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When Accounting Becomes Supervision: An Assurance Framework for Oversight of Systemically Relevant Fintech Activities — Evidence from Central Banks

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ABSTRACT

Purpose

This study develops an accounting-based assurance framework that reconceptualizes accounting as a supervisory infrastructure for overseeing systemically relevant FinTech activities. The purpose is to address the growing gap between rapidly evolving FinTech ecosystems and the limited capacity of traditional regulatory supervision to detect, interpret, and respond to emerging systemic risks in a timely manner.

Methodology, Design, and Approach

The study adopts a conceptual and design-oriented research approach grounded in accounting theory, assurance logic, and regulatory governance. It integrates insights from central bank oversight practices, SupTech developments, and continuous assurance literature to construct a coherent framework that links accounting measurement, assurance mechanisms, and supervisory oversight. Comparative institutional evidence from central banks is used to validate the relevance and applicability of the proposed framework .

Findings

The study finds that accounting can perform a supervisory function when measurement and assurance are structured to generate decision-useful oversight signals. By shifting accounting from periodic reporting toward flow-oriented, risk-relevant measurement supported by assurance, the framework enables earlier detection of systemic vulnerabilities and enhances the informational foundation of supervisory decisionmaking .

Originality and Value

This research offers a novel contribution by positioning accounting as an integral component of financial supervision rather than a downstream reporting function. It bridges accounting, assurance, and regulatory oversight in the context of FinTech, an area where integrated frameworks remain underdeveloped .

Theoretical, Practical, and Social Implications

Theoretically, the study extends accounting's role within governance and supervision.

Practically, it provides central banks with a scalable assurance-based oversight mechanism. Socially, the framework supports financial stability, market trust, and public confidence in digitally mediated financial systems .

KEYWORDS: Accounting and supervision; Assurance frameworks; FinTech oversight; Central banks; Financial stability

1. INTRODUCTION

1.1 Background and Context

Financial systems are undergoing a fundamental transformation driven by the rapid expansion of financial technology (FinTech), platform-based intermediation, and data-intensive financial services. Core financial activities—including payments, lending, customer onboarding, and risk assessment—are increasingly executed through digital platforms that operate continuously and at scale. While these developments enhance efficiency and financial inclusion, they also introduce new forms of systemic vulnerability that challenge the effectiveness of traditional oversight mechanisms (Arner et al., 2022; BIS, 2023) .

Central banks, as the primary institutions responsible for financial stability, face growing difficulties in supervising financial activities that are algorithm-driven, crossinstitutional, and highly interconnected. Conventional supervisory models rely heavily on

periodic reporting, ex post inspections, and institution-centered analysis. Such approaches were designed for balance-sheet–oriented financial systems and are increasingly misaligned with FinTech environments characterized by real-time transaction flows and platform-based risk propagation (Borio, 2022; IMF, 2023) .

Within this evolving landscape, accounting occupies a central yet underexamined position. Accounting remains the primary mechanism through which financial activities are measured, categorized, and rendered visible to regulators. However, its institutional design has traditionally emphasized retrospective reporting rather than continuous interpretive support for oversight. As a result, a structural tension has emerged between the informational demands of modern supervision and the historical orientation of accounting systems (Guthrie et al., 2021; Power, 2022) .

Recent regulatory responses have focused on the deployment of supervisory technologies (SupTech) and regulatory technologies (RegTech) to enhance monitoring capacity. These initiatives employ advanced analytics, automation, and large-scale data processing to improve regulatory reach and responsiveness (BIS, 2021; BIS Innovation Hub, 2022). Despite their potential, most SupTech applications prioritize data aggregation and anomaly detection while paying limited attention to the accounting logic that determines how financial activities are recognized, measured, and interpreted. Consequently, supervisory innovation has often proceeded independently of accounting and assurance principles that shape the reliability and meaning of financial information (Vasarhelyi et al., 2021; Christensen et al., 2023) .

This study builds on the premise that effective oversight in FinTech environments depends not only on technological sophistication but also on the structure of accounting-based information that informs supervisory judgment. When accounting measurement is oriented toward risk-relevant financial flows and supported by assurance mechanisms that enhance credibility, accounting can move beyond its traditional reporting role. In such settings, accounting becomes an infrastructural component of supervision, shaping what supervisors observe, how emerging risks are interpreted, and when regulatory attention is triggered (Humphrey & Jeppesen, 2023; Véron, 2022).

1.2 Research Problem Statement

Despite significant investments in digital supervisory tools, a critical gap persists between the complexity of FinTech activities and the informational foundations of financial oversight. Existing supervisory frameworks lack an integrated accountingbased assurance structure capable of translating continuous financial flows into decision-useful inputs for systemic supervision. This gap constrains the ability of central banks to detect emerging vulnerabilities, assess systemic relevance, and respond proactively to evolving risks (FSB, 2022; OECD, 2021).

Accordingly, the core research problem addressed in this study is articulated as follows: How can accounting and assurance be reconceptualized to function as a supervisory infrastructure capable of supporting oversight of systemically relevant FinTech activities?

1.3 Research Objectives and Questions

Building on the identified gap between FinTech-driven financial complexity and existing supervisory approaches, this study pursues three interrelated objectives. First, it aims to reconceptualize accounting as a supervisory infrastructure capable of supporting oversight in systemically relevant FinTech environments. Second, it seeks to integrate accounting measurement and assurance into a coherent framework that enhances the informational foundations of supervisory decision-making. Third, it examines how such an accounting-based assurance framework aligns with emerging central bank practices and regulatory expectations across different institutional settings (Brunnermeier et al., 2021; Arner et al., 2022) .

To achieve these objectives, the study addresses the following research questions:

)1(How can accounting measurement be structured to reflect risk-relevant financial flows generated by FinTech activities?

)2(What role does assurance play in enhancing the credibility and supervisory usefulness of accounting-based information?

)3(How can accounting-based assurance support oversight without substituting regulatory authority or enforcement functions?

These questions respond to recent calls for governance-oriented accounting research that bridges professional practice and regulatory oversight in digital financial systems (Power, 2021; Borio, 2022) .

1.4 Significance of the Study

The significance of this study is multifaceted. From a regulatory perspective, central banks are increasingly required to oversee financial activities that evolve outside traditional institutional boundaries, often through platforms that generate continuous and highly granular data streams. Without a robust accounting foundation, supervisory analytics risk becoming detached from the

economic substance of financial activities and may fail to signal emerging systemic threats in a timely manner (IMF, 2023; BIS, 2023).

From a professional perspective, the study responds to growing concerns about the marginalization of accounting judgment in technology-driven oversight systems. Prior research emphasizes that effective supervision depends not only on data availability but also on disciplined measurement, materiality assessment, and assurance processes that confer legitimacy and reliability on supervisory information (Knechel & Westermann, 2020; Humphrey & Jeppesen, 2023). From an academic perspective, the study contributes to an emerging literature that examines accounting as a mechanism of governance rather than a passive reporting function (Leins, 2020; Christensen et al., 2023) .

1.5 Research Contributions

This study makes several original contributions. Theoretically, it extends accounting research by positioning accounting as an active component of financial supervision, thereby linking accounting theory with regulatory governance and oversight literatures (Guthrie et al., 2021; Power, 2022). Methodologically, it develops an assurance-based framework that integrates measurement, assurance, and oversight into a unified structure, addressing critiques of fragmented regulatory innovation in FinTech contexts (Vasarhelyi et al., 2021; Véron, 2022) .

Practically, the proposed framework offers central banks a scalable mechanism for enhancing oversight of systemically relevant FinTech activities without relying exclusively on intrusive supervisory interventions. By translating accounting outputs into supervisory inputs, the framework supports earlier detection of systemic vulnerabilities and more informed regulatory responses, thereby contributing to financial stability and public trust (FSB, 2022; OECD, 2021).

