology, recognising that it has emerged as best practice among practitioners in the last decade (see for example Marrison 2002). But the real institutional force behind the spreading of economic capital in the industry is the rating agency community. Banks tailor economic capital not to a regulatory standard, but to the capital adequacy expectations coming from rating agencies. Economic capital is a proxy of the capital cushion that rating agencies expect the bank to possess in order to withstand a large unexpected loss and thereby justify its target credit rating.

Given that rating agency opinions concern different banks to different extent, economic capital (or its promise) appeals primarily to banks that wish to maintain a high credit rating. For example, firms rated AA by S&P have historically defaulted

with a 0.03 per cent probability over a one-year horizon. If a bank aims for an AA credit rating, then the corresponding capital level (economic capital) is the amount required to keep the firm solvent over a one-year period with 99.97 per cent confidence (Garside & Nakada 1999). Given that rating agencies apply a higher confidence level to the best ratings than regulators do to the general bank population, the corresponding economic capital amount is higher than the regulatory minimum.

The influence of the rating agencies is apparent in the widespread industry discussions about the potential costs and benefits resulting from alternative compliance strategies. In particular, banks can choose between more or less advanced measurement approaches in the credit and operational risk areas. It has been believed that banks with *advanced* measurement systems will be able to demonstrate less capital need than prescribed as the current minimum regulatory capital requirement. Accordingly, some large banks with advanced risk management systems would expect their costly capital burden to ease. Rating agencies, however, have their own expectations about bank capital adequacy. As a banking industry magazine asserts, 'without the agencies' blessing, any capital reductions granted by the regulators will be meaningless.' (Paletta, 2005:1.) A senior rating agency figure from Moody's Investor Service observed in 2005: 'If banks say, "We are holding all this excess economic capital, and we want to eliminate it," that could certainly increase the risk profile of the bank.' (Paletta, 2005:1.) A representative of Standard & Poor's made similar comments: 'If a bank is at an A rating level, and they substantially decapitalize from there, its rating could drop.' (Paletta, 2005:1.) As suggested before, for some banks the rating agency expectations are as binding as regulatory ones.

Thus the role of the rating agencies as quasi-regulators extends beyond the enforcement of minimum capital adequacy rules. In some cases, the agencies provide and impose strict capital expectations and extra scrutiny.

### *3.3. Type III: Risk-based management*

Recent works in the risk management literature advocate the idea of using risk-based internal capital allocations for performance measurement and control. The possibility of introducing *risk-based performance measurement* in banks has emerged as a result of developments in risk quantification and risk aggregation. It also appears to coincide with the rise of the shareholder value concept in corporate rhetoric (Arnold & Davies 2000; Hunt 2003).

The type of risk management that is able to feed these ambitions has gone well beyond the original remit of risk silo management or even that of integrated risk management. It is put forward as the third risk management ideal type, *risk-based management*, its distinguishing aspect being a strong shareholder value rhetoric.

Although the concept of *shareholder value* (or as it was previously referred to, *residual income*) dates back to the beginning of the 20th century, its wide-spread incorporation into management thinking has only recently gained momentum. This is largely to do with the influence of business schools and consulting firms that are advocating shareholder value and value based management (VBM; the revival of the residual income concept is often associated with Stern et al 1995). The core and driving principle of VBM is that firms create shareholder value by earning returns in

excess of the cost of capital. Against the backdrop of the rise of the shareholder value imperative, a similar shift took place in the stakeholder concerns surrounding financial institutions. Here too, the emphasis has moved from growth to shareholder value creation. As Molyneux (2000) observes, 'The strategic priority in banking has shifted away from growth and size alone towards a greater emphasis on profitability, performance and value creation.' (Molyneux, 2000: 218.)

The application of VBM in large financial institutions requires the allocation of capital to centres of accountability (for example, to business units), and then the measurement of their performance relative to the capital allocations (Hall 2002; Marrison 2002; Jameson 2001; Haubenstock & Morisano 2000). Theoretically, risk-based management offers two broad approaches to risk-based performance measurement in banks. The ratio approach defines 'risk-adjusted return on capital' (RAROC) as a ratio that relates risk-adjusted profit to economic capital. The shareholder value added approach calculates the *shareholder value added* (also known as *economic profit*) as the residual income left after subtracting a charge on economic capital from net profit. Given that capital allocations supposedly reflect risk taking, in both cases the performance of business units is measured relative to the quantifiable risk they incur. Pushing these performance measurements down to business units, products and even transactions gave rise to further potentially *value-enhancing* practices, such as risk pricing, risk transfer and portfolio risk management (as in Lam 1999).

The joint consideration of risk and profitability in a common performance measurement framework is an application of VBM that is specific to the financial services sector. At the same time, it represents an application of risk management that is equally specific – risk-based management may be favoured by certain banks, while doomed to fail in others.

There is some case study evidence on VBM implementations from major British, Dutch and US banks (Davies, 2000 on Lloyds TSB; Bruggnik & Buck, 2002 on Rabobank; Barton et al., 2002 on Chase Manhattan). The cases focus on the calculative and project management aspects of risk-based performance measurement implementations. These studies, however, belong to the consulting research genre in the sense that they advocate ideas (about the integration of VBM and risk management) to the readers. Although they possess a strong concern with practical problems and applications, their characteristic 'prescriptive and propagating style' (Lukka and Granlund, 2002: 168) curtails their ability to provide a rigorous analysis of the nature, functioning, effects and controversies of the described risk practices.

*Type IV: Holistic risk management*

We have seen how the ascent of the shareholder value concept gave rise to a specific ideal type of risk management, risk-based management. This section focuses on the impact of another powerful notion, heralded by corporate governance advocates, that of risk-based internal control.

The reports from the Treadway Commission (COSO, 2004) and the Turnbull Committee (ICAEW, 1999), both considered as important milestones of Anglo-Saxon corporate governance, advocate ERM as a framework for capturing risks that are

material from the point of view of the achievement of the strategic objectives of the enterprise. Apart from the measurable risk silos, this conception of ERM encompasses risks that cannot be readily quantified or aggregated. These non-quantifiable risks include, for example, the risks of strategic failure, environmental risks, reputational risks and operational risks that materialise only rarely. Recent developments in corporate governance have emphasised the importance of monitoring and managing these risks.

As a result, there have been calls for the risk management framework to be gradually expanded *to incorporate non-quantifiable risks* in addition to those that can be quantified. Accordingly, a growing number of practitioners and commentators are recasting the discussion of strategic, IT, legal and compliance issues as distinct, additional risk categories (Economist Intelligence Unit, 2005; PricewaterhouseCoopers, 2005). This version of ERM has got a broader, extended and general mandate – I define it as the fourth risk management ideal type: *holistic risk management.*

The management of non-quantifiable risks is not statistics-based. Advocates talk of the role of judgment, experience and intuition, comparing it to strategic decision making. Some recommended techniques, such as scenario analysis and decision tree methods, are borrowed from the strategy and decision making literature (Pickford 2001). Others, such as risk mapping, risk self-assessments and special risk reviews, have their origin in internal audit.
To sum up, this section has outlined four types of risk management that all have 'enterprise-wide' ambitions. A summary of the discussion is presented in Table 1.

| | **Risk Silo Management** | **Integrated Risk Management** | **Risk-based Management** | **Holistic Risk Management** |
|---|---|---|---|---|
| *Institutional background* | International regulation of bank capital adequacy | Rating agency expectations of bank capital adequacy | Rise of the shareholder value imperative | The rise of risk-based internal control (Anglo-Saxon and German corporate governance) |
| *Related theme in the literature* | Risk quantification | Risk aggregation | Risk-based performance Measurement | The management of non-quantifiable risks |
| *Focus on* | Measurement and control of risk silos;<br>Calculation of minimum regulatory capital;<br>Tuning capital to the regulatory standard | Assigning a common denominator of risk to the risk silos (economic capital);<br>Fine-tuning capital to a given solvency standard;<br>Risk limit setting | Calculation of shareholder value created;<br>Linking risk management with performance measurement | Inclusion of non-quantifiable risks into the risk management framework;<br>Providing senior management with a 'strategic view' of risks |
| *Techniques* | Loss distributions;<br>Value-at-Risk;<br>Credit rating models;<br>Standardised and Advanced measurement approaches set by regulators | Economic capital | Risk-adjusted Return on Capital (RAROC);<br>Shareholder value added;<br>Risk pricing;<br>Risk transfer;<br>Portfolio risk management | Scenario analysis;<br>Sensitivity analyses;<br>Control self assessment;<br>Special risk reviews |

Table 1. Four ideal types of enterprise risk management

The literature review presented ERM as an assembly of risk management ideal types. Exploring the risk management mix in the field (to which we turn in the remainder of the paper) will require us to appreciate the dynamics of management control assemblies. In particular, the conceptual clustering of techniques within the same assembly offers practitioners opportunities for selective implementation, revision and switching between the different sub-groups of techniques (Gosselin, 1997).

