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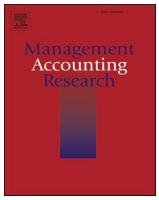

Accounting for the future: A case study of how Probability of Default mediates between calculative practices in risk management

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ABSTRACT

This paper investigates how accounting inscribes and mediates credit risk in the banking sector. Drawing on a qualitative case study of a systemically important financial institution in Scandinavia, we examine how a forward-looking risk metric, Probability of Default (PD), mediates across multiple calculative practices, including financial reporting under IFRS 9, loan approval, credit assessment, performance evaluation, and risk-based pricing. Building on the accounting and risk management literature, the paper explores how regulatory demands for risk quantification are enacted in ways that simultaneously support regulatory compliance and organizational risk management. We contribute by demonstrating how PD operates as a mediating instrument that coordinates financial reporting and management control by enabling comparison, inducing selectivity, and structuring evaluative discussions across organizational domains. Rather than opposing risk measurement and risk envisionment as distinct calculative cultures, we show that mediation unfolds along a continuum of calculative practices, as PD provides an actionable representation of credit risk.

1. Introduction

In the aftermath of the global financial crisis in 2007–2008, accounting and risk regulation have increasingly converged to improve transparency, accountability, and foresight in financial decision-making (Van der Stede, 2011). This convergence is particularly evident in the banking sector, where accounting standards and prudential regulation jointly aim to quantify and manage future uncertainties (Hashim et al., 2019, 2022; Novotny-Farkas, 2016). Central to the development is the rise of forward-looking risk metrics, most notably Probability of Default (PD), which now permeate both financial reporting and management practices. However, such quantification has been criticized for causing "the risk management of nothing" by creating a false sense of certainty in organizations and society (Power, 2007, 2009).

Consequently, accounting scholars have argued for a closer examination of how regulatory requirements shape both financial and management accounting (Himick et al., 2022; Taipaleenmäki and Ikäheimo, 2013). Van der Stede (2011, p. 605), for instance, contended that intensified regulatory scrutiny in the banking sector turns management accounting practices "inside-out" by linking internal control practices to external demands for reliable disclosure. Still, despite explicit calls to examine how risk management is integrated with financial reporting and management control systems (Crovini et al., 2022; Elshandidy et al., 2018), a gap remains in understanding the implications of risk quantification across financial and management accounting domains.

In this study, we examine how a forward-looking risk metric, PD, can connect actors and bring diverse calculative practices – regulatory, external, and internal – into alignment. These calculative practices are not reducible to numerical computations, as they also involve judgment, intuition, and discretion and they should be studied in the social context in which they occur (Hopwood, 1987; Miller, 2004). Consequently, we consider how PD may function as a mediating instrument across calculative practices (Miller and O'Leary, 2007; Morrison and Morgan, 1999; Wise, 1988), "meaning that it links up different actors with a common narrative and may constitute a network of relations within and beyond the boundaries of the enterprise" (Miller and Power, 2013, p. 581).

A growing stream of research has focused on the mediating properties of accounting, demonstrating how mediating instruments connect

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ideals from different domains (Christner and Strömsten, 2015; Miller and O'Leary, 2007), construct coherent chains of arguments (Carlsson-Wall and Kraus, 2015), and adjudicate actors' diverse interests (Jordan et al., 2013). Focusing on the ability of accounting to inscribe reality by representing it in numerical terms (Robson, 1992), studies have provided detailed descriptions of how various accounting inscriptions mediate between organizations at the field level (Wouters and Sandholzer, 2018), internal and external actors (Christner and Strömsten, 2015), and ideals, such as creativity and control in product development (Jeacle and Carter, 2012). While this research stream has increasingly acknowledged the interplay between accounting and human actors (Habran et al., 2021; Zahir-ul-Hassan, 2016), Wouters and Sandholzer (2018, p. 62) called for more studies on how mediation occurs across external and internal calculative practices to facilitate human action.

Building on these prior studies of accounting as mediating instruments, we examine how PD operates as a specific accounting inscription that links external and internal decision-making arenas. Rather than separating reporting and control practices, we mobilize the idea of mediating instruments to address the following research question: *How does PD, as a forward-looking risk metric, shape organizational risk management by inscribing and mediating credit risk across calculative practices in financial and management accounting?*

We conducted a qualitative case study of a large Scandinavian bank that, due to its designation as a systemically important financial institution, undergoes close supervision by the national Financial Supervisory Authority. While multiple calculative practices interact to ensure compliance and alignment between strategic objectives and operational decision-making, the bank operates through a decentralized organizational structure, where authority and accountability are delegated to branch managers. These intricacies between risk quantification and decision-making make the case setting a rich context for studying how PD mediates between diverse calculative practices.

We find that PD becomes a mediating instrument that represents credit risk by translating uncertainty into calculable form, accounting for the future, and thereby enabling cognition and organizational coordination. Its mediating abilities are sustained by the need for interpretation, contextualization, and negotiation across different practices, rather than precision. Although PD is based on a specific calculation, it does not hold a fixed meaning but is continuously enacted through the calculative practices it enters. Moreover, we contend that these practices are never uniformly related or unrelated across all actors (Mouritsen et al., 2022). Instead, PD mediates between profit considerations and credit risk assessments along a continuum that constitutes the performable space (Jordan et al., 2013; Quattrone, 2009). In this space, financial objectives and risk management are reciprocally constitutive, since one cannot be articulated without the other. Therefore, PD induces selectivity by allowing decision-makers to pursue different performance strategies depending on how they position financial performance vis-à-vis credit risk.

Based on these findings, the paper contributes to the accounting literature on risk management (e.g., Giovannoni et al., 2016; Hall et al., 2015; Mikes, 2009) by demonstrating how regulatory demands for risk quantification are integrated within financial reporting and management control systems. In contrast to prior research indicating that accounting inscriptions that quantify risks are often destabilized by internal resistance (Wahlström, 2009), this study shows that PD becomes an actionable representation of credit risk when it connects regulatory demands with commercial objectives (Kalthoff, 2005, 2011). Notably, PD mediates between calculative practices by rendering loan repayment uncertainties intelligible as credit risk in a form that supports both strategic alignment and discretion. Thereby, PD constructs a performable space, ranging from risk measurement to risk envisionment (Mikes, 2011), where financial and risk considerations must be weighted in each decision, whether for financial reporting users' investments or internal actors' decisions to grant loans.

Furthermore, the paper contributes to the literature on accounting as mediating instruments (e.g., Jordan et al., 2013; Miller and O'Leary, 2007) by showing how PD inscribes risk and mediates between calculative practices associated with risk management among external and internal decision-makers. For external decision-makers, PD enables comparison between financial entities while inducing selectivity and judgment. For internal decision-makers, PD structures loan-granting decisions while requiring contextualization based on professional intuition and negotiation in evaluative discussions. Building on the original idea that mediating instruments facilitate learning about an object (Morisson and Morgan, 1999), this study adds to our understanding of accounting mediation by showing how it is enacted in calculative practices.

The remainder of the paper is structured as follows. Section 2 introduces the IFRS 9 framework and its emphasis on forward-looking credit risk quantification, particularly the role of PD, and reviews relevant accounting literature on risk management. Section 3 presents the theoretical framework, which is informed by a review of the literature on accounting and mediation. Detailing the case study methodology, Section 4 describes the research setting and data collection and analysis procedures. Section 5 presents the findings, showing how PD inscribes credit risk and mediates between calculative practices. Finally, Section 6 discusses these findings and concludes the paper, proposing avenues for future research.

2. Literature review

2.1. Recognizing and reporting credit risk in the banking sector

Since the 2007–2008 financial crisis, a range of regulatory initiatives has been introduced to ensure that banks manage risk prudently, maintain sufficient capital and liquidity, and recognize potential losses in a timely manner. With the first two instalments of the Basel Accords, banks became obligated to support financial stability through capital requirements determined based on quantified measures of credit, market, and operational risks (Basel Committee on Banking Supervision, 1988, 2004). Although these capital holdings were supposed to anticipate expected future loan losses, the incentives embedded in accounting and disclosure practices proved insufficient, resulting in sparse risk disclosures and delayed loan loss recognition leading up to the financial crisis (Bischof et al., 2021). Following the Basel Pillar 3 amendment in 2018, banks became responsible for issuing risk reports to strengthen market discipline (Basel Committee on Banking Supervision, 2018). However, Mies (2024) documented continued heterogeneity in banks' risk reporting after its implementation.

To ensure timely loan loss recognition, the International Accounting Standards Board issued IFRS 9 in 2018. This reporting standard represents a key development in the regulation of credit risk (IFRS Foundation, 2018, IFRS 9), establishing the principles for the classification and measurement of financial assets and liabilities, including loans, bonds, and derivatives, and applying to all entities reporting under IFRS (European Commission, 2023). Under the previous accounting standard on financial instruments, IAS 39, impairments were only recognized when there was objective evidence of a loss, typically, a "loss event." The IAS 39 incurred loss model delayed loss recognition, which was widely seen as contributing to the global financial crisis (Bischof et al., 2022; Gebhardt and Novotny-Farkas, 2011). In response, IFRS 9 introduced a forward-looking Expected Credit Loss (ECL) model that requires losses to be recognized more gradually over time (Hashim et al., 2022).