1.6 Structure of the Paper

The remainder of the paper is structured as follows. Section 2 reviews the relevant literature and develops the theoretical foundations underpinning the study. Section 3 introduces the proposed accounting-based assurance framework and develops the research hypotheses. Section 4 outlines the research methodology and comparative case study design. Section 5 presents and analyzes the empirical findings. Section 6 discusses the results in relation to existing literature, theory, and policy implications, and offers practical recommendations. Section 7 concludes the study and identifies directions for future research.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Accounting, Supervision, and the Changing Nature of Financial Oversight

The relationship between accounting and financial supervision has traditionally been framed as sequential rather than integrative. Accounting was conceptualized as a reporting mechanism designed to inform stakeholders ex post, while supervision was viewed as a regulatory function exercised through inspection, enforcement, and corrective intervention. This separation reflected the institutional realities of financial systems dominated by periodic reporting cycles and relatively stable organizational boundaries. However, recent developments in digital finance and FinTech have rendered this traditional division increasingly untenable (Borio, 2022; IMF, 2023) .

Contemporary financial systems are characterized by continuous transaction flows, platform-based intermediation, and algorithmic decision-making. In such environments, supervisory effectiveness depends less on formal compliance with reporting requirements and more on the capacity to interpret emerging patterns of risk in real time. Accounting, as the primary system for structuring financial information, therefore assumes a more central role in shaping what supervisors observe and how they interpret systemic developments (Leins, 2020; Power, 2022).

Recent accounting research has increasingly emphasized this governance-oriented role. Rather than treating accounting as a neutral technical apparatus, scholars argue that accounting actively constructs regulatory visibility by defining what counts as risk, materiality, and economic substance (Christensen et al., 2023; Humphrey & Jeppesen, 2023). From this perspective, supervision does not operate independently of accounting; it is conditioned by the accounting logics embedded in measurement and disclosure systems .

2.2 From Financial Reporting to Supervisory Information

A growing body of literature documents the limitations of traditional financial reporting in supporting modern financial oversight. Periodic financial statements, while essential for accountability and transparency, are ill-suited to capture rapidly evolving risk exposures generated by FinTech activities such as real-time payments, digital lending, and platform-based financial intermediation (Arner et al., 2022; Zetzsche et al., 2020).

These limitations have prompted regulators and central banks to explore alternative information infrastructures, including granular transaction-level data and continuous monitoring systems. However, the literature cautions that increased data availability does not automatically translate into improved supervisory insight. Without a coherent accounting framework, large volumes of financial data may obscure rather than clarify emerging systemic risks (Vasarhelyi et al., 2021; Véron, 2022) .

Accounting theory provides a critical lens for understanding this challenge. Measurement, recognition, and aggregation are not neutral processes; they determine which financial phenomena become visible to oversight authorities and which remain hidden. Recent studies highlight that the absence of accounting-based structuring in supervisory analytics can lead to fragmented risk assessments and inconsistent regulatory responses across institutions and platforms (Guthrie et al., 2021; BIS, 2023) .

2.3 Assurance, Credibility, and Supervisory Reliance

Assurance plays a pivotal role in transforming accounting information into inputs that supervisors can credibly rely upon. While accounting defines the structure of financial information, assurance enhances its reliability by evaluating the discipline, consistency, and integrity of underlying measurement processes. In digitally mediated financial systems, this assurance function becomes increasingly important as supervisors depend on automated data feeds and algorithmic analyses (Knechel & Westermann, 2020; Christensen et al., 2023) .

The assurance literature has traditionally focused on external financial reporting. However, recent contributions argue for an expanded conception of assurance that supports governance and regulatory objectives. Continuous assurance models, in particular, are seen as essential for validating accounting information in environments characterized by high transaction velocity and systemic interconnectedness (Vasarhelyi et al., 2021; Appelbaum et al., 2022) .

Importantly, assurance does not substitute supervisory authority. Rather, it enables supervision by transmitting confidence in accounting-based information. Central banks and regulatory bodies increasingly rely on assured information to prioritize supervisory attention, assess systemic relevance, and calibrate regulatory interventions (FSB, 2022; BIS Innovation Hub, 2022). This shift underscores the need for integrated frameworks that align accounting measurement, assurance processes, and supervisory objectives .

2.4 Emerging Theoretical Perspectives

Recent theoretical developments support the reconceptualization of accounting as a supervisory infrastructure. Governance-oriented accounting theory emphasizes the role of accounting in shaping institutional control and regulatory coordination (Power, 2021; Leins, 2020). Institutional theory further explains how accounting practices become embedded within regulatory regimes, influencing supervisory norms and expectations over time (Humphrey & Jeppesen, 2023).

Together, these perspectives suggest that accounting and supervision should be analyzed as mutually constitutive rather than functionally separate. In FinTech contexts, where regulatory authority is exercised through information flows rather than direct intervention, accounting-based assurance emerges as a critical mechanism for enabling effective oversight.

2.5 FinTech, Systemic Risk, and the Limits of Traditional Supervision

The rapid expansion of FinTech has fundamentally altered the structure and transmission of financial risk. Unlike traditional banking activities, FinTech-driven services operate through decentralized platforms, real-time transaction processing, and algorithmic credit and payment decisions. These characteristics amplify speed, scale, and interconnectedness, thereby increasing the potential for localized disruptions to escalate into system-wide vulnerabilities (Brunnermeier et al., 2021; BIS, 2022) .

The literature increasingly recognizes that traditional supervisory models—designed around institutional balance sheets and periodic reporting—are poorly equipped to capture these dynamics. Supervisory frameworks that focus on individual institutions fail to account for risk propagation across platforms, service providers, and data infrastructures that underpin FinTech ecosystems (FSB, 2022; Claessens et al., 2021). As a result, regulators face informational blind spots precisely where systemic risk is most likely to emerge .

Recent studies emphasize that systemic risk in FinTech environments is less about the solvency of individual entities and more about the fragility of financial flows, operational dependencies, and behavioral correlations embedded within platforms. This shift challenges supervisors to move beyond static indicators toward flow-based and behavior-sensitive metrics that reflect the evolving nature of financial intermediation (Borio, 2022; Gai et al., 2021) .

2.6 SupTech and RegTech: Capabilities and Structural Shortcomings

In response to these challenges, central banks and supervisory authorities have increasingly adopted Supervisory Technology (SupTech) and Regulatory Technology (RegTech) solutions. SupTech initiatives aim to enhance supervisory effectiveness through

advanced data analytics, machine learning, and automated reporting systems, while RegTech focuses on improving compliance efficiency at the firm level (Arner et al., 2022; BIS Innovation Hub, 2022) .

While the SupTech literature documents significant gains in data processing capacity and anomaly detection, it also highlights important structural limitations. Most SupTech applications are built on raw transactional or operational data without a consistent accounting framework that defines economic substance, materiality, and risk relevance (Restoy, 2021; IMF, 2023). Consequently, supervisors may detect statistical irregularities without understanding their accounting or systemic significance .

Moreover, RegTech solutions often reinforce firm-level compliance objectives rather than system-wide oversight. By prioritizing rule adherence and reporting efficiency, RegTech can inadvertently fragment supervisory information and obscure cross-platform risk accumulation (Zetzsche et al., 2020; OECD, 2021). These limitations underscore the need for an accounting-based layer that translates technological outputs into coherent supervisory insight .

2.7 Accounting Measurement as a Governance Mechanism

Recent accounting scholarship provides a conceptual foundation for addressing these shortcomings. Accounting measurement is increasingly viewed not merely as a technical process, but as a governance mechanism that structures organizational behavior and regulatory visibility. By defining recognition thresholds, aggregation rules, and valuation logics, accounting determines which financial activities become salient to oversight authorities (Leins, 2020; Power, 2022).

In FinTech contexts, this governance role becomes particularly salient. Transactionlevel data, if left unstructured, may overwhelm supervisors with noise. Accounting measurement disciplines this data by imposing conceptual boundaries that distinguish between routine activity and risk-relevant deviation. Studies show that supervisors rely implicitly on accounting classifications to prioritize supervisory attention and allocate regulatory resources, even when using advanced analytical tools (Humphrey & Jeppesen, 2023; Christensen et al., 2023) .

Importantly, the literature suggests that accounting measurement must evolve from balance-sheet orientation toward flow-oriented representations that capture dynamic risk accumulation. Such representations align more closely with the operational realities of FinTech platforms and provide a more robust foundation for systemic oversight (Guthrie et al., 2021; Borio, 2022) .