It will be shown how selective ERM implementations and revisions took place in both organizations. Although both bank's risk practices included elements of risk silo management and the economic capital methodology, two very different patterns emerged. Gotebank's risk management mix was found at its most influential through senior risk officers' promotion of *holistic risk management*. Fraser Bank went down the path of implementing *risk-based management*, thus risk management achieved organizational significance through its integration with the planning and performance measurement process. Interestingly, holistic risk management and risk-based management were found mutually exclusive: where one dominated, the other archetype was frustrated. This suggests that the cases might be illustrative of diverging trajectories for the implementation of ERM in the financial services industry.

## 4. Enterprise risk management in action: the case of Gotebank[4]

### *4.1. Introduction, contingency factors and institutional pressures*

Gotebank Group consisted of two major banking businesses: an investment bank and a commercial bank. The latter arm of the group (called Gotebank) is the focus of this section; it contained five business units: retail banking, private banking, corporate lending, asset management and insurance. The risk management function was organised in three risk silos (Market, Credit and Operational Risk Controlling) and there was an additional unit responsible for the calculation and reporting of economic risk capital (ERC). In late 2002, at the time of my first visits, risk silo officers were all engaged in developing new risk management techniques. Risk capital officers had just devised the economic capital methodology, with ERC as its flagship technique. Capital and value-based management were discussed by risk officers and senior management. The Chief Risk Officer (henceforth also CRO) disclosed a diagram of the remit of risk management in the 2002 annual report that showed non-quantifiable risks as part of his function's scope.

This surge of risk projects was partially to do with the then *fresh initiative* to harmonise risk management practices across the group. After a number of high-profile mergers in the late 1990s, Gotebank Group was consolidating its risk systems by implementing a blueprint devised by its investment banking arm.

However, Gotebank was also suffering a *downturn in its profitability*. An innovative, *entrepreneurial* bank, Gotebank was known for its bold acquisitions and *first- mover strategies*. But its spectacular growth was punctuated by losses and halts from time to time. At the time of the study, a major and lasting stock market slump seriously hurt a large business unit, Division X. The group reported significant losses and disappointed shareholders for two consecutive years.

Perceiving *considerable regulatory and shareholder pressure*, Gotebank updated its risk management systems and signalled to both internal and external stakeholders that it had got a grip on the situation,[5] and, in particular, with its troubled business unit, Division X. In the early 2000s, there was talk at the group level of an imminent VBM implementation. However, in the wake of the dawning financial problems of the group, VBM had been taken off the agenda.

### *4.2. The roles of risk management at Gotebank*

The three risk silo sub-departments had a shared mission: to '*act as the independent "risk conscience" and policy enforcer for [Gotebank] for all risks that could have a material impact on the firm in an integrated and comprehensive fashion.*'[6]

This mission statement carries multiple ambitions: apart from the exercise of risk silo management, the aspiration of integrated risk management ('integrated and comprehensive') as well as that of holistic risk management (dealing with 'all risks that could have a material impact') are present. In order to understand the use and

[4] GOTEBANK is a pseudonym for reasons of confidentiality.
[5] Literally – GOTEBANK had issued Group Risk Processes and Standards, abbreviated as GRIPS.
[6] GOTEBANK internal document.

balance of these risk management types in the mix, we need to have a closer look at the developments of the practices within.

Market risk controllers saw their role in providing a service to traders, with whom they were housed together, in separate offices from all other risk silos. At the start of my fieldwork, the development of value-at-risk for non-conventional investment products was the major preoccupation in the market risk silo. The Head of Market Risk Controlling explained:

> It is not my job to decide whether or not we should make a deal. It has never happened that traders cannot take a deal because we are not able to calculate a risk. We are helping them to understand what they do. … I see myself as providing a service for the traders and the treasurers.

Market risk specialists saw their challenge in the quantification and tracking of risk that the traders took; however, the Head of Market Risk Controlling remained cautious about the interpretation of their measurements:

> Do you think the risk management tools are really accurate? The value-at-risk model, particularly for Alternative Investments, is based on a lot of assumptions. I was always afraid that we go for the accuracy of the risk that we have recognised and do not realise that there are huge risks, which are not covered at all.

During an afternoon spent observing the work of the members of the market risk team, I came across a chart, which showed an increasing trend of market value-at-risk, with a step function of the limits climbing up in parallel. I showed this chart to several risk people. The Chief Risk Officer's response revealed that risk control involved much learning and judgment on the part of the controllers:

> AM: I saw this chart about the VaR limits on Alternative Investments. (Draws.) When I saw it, my first reaction was, oh my god…
>
> CRO: …they don't respect the risk limit, the limit just tracks the risk?
>
> AM: Exactly.
>
> CRO: (Smiles.) First, this is still part of the overall limit that has been accepted by the Board – that has never been exceeded. It [the overall limit] is relatively large. The one you were looking at is a sort of sub-limit. If you look at those positions, I would not call them trading positions as such because it is not the trader who decides whether he wants to have them or not. But I think the environment is relatively stable and we understand the dynamics. If we go back to that chart, the big question is to what extent you actually understand the dynamics of the beast you are looking at. If you have a very good understanding of the beast, then probably a thermostat approach is not bad.

Even though value-at-risk techniques were developed for setting risk limits, tracking exposure and triggering timely intervention, Gotebank's risk controllers were not convinced that the tool was able to accurately reflect the underlying risk exposure and its dynamics. Such cause-and-effect ambiguities deny calculative practices the role of computation (Burchell et al., 1980), and challenge them with an alternative role– that of learning. Indeed, Gotebank's risk controllers regarded risk measurement tools as a 'learning machine'.

Risk control as 'learning about the beast' is more fluid than containing risk within pre-set limits. At times of strategic expansion, it implied slackening off on risk limits and allowing the business-side to increase risk origination. Further, on the part of risk officers, it also involved orchestrating timely attention swings, in case risk taking should be contained. Nonetheless, the losses that punctuated Gotebank's overall growth trend showed just how difficult it was to orchestrate timely swings between the expansionist profit strategies and periodic control attempts at trimming back risk exposure. The CRO commented:

> I believe in the quality of our risk management function, absolutely. But you have to be honest enough to check if something went wrong. What happened in 2002, looking at the results, obviously something went wrong, otherwise we would not have lost [X] bn. …We knew the risk position that we had, we presented the risk position to senior management, to the Board of Directors, everybody was aware of it. So it is not that we did not know. We just did not do anything about it or not fast enough.

Thus the risk officers realised they had to give more timely and firmer signals to the decision makers– they needed early warning indicators. The Director of Credit Risk Controlling confirmed this, and recalled a previous control debacle from the lending area, which also pointed to the need for leading risk indicators:

> We had a real estate crisis in the 90s and we lost about [X] billion. Management had a too offensive strategy for too long. They wanted to grow and took too much risk, mostly in mortgages.

Responding to the perceived need for early warning systems, the credit risk silo controllers devised a warning indicator, which was expected to give more timely signals of emerging problems. As the Director of Credit Risk Controlling explained, it was a crude metric, a trend indicator rather than a risk measure per se:

> Here is something very interesting and important to me. The migration matrix. This is part of risk calculation. … We take the ratio between up- and down-gradings [both measured as percentages of the loan portfolio] and if it is lower than 1 – it says that there are more down-gradings than up-gradings. It means if you are below 50 per cent you tend to have more risk in the portfolio. It doesn't say anything about the amount [of risk]. However, the trend is interesting. The big picture behind it can be recession or recovery, you are not sure, but it is an indicator for me. … My function is to show the problems.

This guarded attitude to risk quantification among market and credit risk officers is all the more striking when the literature suggests that these risk areas provide risk managers with the most confidence in their calculations. While most financial risk managers are expected to be 'calculative idealists' (Power, 2003b), Gotebank's financial risk controllers appeared to be 'calculative pragmatists', in that they regarded numbers as attention-directing devices with no intrinsic claims to represent reality. An understanding emerged that in a large organisation, where there is a hierarchy of limits, lower-level risk limits can be fluid, negotiable, and adjustable for the needs of the business.