Credit losses represent the differences between contractual cash flows and expected cash flows. Under IFRS 9, ECL can be defined as "[t]he weighted average of credit losses with the respective risks of default occurring as the weights" (IFRS Foundation, 2018, IFRS 9, Appendix A). In estimating ECL, entities must incorporate historical data, current economic conditions, and any reasonable and supportable forecast of future development, including macroeconomic factors. While IFRS 9

does not mandate a specific computational method, the standard requires that ECL reflects a probability-weighted amount derived from a range of potential outcomes, incorporates the time value of money, and includes forward-looking information regarding future economic conditions (IFRS Foundation, 2018, IFRS 9, para. 5.5.17). Studies have generally found that the forward-looking nature of the model enhances the timeliness of loss recognition as compared with earlier standards (Novotny-Farkas, 2016), suggesting that IFRS 9 has contributed to curbing excessive risk-taking in the banking sector (Bischof et al., 2022).

The staging model inherent to IFRS 9 has also received academic attention. In the staging model, ECL is calculated differently across three impairment stages, depending on changes in the credit quality of exposures. Upon initial recognition, exposures are placed in Stage 1, where impairments are based on a 12-month ECL estimate (IFRS Foundation, 2018, IFRS 9, para. 5.5.5). This 12-month estimate is typically calculated by multiplying the 12-month PD by the Loss Given Default, representing the weighted average loss expected in the event of a default (European Banking Authority, 2019).

Customers who exhibit a "significant increase in credit risk" are transferred to Stage 2 (IFRS Foundation, 2018, IFRS 9, para. 5.5.9). IFRS 9 prescribes a single objective indicator (i.e., contractual payments being more than 30 days past due), while also providing a non-exhaustive list of additional indicators relevant for assessing increases in credit risk (IFRS Foundation, 2018, IFRS 9, Appendix B, para. 5.5.15–5.5.24). Since determining whether a customer should be moved to Stage 2 requires discretionary judgment, studies have found heterogeneity in banks' categorization of customers (Bank and Eder, 2021; Bischof et al., 2022). Further, Novotny-Farkas (2016) identified loan loss provisions being overstated for Stage 1 customers and understated for Stage 2 customers.

If a customer is deemed to be in default, the exposure is automatically transferred to Stage 3. For exposures classified in Stages 2 and 3, impairments must be made based on Lifetime ECL, which incorporates PD over the remaining life of the asset. In these stages, ECL calculations are typically conducted manually at the individual customer level. To estimate Lifetime ECL, many banks rely on discounted cash flow analysis that integrates historical data, current conditions, and forward-looking information (IFRS Foundation, 2018, IFRS 9). Still, IFRS 9 has been criticized for reducing transparency due to the substantial degree of managerial discretion involved in estimating ECL (Oberson, 2021). Notably, Du et al. (2022) documented asymmetric responses to macroeconomic forecasts when calculating ECL for exposures in Stages 2 and 3, as banks rely more heavily on adverse historical data, while they fail to fully incorporate favorable forward-looking information.

Studies have also examined the intersection between the Basel Accords' demand for risk quantification and disclosure and the IFRS 9's demand for forward-looking loan loss provisioning based on ECL. While PD is central to calculating credit risk in both regulatory frameworks, the Internal Ratings-Based approach to calculating capital requirements requires Through-the-Cycle (long-term) PDs, whereas ECL calculations are based on Point-in-Time (within the year) PDs (Eder, 2021). Bischof et al. (2022) found that banks subject to IFRS 9 tend to assign customers to more favorable rating groups than banks operating under other accounting regimes, a practice that may have implications for risk-based credit requirement calculations. Moreover, the use of Point-in-Time PDs under IFRS 9 has been shown to introduce procyclical dynamics, whereby capital requirements decrease under favorable economic conditions. Therefore, prior studies have highlighted the role of countercyclical capital buffers in moderating the interaction between loan loss provisioning and prudential regulation (Krüger et al., 2018; Kund and Rugilo, 2021).

Synthesizing the literature on IFRS 9, Awuye and Taylor (2024) concluded that although ECL enhances transparency, its reliance on predictive modeling and judgment potentially introduces volatility. The authors argued that the role of internal systems remains underexplored in understanding how IFRS 9 influences forward-looking risk management practices (Awuye and Taylor, 2024, p. 15). Consequently, there is a need to better understand the role played by accounting, across financial reporting and management control domains, in ensuring risk management in the banking sector.

2.2. Risk management and accounting

As risk quantification becomes a regulatory imperative (e.g., through the implementation of forward-looking impairment models under IFRS 9), consequences reach beyond external financial reporting. Therefore, management control systems are increasingly expected to facilitate strategic alignment while accommodating multiple organizational objectives (Van der Stede, 2011). The ECL framework not only introduces complex modeling practices but also reshapes internal decision-making by focusing on discretionary estimates of future losses (Du et al., 2022; Pucci and Skærbæk, 2020). When financial representations of risk get embedded into reporting and control systems, the calculative assumptions underpinning risk modeling invite critical scrutiny.

A specific stream of accounting research, concerned with "integrated accounting," has highlighted the importance of displaying the same set of numbers to financial reporting users and internal decision-makers for management accounting to regain its "lost relevance" (cf. Kaplan and Johnson, 1987). Conceptual studies have argued that such integration enhances the decision-making function of management accounting (Hemmer and Labro, 2008; Weißenberger and Angelkort, 2011), calling for even tighter integration in the wake of regulatory intensification (Wagenhofer, 2016). However, only a limited number of studies have examined how intensified regulatory demands for risk management reconfigure the interplay between financial and management accounting (Crovini et al., 2022; Elshandidy et al., 2018; Wahlström, 2009).

Meanwhile, the integration of risk into management control systems has received considerable attention in the accounting literature (Braumann et al., 2024; Kunz and Heitz, 2021; Soin and Collier, 2013). Case studies have shown how regulatory ideals of holistic strategic management can enhance performance management systems (Giovannoni et al., 2016), as risk-based metrics direct attention and engage actors in the pursuit of purposeful risk management practices (Carlsson-Wall et al., 2021). Jabbour et al. (2025) elaborated on the usefulness of risk-based metrics for informing decisions and inducing trust, while Huber et al. (2025) demonstrated that even a control anchor practice, such as the Balanced Scorecard, can be gradually adjusted to encompass forward-looking risk objectives, thereby integrating risk considerations into decision-making. Further, in their review of the Enterprise Risk Management literature, Braumann et al. (2024) argued for a stronger focus on how risk management practices are embedded within broader organizational control systems. Rather than treating risk management as a standalone system or as a purely technical layer added to existing controls, they emphasized the importance of examining how risk-related calculations interact with hierarchies, roles, and decision-making practices.

Nevertheless, recalling Power's (2007, 2009) critique of risk quantification, several accounting scholars have questioned the prevailing demand for calculative transparency and manageability, particularly in the governance of operational risks characterized by uncertainty and unquantifiability. Huber and Scheytt (2013) asserted that the regulatory imperative to quantify risk creates a permanent state of exception, remarking that some risks are highly uncertain objects that may never materialize. Other studies have cautioned against relying on accounting to solve risk management issues through computation alone, noting how such quantification imposes narrow economic rationalities onto organizational decision-making (Mikes, 2009; Tekathen, 2019; Tekathen and Dechow, 2013). Further, Vinnari and Skærbæk (2014) uncovered how risk management may introduce new uncertainties that cannot be captured by formal frameworks.

Based on Mikes' (2011) distinction between risk measurement and risk envisionment, case studies have illustrated how statistical models

not only invigorate organizational attention but also restructure professional roles and responsibilities, substituting for discretionary decision-making by transforming uncertainties into calculable risks (Hall et al., 2015; Mikes, 2009, 2011). While these studies have provided relevant insights into the benefits and challenges of integrating risk into management control systems, they tend to frame the relationship between numbers and discretion as a dichotomy, contrasting idealist and skeptical calculative cultures (Mikes, 2009, 2011).

Such binary conceptualization obscures the possibility that risk quantification and envisionment operate along a continuum or co-exist within the same calculative practice, which may be insufficient for capturing the complexity and dynamics of calculative cultures in risk management (Tekathen and Dechow, 2013). As Kalthoff (2005) argued, numerical representations of risk reduce complexity, but they also generate ambivalent information that blends financial and risk-based principles rather than offering definitive facts. Accordingly, studies have highlighted the "undoing" of calculation, both by frontline personnel who use professional judgment in contextualized risk assessments (Kalthoff, 2011) and by risk experts who dynamically inscribe and challenge reality through accounting (Themsen and Skærbæk, 2018).

Emerging case studies have started challenging the dualisms that have long dominated the accounting literature on risk management, such as compliance-oriented versus strategic roles, quantification versus qualification, measurement versus envisionment, and idealism versus skepticism (Jemaa, 2022; Mouritsen et al., 2022). In the heavily regulated banking context, Baud and Lallemand-Stempak (2024) showed that statistical tools are not confined to quantitative idealism but induce reflexivity among organizational actors when statistical approaches are selectively coupled or layered with professional judgment. The authors demonstrated that while risk pricing tends to hinge on ratings, risk selection may rely on judgment, and such selective coupling enables pragmatic decision-making in everyday work. More broadly, the layering of statistical and discretionary elements into risk responsibility structures positions reflexivity as a crucial complement to risk quantification (Baud and Lallemand-Stempak, 2024).

We draw on these prior findings to investigate how regulatory demands influence not only internal control but also the integration of financial and management accounting, noting the importance of such integration for aligning and improving decision-making and risk management (Van der Stede, 2011). In doing so, we consider how accounting may inscribe and mediate risk conceptualizations among actors dispersed across financial reporting and management control domains.