2.8 Integrating Accounting and Supervision: A Theoretical Synthesis

The emerging consensus across accounting, regulatory, and financial stability literatures points toward the need for integrated oversight architectures. Institutional theory explains how accounting practices become embedded within regulatory regimes, shaping supervisory norms and expectations over time (Scott, 2021; Humphrey & Jeppesen, 2023). Governance theory further highlights the role of accounting in coordinating control across complex organizational networks (Power, 2021) .

Taken together, these perspectives support the view that accounting and supervision are not sequential functions but mutually constitutive processes. In digitally mediated financial systems, supervision increasingly operates through information infrastructures rather than direct intervention. Accounting-based assurance therefore emerges as a critical mechanism for enabling oversight by structuring measurement, validating information, and supporting supervisory judgment (Vasarhelyi et al., 2021; Appelbaum et al., 2022).

2.9 Assurance, Accountability, and Supervisory Trust

A critical theme emerging from recent literature concerns the role of assurance in sustaining supervisory trust within complex financial systems. As financial activities become increasingly mediated by algorithms and platforms, supervisors face heightened uncertainty regarding the reliability, completeness, and interpretability of reported information. In this context, assurance serves not merely as a verification mechanism but as an institutional process through which confidence in financial information is constructed and maintained (Kokina & Davenport, 2021; Alles, 2021) .

Contemporary assurance research emphasizes that supervisory reliance on information depends on more than technical accuracy. It also requires transparency in measurement assumptions, consistency in classification, and discipline in the application of accounting judgments. Studies demonstrate that regulators are more likely to act on information that is embedded within recognized assurance frameworks, even when such information is derived from advanced analytical systems (Brown-Liburd et al., 2021; Eilifsen et al., 2020) .

In FinTech environments, assurance takes on additional significance because supervisors increasingly depend on information generated outside traditional audit cycles. Continuous data streams, automated risk assessments, and real-time reporting challenge conventional assurance boundaries. Recent scholarship therefore calls for expanded assurance models that operate alongside supervisory processes, validating accounting-based information as it is produced rather than after the fact (Appelbaum et al., 2022; Cao et al., 2021) .

2.10 Flow-Oriented Accounting and Systemic Oversight

A growing strand of literature argues that effective oversight in digitally mediated financial systems requires a shift from stock-based to flow-oriented accounting representations. Traditional accounting emphasizes end-of-period balances and aggregated outcomes, which may obscure the dynamics of risk accumulation in systems characterized by continuous transactions and rapid feedback loops (Barker & Teixeira, 2020; Mouritsen & Kreiner, 2021) .

Flow-oriented accounting focuses on the movement, velocity, and interaction of financial resources over time. Such an approach is particularly relevant for FinTech activities, where systemic risk often materializes through sustained transactional patterns rather than discrete balance-sheet events. Empirical studies suggest that supervisors are better able to identify emerging vulnerabilities when accounting information highlights abnormal growth trajectories, concentration patterns, and dependency structures within financial flows (Gai et al., 2021; Danielsson et al., 2022) .

Importantly, flow-oriented accounting does not replace traditional reporting; rather, it complements it by providing an additional layer of supervisory insight. By structuring transactional data according to accounting principles of recognition, aggregation, and materiality, flow-oriented models enhance the interpretability of complex financial activity and support more timely supervisory intervention (Busch & Schnabel, 2021; Basel Committee on Banking Supervision, 2023).

2.11 Theoretical Foundations: Governance, Institutions, and Accountability

The reconceptualization of accounting as a supervisory infrastructure is supported by several complementary theoretical perspectives. Governance theory emphasizes the role of accounting in coordinating control across dispersed organizational actors and aligning behavior with systemic objectives. From this perspective, accounting operates as a mechanism through which oversight is exercised indirectly, via information structures rather than hierarchical authority (Aguilera et al., 2021; Power, 2021).

Institutional theory further explains how accounting practices become embedded within regulatory regimes, shaping supervisory expectations and legitimizing regulatory action. Accounting classifications and assurance processes provide a shared cognitive framework that enables coordination between supervisors, regulated entities, and other stakeholders (Scott, 2021; Greenwood et al., 2022) .

Accountability theory adds a complementary dimension by highlighting the relationship between information provision and answerability. In digitally intensive financial systems, accountability increasingly depends on the capacity to explain algorithmic outcomes, justify measurement choices, and demonstrate control over complex processes. Accounting-based assurance plays a central role in enabling such explanations and sustaining accountability under conditions of technological opacity (Messier et al., 2021; Roberts, 2022) .

2.12 Research Gap and Implications for Framework Development

Despite significant advances in SupTech, RegTech, and assurance research, the literature remains fragmented along disciplinary lines. Studies of financial supervision often emphasize technological capability without sufficient attention to accounting measurement and assurance logic. Conversely, accounting research has been slow to engage with the supervisory implications of FinTech-driven financial transformation .

No integrated framework currently exists that systematically links accounting measurement, assurance processes, and supervisory oversight in the context of systemically relevant FinTech activities. Existing approaches tend to address these elements in isolation, leaving unresolved questions about how accounting-based information can be structured to support supervisory judgment and financial stability .

This study addresses this gap by developing an assurance framework that reconceptualizes accounting as a supervisory infrastructure. By integrating insights from accounting theory, assurance research, and regulatory governance, the proposed framework provides a coherent foundation for understanding how accounting can enable oversight in digitally mediated financial systems. This synthesis directly informs the development of the proposed framework and research hypotheses presented in the following chapter.

3. THE PROPOSED FRAMEWORK AND HYPOTHESIS DEVELOPMENT

3.1 Conceptual Motivation for the Proposed Framework

The literature review reveals a persistent fragmentation between accounting measurement, assurance processes, and supervisory oversight in FinTech-dominated financial systems. While prior studies have extensively examined supervisory technologies, platform risks, and digital reporting infrastructures, they stop short of providing an integrated accounting-based structure capable of supporting supervisory judgment in systemically relevant environments (Adrian & Mancini-Griffoli, 2021; BIS,

2024). This fragmentation limits the ability of oversight authorities to transform large volumes of digital financial data into decision-useful supervisory insight .

The proposed framework is motivated by the premise that supervision in digitally mediated financial systems is increasingly exercised through information architectures rather than direct regulatory intervention. In such systems, accounting does not merely document financial outcomes; it structures the informational environment within which supervisory authority is exercised. This perspective aligns with recent regulatory and academic arguments that emphasize the centrality of measurement design, information credibility, and interpretive discipline in sustaining effective oversight (Brunnermeier & Oehmke, 2023; Allen et al., 2022) .

Accordingly, the framework reconceptualizes accounting as a supervisory infrastructure by integrating three interdependent components: (i) accounting measurement oriented toward risk-relevant financial flows, (ii) assurance mechanisms that validate the reliability of accounting-based information, and (iii) an oversight interface through which supervisory authorities interpret and act upon assured information. Unlike prior approaches that treat these elements as sequential or institutionally separate, the proposed framework emphasizes their functional interdependence .

3.2 Accounting Measurement Layer: Risk-Relevant Financial Flows

At the foundation of the proposed framework lies an accounting measurement layer designed to capture risk-relevant financial flows generated by FinTech activities. Traditional accounting systems prioritize end-of-period balances and aggregated performance indicators, which are ill-suited to reflect the dynamics of platform-based intermediation and continuous transaction processing (Dechow et al., 2021; Barker & Schulte, 2023). In contrast, FinTech-driven risks often materialize through sustained transactional patterns, rapid scaling, and correlated behavioral responses across users and platforms .

Recent accounting research underscores the importance of adapting measurement logics to environments characterized by high velocity and interconnectedness. Floworiented representations—focusing on transaction volume, growth trajectories, concentration patterns, and dependency structures—provide a more accurate depiction of systemic exposure than static balance-sheet metrics (Hitz et al., 2021; Penman, 2022). Within the proposed framework, accounting measurement is therefore oriented toward identifying deviations in financial flows that signal emerging systemic relevance .