Senior risk staff's attitudes to operational risk management also displayed calculative pragmatism and much scepticism about quantitative risk control. On the face of it, risk officers in the operational risk controlling area were developing *key risk indicators* that would render operational processes to measurement and control. However, the Director of Operational Risk Controlling remained cautious about the use of risk measurements:

> I don't know if I should put all my effort into risk measurement to quantify [given that] when it really happens my figure would be for sure completely wrong. So why should I put all my resources into something that is senseless? I am not a fan of the quantitative approach in OpRisk. If you look at the losses, most of them are based on human behaviour – now how do you measure it?

Given the doubts about the plausibility of the quantification of operational risk, the controller's informed, experience-based judgement was the key to operational risk control. The operational risk silo aimed at pushing responsibility for operational risk down to business unit and line management level. Based on his extensive operational experience and relations within the bank, the operational risk director cultivated an advisory and collaborative, rather than policing role over the business unit risk managers, which encouraged them to report operational losses (over a certain threshold, as and when they occurred) into a loss database. This was then used for preparing 'risk reviews', thereby turning risk control into a learning exercise. The CRO confirmed:

> CRO: I have doubts whether you actually can define things such as key risk indicators on operational risk. Maybe the thing kind of evades as soon as you start measuring it. Which is not bad – then you have solved at least your perceived problem. Instead of this, however, I agree with [the Director of Operational Risk] that it is highly judgemental. It is a question of how you can bring in that judgement. What you also have to see whenever we talk about operational risk… in [Operational Risk Controlling] there are four or five people, but this is just the tip of the iceberg, because operational risk is a line management function. They have to set up their procedures and processes in an appropriate way so that these things do not happen. … Then the question becomes, if you want to do something on operational risk on a firm-wide basis, which I think we agreed, what is the most meaningful thing you do with a couple of people? I think it has to do with risk reporting and risk reviews. Let me give you an example on risk reviews. It is to evaluate accidents. So we say we had a case X, it costs us 5 million, now what can we do to prevent it from happening in the future?
>
> AM: Is that learning from mistakes?
>
> CRO: Yes, exactly.

It appears that risk silo management at Gotebank was characterised by the exercise of a great deal of calculative pragmatism. While risk controllers respected the inherent need for risk taking in the banking business they also recognised the additional need for learning about the dynamics of risk.

Apart from the activities of risk silo controllers and senior risk officers, a third group deserves attention in the risk function: the economic risk capital team. The ERC team was the originator and the guardian of Gotebank's economic capital methodology. Through the ERC methodology they brought integration to the quantifiable set of

Gotebank's risk management framework. ERC was calculated for each risk silo and trends were reported monthly to the board.

Looking back at the worsening ERC trend in Division X's risk portfolio prior to the crisis, Gotebank's management realised that ERC had the potential to be an indicator of the group's risk profile. The Chief Risk officer recalled:

> What we changed this year are two things. First, we said, risk has to be an explicit topic in the strategic business plan. … What we also said was, the board of directors does not only have to approve the strategic business plan, but it also has to approve the risk appetite, in the form of an overall ERC limit for the Group.

This required the application of ERC as a common denominator of risk, to aggregate risk across risk silos and divisions. Similar calculations were introduced to conclude the planning process, to highlight the projected risk profile based on divisional (and group) planning forecasts. This was a step towards determining the 'risk appetite' of the group, and to judge if the projected overall risk profile in the business plan was adequate. With ERC becoming a tool to set the risk appetite of the group, integrated risk management was, apparently, becoming recognisable.

However, ERC was a rather controversial metric: it was regarded at best as a trend indicator, not an accurate reflection of the underlying risk profile. Not even in the case of Division X's recapitalisation were ERC calculations the basis of decision making. These calculations took place within the finance function, which had its own assessment of how much capital Gotebank's subsidiaries needed to hold in order to satisfy stakeholder and business requirements.[7] Similarly, ERC calculations failed to effectively feed into the yearly exercise of intra-group capital attribution and performance measurement. Accordingly, the head of the ERC team struggled to find a point of linkage with the strategy and control departments:

> We could calculate Economic Profit, but if we did, nobody would want to have it in the Strategic Business Plan that goes to the board. … Controlling [the finance function] for example does not support it.

A major quantification challenge arose from the fact that there were interdependencies between the business units– they relied on each other's capital strength. For example, the private banking unit traditionally carried less capital as it relied on the capital-strength of the retail operation. Adjusting for these effects by quantifying the shared capital-benefits in an economic manner was a major challenge for the ERC team. The economic capital calculations, although deemed indicative of risk exposure trends, were judged as insufficient to reflect the absolute risk profile and capital need of individual business units. The resulting quantitative scepticism around the ERC tool made the CRO reluctant to deploy it in a computational role. Capital allocation and performance measurement remained in the court of the finance function. The long-existing, conventional accounting practices deployed in the intra-

[7] As accounting controllers saw ERC not as a complementary, but as a *competing* control tool, they resisted it. From their point of view there was already an established accounting control available for the Division's capital adequacy. Division X's post-crisis recapitalisation was led by accounting controls. Also, the subsequent reconsideration of Division X's country portfolio and the wave of divestitures of the weakly capitalised businesses were driven by accounting-based solvency considerations.

group planning and performance discussions were not challenged by the notions of ERM – risk-based management had no ground to grow on.

### *4.3. The uses of risk management at Gotebank*

The monthly executive risk report was a thick document. Inside the report there were dozens of charts graphically representing risk exposure lists, trends as well as risk limit breaches from all over the bank (no subsidiaries or functions were exempt from data provision), arranged neatly under the headings of market risk, credit risk and operational risk. Most risk controllers seriously doubted whether all this information got read. As one of them put it, 'We would like it if the receivers of our analysis came back to us with questions. But they don't.' After asking executives from the strategy department and the finance division, it became apparent that the problem was that the key strategic risk concerns of top management were not quantifiable. The Director of Strategy and Projects explained:

> The trouble about the interface between risk and strategy is that at the very high level, there is a very simple list of risks to look at from a strategy perspective. … Then somebody goes there to do all these detailed models, the ERC thing and all that, and you have to think where you add value. If it is the basis for capital allocations, that's fine but…in the end, generally speaking, risk at a very high level is very simple and straightforward.

Thus it appeared that the production of risk reports did satisfy a regulatory expectation- the need to produce board-level risk information. Risk reporting was used as part of top management's dashboard of management controls. Accordingly, top management's interest in risk silo control appeared to be heightened only at significant control breaches:[8] they used risk silo control as a diagnostic control system. Generally board discussions deviated from the content of the risk report towards more 'strategic' issues. Strategic discussions were outside the formal reporting coverage of risk silo people, and those issues got very little (if any) representation in the monthly risk report. Having recognised this, the CRO's aspiration for the future was to solve the problem of providing 'meaningful high-level risk information' to the board.

By including non-quantifiable risks into the remit of the risk control, the intention was to move beyond risk silo management towards holistic risk management. Pondering the monthly board risk report, the CRO reflected:

> CRO: If you look at the Key Exposure Report, it tries to cover all significant risks in a more or less comprehensive fashion.

[8] Mikes (2008) concludes that GOTEBANK's top management used risk controls and accounting controls with varying degree of intensity motivated by the relevance and the perceived institutional appropriateness of these controls. As external requirements changed in the course of the crisis that hit the insurance division (Division X), the definition of institutional appropriateness shifted as well. While risk management had a legitimate role in crisis management, in the subsequent consolidation of the group, and the insurance division in particular, the accounting controllers played a more influential (interactive control) part. In the insurance sector investors and regulators followed accounting indicators to gauge the performance of Division X. The apparent lack of institutional appropriateness of the risk controls in the insurance world (at the time) prevented the otherwise informationally relevant risk control system from prevailing as an interactive control system.

AM: You mean all significant risks that are quantifiable?
CRO: Absolutely – that's the big caveat. The big risks today are: are we running the right strategy or not? What do we do with private banking going forward? Should we grow retail banking [domestically] or rather abroad? Now, how do you integrate these into the monthly risk report?

It is remarkable that Gotebank's senior risk officers claimed access to the discussion of corporate-level strategies. When I suggested that by doing so, the risk people might be encroaching upon the territories of the strategy and finance functions, the CRO briskly replied: 'Not if you have a chief risk officer. Because that's what you pay him for.'