3. Theoretical framework

3.1. Accounting as mediating instruments

To analyze how accounting inscriptions shape calculative practices related to risk management, reporting, and control, we draw on the idea of accounting as mediating instruments. Hacking (1983) described how technologies can simultaneously represent and intervene in reality, and Wise (1988) detailed how instruments mediate, through dual representation and intervention, both conceptually and methodologically. These authors accentuated the need to study how instruments influence actions in mediated form, using insights about mediating instruments to better understand the domains they connect.

Later, coining the concept of mediating instruments, Morrison and Morgan (1999) showed how models come to operate across theory and reality, highlighting their autonomous and instrumental nature. Echoing Hacking (1983), the authors clarified how the functioning of mediating instruments is based on partial dependence, that is, the simultaneous independence from and connection to the object operated upon, co-orienting action without forcing it (Morrison and Morgan, 1999). Focusing on accounting as mediating instruments, Miller and O'Leary (2007) described how accounting-inscriptions travel across domains and actors, mediating their actions. Inherent to the mediating abilities of accounting is its inscription of reality in numerical terms. Through mobile, stable, and combinable inscriptions of reality, accounting enables action at a distance, and quantification is only useful when it becomes operable and actionable (Miller and Rose, 1990; Robson, 1992).

Consequently, in organizational contexts where action is increasingly dispersed in time and space, mediating instruments operate by framing a manageable future and co-orienting actors around the accounting inscription (Miller and O'Leary, 2007; Miller and Power, 2013). Focusing on how accounting inscriptions become mediating instruments, studies have highlighted how accounting can connect domains (Christner and Strömsten, 2015; Wouters and Sandholzer, 2018), visualize performance (Jordan et al., 2013; Pollock and D'Adderio, 2012; Themsen and Skærbæk, 2018), and shape creative trajectories (Jeacle and Carter, 2012; Maier, 2017), thereby sustaining mediation.

Not only have these studies shown the multitude of inscriptions involved in rendering reality visible and combining domains, but they have also demonstrated that the interconnectedness between accounting and human actors is fundamental to mediation. A mediating instrument not merely functions instrumentally to produce an effect, but it can also facilitate learning about the object it represents when actors actively engage instead of passively receiving the instrument's intervention (Morrison and Morgan, 1999). Although the mediating instrument is distinct from the actor itself, with instruments inscribing reality and actors acting on that reality, instruments can intervene and alter human actions. Further, when humans act on these representations, the instruments themselves are often altered and reconfigured (Morrison and Morgan, 1999).

This dynamic interaction between mediating instruments and human action was conceptualized as "a web of mediators" by Habran et al. (2021), who extended prior work highlighting the role of actors operating across organizational boundaries (i.e., boundary spanners) to sustain mediation (Wouters and Sandholzer, 2018). While acknowledging the mediating properties of accounting, the authors argued that inscriptions must themselves be mediated by human actors, whose actions shape decisions, trajectories, and developments. Relatedly, other case studies have emphasized the role of non-accountants, such as creatives in high street fashion (Jeacle and Carter, 2012), movie producers (Maier, 2017), and health service inspectors (Reilley and Klein, 2026), in mediating activities. These insights were succinctly captured by Qu and Cooper (2011), who referred to the designer of accounting inscriptions as an "inscriptor." They contended that, to effectively mediate, inscriptions must become dissociated from the inscriptor and associated with local decision-makers' aspirations.

In this study, we acknowledge that mediating instruments do not facilitate learning simply by existing but by being put to work in calculative practices (Morrison and Morgan, 1999). Therefore, we consider the actionability of mediating instruments in these practices essential to mediation. Still, we focus on PD as a metric that faithfully inscribes and mediates reality rather than on how human actors become mediators themselves (Habran et al., 2021).

3.2. Mediation and socio-cognitive processes in risk management

Prior studies have examined processes characterized by uncertainty, such as product development (Carlsson-Wall and Kraus, 2015; Christner and Strömsten, 2015) and project management (Themsen and Skærbæk, 2018), to elucidate the importance of accounting inscriptions in mediating between dispersed actors. In the risk management domain, Jordan et al. (2013) showed how risk maps co-orient actors facing project uncertainties around a common goal by shaping discussions, configuring expectations, and creating a dynamic performable space. In this way, mediating instruments enable actors to work collectively towards an uncertain future and move projects forward.

Other risk management studies have highlighted the interplay between human actors and technologies, showing that frameworks can be

useful as an assemblage despite their limitations in capturing uncertainties that are difficult to quantify (Themsen and Skærbæk, 2018). Accordingly, the mediation of risk depends on human actors acting on accounting inscriptions in their calculative practices to qualify reality and align technological and human depictions of value (Miller, 2004). Socio-cognitive processes, such as judgment, intuition, and discretion, influence these calculative practices and can be understood as distinct but interrelated modes through which accounting is interpreted, complemented, or overridden (Mikes, 2011).

Judgment is essential for accounting to mediate, as action is not limited to numerical representations (Maier, 2017) but can be converted into an assessment of performance through human judgment (Bottausci et al., 2024). Sometimes, regulations require managers to exercise judgment in risk management and reporting (Bischof et al., 2021), thereby shifting moral responsibility from organizational arrangements to individual actors. When lines of responsibility are based on judgment as an individual action, and not as an organizational moral practice (Kraus et al., 2024; Kunz and Heitz, 2021), they may limit actors' willingness to make judgments about risks, as they seek to avoid personal blame (Jordan et al., 2013).

While judgment concerns the evaluative interpretation of accounting information, intuition has been presented as a key human action in risk identification (Mikes, 2011). Accounting may mediate through intuitive actions (Ronzani and Gatzweiler, 2022), but there is also the potential for intuition to overrule accounting inscriptions in case managers rely on their experience and "gut feeling" when managing risks (Gurd and Helliar, 2017). Discretion, in turn, concerns the organizational space within which judgments and intuitions may legitimately influence reporting and decision-making. Discretion can be used to adjust decisions in case risk (Reilley and Klein, 2026) or performance (Bottausci et al., 2024) is not captured by accounting. To move beyond individual discretion, accounting inscriptions can induce judgments that mediate organizational morality (Kraus et al., 2024), but regulatory allowance for discretion may lead to dysfunctional reporting behavior, such as income smoothing (Gebhardt and Novotny-Farkas, 2011).

Taken together, the theorization of accounting as mediating instruments has informed research in diverse ways, ranging from analyses of accounting as material inscriptions to examinations of accounting as a problematized and contested practice embedded in a socio-material web of actors. Applied to risk management, this theoretical perspective highlights how accounting inscriptions, such as statistical models, matrices, and performance metrics, do more than capture existing risks. They actively constitute the categories, thresholds, and relationships through which risk is rendered knowable and actionable.

Yet, the inscription of reality does not in itself ensure mediation. Mediation depends on how decision-makers act and perform accounting inscriptions across organizational domains, using their judgment, intuition, and discretion. Focusing on PD as the central regulatory accounting inscription in this study, we examine how mediation unfolds across financial reporting, management control, and local decision-making. With regulatory frameworks demanding both risk quantification and leaving room for interpretation, we study how calculative practices are shaped through the interaction between statistical calculation and socio-cognitive processes.

4. Research setting and method

4.1. The case company

We conducted an interpretive in-depth case study (Yin, 2018) of a Scandinavian bank, BankCorp (name disguised), to explore risk management within an organizational setting characterized by intricate calculative practices. BankCorp offers a range of financial services, including loans, pensions, and insurance, to retail customers and small and medium-sized enterprises. Strategically, the bank emphasizes personal customer relationships. This strategic orientation is reflected in its decentralized, branch-based structure, where branch managers are responsible for local marketing campaigns and recruiting financial advisors. Internally, funds are negotiated with Executives and allocated to the branches based on broad categories rather than specific line items. Fig. 1 visualizes the organizational diagram and lines of responsibility.

Being a publicly listed, systemically important financial institution, BankCorp is subject to extensive regulation from both national authorities and international frameworks, such as the Basel Accords and IFRS, with the Financial Supervisory Authority enforcing compliance. The lending policy is centralized, and the limits for financial advisors' loan-granting permissions are relatively low. The Board of Directors and the Credit Committee (consisting of two members of the Executive Board and two members from the Credit Department) comprise the top two levels of the loan-granting hierarchy, and they have substantial decision-making authority regarding credit risk. Meanwhile, branch personnel (i.e., branch managers and financial advisors) are the initial risk-takers, responsible for most loans granted to low-risk customers. Therefore, their discretion is crucial in managing credit risk. Table 1 specifies the credit risk responsibilities at each level of the loan-granting hierarchy based on the exposure size.

4.2. Data collection

To explore the material and social dynamics of risk management and develop detailed situated accounts of practice (Parker and Northcott, 2016), we drew on multiple data sources. Our primary method was semi-structured interviews with personnel from various departments and hierarchical levels. Interviewees were selected based on their involvement in risk-related activities, allowing us to access diverse perspectives on how regulatory frameworks were interpreted and enacted in everyday organizational settings (Saunders and Townsend, 2018). By including respondents from both the headquarters and branches, such as Board members, Executives, risk specialists, and frontline staff, we aimed to capture a rich and multifaceted account of risk management materialization, negotiation, and practice across the organization. In total, we conducted 59 interviews, each lasting an average of 80 min., across the period from 2020 to 2025. Table 2 contains an overview of the interviewees.