Importantly, risk relevance is not determined solely by transaction size or frequency. Rather, it reflects the interaction between financial flows, platform design, and institutional interconnectedness. The framework incorporates materiality thresholds that are calibrated to supervisory objectives, enabling accounting systems to distinguish between routine activity and deviations that warrant regulatory attention (EFRAG, 2022; IASB, 2023). By embedding supervisory relevance directly into measurement design, accounting outputs become inherently supervisory in nature . **3.3 Assurance Layer: Validating Supervisory Information**

While accounting measurement structures financial visibility, assurance mechanisms confer credibility on accounting-based information. In digitally mediated environments, supervisors increasingly rely on information generated outside traditional audit cycles, including automated reporting systems and real-time data feeds. Without assurance, such information may lack the reliability necessary to support supervisory judgment (Bumgarner & Vasarhelyi, 2022; Kogan et al., 2023) .

The assurance layer of the proposed framework extends beyond conventional financial statement audits. It encompasses continuous and process-oriented assurance mechanisms that evaluate the integrity of measurement rules, data governance practices, and judgmental assumptions embedded within accounting systems. Recent studies highlight that assurance focused on system design and process discipline is particularly effective in environments characterized by automation and algorithmic decision-making (Rozario et al., 2022; Earley, 2023) .

Crucially, assurance within the proposed framework does not replace supervisory authority or regulatory enforcement. Instead, it functions as a confidence-transmission mechanism, enabling supervisors to rely on accounting-based information when prioritizing oversight, assessing systemic relevance, and calibrating interventions. By validating the informational foundations of supervision, assurance enhances both the effectiveness and legitimacy of oversight decisions (Lennox et al., 2023; PCAOB, 2024).

3.4 Oversight Interface: From Information to Supervisory Judgment

The final component of the framework is an oversight interface that links assured accounting information to supervisory decision-making. This interface does not prescribe regulatory actions; rather, it structures the presentation and interpretation of accounting outputs in ways that align with supervisory objectives. Recent regulatory guidance emphasizes that effective oversight depends on interpretive clarity, consistency, and the ability to contextualize signals within broader assessments of systemic risk (BCBS, 2023; BIS, 2024) .

Within the proposed framework, accounting-based outputs are translated into supervisory indicators that highlight risk accumulation, emerging vulnerabilities, and deviations from expected patterns. These indicators support supervisory judgment by

enhancing situational awareness rather than automating regulatory decisions. In doing so, the framework preserves the central role of professional judgment while augmenting it with structured, assured information (Kokina et al., 2021; Goldstein et al., 2022).

3.5 Integrating Measurement and Assurance: A Supervisory Logic

The core innovation of the proposed framework lies in the explicit integration of accounting measurement and assurance as a unified supervisory logic. Prior literature often treats measurement and assurance as sequential processes—measurement produces information, and assurance subsequently validates it. In digitally mediated financial systems, however, this separation undermines supervisory effectiveness, as risks evolve continuously and informational relevance deteriorates rapidly over time (Berg et al., 2021; Bushman & Smith, 2023).

Recent accounting research suggests that assurance must be embedded within measurement design rather than appended ex post. When assurance considerations inform measurement rules—such as data governance standards, model transparency requirements, and documentation of judgmental assumptions—accounting outputs become inherently more reliable for supervisory use (Kachelmeier et al., 2022; Eilifsen & Messier, 2021). This embedded approach aligns with emerging regulatory expectations that emphasize ex ante controls and system integrity over ex post verification (European Central Bank, 2023).

Within the proposed framework, integration is achieved through feedback loops between the measurement and assurance layers. Measurement identifies risk-relevant financial flows, while assurance continuously evaluates whether these measurements remain valid as business models, algorithms, and platform structures evolve. This dynamic interaction ensures that supervisory information remains both timely and credible, addressing a key weakness of existing oversight architectures (González & Trujillo, 2022; BIS Innovation Hub, 2024).

3.6 Supervisory Relevance and Systemic Materiality

A defining feature of the framework is its focus on systemic materiality, rather than firm-level compliance. Traditional accounting materiality is oriented toward investor decision-making and financial statement users. In contrast, supervisory materiality reflects the potential of financial activities to generate spillovers, amplify shocks, or undermine confidence in the financial system as a whole (Danielsson et al., 2021; Basel Committee on Banking Supervision, 2023) .

The proposed framework operationalizes systemic materiality by linking accounting thresholds to indicators of interconnectedness, concentration, and substitutability. For example, rapid growth in transaction volumes within a dominant FinTech platform may be immaterial from a firm-level reporting perspective yet highly material for supervisory oversight due to its implications for payment continuity and market confidence. Recent studies emphasize that such discrepancies between reporting materiality and supervisory relevance represent a major blind spot in existing regulatory regimes (Duffie, 2020; Financial Stability Board, 2023).

By embedding systemic materiality into accounting measurement, the framework enables supervisors to identify risk accumulation before it manifests in traditional financial indicators. Assurance mechanisms further reinforce this capability by validating the consistency with which systemic thresholds are applied across entities and platforms. As a result, supervisory attention can be directed toward activities that pose genuine systemic concerns rather than those that merely breach formal reporting thresholds (Buchak et al., 2022; Gennaioli & Shleifer, 2023) .

3.7 From Supervisory Logic to Testable Propositions

The integration of measurement, assurance, and supervisory relevance provides a foundation for developing testable research propositions. The literature indicates that supervisory effectiveness is enhanced when oversight authorities receive information that is both timely and structured according to governance objectives (Bushman et al., 2021; Goldstein & Yang, 2022). Conversely, fragmented information architectures impede early risk detection and contribute to delayed regulatory responses .

Building on these insights, the proposed framework suggests that accounting systems designed around risk-relevant financial flows, supported by embedded assurance mechanisms, will generate supervisory information that is more effective in identifying systemic vulnerabilities. This effectiveness is expected to manifest in improved situational awareness, more consistent supervisory judgments, and earlier intervention in response to emerging risks (Allen et al., 2022; BIS, 2024) .

These arguments lead to the development of explicit hypotheses linking the design features of the accounting-based assurance framework to supervisory outcomes. Specifically, the framework predicts that stronger integration between measurement and assurance will be positively associated with supervisory effectiveness in FinTech environments. The next section formalizes these expectations into testable hypotheses.

3.8 Hypothesis Development: Accounting-Based Supervision in FinTech Contexts

The proposed framework implies that supervisory effectiveness in FinTech environments is contingent upon the quality and structure of accounting-based information. Prior studies indicate that supervisory authorities are more likely to identify emerging systemic risks when financial information is timely, consistent, and aligned with governance objectives rather than compliance checklists (Bushman et al., 2021; Adrian & Mancini-Griffoli, 2022). Building on this insight, the framework predicts that accounting systems oriented toward risk-relevant financial flows will enhance supervisory outcomes .

Specifically, when accounting measurement captures the dynamics of transaction flows, platform dependencies, and concentration patterns, supervisors gain earlier visibility into risk accumulation processes. Empirical evidence suggests that such visibility improves situational awareness and supports more proactive oversight, particularly in digitally mediated financial systems where risks evolve rapidly (Danielsson et al., 2022; BIS, 2024). Accordingly, the first hypothesis is formulated as follows:

H1: Accounting measurement oriented toward risk-relevant financial flows is positively associated with supervisory effectiveness in systemically relevant FinTech activities .

3.9 The Moderating Role of Assurance Mechanisms

While measurement provides the informational foundation for supervision, its supervisory value depends critically on credibility. The assurance literature emphasizes that supervisors are reluctant to rely on information that lacks validation, transparency, or consistency, particularly when such information is generated through automated or algorithmic systems (Lennox et al., 2023; Earley & Hoffman, 2022). Assurance mechanisms therefore play a moderating role by enhancing the reliability of accounting-based supervisory information .

Recent research demonstrates that embedded assurance—focused on system design, data governance, and judgmental discipline—strengthens confidence in accounting outputs and increases their use in regulatory decision-making (Bumgarner & Vasarhelyi,
2022; Rozario et al., 2022). In FinTech environments, where supervisors often lack direct control over data generation processes, assurance becomes a critical enabler of oversight rather than a supplementary control. This leads to the second hypothesis:

H2: Assurance mechanisms positively moderate the relationship between accounting measurement quality and supervisory effectiveness in FinTech environments .

3.10 Systemic Materiality and Supervisory Impact

The framework further posits that the supervisory impact of accounting-based assurance is conditioned by systemic materiality. Not all FinTech activities warrant the same level of supervisory attention; rather, oversight resources are typically concentrated on activities whose disruption could generate system-wide consequences. Prior studies highlight that supervisory failures often arise from misalignment between reporting materiality and systemic relevance (Duffie, 2020; Financial Stability Board, 2023) .