At that time the strategy and planning function was sceptical about the possible contribution risk people could make to strategy analysis. A few months later it emerged that the risk function sought to render strategic uncertainties to scenario analysis in order to deal with problems that were on the border between strategic planning and the risk silos, between non-quantifiable and quantifiable risks. The Group senior risk officers (the CRO of Gotebank, the CRO of the investment bank, and the Group-CRO) treated this as part of their personal agenda:

CRO: We [the three CROs of Gotebank Group] have discussions about what the most dangerous things that could happen are. We put together a report to the board about these and what we do against them. … It could be the quality of the [domestic] lending portfolio, given its sheer size. It could be the impact of an interest rate increase on the asset portfolio of [Division X]. It could be further erosion, further defaults in the energy sector in the US.
AM: So this is really a bird's eye view, looking at the business from the top.
CRO: Right. It is a 30,000 feet view of the world.'

Senior risk officers thus looked beyond the risk silos, scanning the organisational landscape from above, in order to find problem areas to alert the executive and supervisory boards.
These discussions proved to be of much more relevance to top management. Given that the bank was recovering from a series of strategic mistakes and financial losses, top management was much more inclined to listen to a new voice in strategic control– that of the senior risk officers'.[9] This was reflected in top management's frequent and regular interest in what senior risk officers had to say, and it was acknowledged by those present at executive board meetings. As the Chief Credit Officer commented at the end of the year:

> [The CRO's] organisation is relatively new. This year I feel his influence has increased. I am part of these [executive board-level] meetings. In my opinion, his influence in strategic discussion and decision [making] has increased. He contributes on a regular basis and he has his own opinion, *ja*.

He also noted that senior risk officers themselves required strategic information from the business line, in regular face-to-face meetings:

AM: Would [the CRO] contribute with information he gets formally from his own people [the risk department]?

[9] This observation supports Simons (1991) thesis that at the time of financial crisis, top management are inclined to use multiple control systems interactively.

> CCO: Ha! (Laughs) He has different sources. That's good. I mean, even sources like discussions with people between four eyes, when he just talks to important people in the organisation, informally. As I said he has different sources.

This holistic risk management approach set the example for senior risk officers within the business units too. For example, the post-crisis CRO of Division X instigated 'special risk reviews' to be presented to risk management committees by line management staff on topics as diverse as foreign exchange risk and specific strategic issues. According to the meeting schedules, quantitative risk analyses received 15 -30 minutes of attention, while special risk topics were discussed for 45 -90 minutes. The CRO of Division X commented:

> My role is not to be a nice guy. If I schedule a topic for this management committee, nobody says no. If somebody says no, I am going to be suspicious very quickly. The people [invited to hold presentations on specific issues] know that there is no value in undermining it because they are going to talk in front of the chief executive officer, not just to me. (…) If risk management has a strong opinion on certain risk profiles, it is more difficult for top management not to consider it.

It appears that in the same way as in Gotebank, the risk framework, originally risk silo management, was augmented by holistic risk management within Division X too. Accordingly, the business unit CRO perceived an increase in top management's interest in the risk committee meetings for which he set the agenda: holistic risk management was emerging as an interactive control system.

### *4.4. Summary: The CRO as 'éminence grise'*

Gotebank displayed a wide exemplar of best practices in risk management. Risk silo management, integrated risk management and holistic risk management emerged as clearly visible in the risk management mix, furthered by risk silo controllers, risk capital controllers and senior risk officers, respectively. It appeared that risk-based management did not take root at Gotebank during the field study period.

The characteristic feature of risk management in Gotebank was the strong scepticism that senior risk officers applied to risk quantification. Risk silo control was turned into a learning exercise, as risk measures were treated as trend indicators rather than expressions of the underlying economic reality. This quantitative scepticism became a hindrance to the performance measurement ambitions of the economic risk capital team. Deploying risk calculations in performance measurement requires 'trust in numbers' (Porter 1995). As the ERC methodology struggled to gain sufficient credibility for becoming a basis for performance measurement, the archetype of risk-based management, for the time being, was doomed at Gotebank.

Instead, senior risk officers used their agenda setting power to put strategic, business concerns on the agenda of the board, and sought to actively influence the discussion of non-quantifiable risks. holistic risk management emerged as an alternative way to link risk management and strategic decision making, even though that took place outside the formal planning and control cycle.

It appeared that at the time of the case study, the risk function lacked formal, in-house strategic control capabilities. Strategic information had to be channelled to the risk committee meetings directly from line management. Senior risk officers exercised their influence and accumulated power- formally through agenda-setting, and informally via knowing influential others. This conjures up a medieval metaphor for the chief risk officer: that of the *'éminence grise'*[10], acting behind the scenes, a powerful advisor left to his own resources.

[10] This phrase originally referred to Francois Leclerc du Tremblay, the right-hand man and confidante of Cardinal Richelieu (also known as the Red Eminence). Aldous Huxley wrote an English biography of Lecrec entitled *Grey Eminence* (new edition published by Vintage, 2005).

## 5. Enterprise risk management in action: the case of Fraser Bank[11]

### *5.1. Introduction, contingency factors and institutional pressures*

At first sight Fraser Bank's risk management practices resembled those at Gotebank. Risk was measured, managed and reported by risk silos, giving the impression of enterprise-wide coverage. There was a separate economic capital team within the risk function. A number of senior risk officers orchestrated a crowded committee structure, quarterly and monthly risk committee meetings, with increasingly formalised reporting practices.

Further, Fraser Bank was comparable in size (market capitalisation) and in its variety of activities to Gotebank Group. Looking at it from headquarters level, Fraser appeared to be a decentralised banking organisation with fairly autonomous business units, such as investment banking, asset management, retail, corporate and private banking.

Strikingly different in Fraser, however, was a strong value-based management (VBM) ethos. Instigated in 2000, the VBM implementation was well under way by the start of my case study. Although the risk management department had been in place for some ten years by then, the VBM initiative led to a complete overhaul of the central risk function. Its mission was restated in terms of 'supporting the [Fraser] Group Strategy' by 'providing better support to [business unit] risk management' in anticipation of 'a direct effect on economic value creation.'[12]

The reorganisation of the risk function was part of an ongoing group-wide efficiency review, and the structural overhaul of many other central functions from marketing to IT. These structural changes were the reflections of a fundamental change in management and control that had been initiated at the top of the organization. Fraser Bank was switching to value-based management (VBM) principles. The Chief Executive Officer was a passionate advocate of the *shareholder value imperative*:

> 'Positioning [Frasers] among the leading value-creating companies world-wide is my highest priority. (…) Managing for value is not a one-off change initiative. It is an enduring way of running the enterprise.'[13]

A preference for a *steady growth* strategy was emphasized when the executive board set the group goal of 'doubling value every four years.'

### *5.2. The roles of risk management at Fraser Bank*

Fraser operated with risk silos similar to those found at Gotebank: market risk, credit risk and operational risk (also referred to as 'non-financial and compliance risk'). The risk methodologies had a decade-long history: they had been evolving since 1993. The central risk function was also the custodian of a loss data warehouse that

[11] For reasons of confidentiality, the identity of the bank has been disguised.
[12] All quotes from a presentation by the Group Risk Director titled 'Creating an expert team'
[13] This quote is from an internal training document.

supported the continuous development of quantified risk measurement approaches and back-testing.

The Risk Policy Director, responsible for the risk methodologies applied in the risk silos, gave the first hint of what appeared to be the bank's commitment to manage risk by computation (Burchell et al., 1980), when he opened our conversation with the line: 'If you want to manage risk, you have to quantify it.'

Fraser Bank's senior risk and strategy officers revealed sufficient 'quantitative enthusiasm' to set out to 'induce correct economic behaviour in the light of risk measures' (Power, 2003b: 14). The progress of the risk function was assessed by judging how advanced the quantification methodologies were, and by the bank's ability to make decisions based on them. The Risk Policy Director, whose long tenure at the bank made him qualify as 'the institutional memory' (as he liked to call himself), recalled:

> Initially there was a market risk management team and a credit risk management team. But even the market risk management team was not very professional, we did not have a proper measurement system. We did have crude measurement systems. … Market risk was managed by the treasurer. The head of credit– well, his job was regarded as taking big lending decisions. Operational risk at that stage wasn't really talked about. … [Risk management] has been evolving since 1993. First, we made the management of market risk more professional, so it is much more structured and quantified. Then we made credit risk more quantified. The job of the Chief Credit Officer became quite different. Even though he was still quite involved in big decisions, his job was to manage the portfolio rather than individual credits.

While Gotebank was a relatively late adopter of quantitative risk modelling, Fraser was the first European bank to implement value-at-risk in the market risk area, together with the quantitative credit rating of the entire lending book. This quantified view of the financial risks enabled the bank to manage both the trading book and the lending book 'by the numbers', applying portfolio management principles.