The interview questions were developed based on insights from the initial literature review and organized as a semi-structured interview guide (Brinkmann and Kvale, 2014), focusing on the overarching theoretical themes of risk management and its integration with financial and management accounting. The interview process was interpretive, guided by an abductive logic that allowed us to refine the interview guide iteratively in consideration of emerging data and theoretical developments. Since interviewees consistently described credit risk as fundamental to the banking business model and noted how regulatory scrutiny necessitated the development of various accounting artifacts, we started emphasizing credit risk management more explicitly as the interviews progressed.

The interviewer started by asking introductory questions about the interviewees to create a comfortable environment and gather background information while ensuring each interviewee anonymity. The interview guide included some general questions pertaining to the regulatory requirements, financial reporting, and management control associated with different risk types. Due to the variation in each interviewee's role, experiences, and responsibilities, the interviewer tailored the focus in each interview and asked follow-up questions designed to probe, elaborate, or challenge the interviewee's perception of reality, as explicated by Kreiner and Mouritsen (2005). Most interviews were conducted face-to-face at the interviewee's workplace, while a few were held by phone or video call.

To investigate how accounting inscriptions entered and circulated within calculative practices, we analyzed a range of documents with attention to their material characteristics. These included annual reports, quarterly reports, and risk reports, as well as other publicly

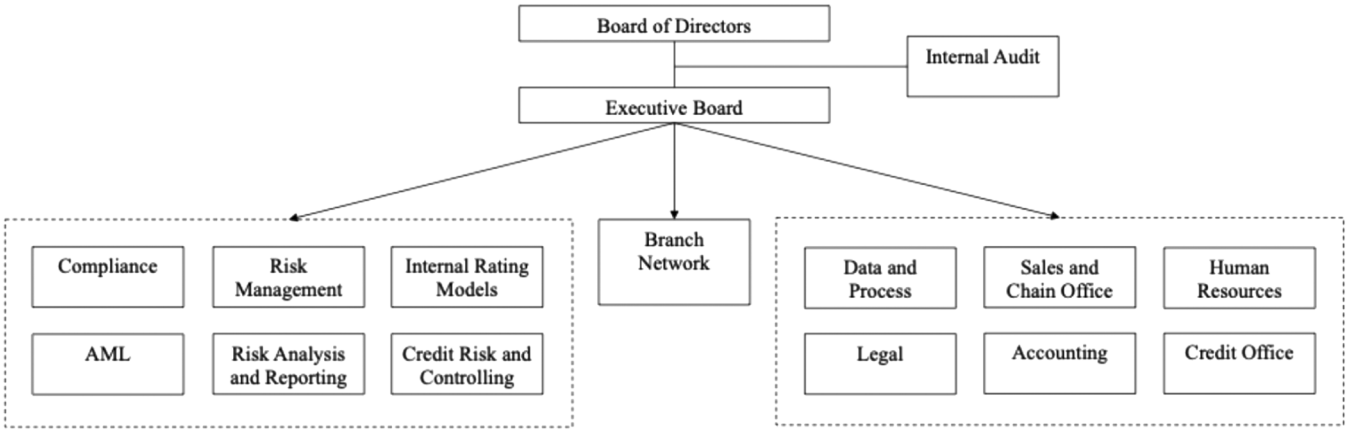

Fig. 1. Organizational diagram with lines of responsibility. Note: The diagram shows only the departments mentioned in the paper. All departments refer to the Executive Board.

Table 1
Overview of the loan-granting hierarchy and delegated approval limits for new and existing customers (approximated limits due to confidentiality constraints).

Decision-Maker	Authorities (New Customers)	Authorities (Existing Customers)
Board of Directors	> €7 million	> €15 million
Credit Committee (Consisting of Two Members of the Executive Board and Two Members from the Credit Department)	< €7 million	< €15 million
Credit Department	< €4 million	< €67 million
Branch Manager	Typically, < €1.5 Million, but Varies	
Financial Advisor	Varies Between Advisors	

accessible documents. The interviewees also shared internal documents, such as branch performance reports, with us. The documents were examined not only for their informational content but also for how they represented and formatted credit risk. While the documents were initially read through what Garfinkel (1967) referred to as "actuarial readings" and treated as formal and objective representations, we also discussed the content of the documents with the interviewees. This allowed us to understand how actors within the organization interpreted and engaged with accounting inscriptions, focusing on how mediation was perceived in context.

4.3. Data analysis

All data were preserved in written form by recording and transcribing the interviews verbatim so the data could be analyzed through coding (Saldaña, 2016). To structure the coding, we drew on the vocabulary and conceptual distinctions embedded in regulatory frameworks, particularly the Basel Accord and IFRS 9. Broadly, we distinguished between the Basel classification of credit, market, and operational risks, which provided a high-level mapping of the risk landscape. When credit risk emerged as particularly inscribed and salient in the bank's calculative practices, we mobilized terms from IFRS 9 to identify how specific risk metrics, such as ECL and PD, were operationalized.

While these initial codes were predefined by theory, we developed other codes throughout the data collection period (2020–2025) (Berg, 2017). Our analysis of credit risk management revealed how the central risk metric, PD, entered loan impairments, the lending policy, risk-based performance management, and risk-based pricing, each of which reflects a calculative practice that embeds credit risk into financial reporting and management control. Upon the domain-based coding, we moved toward generating new insights into the mediating abilities of PD across these calculative practices, focusing on the interplay between accounting inscriptions and human actors.

Informed by the theorization of accounting inscriptions as mediating instruments (Miller and O'Leary, 2007), we treated our codes as indicators of how PD travels, transforms, and acquires meaning in calculative practices. We first examined the mediating properties of PD, focusing on its actionability and role in constructing a performable space. We then coded actors' qualifications, namely their judgment (e.g., in management overlays), intuition (e.g., in credit assessments), and discretion (e.g., in loan-granting decisions) as key co-constructors of mediation. By connecting the mediating properties of PD to these qualifications, we identified how actors interpreted, contextualized, and negotiated PD in their calculative practices, thereby sustaining mediation across organizational boundaries, shaping decision-making and risk management.

Seeking to understand risk management as a materially and socially constructed phenomenon rather than as an objectively observable property of calculations, we did not pursue generalizability in the positivist sense. Instead, we aimed to produce what Parker and Northcott (2016) termed a "rich description" of situated practices and organizational interpretations. In line with Messner et al.'s (2017) call for an authentic representation, we embedded extensive verbatim excerpts from interview transcripts to retain the texture of practitioners' lived experiences and facilitate an empirically grounded theorization.

Further, following Ahrens (2022), we considered plausibility, not predictability, as the central criterion for validating the theoretical contributions. All interviewees were invited to provide feedback on the accuracy of our translations and interpretations of the interviews. In addition, we presented the preliminary findings of the paper to interested personnel at the bank for dialogical validation. These interactive engagements contributed to the reflexive refinement of both our empirical descriptions and theoretical abstractions, thereby enhancing the internal coherence and credibility of the qualitative case study design (Brinkmann and Kvale, 2014).

5. Findings

The following sections explore how PD inscribes credit risk and how this accounting inscription mediates between different calculative practices, thereby shaping organizational risk management. In Section 5.1, we examine how PD facilitates mediation between the calculative practices underpinning IFRS 9-compliant reporting of loan impairments. Building on these externally oriented calculations, we delve into the calculative practices constituting the management control system in Section 5.2, focusing on internal decision-makers.

Table 2
Overview of interviewees.

Number	Bank Position	Interview Date	Duration (Approx. Min.)
1	Head of Accounting	10/07/2020	60
2	Business Controller	10/07/2020	85
3	Business Controller	10/13/2020	90
4	Chief Risk Officer	10/14/2020	85
5	Head Of Credit Risk and Controlling	10/30/2020	80
6	Branch Manager A	11/04/2020	80
7	Internal Auditor	11/11/2020	75
8	Chief Internal Auditing Officer	11/11/2020	75
9	Financial Employee at The Sales and Chain Office	11/12/2020	80
10	Chief Financial Officer	11/13/2020	80
11	Branch Manager B	11/18/2020	85
12	Branch Employee B	11/18/2020	30
13	Middle Branch Manager B	11/18/2020	30
14	Branch Manager C	11/19/2020	90
15	Middle Branch Manager C	11/19/2020	60
16	Middle Branch Manager C	11/19/2020	35
17	Branch Manager D	11/23/2020	85
18	Branch Employee D	11/23/2020	55
19	Non-Executive Board Member	11/26/2020	85
20	Non-Executive Board Member	11/26/2020	70
21	Non-Executive Board Member	11/26/2020	70
22	Chief Credit Evaluation Officer	10/04/2021	50
23	Head of Compliance	10/06/2021	80
24	Lawyer	10/07/2021	90
25	Chief Legal Officer	10/20/2021	85
26	Data Governance Employee	10/20/2021	80
27	Head of the Credit Office	10/20/2021	80
28	Compliance Employee	10/21/2021	80
29	Credit Consultant	10/21/2021	80
30	Credit Consultant	10/21/2021	80
31	Credit Consultant	10/25/2021	80
32	Head of Internal Ratings-Based Modeling	10/25/2021	80
33	Risk Controller	10/28/2021	90
34	Head of Risk Analysis and Reporting	11/02/2021	85
35	Non-Executive Board Member	11/02/2021	80
36	AML Lawyer	11/09/2021	80
37	Risk Controller	11/09/2021	75
38	Head of AML	11/29/2021	80
39	Chairman of the Board of Directors	11/30/2021	85
40	Ph.D. Student in AML	12/07/2021	75
41	Executive Director	12/10/2021	85
42	Executive Director	12/13/2021	85
43	Branch Manager E	04/22/2022	75
44	Branch Employee E	04/22/2022	35
45	Branch Manager F	05/30/2022	80
46	Branch Employee F	05/30/2022	20
47	Branch Manager G	06/09/2022	80
48	Branch Employee G	06/09/2022	30
49	Head of HR	06/14/2022	100
50	HR Partner	06/20/2022	80
51	Branch Manager H	06/21/2022	90
52	Branch Employee H	06/21/2022	30
53	Head of Data and Process (Previous Chief Legal Officer, Interviewee 25)	06/12/2024	65
54	Chief Internal Auditing Officer (New Appointment)	07/03/2024	110
55	Head of AML (New Appointment)	07/04/2024	80
56	Head of Internal Ratings-Based Modeling	07/08/2024	80
57	Executive Director (Previous Chief Risk Officer, Interviewee 4)	07/09/2024	85
58	Chief Credit Evaluation Officer	07/09/2024	90
59	AML Compliance Officer	03/04/2025	60