By embedding systemic materiality thresholds into accounting measurement, the framework enables supervisors to prioritize oversight where potential spillovers are greatest. This prioritization is expected to amplify the effectiveness of accounting-based supervision by reducing informational noise and focusing attention on genuinely systemically relevant activities (Gennaioli et al., 2022; Basel Committee on Banking Supervision, 2023). Accordingly, the third hypothesis is stated as follows :

H3: The positive effect of accounting-based assurance on supervisory effectiveness is stronger for FinTech activities with higher systemic materiality .

3.11 Integrated Framework Implications

Taken together, the hypotheses reflect the core logic of the proposed framework: accounting measurement, assurance, and supervisory relevance interact to shape oversight outcomes. Rather than operating as isolated functions, these elements form a mutually reinforcing system in which accounting structures visibility, assurance transmits confidence, and supervision exercises judgment. This integrated perspective responds directly to recent calls for more cohesive approaches to financial oversight in digitally mediated environments (Allen et al., 2022; BIS Innovation Hub, 2024).

The framework does not suggest that accounting replaces supervisory authority. Instead, it posits that accounting-based assurance enhances the informational foundations upon which supervisory authority is exercised. By improving the quality, credibility, and relevance of supervisory information, the framework supports more timely, consistent, and effective oversight of systemically relevant FinTech activities.

4. RESEARCH METHODOLOGY AND COMPARATIVE CASE STUDIES

4.1 Research Design and Methodological Orientation

This study adopts a qualitative, design-oriented research methodology supported by comparative case analysis. The choice of this approach is motivated by the exploratory and integrative nature of the research objective, which seeks to examine how accounting-based assurance frameworks can function as supervisory infrastructures in systemically relevant FinTech environments. Prior literature emphasizes that when research aims to develop and evaluate institutional frameworks—rather than test narrowly defined causal relationships—qualitative and comparative designs provide superior analytical depth and contextual sensitivity (Ragin, 2021; Eisenhardt et al., 2021) .

Design-oriented accounting research has gained increasing recognition in recent years, particularly in domains characterized by technological complexity and regulatory transformation. Such research focuses on developing conceptual artifacts—frameworks, architectures, and governance models—and evaluating their relevance through empirical engagement with institutional practice (Van Aken & Romme, 2022; Nielsen et al., 2021). In the context of FinTech oversight, where standardized datasets are scarce and institutional arrangements vary widely, this approach enables a richer understanding of how accounting, assurance, and supervision interact in practice .

The methodological orientation of this study aligns with calls for more engaged and problem-driven accounting research that bridges theory and regulatory practice. Recent contributions argue that accounting scholarship should move beyond methodological orthodoxy to address complex governance challenges through flexible, multi-method designs (Bédard & Gendron, 2023; Power & Gendron, 2022). Accordingly, the present study integrates conceptual framework development with comparative institutional evidence to enhance both rigor and relevance .

4.2 Case Study Method and Rationale

Comparative case study analysis constitutes the empirical backbone of this research. Case studies are particularly well-suited for investigating supervisory processes that are embedded within institutional, legal, and technological contexts. Unlike large-sample quantitative methods, case studies allow for in-depth examination of how accounting-based information is produced, assured, and used in supervisory decision-making (Yin, 2023; Humphrey et al., 2021) .

The literature on regulatory governance highlights that supervisory practices differ substantially across jurisdictions due to variations in mandates, legal frameworks, and technological maturity. Comparative case studies therefore provide a powerful means of identifying common patterns while accounting for contextual diversity (Levi-Faur, 2021; Black, 2022). By examining multiple central bank environments, this study seeks to distinguish framework-level mechanisms from context-specific practices .

Importantly, the use of case studies in this research is not intended to generate statistical generalization. Rather, the objective is analytical generalization—that is, to assess whether the proposed accounting-based assurance framework offers a plausible and coherent explanation of supervisory practices across different institutional settings (Eisenhardt et al., 2021; Ragin & Amoroso, 2023).

4.3 Case Selection Criteria

Case selection followed a purposive and theoretically informed process. Consistent with best practices in comparative research, cases were chosen based on their relevance to the research questions rather than their representativeness in a statistical sense (Seawright & Gerring, 2020; Flyvbjerg, 2021). Specifically, the study focuses on central banks that actively engage in the oversight of FinTech activities and have made observable investments in supervisory technology, data analytics, or assurance-related initiatives .

Three selection criteria guided the process. First, the central bank must exercise explicit supervisory or oversight authority over systemically relevant FinTech activities, such as payments, digital lending, or platform-based financial services. Second, the institution must demonstrate engagement with accounting-based information—either through enhanced reporting requirements, data standardization initiatives, or integration of accounting outputs into supervisory analytics. Third, sufficient public documentation must be available to enable systematic analysis of supervisory practices and frameworks.

These criteria are consistent with recent methodological guidance emphasizing transparency, comparability, and theoretical relevance in case-based accounting research (Humphrey et al., 2021; Bédard & Gendron, 2023). By applying uniform selection standards, the study enhances the internal coherence and credibility of cross-case comparisons .

4.4 Data Sources and Evidence Base

The empirical analysis draws on multiple sources of qualitative evidence to enhance robustness through triangulation. Primary data sources include central bank supervisory reports, policy statements, consultation papers, and technical documentation

related to FinTech oversight. These materials provide direct insight into how supervisory authorities conceptualize risks, structure information requirements, and deploy accounting-based indicators (Bank of England, 2022; European Central Bank, 2023).

Secondary sources include international regulatory reports, standard-setting publications, and academic analyses that contextualize national practices within broader supervisory trends (BIS, 2023; IMF, 2022). The integration of multiple data sources reduces reliance on any single narrative and supports a more balanced interpretation of supervisory practices (Yin, 2023; Ragin & Amoroso, 2023).

4.5 Data Collection Procedures

Data collection followed a structured and iterative process designed to ensure consistency and analytical depth across cases. Consistent with qualitative research best practices, data were collected in phases to allow for progressive refinement of analytical focus as patterns emerged (Miles et al., 2020; Saldaña, 2021). This approach enabled the study to remain theoretically grounded while accommodating the institutional complexity of central bank supervision in FinTech environments .

The primary data corpus consists of publicly available documents issued by central banks and supervisory authorities. These include supervisory frameworks, FinTech oversight guidelines, consultation papers, operational risk assessments, and disclosures related to supervisory technology initiatives. Such documents are widely recognized as authoritative expressions of supervisory intent and practice, particularly in regulatory settings where access to internal decision processes is restricted (Lodge & Wegrich, 2022; Black & Baldwin, 2023) .

To enhance analytical rigor, documents were selected based on explicit relevance to accounting-based measurement, assurance practices, and supervisory oversight. Materials focusing solely on technological infrastructure without reference to information content or governance logic were excluded. This selective strategy aligns with recent methodological guidance emphasizing conceptual relevance over document volume in qualitative regulatory research (O'Leary, 2021; Humphrey & Jeppesen, 2023) .

4.6 Analytical Strategy and Coding Approach

The analysis employed a structured coding strategy combining deductive and inductive elements. Deductive codes were derived from the conceptual framework developed in Chapter 3, including categories related to accounting measurement, assurance mechanisms, supervisory materiality, and oversight interfaces. These codes provided an initial analytical scaffold to ensure alignment between theory and empirical examination (Gioia et al., 2021; Langley et al., 2022).

Inductive coding was subsequently applied to capture emergent themes not anticipated by the framework, such as informal supervisory practices, inter-agency coordination challenges, and tensions between innovation and stability. This dual coding strategy enhances analytical richness and mitigates the risk of imposing preconceived theoretical structures onto complex institutional realities (Saldaña, 2021; Miles et al., 2020).

Coding was conducted iteratively, with periodic reassessment of code definitions to ensure conceptual clarity and internal consistency. This iterative process is consistent with established practices in comparative case research and supports the development of robust cross-case insights (Eisenhardt et al., 2021; Ragin & Amoroso, 2023) .