As the reorganisation of the risk function took place against the backdrop of the group-wide VBM implementation, risk management was (re)developed as a pillar of the new control framework. Using the terminology proposed in Section 3, Fraser was aiming for the implementation of the risk-based management framework, in which risk officers were tasked with the 'granular attribution of Economic Capital' to business units. What this meant in practice was a formal integration of business planning, performance measurement and economic capital allocation, the latter under the auspices of the risk management function, as explained by a manager from the strategy and planning function as follows:

> The businesses put forward their proposals having linked in with [the central risk management department] and [the] Economic Capital [team]. They generate appropriate figures upon which we make the choices about where to bet the bank. The calculations are done by the businesses initially. They work it through with [the] Risk [department]. … There is a methodology provided by [the] Risk [function] that the businesses must use in order to calculate Economic Capital.

The strategy and planning function then negotiated the alternative plans through with the business units, in an attempt to optimise risk-adjusted profitability across the

group, until an agreement was reached with each of them. The agreed plans were presented to the executive board, where the focus of discussions was Economic Profit.

Crucial to the workings of risk-based management at Fraser was the existence of the economic capital framework. Towards the end of this study the Head of Economic Capital team saw his role as follows:

> Economic profit inherently needs economic capital because you have to adjust your profit by the risk that you have taken in order to reach that profit. So that's how we link to the rest of the Group and Strategy and Planning in terms of providing cost of risk [the product of economic capital times the cost of equity, for each business unit]. That's how we feed into the Finance and Strategy areas.

Thus a separate economic capital team was created, initially within the planning function. The risk capital specialists were later transferred to the risk department. According to the previously quoted manager, the economic capital framework helped determine the 'risk appetite' of the group and contributed to risk limit setting within the organisation:

> We obviously get involved with risk appetite. Making sure that now we have one unit of measurement across the bank of unexpected loss, which is Economic Capital and then we can use that to allocate our risk appetite.

What bestowed the economic capital framework with the image of being 'integrated' was its status as a common denominator and language of risk. Unlike in Gotebank, in this setting economic capital was believed to express and make comparable the risk taken by the business units; also, the risk taken by the group over time.

Applying risk measurements in decision making by computation assumes that the cause-effect and goal ambiguities around the calculative practice had been minimised (Thompson and Tuden, 1959). Fraser's risk controllers operated in a managerial environment that demanded both goal consensus and the resolution of cause-effect ambiguities around risk control techniques. The resulting calculative culture was strikingly different from the quantitative scepticism displayed among several risk officers at Gotebank.

As Power (2003b: 14) suggested, some risk managers believe that risk calculations are capable of reflecting underlying economic realities and 'worry constantly about the 'robust' and 'hard' nature of … risk analysis.' Indeed, Fraser's quantitative enthusiasts voiced much commitment to maintaining the 'leading edge' reputation of their risk methodologies, including that of the economic capital framework. In the bank's committee structure there was a separate body devoted to discussing and updating the risk measurement methodologies in use. Debates on methodology were sparked by concerns that this leading technical position might be eroded. A manager from the strategy and planning department recalled:

> Back in the 90s, I think Fraser had a really good methodology. The perception we had was: some American banks were further down the road than we were, but we were ahead of the UK banks. I think we have got to the point where there is this big upheaval: there is a big question mark about whether our risk methodology is up to scratch. With Basel II going on, the feeling is that everyone is catching up, I

> assume it is the impetus to the current debates. … We can't afford having any of the analysts or anyone else saying we have a bad methodology.

During the course of the study I was witness to the complete overhaul of the economic capital methodology. It involved the reallocation of capital charges across the business units, thereby inherently affecting their performance in terms of economic profit. It was a process involving high political sensitivity. The task defeated an entire economic capital team before a second group of risk capital officers finally managed to negotiate it through. The head of this new economic capital team, who orchestrated the process recalled:

> Everyone said, let's get [internal capital allocations] more accurate. But they wanted to minimise their portion of the more accurate pie. So there was a tension… By setting the objective and clarifying the rules there was less room for people to move. That's not to say you don't get people arguing and so on, but the rules keep people straight. And you keep it all consistent. By sitting around a table, instead of one-to-one negotiations, you end up with group negotiations. The best minds in business bank and [the investment banking arm of the group] came up with the methodology, so *they cannot argue on technology* [emphasis added by the researcher]. Each business unit was represented by risk managers and lenders, to make sure we took in both the technical perspective and the market perspective.

The creators of the new methodology derived much credibility from the procedural fairness and political appropriateness that characterized the review. Their success was also due to the perceived technical competence that was deployed in the process. By successfully repairing the internal credibility of the ERC framework, risk capital officers ensured that both integrated risk management and risk-based management stood on a solid foundation.

The redefinition of capital allocations via the economic capital tool also showed risk management in the role of 'ammunition machine' (Burchell et al., 1980). Internal actors 'could not argue on technology': they *argued with it.* The representatives of a powerful business unit and the central risk department applied the tool to draw others into agreeing on a new reality of risk profiles and capital allocation across the group. Risk controllers adopted the 'conference technique' (Roberts, 1990), which is suggestive of the political realities of risk management; rather than imposing the 'risk view' from the centre, risk controllers orchestrated a collective process, through which relative risk profiles were defined and commitments to capital charges were made. Risk-based management is as much a political process as other forms of budgeting.

But to play the role of 'ammunition', the risk technology (ERC) had to command the power of representation. Its success in achieving a representative status in Fraser Bank and its failure to do so in Gotebank were in part the results of user attitudes. ERC was an 'unarguable technology' in Fraser Bank, while at Gotebank was merely seen as 'detailed models' missing important decision aspects that were deemed as non-quantifiable.

### *5.3. The uses of risk management at Fraser Bank*

According to the Head of Economic Capital, top management appeared to call on risk control as a signifier of potential problems, using it as a diagnostic control, as part of the performance management dashboard:

> This is the report that we send to [the board] – a monthly brief summary. [*Leafing through the risk report:*] It is practically a dashboard saying this is how this or that business unit is using up its economic capital.

The aggregation of the risk content of different business plans and business units created new visibilities to performance, and had the potential of bringing previously latent risks into the open. Accordingly, the economic capital framework was also used by top management to track and signal excessive risk-taking that warranted additional capital need. As the Director of Risk Policy expressed, corrective action took place with reference to a tolerance interval:

> …what happens when the bottom-up assessment [of risk capital need] is higher than the book value [of available capital]? … Well, we have a tolerance range which says you can't measure these things down to the last penny anyway. So if it comes within 120 per cent then we are happy, if it comes over 120 percent then we need additional capital.

In general, risk specialists at Fraser concentrated on devising quantitative control tools over the measurable risk types, and had little involvement in the control of non-quantifiable risks.

Nevertheless, there were a few senior risk officers at Frasers who had expected to have greater visibility and voice in strategic decision making. The Director of Risk Reporting, for example, envisioned a role for his function that was to be broader than financial risk measurement and reporting. With a hint of irony he likened the role of the senior risk manager to that of the 'medieval licensed jester, allowed to be more sceptical about what is going on', constantly challenging existing assumptions and views, and scrutinising strategic decisions before they are made. Such a 'licence' could have given rise to holistic risk management.

However, unlike Gotebank's CROs, Frasers' senior risk officers lacked the three conditions that secured their Gotebank peers the ears of the board in strategic risk discussions: information, agenda setting power and mandate.

During the years, risk silo management was gradually pushed down into the business units, so that it could inform risk-taking in the line. This decentralised approach left the risk people at the centre with responsibility for the methodologies used at business unit level, but gradually distanced them from the business. Business unit risk managers developed 'double loyalties', sometimes shielding their division from outside risk enquiries, which made it even more difficult for headquarters risk managers to see into their affairs.

Secondly, it appeared that at Fraser the centre of power concentrated on staff who furthered the risk-based management framework. The very idea of value based management and the value-focused, in extremis single-minded culture it imposed

proved to be a hindrance to the Director of Risk Reporting, who harboured ambitions to comment on non-quantifiable risk issues:

> [The] risk [function] by definition, like audit, sits outside the culture of an organisation as a whole, it has to. And the more important it becomes to a business that everybody sings in tune, the less space is given for any kind of business voice. And it becomes very difficult for a risk manager, at any level, either talking to a trader or talking to the chairman of the bank, to challenge. The skill is challenging without causing offence and if the trading manager and the chairman are wise, they listen. But it is also possible to get carried away by trying to drive the corporate culture and by a general desire from everyone to get there, that any kind of challenge is not welcome, even if it comes from the risk function … whose role is to challenge.[14]

The strategy and planning function set the agenda for the executive committee, and they did not invite the challenge that the senior risk officers hoped to introduce into the agenda. Accordingly, the Director of Risk Reporting noted that risk reporting did not channel into important strategic decisions; for example there was no contribution from the risk function to the due diligence of a recently acquired mortgage lending company. Senior risk officers did not possess the agenda-setting power that their counterparts at Gotebank did.