5.1. Loan impairments in the financial statement

At BankCorp, the Board of Directors is acutely aware of the intensifying regulatory demands for accounting to engage with the future. As the Chairman of the Board remarked, *"the forecasts are there, and [the Financial Supervisory Authority] demands those […] whether we have foreseen what is about to happen"* (Interviewee 39). Forecast models once confined to internal planning purposes are now also instrumental in satisfying financial reporting obligations. While financial accounting has traditionally focused on external disclosure of past performance, BankCorp has, in recent years, developed its calculative practices to inscribe and report future uncertainties. Fig. 2 summarizes the externally oriented calculative practices that incorporate PD and shows how PD functions as a mediating instrument across these practices.

5.1.1. The staging model for impairment

Although accounting may never fully capture uncertainties, the implementation of IFRS 9 has compelled BankCorp to transform future uncertainties into quantifiable risks through the forward-looking recognition of loan impairments. As a risk controller explained, *"we must impair the customers from the day they are established as debtors"* (Interviewee 33). This proactive approach is seen as a means of ensuring financial stability. An Executive Director similarly emphasized the need for impairment on all customers:

> That is normal business practice […] it is the way you build healthy companies; it is setting a bit aside all the time […] instead of emptying all the reserves. (Interviewee 42)

The bank recognizes the importance of reporting impairments to the public to mediate external decision-making and reassure not only the Financial Supervisory Authority but also other financial reporting users of adequate risk management. A risk controller explained, *"When you look at it, it is actually reassuring, what goes out to the public, and there are impairments to everything"* (Interviewee 37). Elaborating on the ability of financial reporting users to compare banks' financial statements, the Head of Risk Analysis and Reporting said, *"[ECL reporting] offers transparency, which generally is a good thing"* (Interviewee 34).

While all exposures are classified in Stage 1, as soon as they enter the bank, internal systems automatically record specific risk events that signal a significant deterioration in credit quality. While many exposures are escalated to Stage 2 based on numerical thresholds, such escalations may also occur through financial advisors' discretionary assessments by financial advisors, as they manually mark cases in the system based on observed customer circumstances. As described by a branch manager, *"if you get into a bad financial situation, if you get divorced or unemployed, we get some indicators implying that we should mark the case"* (Interviewee 51), whereby human discretion becomes essential for the staging model.

5.1.2. Stage 1 customers and internal rating models

PD models are used to calculate ECL for Stage 1 exposures. In line with IFRS 9 requirements, these models integrate historical data, current customer information, and forward-looking projections. As the Chief Credit Evaluation Officer emphasized, *"PD within one year, it must be based on many, many years of loss and experience history"* (Interviewee 22). The Head of Risk Analysis and Reporting spoke to the centrality of PD in BankCorp's internal rating models, saying, *"the probability that a customer gets into trouble, that a customer defaults on their obligations, that is our PD models"* (Interviewee 34). Since the PD models calculate the probability of risk events that may signal default occurring, they effectively inscribe credit risk in a forward-looking manner that governs both evaluation and intervention.

For new customers, PD is initially calculated based on data from an application questionnaire completed by the financial advisor. Once a loan is granted, the bank gradually obtains information about customer behavior (e.g., in relation to overdrafts and credit increases). As one branch manager observed, *"Obviously, once you become a customer, you have a behavior; you use your card a lot [compared to income] or have overdrafts"* (Interviewee 51). Over time, the behavioral data gradually replace the original rating, allowing the PD to be recalibrated in light of

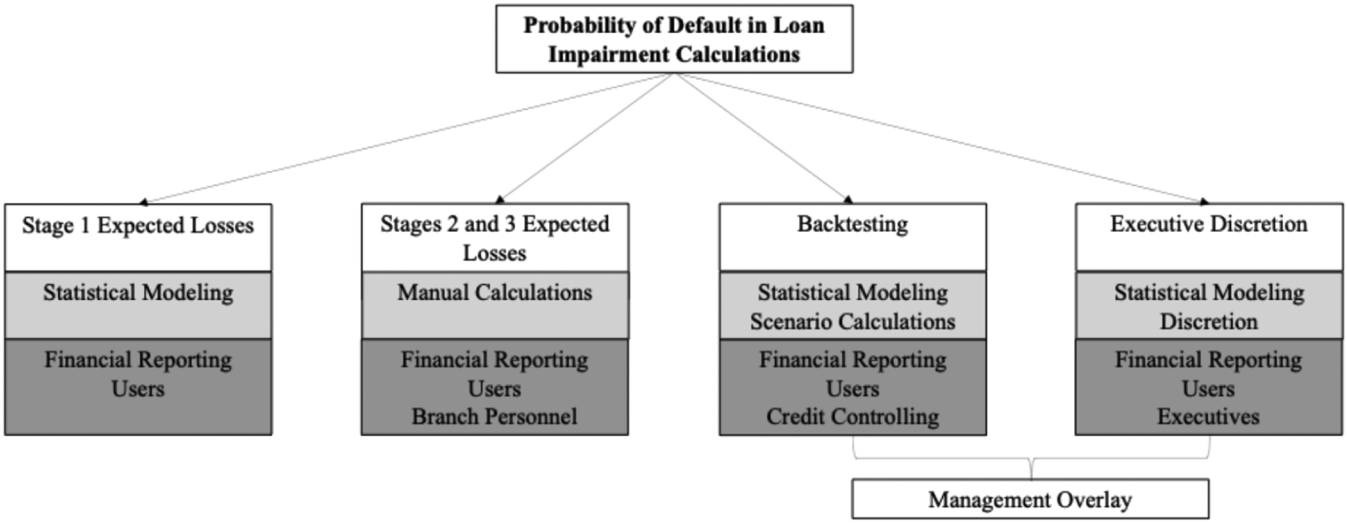

Fig. 2. The calculative practices associated with loan impairments (in white), as well as the involved accounting inscriptions (in light grey) and human actors (in dark grey), mediated by Probability of Default.

observed credit behavior. This shift enhances the timeliness of the calculative practice and illustrates how credit risk is inscribed as an evolving, situated construct, not as a static customer attribute.

5.1.3. Stages 2 and 3 customers and manual calculations

While PD models are used to calculate 12-month ECL for exposures in Stage 1, impairments for exposures in Stages 2 and 3, which are classified as significantly deteriorated or in default, are addressed through a different set of calculative practices. Here, standardized modeling gives way to individualized assessment. A risk controller explained the contrast between the approaches:

> We have some models that are used on the majority of the bank's customers […] no matter how good a customer you are, the model runs and, well, statistically calculates impairments based on the Probability of Default. Then we have the bank's weakest customers […] we make individual impairment calculations on them. So, the branches fill out all these things, and then we validate the information, payment ability, collaterals, the expected loss… (Interviewee 37)

Once the exposure is assessed as a significantly increased credit risk or an actual default, the shift to Stage 2 or 3 necessitates individual impairment calculations, which are manually performed by financial advisors. As a risk controller put it, *"there are things where we need to stop and use our common sense, where a model cannot just take over […] and that is also a risk"* (Interviewee 33). These calculations are not merely operational exceptions but reconfigurations of the calculative practices, as actors reinstate professional judgment to handle factors that exceed the scope of the rating model PD.

A risk controller described the manual work involved in impairment calculations, saying, *"We make more than 3.000 [manual ECL] calculations, and they are rather demanding calculations of discount rates […] cash flows, securities […] it is a really, really heavy task"* (Interviewee 37). The financial advisors estimate BankCorp's expected cash flows from loan repayments and interest under baseline, best-case, and worst-case scenarios. Then, Lifetime ECL is calculated by weighing the probabilities of these scenarios.

Calculative outputs are not accepted at face value but undergo validation by the bank's risk controllers, who balance between situated judgment and regulatory accountability. The pairing of calculative practices and exposure risk levels illustrates that the mediating abilities of accounting inscriptions do not rest on representational completeness but on the capacity to be contextualized in practice. When statistical models fall short, calculative agency is redistributed to human actors who interpret and contextualize the inscription of credit risk, maintaining its external legitimacy in governing future uncertainty.