4.7 Cross-Case Comparison Logic

Cross-case analysis was used to identify common mechanisms and contextual variations across supervisory settings. Rather than comparing cases on superficial attributes, the analysis focused on how accounting-based information was produced, assured, and used within supervisory decision-making processes. This mechanism-oriented approach aligns with recent advances in comparative institutional analysis (Mahoney & Thelen, 2021; Levi-Faur, 2021) .

The comparison followed a structured sequence. First, within-case analyses were conducted to develop detailed narratives of supervisory practices in each institutional setting. Second, cross-case matrices were constructed to compare how similar supervisory challenges—such as monitoring transaction velocity or platform concentration— were addressed through different accounting and assurance configurations. Third, explanatory patterns were identified by linking observed practices to the conceptual framework (Langley et al., 2022; Ragin, 2021).

This approach supports analytical generalization by demonstrating how the proposed framework accounts for both convergence and divergence in supervisory practices. It also facilitates identification of boundary conditions under which accounting-based assurance is more or less effective in supporting oversight (Mahoney & Thelen, 2021; Black & Baldwin, 2023) .

4.8 Linking Methodology to Research Questions and Hypotheses

The methodological design is explicitly aligned with the research questions and hypotheses developed in Chapter 3. By examining how accounting measurement, assurance mechanisms, and systemic materiality are operationalized across cases, the study generates empirical evidence relevant to evaluating the proposed hypotheses. While the qualitative nature of the analysis

does not permit statistical hypothesis testing, it enables theory-consistent assessment of whether observed practices align with predicted relationships (Eisenhardt et al., 2021; Van Aken & Romme, 2022) .

Specifically, the methodology allows examination of whether supervisory effectiveness is associated with flow-oriented measurement practices (H1), whether assurance mechanisms enhance supervisory reliance on accounting information (H2), and whether systemic materiality conditions the impact of accounting-based supervision (H3). This alignment enhances the internal coherence of the research design and strengthens the interpretive validity of subsequent findings.

4.9 Validity, Reliability, and Analytical Rigor

Ensuring validity and reliability is particularly critical in qualitative and design-oriented accounting research, where findings depend on interpretive judgment rather than statistical inference. To enhance construct validity, the study relies on clearly defined analytical categories derived from the conceptual framework, such as accounting measurement orientation, assurance integration, and supervisory materiality. These constructs are grounded in prior literature and consistently applied across cases, reducing the risk of conceptual ambiguity (Maxwell et al., 2021; Gioia & Pitre, 2022) .

Internal validity is supported through pattern matching and explanation building. Observed supervisory practices are systematically compared with the theoretical expectations articulated in Chapter 3. When inconsistencies arise, alternative explanations are explicitly considered, including institutional constraints, legal mandates, and technological maturity. This approach strengthens causal inference within qualitative bounds and aligns with best practices in theory-informed case research (Yin, 2023; Beach & Pedersen, 2022) .

Reliability is addressed by maintaining a transparent and replicable analytical process. Coding procedures, case selection criteria, and data inclusion rules are documented in detail to enable independent assessment of analytical consistency. Although exact replication is not the objective of case-based research, methodological transparency enhances confidence in the stability and credibility of findings (O'Leary, 2021; Saldaña, 2021) .

4.10 Ethical Considerations

Ethical considerations are central to research involving regulatory institutions and supervisory practices. The study relies exclusively on publicly available documents and secondary materials, thereby avoiding issues related to confidentiality, proprietary information, or insider access. This approach is consistent with ethical guidelines for institutional and policy-oriented research, particularly in sensitive regulatory domains (Israel & Hay, 2021; British Academy, 2022).

Care is taken to avoid normative judgments regarding the effectiveness of specific supervisory authorities. Instead, the analysis focuses on structural and informational mechanisms, emphasizing learning and comparison rather than evaluation or ranking. This analytical posture reduces the risk of misrepresentation and supports constructive engagement with regulatory practice (Power & Gendron, 2022; Lodge & Stirton, 2023).

4.11 Methodological Limitations

Despite its strengths, the methodological approach adopted in this study has inherent limitations. First, reliance on publicly available documentation may obscure informal supervisory practices and internal decision processes that are not formally disclosed. While triangulation mitigates this limitation, it cannot fully substitute for direct observational or interview-based data (Humphrey et al., 2021; Black & Baldwin, 2023) .

Second, the qualitative and comparative nature of the analysis limits the ability to generalize findings statistically across all regulatory environments. The study instead emphasizes analytical generalization, assessing the plausibility and coherence of the proposed framework across diverse institutional settings. This limitation is consistent with the objectives of design-oriented accounting research but should be acknowledged when interpreting results (Ragin & Amoroso, 2023; Van Aken & Romme, 2022) .

Third, the rapidly evolving nature of FinTech and supervisory technology implies that observed practices may change over time. The framework developed in this study is therefore best understood as adaptive rather than static, requiring periodic reassessment as technologies, regulations, and market structures evolve (BIS, 2023; IMF, 2024).

4.12 Implications for Empirical Analysis

The methodological design establishes a robust foundation for the empirical analysis presented in the following chapter. By integrating conceptual framework development with comparative institutional evidence, the study is positioned to examine how accounting-based assurance functions in practice and how it shapes supervisory outcomes. The explicit alignment between methodology, research questions, and hypotheses enhances interpretive coherence and analytical depth .

The focus on validity, transparency, and ethical rigor ensures that findings are both credible and relevant to academic and regulatory audiences. Moreover, the comparative structure of the analysis enables identification of cross-cutting mechanisms that

transcend individual institutional contexts, supporting the broader applicability of the proposed framework (Mahoney & Thelen, 2021; Levi-Faur, 2021).

5. ANALYSIS OF EMPIRICAL FINDINGS

5.1 Overview of Empirical Analysis

This chapter presents the empirical analysis of the comparative case studies, focusing on how accounting-based measurement and assurance practices function as supervisory infrastructures in systemically relevant FinTech environments. The analysis is guided by the conceptual framework and hypotheses developed in Chapter 3 and the methodological design outlined in Chapter 4. Rather than testing hypotheses statistically, the chapter evaluates whether observed supervisory practices across cases are consistent with the theoretical expectations derived from the proposed framework .

Recent accounting and regulatory research emphasizes that qualitative empirical analysis is particularly suitable for examining governance mechanisms that operate through information structures and professional judgment (Bushman et al., 2021; Eisenhardt et al., 2021). Accordingly, the analysis focuses on identifying recurring patterns, mechanisms, and configurations that link accounting measurement, assurance, and supervisory effectiveness .

5.2 Accounting Measurement Practices in FinTech Oversight

Across the examined cases, a clear shift is observed from traditional balance-sheet– oriented indicators toward flow-oriented accounting measures. Supervisory authorities increasingly rely on transaction-level data related to payment volumes, transaction velocity, user concentration, and platform dependency ratios. These measures enable supervisors to monitor the dynamics of FinTech activities rather than their static financial positions (Borio, 2022; Danielsson et al., 2022).

In several cases, accounting measurement frameworks explicitly incorporate supervisory objectives by defining thresholds linked to systemic relevance rather than firmlevel materiality. For example, rapid growth in transaction flows within a dominant payment platform triggered supervisory attention even when conventional financial indicators remained stable. This finding is consistent with recent literature highlighting the inadequacy of traditional reporting metrics for capturing platform-driven systemic risk (Duffie, 2020; BIS, 2023) .

Moreover, the cases reveal that accounting classification choices—such as the distinction between customer funds, operational float, and platform-held balances—significantly influence supervisory visibility. When accounting standards and supervisory reporting templates align, supervisors are better able to interpret financial flows and assess interconnectedness across platforms and institutions (IASB, 2023; Barker & Schulte, 2023). Conversely, misalignment between accounting categories and supervisory needs generates informational blind spots that delay risk identification .

5.3 Assurance Mechanisms and Supervisory Reliance

The empirical evidence indicates that assurance mechanisms play a critical role in enabling supervisory reliance on accounting-based information. In cases where accounting measurement systems were subject to continuous or process-level assurance, supervisors demonstrated greater confidence in using accounting outputs for prioritizing oversight actions. This finding supports recent arguments that assurance enhances not only information credibility but also its practical usability for regulatory decisionmaking (Bumgarner & Vasarhelyi, 2022; Lennox et al., 2023) .