Thirdly, the mandate of risk management gave legitimacy to the risk function to operate in matters of quantifiable risk issues; however, it denied them access to strategic discussions. A senior risk officer defined the problem as follows:

> These non-financial risk issues are not very technical, more subjective. The issue is to identify some quantitative measures that we can assess on a regular basis.

Ironically, it was the commitment of risk staff to risk quantification that prevented them from developing a perspective on strategic and other business risk issues– they did not have the tools to frame these matters.

### *5.4. Summary: The paradox of resolving the challenges of risk computation*

The evidence suggests that Fraser Bank's preference for reconciling risk and return objectives was via negotiation in a characteristic risk-based management framework. Orchestrated by the strategy function, the planning process called on the economic capital team to provide the capital charges into the calculations of economic profit. Responding to a calculative culture favouring management by numbers, the risk function also provided the necessary analytics to make quantifiable risks subject to limit setting and control.

Maintaining credible economic capital calculations for the purpose of risk-return optimisation required a great deal of technical competence and political aptness on the part of risk capital controllers. By successfully resolving the ambiguities around risk calculations, their contribution to the workings of the group's VBM framework became endemic. Although particular risk silo controls were used diagnostically (as part of top management's dashboard), senior risk officers lacked the information,

[14] Director of Risk Reporting; Fraser Bank

power and mandate to get implicated in discussions about more strategic, non-quantifiable risk issues. The remit of the risk control system was confined to the quantifiable risk universe.

Fraser Bank's case is suggestive of an inherent conflict in the ERM assembly. Realising the ideal of risk-based management required Fraser's risk managers to focus on quantifiable risks. Their commitment to a calculative culture of managing risk by the numbers resulted in a boundary around their remit that prevented them from gaining access to the framing of non-quantifiable risk issues. The ideal of holistic risk management was frustrated, hence the paradox of resolving the challenges of risk computation; by doing so, the risk function's limit became confined and inflexible. The function might have become a cog in the wheel of value creation, but it was not part of the strategic engine.

## 6. Discussion

Both Gotebank and Fraser have embarked on implementing risk management practices with an aspiration to apply them consistently and coherently across their organisations. Although these projects furthered the notion of ERM, it appeared that the ERM mix took very different shapes in the two banks. This section compares and contrasts the observed patterns of the forms and uses of ERM practices.

### *6.1. Three types of risk officers, four types of ERM, two patterns of strategic significance*

Three types of risk practitioners have emerged at both organizations. The differentiation of the risk function mirrored the varying aspirations of risk officers. It also reflected four risk management ideal types that pose different challenges to the risk management staff in banks. Accordingly, the functional differentiation of risk people was indicated by the different technologies they applied and the different roles they fulfilled.

The first group (*risk silo specialists*) consisted of those who were engaged in *risk silo management*, the measurement and assessment of different risk types. Grappling with the challenges of data collection and *risk quantification*, they produced voluminous reports on adherence to risk limits. Their diagnoses tended to lead to different outcomes. In Gotebank's case 'red signals' were treated as a learning opportunity often prompting revisions of limits (rather than intervention). In Frasers, limit breaches were acted upon by eventual risk profile correction. However, these reports did not sustain top management's frequent and regular attention; their role was, in these contexts, diagnostic (Simons, 1991). This is because the risks that habitually concerned the board tended to be of a more elusive, strategic or regulatory nature, and hence, stayed outside the reach of *risk silo specialists*.

The production of the quantitative risk estimates allowed risk managers to address the problem of *risk aggregation*. Another group of risk managers emerged (*risk capital specialists*), who were concerned with *integrated risk management.* Based on a common denominator for risk (economic capital), risk aggregation allowed risk capital specialists to assess the risk profile of the institution, set limits, and do the same for individual business units. This opened up the route for the integration of

return and risk concerns in a single framework, *risk-based management*. Furthering the theme of *risk-based performance measurement,* this requires aspiring institutions to arrive at risk-based (economic) capital allocations to their responsibility centres.

In practice economic capital allocation incorporated much organizational politics, and was successfully completed by the risk capital specialists of Fraser Bank only. Here a strong value based management ethos paved the way for risk capital specialists to reconcile internal definitions of capital with headquarters' expectations. It was through the provision of economic capital charges that ERM became an integral part of the strategic planning and performance measurement process. However, *risk capital specialists* had to be prepared to live in an uneasy symbiosis with the planning department who supported them in their efforts to define definitions of capital allocations, but on the other hand denied them top-level visibility.

Securing access to the board has encouraged *senior risk officers* to exercise informal influence on some strategic concerns. However, their influence on major strategic decisions had been limited. Their favoured role was that of the devil's advocate-challenging and questioning existing beliefs in order to prepare the organization to fend off emerging adversities. This required them to put *non-quantifiable risk* issues on the agenda of top management (e.g. non-recurring operational risks, reputational, legal and strategic risks). Only at Gotebank had senior risk officers the information, agenda setting power and mandate to do so. It was through the provision of information about non-quantifiable risks that senior risk officers furthered the ideal of *holistic risk management,* and invited top management to use their offering as an interactive control system. The sources of information they called upon were in the business lines; information was collected in an ad hoc fashion and presented by selected line managers. Holistic risk management was a rather flexibly applied control process.

The case studies point towards two diverging *patterns of organizational significance* on the part of the risk management functions observed. In one case (demonstrated by Frasers) risk management becomes integral to the formal planning and performance measurement process, while remains neutral in the discussions of key strategic decisions that emerge outside the planning cycle. In the second case (demonstrated by Gotebank), risk management is incidental as far as the formal planning and control cycle is concerned, however senior risk officers acquire agenda-setting power and information to participate in top management-level decision making and influence the discussion of key strategic uncertainties. Thus the organizational significance of risk management appears to hinge upon *the organizational significance of the risk manager*. It is a characteristic of the current development of ERM that there are multiple possibilities for its practice in organizations.

*6.2. ERM, corporate governance imperatives and calculative cultures*

It seemed that the organizationally significant risk officers responded to different corporate governance pressures and fostered different calculative cultures. Power (2003a) postulated that two powerful institutional notions drive the rise of ERM: the shareholder value imperative and the risk-based control imperative. These represent different approaches to corporate governance. The first emphasises the role of ERM practices in the measurement of shareholder value, and in the advancement of

managerial practices that are designed explicitly to promote value creation via performance measurement. I call this notion of risk management *ERM by numbers*. The notion of risk-based internal control emphasises the role of those ERM practices that are designed around the wider strategic objectives of the firm, and further the achievement of these through internal (formal and informal) controls, designed over processes that constitute risks to these objectives, giving rise to what one might call *holistic ERM*.

Fraser Bank was driven by a strong shareholder value imperative. Here risk managers become involved in the *strategic planning and performance measurement* process, and the salient element in the risk management mix was risk-based management. ERM's input into the planning process was the quantitative assessment of the risk profile of alternative business units and strategies that allowed the organization to optimize the competing risk and return objectives. Here risk controllers placed the emphasis on the robustness and accuracy of the risk models (*quantitative enthusiasm*). They believed that risk calculations are capable of reflecting the underlying economic reality, and by resolving cause-effect ambiguities, risk modelling can aid decision making by computation. However, this resulted in *ERM by numbers* becoming confined to financial and quantifiable risks, and senior risk officers did not get implicated in the discussion of non-quantifiable strategic risks.

Gotebank possessed an ERM function that appeared to correspond to the corporate governance concern of *risk-based internal control*. Here the remit of ERM included 'strategic' and 'operational' risks that were not quantifiable, as the definition of risk was sufficiently broad to encompass threatening events (COSO, 2004). The salient element in the risk management mix was holistic risk management. Apart from the risk-based control imperative, this *holistic ERM* was associated with a pragmatic, non-dogmatic, experimental approach to risk measures (*quantitative scepticism*), and the agenda setting power and informal influence of senior risk officers. Senior risk officers considered risk numbers at best as trend indicators surrounded by high cause-effect uncertainties- useful as a learning tool, less so as an 'answering machine' (Burchell et al., 1980). Senior risk officers aspired for a role in high level *strategic decision making* and exercised influence on decisions that were outside the remit of financial risk management.