5.1.4. Model risk and backtesting

Furthermore, the status of PD as a credible representation of credit risk is subject to ongoing statistical scrutiny at BankCorp. To reinforce the rating models' robustness, systematic backtesting[1] is performed to assess the volatility of outputs under fluctuating macroeconomic conditions and mitigate model risk. A credit consultant stated, *"We have been obligated to, like everybody else, have our IFRS 9 [impairments] under control, and we have used our present ratings for that […] It turns out that they are reasonable, you can always backtest them"* (Interviewee 30). Backtesting operates as a validation tool, a calculative practice seeking to ensure that PD demonstrates consistency across time and economic variation.

However, certain exogenous uncertainties, such as inflation, the consumer confidence index (an indication of future developments in households' spending and saving behaviors), and the COVID pandemic, may not be adequately captured by PD models or their backtesting. Potential omissions of uncertain events reflect the limits of statistical representation, thereby reaffirming the need for discretionary interventions elsewhere in the impairment process. As a consequence, IFRS 9 converges the demand for forward-looking risk quantification with the necessity of human discretion (IFRS Foundation, 2018, IFRS 9, para. 5.5.11).

5.1.5. Management overlay

At BankCorp, this regulatory convergence is operationalized through the use of a management overlay, which is an additional impairment layer designed to compensate for uncertainties not adequately captured by PD. Formally, this calculative practice involves stressing the input variables used when estimating the impairment based on the three scenarios (i.e., base-case, best-case, and worst-case scenarios) for the

[1] *Backtesting* refers to the process of evaluating the predictive performance of risk models by comparing historical predictions with actual outcomes. In the context of credit risk modeling, backtesting is used to assess whether PD estimates align with observed default rates over time. It is a key tool for validating model accuracy, identifying biases or instabilities, and ensuring compliance with regulatory expectations for model risk management (Basel Committee on Banking Supervision, 2004).

preceding Lifetime ECL. The overlay functions not merely as a technical add-on but as a corrective mechanism that acknowledges rating models' incompleteness. It shows how formalization and discretion coexist within calculative practices, enabling the continued use of PD despite epistemic limitations and sustaining its mediation.

Discretion is not limited to formal techniques such as backtesting or scenario stressing, and calculative practices extend beyond statistical precision, as human actors actively reconfigure accounting inscriptions in response to perceived risks that are deemed unquantifiable. As an Executive Director explained, the management overlay is not solely model-driven, but also reflects contextual awareness:

> You can see in our financial report that we have […] a subjective estimation which we have recognized as an expense, which is not model-based and not on the individual customer, but simply because our gut feeling tells us that there are some risks out there. (Interviewee 42)

In recognition of uncertainties that do not lend themselves to quantification and other risk factors that escape formal modeling, Executives apply a discretionary management overlay to the loan impairments. The Chief Credit Evaluation Officer, who assist the Executives in determining the overlay, elaborated on the process, saying, *"It is our best guess, yes. Have new elements arisen, new risks we need to cover, something we need to remove?"* (Interviewee 58). Regarding interactions with the Financial Supervisory Authority, this officer said, *"The Financial Supervisory Authority has said, they do not focus on the exact management overlay number, they just want to make sure we have allocated enough [capital]"* (Interviewee 58). Although regulators and financial reporting users acknowledge the uncertainties surrounding impairment calculations, these calculations nevertheless mediate external engagement by providing a basis for assessing whether loan impairments are sufficient.

As a calculative practice, management overlay illustrates how accounting inscriptions require discretionary supplementation to remain operable under uncertainty. Rather than black-boxing model outputs, the management overlay opens a performable space in which PD is reinterpreted and reconfigured to accommodate emerging uncertainties. In this sense, the overlay does not undermine the authority of PD but reinforces its mediating abilities by integrating its representational properties into situated organizational judgment. Thereby, PD mediates external decision-making by inscribing credit risk in financial reporting while maintaining room for discretion in the associated calculative practices.

5.2. The management control system

Mandated by IFRS 9, BankCorp must recognize future uncertainties as loan impairments in financial reporting, but PD is not confined to these calculative practices. Internal decision-makers also rely on forward-looking metrics in managing credit risk, which has compelled BankCorp to embed PD within its management control system and facilitate co-orientation in risk management across organizational functions and levels. The Head of Risk Analysis and Reporting stated, *"we will have a difficult time explaining results […] where our capital requirements go in one direction, and our [internal] impairments go in another. Control-wise, there needs to be a connection"* (Interviewee 34). The bank's management control system is configured around broad categories of performance metrics, such as income and costs, rather than specific line items. As depicted in Fig. 3, PD mediates between multiple internal calculative practices, enabling alignment between external and internal decision-makers.

5.2.1. The loan-granting hierarchy

The hierarchical structure of the engagement limits in the lending policy (see Table 1 for an illustration) is underpinned by the internal rating models, which categorize customers into 11 rating groups, each linked to a PD. As a credit consultant explained, the models enter the calculative framework, shaping, but not entirely determining, who can decide what:

> Rating 1–11… It is categorized, you know, the top ratings, we can actually do a lot with them. And then there is, like, mediocre, a bit above mediocre, we can do a bit less with them. Then, we have 'weak,' where we can do even less. And then we have impaired customers where we cannot do much. (Interviewee 29)

Through the linking of PD and internal ratings, risk quantification constitutes a structured basis for delegating authority and distributing discretion across organizational levels in BankCorp. Still, as one credit consultant remarked, *"it is not like a loan-granting vending machine, like, just because you are a [rating] 2, you automatically get a credit of 5 million"* (Interviewee 30). While PD, embedded in the rating, serves as an accounting inscription that allocates authority, it does not override professional judgment, as each customer's creditworthiness is subject to contextual assessment. In case a customer displays atypical or unfamiliar characteristics that may indicate a higher risk level, branch personnel's loan-granting authority may be revoked. This illustrates how PD mediates by enabling bounded discretion, a form of structured flexibility that combines statistical guidance with situated interpretation. Rather than

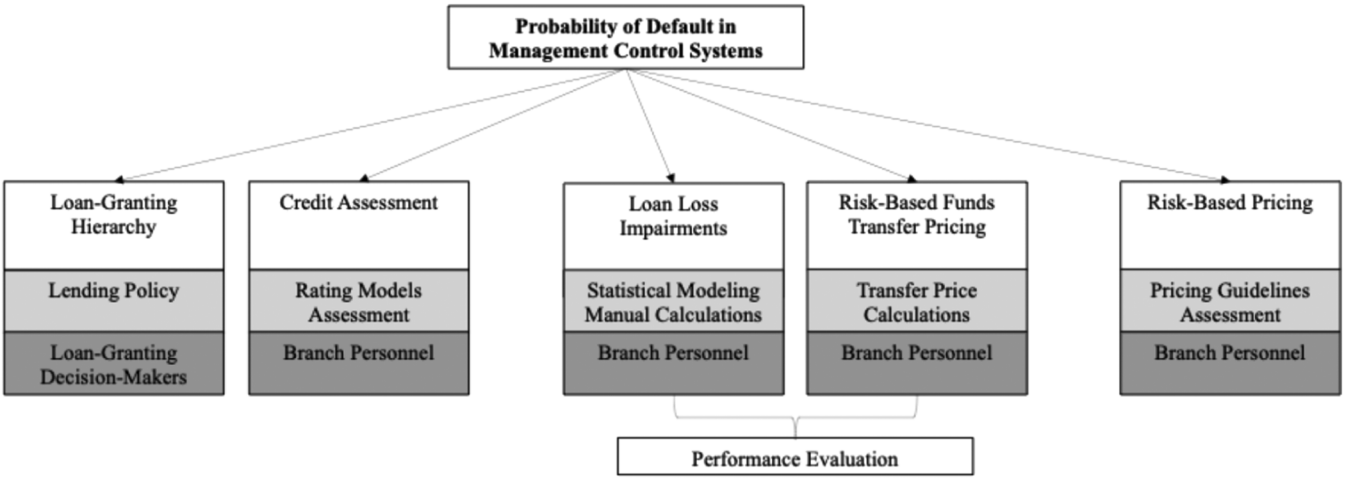

Fig. 3. The calculative practices associated with management control (in white), as well as the involved accounting inscriptions (in light grey) and human actors (in dark grey), mediated by Probability of Default.

eliminating judgment, PD frames the conditions under which it must be exercised or escalated to a higher authority.

5.2.2. Individual credit assessment

Historically, BankCorp's loan-granting decisions were made based on individual credit assessments conducted by the authorized decision-maker, drawing on local customer knowledge. A risk controller emphasized, *"there are a lot [of financial advisors] to whom it is just second nature, and they are incredibly competent in the branches"* (Interviewee 37). However, the historical tradition of professional credit craft has been recalibrated considering regulatory demands. Loan-granting decisions can no longer be made solely on discretionary judgment, and PD has come to serve as a formalized starting point for structured customer assessment.