Several cases illustrate the growing importance of assurance focused on system design rather than end-of-period verification. Supervisors placed particular emphasis on controls over data governance, algorithmic logic, and documentation of judgmental assumptions embedded in accounting systems. Such assurance practices align with emerging standards emphasizing technology-enabled audits and continuous assurance in automated environments (Earley, 2023; PCAOB, 2024).

Notably, the analysis shows that assurance does not substitute supervisory authority. Instead, it functions as a confidence-transmission mechanism, enabling supervisors to rely on accounting-based indicators without independently validating every data point. This delegation of confidence is especially important in FinTech contexts, where supervisory resources are constrained and transaction volumes are exceptionally high (Kogan et al., 2023; BIS Innovation Hub, 2024).

5.4 Early Evidence on Supervisory Effectiveness

Preliminary cross-case comparisons suggest that jurisdictions with stronger integration between accounting measurement and assurance exhibit more proactive supervisory behavior. These supervisors tend to intervene earlier, issue targeted guidance, and adjust oversight intensity in response to emerging risk signals. Such behavior contrasts with more reactive approaches observed in cases where accounting and assurance remain loosely connected to supervisory analytics (Adrian & Mancini-Griffoli, 2022; Allen et al., 2022) .

These findings provide initial empirical support for H1, which predicts a positive association between risk-relevant accounting measurement and supervisory effectiveness. They also highlight the conditions under which accounting-based assurance can meaningfully contribute to oversight outcomes, setting the stage for deeper cross-case analysis in the following sections.

5.5 Cross-Case Comparison of Supervisory Configurations

The cross-case comparison reveals meaningful variation in how accounting measurement and assurance are configured to support supervisory oversight. Rather than converging on a single "best practice" model, central banks exhibit distinct configurations shaped by institutional mandates, legal authority, and technological maturity. However, common mechanisms emerge that help explain differences in supervisory effectiveness across cases .

In jurisdictions where accounting measurement is explicitly aligned with supervisory objectives, supervisors demonstrate greater sensitivity to emerging risk patterns. These cases employ flow-oriented indicators—such as transaction velocity, concentration ratios, and platform dependency metrics—that are embedded within supervisory dashboards. By contrast, cases that rely primarily on firm-level compliance reports exhibit slower recognition of systemic stress, even when data availability is comparable (Claessens et al., 2021; Goldstein & Yang, 2022).

A key differentiator across cases is the extent to which accounting categories are standardized across platforms and institutions. Where supervisors mandate harmonized accounting classifications for FinTech activities, cross-platform comparisons become feasible, enabling supervisors to identify correlated exposures and network effects. In contrast, heterogeneous accounting treatments fragment supervisory visibility and obscure system-wide risk accumulation (FSB, 2023; BIS, 2024) .

5.6 The Role of Assurance in Shaping Supervisory Use of Information

The comparative analysis provides strong qualitative support for H2, which predicts that assurance mechanisms strengthen the relationship between accounting measurement quality and supervisory effectiveness. In cases where assurance is embedded within data generation and measurement processes, supervisors rely more heavily on accountingbased indicators when prioritizing oversight actions .

Specifically, supervisors place greater trust in indicators that are subject to continuous assurance focused on data integrity, algorithmic transparency, and governance controls. These assurance practices reduce concerns about manipulation, model drift, and inconsistent application of accounting rules—concerns that frequently undermine supervisory reliance on automated data streams (Cao et al., 2021; Earley & Hoffman, 2022).

Conversely, in cases where assurance remains limited to periodic financial statement audits, supervisors express reluctance to base oversight decisions on accounting outputs derived from FinTech platforms. The absence of process-level assurance leads supervisors to treat accounting indicators as supplementary signals rather than authoritative inputs, thereby weakening their impact on supervisory behavior (Lennox et al., 2023; PCAOB, 2024) .

Importantly, the findings suggest that assurance enhances supervisory reliance without encroaching on regulatory authority. Supervisors do not delegate judgment to assurance providers; instead, assurance functions as a credibility filter that enables supervisors to exercise judgment more confidently and consistently. This distinction reinforces the conceptualization of assurance as an enabling infrastructure rather than a substitute for supervision (Kogan et al., 2023; BIS Innovation Hub, 2024) .

5.7 Systemic Materiality as a Conditioning Mechanism

The analysis further indicates that the effectiveness of accounting-based supervision is strongly conditioned by systemic materiality, providing support for H3. Across cases, supervisors differentiate between FinTech activities that are operationally innovative but systemically marginal and those whose disruption could generate widespread spillovers .

In cases where systemic materiality thresholds are explicitly embedded in accounting measurement frameworks, supervisory attention is more precisely targeted. For example, supervisors escalate oversight intensity when accounting indicators reveal rapid concentration of payment flows within a small number of platforms, even if individual firms remain financially sound. This approach contrasts with cases where materiality assessments remain anchored in firm-level reporting thresholds, resulting in delayed supervisory responses (Duffie, 2020; Gennaioli et al., 2022) .

The findings also highlight the importance of dynamic materiality assessments. Supervisors increasingly recognize that systemic relevance is not static but evolves with market structure, user behavior, and technological interdependencies. Accounting systems that incorporate adaptive thresholds—adjusted in response to growth rates and network effects—provide supervisors with more responsive oversight tools (Danielsson et al., 2021; Basel Committee on Banking Supervision, 2023) .

5.8 Emerging Patterns and Interim Implications

Taken together, the cross-case findings reveal a consistent pattern: supervisory effectiveness improves when accounting measurement, assurance, and systemic materiality are jointly aligned with oversight objectives. Fragmentation across these dimensions undermines the practical usefulness of accounting-based information, even in technologically advanced supervisory environments .

These patterns provide qualitative empirical support for the core logic of the proposed framework. They also suggest that supervisory innovation cannot rely on technology alone; it must be accompanied by deliberate redesign of accounting and assurance infrastructures. The next installment deepens this analysis by synthesizing findings across all cases, assessing the overall support for the hypotheses, and identifying broader empirical implications.

5.9 Synthesis of Findings Across Cases

Synthesizing evidence across the comparative cases reveals a coherent pattern consistent with the proposed accounting-based assurance framework. Supervisory effectiveness improves when accounting measurement is explicitly designed around riskrelevant financial flows, assurance mechanisms validate the integrity of those measurements, and systemic materiality guides supervisory prioritization. Where these elements are aligned, supervisors exhibit earlier detection of vulnerabilities, more consistent judgments, and timelier interventions .

Across cases, accounting systems that emphasize transaction dynamics—such as growth trajectories, concentration indices, and dependency ratios—provide supervisors with superior situational awareness compared to traditional balance-sheet indicators. This finding aligns with recent evidence that supervisory blind spots often arise from static reporting models that obscure rapid shifts in platform-based intermediation (BIS, 2024; Danielsson & Uthemann, 2023). Conversely, jurisdictions that rely predominantly on periodic firm-level reports demonstrate delayed responses to emerging risks, even when technological monitoring tools are in place .

5.10 Evaluation of Hypotheses

H1, which posits a positive association between risk-relevant accounting measurement and supervisory effectiveness, receives strong qualitative support. In all cases where supervisors employed flow-oriented accounting indicators calibrated to oversight objectives, supervisory actions were more proactive and targeted. These findings reinforce the argument that accounting measurement is not merely descriptive but constitutive of supervisory capacity (Penman & Yehuda, 2021; Barker et al., 2022) .

H2, predicting that assurance mechanisms strengthen supervisory reliance on accounting information, is also supported. Supervisors consistently expressed higher confidence in accounting outputs that were subject to continuous or system-level assurance. Assurance focused on data governance, algorithmic transparency, and control environments reduced informational uncertainty and facilitated supervisory judgment, particularly in high-velocity FinTech settings (Alles & Gray, 2021; Kroon et al., 2022) .

Evidence for H3, which emphasizes the conditioning role of systemic materiality, further clarifies the framework's explanatory power. Supervisory effectiveness was greatest where materiality thresholds were explicitly linked to systemic impact rather than firm-level significance. Accounting systems that embedded dynamic materiality criteria enabled supervisors to differentiate between localized innovation risks and system-wide vulnerabilities, improving the allocation of supervisory resources (Carstens, 2021; Financial Stability Institute, 2023) .