The study suggests that calculative cultures are *constituents,* and also *are constituted of,* the particular forms and uses of the control systems observed. The cases also highlight that there is scope for managerial discretion in the design of ERM systems. Firstly, the role of senior risk officers was evident in the politics of risk management. At Fraser senor risk officers had to orchestrate the process of capital allocations with political sensitivity and tact. At Gotebank senior risk officers amassed both agenda setting and informal power in order to become influential in the discussions of strategic issues. Secondly, it was, to some extent, a matter of managerial choice whether the risk-based internal control or the shareholder value imperative shone through the ERM models described. Apparently, senior risk officers formulated personal convictions about the manageability of risks by quantitative models. Senior risk officers at Frasers, who had more confidence in the reliability of the risk models (quantitative enthusiasts), were able to make risk numbers count in the contested locales of capital allocation and performance measurement. However, Gotebank's senior risk officers who had doubts

about the use of quantitative models in these contested locales (quantitative sceptics) chose to define their area of competence broadly, encompassing risks outside the quantifiable risk framework. Table 2 summarises the discussion.

| | **ERM by the numbers** | **Holistic ERM** |
|---|---|---|
| **The forms of ERM** | | |
| *Salient element in the risk management mix* | Risk-based management | Holistic risk management |
| *Span of risk control* | Quantifiable risks | Quantifiable as well as non-quantifiable risks |
| **Roles and uses of ERM** | | |
| *The roles of ERM* | Computation tool, 'ammunition machine' | 'Learning machine' |
| *Top management's use of risk controls* | Diagnostic use of risk silo management and integrated risk management | Diagnostic use of risk silo management and interactive use of holistic risk management |
| *Strategic significance of risk management* | Derived from the integration of risk management with planning and performance management | Derived from influencing top-level decision making |
| **Managerial context** | | |
| *Contingency factors* | • Size similar to Gotebar<br>• Risk function older than 10 years<br>• Firm strategy: conservative, steady growth firm | • Size similar to Fraser's<br>• Risk function relatively new (2-3 years)<br>• Firm strategy: entrepreneurial firm driven by strategic spurs and halts |
| *Corporate Governance Imperative* | Shareholder value imperative | Risk-based internal control imperative |
| *Calculative culture* | Quantitative enthusiasm:<br>• Risk numbers are deemed representative of the underlying economic reality<br>• Emphasis on the 'robust' and 'hard' nature of modelling | Quantitative scepticism:<br>• Risk numbers are taken as trend indicators<br>• Emphasis on learning about the underlying risk profile from the trend signals |
| *Case study example* | Fraser | Gotebank |

Table 2. Contrasting the two models of ERM

## 7. Conclusion and further directions for research

In the financial services sector ERM is thought to embody a set of risk practices that encompass such wide-ranging techniques as vale-at-risk and economic capital models, as well as qualitative methods for non-financial risks. Practitioner predictions suggest that taken together, these risk management approaches increasingly constitute 'best practice' that more and more organisations aspire to implement (e.g. Lam 1999; Gilbert 2004).

This paper argued that innovations in ERM techniques increasingly cluster around four themes: risk quantification, risk aggregation, risk-based performance measurement and the management of non-quantifiable risks. Each of these themes represents different ambitions and objectives that risk officers might pursue, giving rise to four risk management ideal types. These all have enterprise-wide ambitions, and can be viewed as the building blocks that constitute the risk management mix in a given organisation: risk silo management, integrated risk management, risk-based management and holistic risk management.

Taking a field perspective, the paper proceeded to investigate the risk practices of two banks. Each bank appeared to possess a risk management mix that was specific to itself. However, the underlying currents that are associated with these patterns may be instructive in other cases too.

The shareholder value imperative appears to drive a particular model of ERM characterised by a risk management mix in which risk-based management is a salient element (*ERM by the numbers*). This ERM model is contingent on a vision of uniting and controlling risk and return objectives in a common framework. This model presumes a great deal of 'quantitative enthusiasm', as it requires the quantification of both the risk silos and the risk capital need of business entities. Hence risk management's remit is defined in terms of the quantifiable risks, and its concern with non-financial risks extends beyond the risk silos only as far as risk quantification is possible. The strategic significance of this risk management model is derived from its close integration with strategic planning and performance management, but as a control function, it is fundamentally *diagnostic*.

On the other hand, the risk-based control imperative can be associated with a different model of risk management: one with a risk management mix in which holistic risk management is prominent (*holistic ERM*). Taking a great deal of quantitative scepticism', risk officers quantify risks, but exercise control in a flexible manner, allowing the renegotiations of lower-level risk limits, when the interest of the business requires so. This approach requires risk officers to possess considerable knowledge of the businesses whose risk-taking they monitor. Senior risk officers are keen to acquire business insight in order to voice their opinion on risk issues that are beyond the quantifiable risk framework. They derive strategic significance from influencing high-level strategic decision making by responding to the concrete concerns of top management at any given time. In this model, holistic risk management is used *interactively* (by top management), in the formal context of the risk management committee where the senior risk officers set the agenda and provide information for it.

The field perspective and the conceptual unbundling of ERM suggest that risk practices and risk management ideal types constitute an assembly. Similarly, distinct conceptual clusters have emerged in the activity management assembly (Gosselin, 1997) and in the evolution of the balanced scorecard (Speckbacher et al. 2003). The proposed co-existence of four ideal types of risk management is conceptually similar to the existence of three levels of activity management and the distinction between three types of balanced scorecard.

Later variants within the same assembly seem to assume a strategic role. The eventual aspiration to link initially confined, highly specialized or technical practices to strategy is a phenomenon that appears to characterize the development of not only ERM, but other management innovations too (c.f. activity-based costing and management, 'Type III' balanced scorecard, strategic management accounting).

The clustering of techniques within the same assembly is not merely conceptual, it takes place in actual organizational settings too. In practice it appears that assemblies of management control innovations offer practitioners opportunities for selective implementation, revision and switching between the different sub-groups of techniques within the same assembly (Gosselin, 1997). It is remarkable that given the empirical evidence, few ABC and BSC implementations are strategic. In contrast, the ERM mixes (in the case of Gotebank and Fraser Bank) did possess strategic significance, albeit of dissimilar nature. Gotebank's holistic risk management capability appeared as a separate development from its risk measurement practices. On the contrary, Fraser's risk-based management was strongly dependent on its risk silo measurement and integrated risk management capabilities. This study suggests that in order to realize the strategic potential of assemblies, advocates need to demonstrate not only technical competence, but also an ability to align their assembly of control practices with top management's predilections towards the use of different technologies. In particular, aligning the risk management mix with the predominant calculative culture of intended users played out differently in the studied settings, but in both cases required a great deal of political aptness on the part of risk controllers. Accordingly, the organizational significance of management control practices appears to hinge upon the organizational significance of the management control practitioner.

As a reflection on the corporate governance context of risk management, it appears that the spectrum of risk practices suggested by COSO (2004), based on our evidence, falls into two clusters. On one hand, *ERM by the numbers* responds to the suggestion of 'applying risk management in strategy setting' (i.e. integration with planning and control) and using it 'to manage risks to be within [the firm's] risk appetite' (i.e. control by exception). On the other hand *holistic ERM* corresponds more directly to the design requirement that risk management should be applied 'to identify potential events that may affect the entity' and bring those to high-level discretionary decision making. What corporate governance advocates need to consider in the future, is that these two clusters of requirements might well be contingent on (or give rise to) different calculative cultures. Hence ERM adherents might struggle to adopt all the COSO-recommended risk practices within a single firm– *ERM by the numbers* could strive where *holistic ERM* is frustrated, and vice versa.

The distinction between the two clusters can be useful in generating further empirical research agendas. Four such questions are outlined.

The first agenda would aim to verify if the distinctions between the types of calculative cultures and the two diverging risk models are valid. A survey of a larger sample of financial institutions could be used to explore the risk management mix in different organizations, the patterns they take and the driving factors of the emerging clusters. Surveys, interpreting the responses of managers to questionnaires on their risk management philosophies and attitudes to risk modelling would also further scrutinise the concept of calculative cultures. The notion of *calculative cultures* might be applicable in other contextual analyses of management control system (MCS) adoptions. Reflecting on our case studies and on Bhimani (2003), I suggest that a given calculative culture shapes managerial predilections (or resistance) towards new MCS, serving as an important determinant, as well as result, of the fit between MCS and organizational contexts. It is likely that other variables that were not so salient in the present study will surface more powerfully in a larger sample study; Table 2 was merely suggestive of the presence of other contingencies, namely strategic pattern, size and age.