Informed by the application questionnaire and behavioral data, PD models pre-format customer data into a calculable form, representing what counts as relevant information. A data governance specialist noted that requiring loan-granting decisions to be grounded in quantitative data is also intended to safeguard procedural impartiality:

> 40 years ago, well, if you knew that [the customer's] dad had a lot of money, [the customer] was probably allowed to borrow money without even noting anything about the dad because you just knew that he would cover. If there are troubles, if money is lacking, [the customer] will probably just get some help… Obviously, it does not work like that anymore. (Interviewee 26)

Moreover, BankCorp has started embedding return-on-equity calculations based on customers' PD in enterprise loan-granting decisions. The Chief Credit Officer explained, *"we calculate the price based on the Internal Ratings-Based model for enterprises […] and the return-on-equity should be above a certain level"* (Interviewee 58). Return-on-equity is calculated as the net income (i.e., interests and fees less personnel and operating costs and expected loss based on the PD) divided by the allocated capital, also based on the PD. Thereby, PD influences both the expected loss component in the numerator and the calculation of capital allocation in the denominator, which makes it an essential accounting inscription in determining the interest necessary to reach the return-on-equity target at the customer level.

At the same time, PD-based calculations cannot substitute for professional credit craft. Human intuition and discretion remain essential in challenging and contextualizing credit risk as quantified by the PD models. The head of the department that develops internal rating models said, *"They [the financial advisors] can, of course, make a sharper risk assessment than the models can, obviously, because they have full information, whereas the models only have limited information, the models just need to guide them"* (Interviewee 32). This positioning of PD as a guide rather than a verdict reflects a broader organizational understanding of how the accounting inscription simplifies but never fully captures creditworthiness.

Regarding the role of PD in mediating between financial advisors and the bank's customers, an Executive Director focused on its argumentative abilities, *"The ability to argue, both to the customer and the branch employee in charge of the customer contact, that this is right"* (Interviewee 42). Consequently, loan-granting decision-makers combine PD with qualitative insight when seeking to make decisions that benefit both the bank and its customers. A branch manager stated, *"The competent financial advisor challenges the answer and says […] 'what do we have to do to accept the customer anyways?'"* (Interviewee 11). Rather than rejecting model outputs, actors integrate intuitive assessment and situational awareness to reconstruct the basis for decision-making.

5.2.3. Loan impairments in branch performance reporting

Besides its role in guiding loan granting, PD also mediates the calculative practices associated with branch-level performance evaluation in BankCorp. Here, ECLs are allocated to each branch's lending portfolio, directly impacting reported income and costs in internal branch performance reports, which mirrors their effect in the financial statement. Loan impairments are an important performance metric in these reports, and they are given significant attention by both Executives and branch managers during quarterly reviews. Besides rendering credit risk visible and actionable to individual branches, PD contributes to the broader calculative regime of the management control system, which enables performance management.

The incorporation of ECLs shifts attention from realized to expected losses and reinforces forward-looking control, whereby proactive credit risk management becomes a distributed organizational concern. A branch manager specified how the PD calculations influenced their local risk management practices, saying, *"Now, they have introduced model-based impairments, which are ratings-based […] in that sense, we have become way more conscious about, in our risk management, keeping an eye on the customer's rating"* (Interviewee 43). This illustrates how PD not only informs lending decisions but also serves as a management control at the branch level, aligning professional banking conduct with model-based representations of future risk.

5.2.4. Risk-based funds transfer pricing

PD also permeates the management control system via the funds transfer price for loans. The Head of Risk Management explained, *"The branches must pay a rate to the headquarters, an internal rate or a funds transfer price […] If you want to lend out €1, you need to pay X cents"* (Interviewee 4). Consequently, the funds transfer price has a direct and immediate effect on branch-level income, thereby linking credit risk to internal profitability metrics, which ensures financial accountability.

Under this calculative practice, deposits are credited to branches at a fixed internal rate that approximates the bank's marginal funding cost. In contrast, loans are debited using a risk-adjusted fund transfer price, which is calculated at the individual exposure level by incorporating ECL into the internal transfer pricing logic. Since PD, and consequently ECL, is derived from the internal rating models, the transfer price reflects not only the monetary amount of an exposure but also the underlying credit risk associated with each exposure. A branch manager described, *"all our customers are categorized in a rating group, and if you have rating 1 customers, they are the best, then your funds transfer price is […] and if they enter rating 2, 3, etc., it becomes more and more expensive"* (Interviewee 43).

Thereby, credit risk is rendered as a measurable internal cost, shaping behavior by making the consequences of lending decisions financially visible to branch managers. In the internal transfer pricing system, PD translates abstract regulatory expectations into actionable financial signals at the local level. It enables control at a distance by embedding strategic and risk-related priorities within the monetary logic that dominates everyday branch operations. Thus, the funds transfer price not only records credit risk but actively constitutes a risk-sensitive control mechanism, which generates tangible internal financial effects.

The underlying mathematics and assumptions of PD models may be opaque to branch personnel, but their numerical expressions, as loan impairments and risk-based funds transfer prices, render credit risk legible within the existing framework of performance evaluation. By embedding credit risk metrics in branch performance reports, BankCorp establishes a link between its two evaluative regimes: income and credit risk. As credit risk gets inscribed through performance metrics that are familiar to branch personnel, they can engage with PD as a shared accounting language, which mediates evaluative discussions around income generation and risk sensitivity. A branch manager reflected, *"We have become better at managing [credit risk] because we can see that it has an effect on our branch report, that is the focal point"* (Interviewee 43).

5.2.5. Risk-based pricing

While risk is often positioned as the antithesis of performance, an undesirable uncertainty to be mitigated, risk management entails more than avoidance. Making informed decisions to pursue opportunities

within acceptable risk parameters is equally important. This balancing act defines a key dimension of the performable space in contemporary banking, which BankCorp seeks to mediate by embedding PD in the pricing strategy. As the Head of Risk Management explained, this mediation has transformed how risk is understood and acted upon within the organization:

> We expect that if you have a higher [credit] risk, you also need a higher income […] It is really to create a lot of performance metrics, which constantly balance […] risk with income. (Interviewee 4)

PD is embedded in the risk-based pricing strategy, where the relationship between income and credit risk unfolds along a reciprocal continuum (i.e., a performable space). Within this space, branch personnel rely on their intuition to balance credit risk and income objectives, for instance, by offering low-risk customers favorable prices or by pursuing income objectives, accepting higher-risk customers and adjusting loan prices accordingly. Illustrating the credit risk minimization strategy, one branch manager noted, *"we must say 'yes' to someone and dare to take a higher price […] if we are all the way down here [low risk], the marginal [income] is negligible"* (Interviewee 11). Echoing the importance of pricing rather than avoiding risk, another branch manager said, *"On the rating side, on the commercial side, it is also this thing about price […] The internal funds transfer rate increases the worse the customer is, so we need to get the right price from the customer"* (Interviewee 51).

While loan pricing could be a direct reflection of credit risk as inscribed by PD, it would increase system complexity, rendering it difficult for branch personnel to explain constant fluctuations to customers. Further, it would open the door to dysfunctional behavior, as branch personnel might speculate in risk–return spreads, favoring specific customer relationships and compromising procedural impartiality. This highlights a key boundary in the mediating abilities of PD, as full transparency would, in this context, undermine its usability in governing the future and transform it into a contested site of negotiation with customers. Therefore, BankCorp has chosen to maintain a level of constructive opacity, preserving PD's function as a key accounting inscription within the management control system while moderating its visibility in the customer interface.

6. Discussion and conclusion

This paper examined how PD, as a forward-looking risk metric, inscribes and mediates credit risk within a large Scandinavian bank. Drawing on a qualitative case study, we traced how PD enters and mediates a range of calculative practices, including financial reporting under IFRS 9, loan approval, credit assessment, performance evaluation, and risk-based pricing. Rather than viewing PD as a fixed technical representation, the findings demonstrate how PD becomes a dynamic and contextually situated accounting inscription through ongoing interpretation in calculative practices. By linking external and internal decision-making, PD enables organizational coordination and preserves discretion across domains and hierarchies.

Fig. 4 summarizes the study's findings by illustrating how PD operates as a mediating instrument along a continuum of risk measurement and risk envisionment. At the measurement-oriented end of the continuum, PD calculations monetize credit risk in financial reporting and enable comparison across financial entities while also requiring Executives to exercise professional judgment through management overlays that capture uncertainties that are difficult to quantify. At the envisionment-oriented end of the continuum, internal decision-makers rely on PD as a starting point for decisions, drawing on their intuition when assessing customer creditworthiness and exercising discretion when balancing loan prices and credit risk.

6.1. Credit risk management: From financial reporting to management control

The study contributes to the accounting literature on risk management (e.g., Giovannoni et al., 2016; Hall et al., 2015; Mikes, 2009) by demonstrating how a quantified risk representation, mandated by regulation, gets integrated within financial reporting and management control systems and, thereby, mediates decision-making across organizational domains. Rather than treating risk measurement and risk envisionment as opposing calculative cultures, this study shows how PD mediates across a continuum of calculative practices to enable coordination.

Risk quantification has long been criticized for the potential of creating a false sense of certainty (Power, 2007, 2009), and the integration of risk into management control systems has consequently received sustained academic attention (Braumann et al., 2024; Kunz and Heitz, 2021). At the same time, intensifying demands for organizations to account for the future in their financial statements require them to inscribe uncertainties as risks within the financial reporting domain, and these regulatory requirements simultaneously place pressure on management control systems to provide forward-looking information to internal decision-makers (Van der Stede, 2011). Together, these developments create a persistent tension between the need to render uncertain futures calculable and the limits of quantification in governing organizational decision-making.

In response to the growing and interconnected demands for forward-looking information, prior studies have argued that a closer integration between financial and management accounting is essential for management accounting to retain its relevance and decision-making capacity (Hemmer and Labro, 2008; Taipaleenmäki and Ikäheimo, 2013; Weißenberger and Angelkort, 2011). The need for such integration is particularly pertinent in the context of risk management, as integrated accounting enables organizations to construct and disseminate a shared, though not necessarily uniform, representation of risk across external and internal domains (Elshandidy et al., 2018).

While previous studies have primarily examined how risk quantification influences risk reporting (Crovini et al., 2022) or management control (Braumann et al., 2024), this study shows how PD mediates between calculative practices by rendering loan repayment uncertainties intelligible to a range of stakeholders. Accounting for the future is a regulatory imperative, but it also enables external decision-makers to compare financial entities when investing and structures internal loan-granting decisions. By contrast, the quantification of operational risks may potentially prove more troublesome than

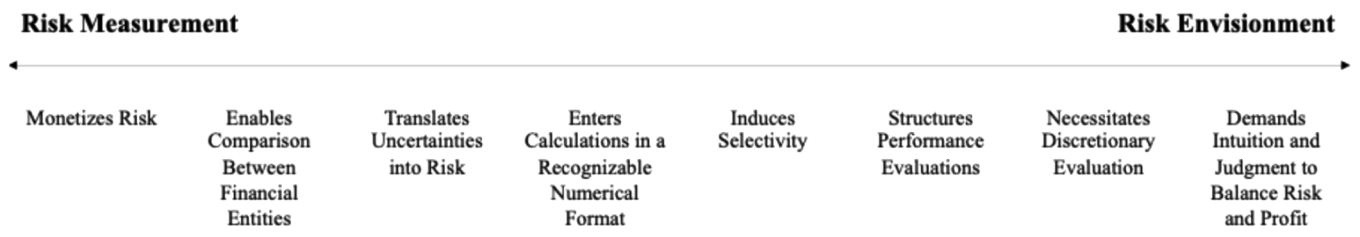

Fig. 4. Calculative cultures on a continuum between risk measurement and risk envisionment, illustrating the mediating abilities of Probability of Default as a mediating instrument across the continuum.

the quantification of credit risk (Power, 2007).

PD becomes an actionable representation because it is familiar to decision-makers and gets embedded in their evaluative infrastructures. These infrastructures are not simply layered financial and risk-related performance aspects, but they assimilate the performable space, which enhances actors' understanding of the underlying evaluative logic (Casarin, 2023). Moreover, regulatory prescriptions for backtesting and discretionary management overlays reduce the risk that PD gives rise to new uncertainties (Vinnari and Skærbæk, 2014), as model risk is accommodated through calculation and judgment.

At the same time, the representational quality of PD is not taken for granted. We detail how the mediating instrument not only directs decision-makers' attention toward credit risk but also induces selectivity in what is rendered visible and actionable. While prior research has accentuated how regulatory demands for risk quantification often lead to organizational resistance and decoupling between formal policies and actual practices (Wahlström, 2009), this study demonstrates how PD becomes an actionable representation of credit risk by aligning regulatory imperatives with commercial aspirations.

The study draws attention to the connection between mediating instruments and calculative practices. Informed by Qu and Cooper's (2011) notion of inscriptors, we show designers of PD models, financial statements, and performance reports deliberately inscribe credit risk in other actors' calculative practices. Through its mobility across calculative practices, stable form, and combinability with other accounting inscriptions (Miller and Rose, 1990; Robson, 1992), PD is then detached from its original context, which enables it to influence distinct external and internal domains of decision-making. Essential to the mediation between calculative practices is the actionability of PD, as the metric is not forced upon decision-makers but rather aligns their calculations and actions into a comprehensive risk management practice.

Importantly, risk-based metrics must not only be designed to inform decisions (Giovannoni et al., 2016; Jabbour et al., 2025) or to encompass forward-looking risk objectives (Huber et al., 2025), but they must also resonate with actors' local aspirations. Therefore, we highlight that for accounting inscriptions to work as mediating instruments in risk management, they have to simultaneously intervene (Hacking, 1983) and remain open to human intervention and recontextualization in calculative practices.

6.2. The mediating role of Probability of Default

The study also contributes to the literature on accounting as mediating instruments (e.g., Jordan et al., 2013; Miller and O'Leary, 2007) by showing how PD inscribes and mediates credit risk across external and internal risk management practices. Extending previous studies showing that mediating instruments can mediate between either objects (Morrison and Morgan, 1999) or among humans (Jordan et al., 2013), this study illustrates the dynamic interaction between instruments and calculative practices.

As Morrison and Morgan (1999) originally contended, instruments can display calculations, but they can also become instruments of calculation. We demonstrate how PD both calculates credit risk and becomes a mediating instrument because its display of calculations, across calculative practices, causes recognition, criticism, and reconfiguration. Rather than black-boxing credit risk, PD displays calculations and relates them to familiar practices, thereby opening the black box of risk quantification to decision-makers. Once the accounting inscription is embedded in calculative practices, a social context (Hopwood, 1987; Miller, 2004), PD gives rise to further demands for calculations, such as the quantification of customer characteristics (Miller and Power, 2013).

Prior research has shown that accounting inscriptions may mediate through calculative practices rather than through calculation alone (Maier, 2017; Revellino and Mouritsen, 2015). Considering calculative practices as a form of human interaction with numerical representations, this study demonstrates that PD becomes a mediating instrument through socio-cognitive processes. While previous studies have noted that calculative cultures in risk management may exist on a continuum rather than as a dichotomy between measurement and envisionment (Crawford and Jabbour, 2024; Tekathen and Dechow, 2013), this study advances the literature by clarifying how mediation across calculative practices is conditioned by the interplay between calculations and human judgment, intuition, and discretion.

Regarding judgment, we extend previous findings that highlight human judgment as a vital component in accounting mediation through performance assessment (Bottausci et al., 2024) by showing how judgment feeds into both external and internal calculative practices. Rather than seeking to avoid blame, Executives accept the responsibility for ensuring that unquantifiable risks are accounted for in both financial reports and performance evaluations.

Regarding intuition, we show that branch personnel's intuition complements, rather than overrules (Gurd and Helliar, 2017), PD in customer assessments, as actors contextualize the inscribed version of credit risk to account for emotional and situational judgments. Relatedly, regarding discretion, branch personnel discretionally engage with qualitative information and risk–return trade-offs that may not be captured by statistical models. This aligns their decision-making with externally oriented discretionary practices such as customer staging, backtesting, and management overlay.

In this way, PD triggers human cognition through its financial framing of uncertainties and its visualization in recognizable numerical formats, such as financial statements and branch performance reports. However, its mediating abilities are sustained through ongoing interpretation, contextualization, and negotiation by human actors. While previous studies have established that accounting inscriptions may become "unfaithful" mediators that produce effects beyond what is intended (Christensen et al., 2019; Themsen and Skærbæk, 2018), this study shows how mediation between calculative practices remains faithful, as the mediating instrument is reconfigured in socio-cognitive processes. Through these processes, PD moves across functional, hierarchical, and organizational domains, co-orienting decisions around a shared understanding of credit risk as a calculative framework.

Within the risk management domain, studies have shown that the uptake and influence of financial modeling depend less on its representational accuracy and more on practical utility (Millo and MacKenzie, 2009). While risk monetization and individual intuition and judgment may be positioned at different points along a continuum of calculative cultures, the calculative practices that sustain risk management are conditioned by dual human and technological agency (Bottausci et al., 2024), not just by pure quantitative measurement or qualitative envisionment.

Building on previous studies that emphasize the layering of statistical and discretionary elements in risk management (Baud and Lallemand-Stempak, 2024; Kalthoff, 2005, 2011), we demonstrate that risk quantification is not only complemented by judgment in risk selection but also performed through calculative practices that span across organizational boundaries, including reporting, loan-granting, and pricing. Reiterating the proposition that accounting mediation is an ongoing process rather than a stable outcome (Miller and Power, 2013, p. 583), this study shows that PD mediates risk conceptualizations across domains through continuous human engagement with the accounting inscription.

6.3. Limitations and further research

Although this paper offers a rich contextual account (Parker and Northcott, 2016) of risk quantification in a single bank, the insights regarding accounting inscriptions and their mediating abilities are context-dependent, and generalizations beyond financial reporting and management control domains should therefore be made with caution. Given that international regulatory frameworks, such as IFRS 7, require the disclosure of both quantitative and qualitative risk information

(IFRS Foundation, 2022, IFRS 7), future research could examine how internal structures are developed to delegate responsibility and ensure accountability for other types of risk, including unquantifiable operational risks.

Moreover, prior studies of sustainability risks have noted the potential for accounting to integrate external and internal information (Bebbington and Thomson, 2013), and we suggest that examining the mediating abilities of accounting inscriptions across sustainability reporting and control also poses a fruitful avenue for future research. Finally, in line with Himick et al. (2022), we encourage research into the interaction between financial reporting practices and external users, including how accounting representations are constructed, communicated, and acted upon. Within the risk management domain, future research considering how risk quantification shapes the decisions made by external stakeholders, such as regulators, analysts, credit rating agencies, and investors, would complement this study's focus on internal decision-making.

Disclosure statements

One of the authors was a non-executive Board member of BankCorp during the study period. This author did not participate in interviewing and had no access to interview recordings or transcriptions. The other two authors were responsible for data collection and analysis. The interviewees were fully informed about all authors' roles in the study and about how potential conflicts of interest were handled.

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Data Availability

The data that have been used are confidential.

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