Another research question would seek to investigate if a special case of risk management would still comply with the distinction between the quantitative and the holistic models. It is suggested that that *the treatment of operational risk* in the risk management models could be further explored. Operational risk is a particular risk issue that poses different challenges to the postulated risk management models. Given the current Basel II framework, under the definition of operational risk one finds both quantifiable and non-quantifiable risks. Financial institutions need to apply a rather loose regulatory definition to devise a set of operational risks that are relevant to them. With the amount of flexibility offered in Basel II, it is likely that organizations will cherry -pick issues for inclusion into the remit of the operational risk controller. Based on the distinction between the two risk management models (quantitative and holistic), one would expect that with time the management of operational risk will take different routes, depending on which ERM model it conforms to.

Thirdly, further research into *the dynamics of the risk management* is warranted. Longitudinal studies are necessary to confirm the validity of the drivers that are associated with different risk management styles. They would also help to explore if the choice of interactively (or diagnostically) used risk controls is motivated by top management's assessments of the key strategic uncertainties of their organizations. Further, the signaling effect of internal control systems (as postulated in Simons, 1990, 1991) could be explored in the ERM context too. We need to trace the response of organizational participants to the interactive use of particular risk controls. Would the process result in the emergence of new strategic initiatives? Studying the dynamics of risk management, the researcher would need to consider the interactions between risk and other management controls. In particular, this study suggests that the interface between accounting and risk controls is riddled with possibilities and tensions. Thus studying risk management will help us further explore strategic planning and performance management in organizations.

Finally, it is unclear to what extent the two models of ERM are mutually exclusive. Do they represent a divergence in the risk management world, or are they different

stages in the evolution of risk management? Given the seeds of value-based management already sown in Gotebank, it is possible that another management team or a turn in the institutional pressures may bring a paradigm change in the future. Equally, should the VBM project fail to deliver the expectations attached to it, the quantitative model of risk management may get discredited in Frasers. This could result in yet another overhaul of the risk management function and a redefinition of its role. Talking of such shifts is highly speculative, even though it is likely that any particular risk management mix or model would be a dynamic phenomenon and subject to change. However, from a contingency perspective, one would argue that the incidents that shape the patterns in the development of risk management practices are systemic, rather than erratic, and can therefore be explained by careful studies of the underlying currents.

As risk management is a rather nascent management control practice, it is not yet clear how it will ultimately benefit organizations that adopt it. The Basel regulators have built the international bank regulatory regime on the premise of continuing risk management developments. On the evidence of the cases presented here, senior risk officers exercise a considerable amount of discretion in determining their functions' remit, subject to accommodating relevant stakeholder concerns. Academic researchers can usefully contribute to the debate on the regulatory, corporate governance, management control and accountability issues that are emerging in the wake of enterprise risk management.

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# APPENDIX 1

# LIST OF INTERVIEWS

LIST OF INTERVIEWS AT GOTEBANK

| | Interviewee's functional position | Date |
|---|---|---|
| 1 | Head of Economic Risk Capital | 26 May 2002 |
| 2 | Head of Economic Risk Capital | 01 June 2002 |
| 3 | Head of Strategy & Projects | 07 October 2002 |
| 4 | Director, CFO Division | 07 October 2002 |
| 5 | Head of Economic Risk Capital | 07 October 2002 |
| 6 | Head of Operational Risk Controlling | 08 October 2002 |
| 7 | Head of Operational Risk Controlling | 08 October 2002 |
| 8 | Market Risk Controlling: Team members | 09 October 2002 |
| 9 | Head of ALM/Market Risk Controlling | 09 October 2002 |
| 10 | Head of Market Risk Controlling | 09 October 2002 |
| 11 | Head of Credit Risk Controlling | 10 October 2002 |
| 12 | ERC and Capital Management | 10 October 2002 |
| 13 | Head of Economic Risk Capital | 10 October 2002 |
| 14 | Director, CFO Division | 10 October 2002 |
| 15 | Head of Strategy & Control | 11 October 2002 |
| 16 | Head of Credit Portfolio Management | 11 October 2002 |
| 17 | Chief Risk Officer | 14 October 2002 |
| 18 | Head of Asset Liability Management, Division X | 14 October 2002 |
| 19 | Head of Financial Risk Control, Division X | 14 October 2002 |
| 20 | Head of Economic Risk Capital | 09 December 2002 |
| 21 | ERC and Capital Management | 09 December 2002 |
| 22 | Director of Group Risk Reporting | 09 December 2002 |
| 23 | Director, CFO Division | 09 December 2002 |
| 24 | Head of Financial Risk Control, Division X | 10 December 2002 |
| 25 | Head of Corporate Development, Division X | 10 December 2002 |
| 26 | Head of Asset Liability Management, Division X | 10 December 2002 |
| 27 | Head Strategy and Projects | 10 December 2002 |
| 28 | Chief Risk Officer | 11 December 2002 |
| 29 | Head of Credit Risk Controlling | 11 December 2002 |
| 30 | Head of Operational Risk Controlling | 11 December 2002 |
| 31 | Head of Market Risk Controlling | 11 December 2002 |
| 32 | Director of Legal & Compliance | 12 December 2002 |
| 33 | Head of Regulatory Reporting | 12 December 2002 |
| 34 | Group Chief Risk Officer | 13 December 2002 |
| 35 | Director of Group Risk Reporting | 13 December 2002 |
| 36 | Head of Economic Risk Capital | 13 December 2002 |
| 37 | Chief Risk Officer, Division X | 13 December 2002 |
| 38 | Head of Financial Management, Division X | 13 December 2002 |
| 39 | Head of Management of Closed Blocks, Division X | 13 December 2002 |
| 40 | Head of Economic Risk Capital | 01 September 2003 |
| 41 | Director of Group Risk Reporting | 01 September 2003 |
| 42 | Chief Risk Officer | 01 September 2003 |
| 43 | Head of Strategy & Projects | 02 September 2003 |
| 44 | Head of Operational Risk Controlling | 02 September 2003 |
| 45 | Head of Credit Risk Controlling | 02 September 2003 |

| | | |
|---|---|---|
| 46 | Head of Strategy & Control | 03 September 2003 |
| 47 | Chief Risk Officer, Division X | 03 September 2003 |
| 48 | Group Chief Risk Officer | 04 September 2003 |
| 49 | Director, CFO Division | 04 September 2003 |
| 50 | Director, Group Financial Accounting | 04 September 2003 |
| 51 | Head of Credit Portfolio Management | 05 September 2003 |
| 52 | Chief Credit Officer | 05 September 2003 |
| 53 | Head of Economic Risk Capital | 28 September 2004 |
| 54 | Head of Operational Risk Controlling | 28 September 2004 |

LIST OF INTERVIEWS AT FRASER BANK

| | **Interviewee's functional position** | **Date** |
|---|---|---|
| 1 | Risk Management Policy review meeting | 19 October 2001 |
| 2 | Director of Risk Reporting | 20 December 2001 |
| 3 | Head of Economic Capital (previous) | 06 February 2002 |
| 4 | Head of Economic Capital (previous) | 15 April 2002 |
| 5 | Director of Risk Reporting | 10 May 2002 |
| 6 | Director of Risk Reporting | 18 June 2002 |
| 7 | Assistant Director 3, Group Strategy and Planning | 30 May 2002 |
| 8 | Assistant Director 2, Group Strategy and Planning | 30 July 2002 |
| 9 | Director of Risk Reporting | 12 September 2002 |
| 10 | Assistant Director 2, Group Strategy and Planning | 23 September 2002 |
| 11 | Assistant Director, Group Strategy and Planning | 24 September 2002 |
| 12 | Head of Economic Capital | 21 October 2002 |
| 13 | Assistant Director, Group Strategy and Planning | 05 November 2002 |
| 14 | Head of Economic Capital | 05 November 2002 |
| 15 | Director, Group Risk Analysis and Policy | 22 November 2002 |
| 16 | Head of Economic Capital | 22 November 2002 |
| 17 | Director, Group Risk Analysis and Policy | 27 November 2002 |
| 18 | Director, Group Risk Analysis and Policy | 06 December 2002 |
| 19 | Director, Group Risk Analysis and Policy | 19 June 2003 |
| 20 | Head of Economic Capital | 19 June 2003 |
| 21 | Assistant Director, Group Strategy and Planning | 19 June 2003 |