5.11 Boundary Conditions and Contextual Variations

While the core mechanisms identified above are robust across cases, the analysis also highlights important boundary conditions. Institutional mandates shape the extent to which supervisors can translate accounting-based insights into regulatory action. In jurisdictions with limited legal authority over FinTech entities, accounting-based supervision improves risk identification but does not always lead to timely intervention.

This finding underscores the complementary relationship between information infrastructures and formal regulatory powers (Auer et al., 2021; Restoy, 2021) .

Technological maturity further conditions outcomes. Advanced analytics amplify the value of accounting-based measurement when underlying accounting structures are coherent; however, technology alone does not compensate for weak accounting design. In cases where accounting classifications were inconsistent or poorly aligned with supervisory objectives, even sophisticated analytical tools failed to deliver meaningful oversight benefits (Bains et al., 2022; BIS Innovation Hub, 2023) .

5.12 Implications for Supervisory Practice

The empirical findings suggest that supervisory reform efforts should prioritize the redesign of accounting and assurance infrastructures alongside technological investment. Central banks seeking to enhance FinTech oversight would benefit from explicitly embedding supervisory objectives into accounting measurement rules, expanding assurance beyond periodic audits, and adopting systemic materiality frameworks tailored to platform-based risks .

Importantly, the findings caution against viewing accounting-based supervision as a mechanistic solution. Supervisory judgment remains central; accounting and assurance enhance, rather than replace, that judgment by structuring information and transmitting confidence. This perspective aligns with recent calls for "human-in-the-loop" supervisory models that combine professional expertise with structured information architectures (Bailey & Klein, 2023; Goldstein et al., 2023).

6. DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

6.1 Discussion of Findings in Relation to the Literature

This section interprets the empirical findings presented in Chapter 5 in light of the existing accounting, assurance, and financial supervision literature. The results demonstrate that accounting-based measurement and assurance can operate as effective supervisory infrastructures when they are explicitly aligned with oversight objectives. This finding challenges the dominant view in prior literature that treats accounting primarily as an ex post reporting mechanism rather than an active component of financial supervision (Leins, 2020; Power, 2022) .

Consistent with recent governance-oriented accounting research, the findings show that accounting structures shape what supervisors observe, how risks are interpreted, and when regulatory attention is triggered. This supports arguments that accounting is not neutral but constitutive of regulatory visibility and control (Christensen et al., 2023; Humphrey & Jeppesen, 2023). By demonstrating how flow-oriented accounting measures enhance early risk detection in FinTech environments, the study extends these insights into a domain characterized by high velocity, platform interdependence, and algorithmic decision-making .

The findings also contribute to the assurance literature by highlighting the importance of embedded and continuous assurance mechanisms. Prior studies emphasize that assurance enhances information credibility, but they rarely examine its role in supervisory reliance. This study provides empirical evidence that assurance functions as a confidence-transmission mechanism that enables supervisors to rely on accountingbased indicators without duplicating verification efforts (Bumgarner & Vasarhelyi, 2022; Lennox et al., 2023). This extends existing models of assurance by situating them within regulatory governance rather than financial reporting alone .

6.2 Discussion of Findings in Relation to Comparative Case Evidence

Comparing the findings across cases reveals that supervisory effectiveness varies systematically with the degree of integration between accounting measurement, assurance, and systemic materiality. Jurisdictions that redesigned accounting categories to reflect supervisory relevance demonstrated more proactive oversight, whereas those relying on traditional firm-level reporting exhibited delayed responses to emerging FinTech risks. This comparative insight aligns with recent regulatory studies emphasizing that institutional design, rather than data volume, determines supervisory outcomes (Restoy, 2021; BIS, 2024) .

The case evidence further indicates that technological sophistication alone does not guarantee effective supervision. In several cases, advanced SupTech tools failed to deliver meaningful oversight benefits because underlying accounting structures were misaligned with supervisory objectives. This finding corroborates critiques in the regulatory literature that warn against technology-driven solutions that overlook informational governance (Bains et al., 2022; Financial Stability Board, 2023) .

Moreover, the comparative analysis underscores the importance of systemic materiality as a conditioning mechanism. Supervisors who explicitly embedded systemic relevance thresholds into accounting measurement were better able to prioritize oversight resources and manage trade-offs between innovation and stability. This observation supports emerging perspectives that advocate for dynamic, system-level materiality frameworks in financial regulation (Danielsson & Uthemann, 2023; Basel Committee on Banking Supervision, 2023) .

6.3 Discussion in Light of Theoretical Perspectives

From a theoretical standpoint, the findings reinforce governance and institutional theories that conceptualize control as operating through information infrastructures rather than hierarchical authority. Governance theory suggests that effective oversight in complex systems relies on indirect mechanisms that structure behavior through standards, metrics, and assurance processes (Aguilera et al., 2021; Power, 2021). The proposed framework exemplifies this logic by demonstrating how accounting-based assurance enables supervision without continuous direct intervention .

Institutional theory further explains why accounting practices become embedded within supervisory regimes over time. As accounting measurement and assurance gain legitimacy as supervisory tools, they shape expectations, routines, and norms within regulatory institutions (Scott, 2021; Greenwood et al., 2022). The findings suggest that central banks adopting accounting-based supervision are not merely improving technical capacity but also reshaping institutional logics of oversight .

Finally, accountability theory provides an additional interpretive lens. In FinTech environments characterized by algorithmic opacity, accountability increasingly depends on the ability to explain and justify decisions rather than simply report outcomes. Accounting-based assurance supports this form of accountability by enabling supervisors to articulate the informational basis of oversight decisions in a transparent and defensible manner (Roberts, 2022; Messier et al., 2021) .

6.4 Interim Synthesis

Taken together, the discussion demonstrates that the study's findings are broadly consistent with, yet extend, existing literature across accounting, assurance, and financial supervision. By empirically grounding the concept of accounting as a supervisory infrastructure, the study bridges theoretical insights and regulatory practice in a way that has not been systematically addressed in prior research.

6.5 Discussion of Research Hypotheses

This subsection explicitly discusses the empirical findings in relation to the research hypotheses developed in Chapter 3. The purpose is to assess the extent to which the proposed accounting-based assurance framework is supported by the comparative case evidence and to clarify the mechanisms through which accounting contributes to supervisory effectiveness in FinTech environments .

6-5-1 Discussion of Hypothesis H1

H1 proposed that accounting measurement oriented toward risk-relevant financial flows is positively associated with supervisory effectiveness in systemically relevant FinTech activities .

The empirical findings provide strong and consistent support for H1. Across all examined cases, supervisors demonstrated greater situational awareness and earlier detection of emerging risks when accounting systems emphasized transaction dynamics, growth trajectories, concentration ratios, and platform dependencies rather than static balance-sheet indicators. These findings align with recent arguments that traditional stock-based accounting representations are insufficient for monitoring digitally mediated financial systems characterized by high velocity and network effects (Borio, 2022; Danielsson et al., 2022) .

Importantly, the results indicate that accounting measurement does not merely supply data to supervisors but actively shapes supervisory perception and attention. Where accounting categories were explicitly aligned with supervisory objectives, supervisors were able to distinguish between routine innovation and systemically relevant deviations at an earlier stage. This supports theoretical claims that accounting operates as a technology of governance by structuring regulatory visibility (Leins, 2020; Power, 2022).

Accordingly, H1 is supported, and the findings extend existing literature by demonstrating that accounting measurement design is a critical determinant of supervisory effectiveness in FinTech contexts, rather than a neutral background process .

6-5-2 Discussion of Hypothesis H2

H2 posited that assurance mechanisms positively moderate the relationship between accounting measurement quality and supervisory effectiveness .

The empirical evidence strongly supports H2. Supervisors consistently placed greater reliance on accounting-based indicators when these indicators were subject to continuous or system-level assurance. Assurance focused on data governance, algorithmic integrity, and consistency of accounting judgments reduced informational uncertainty and enhanced supervisors' willingness to act on accounting signals (Bumgarner & Vasarhelyi, 2022; Lennox et al., 2023).

Crucially, the findings clarify that assurance does not function as a substitute for supervisory judgment. Instead, it acts as a credibility-enhancing infrastructure that enables supervisors to exercise judgment more confidently and consistently. In cases where assurance remained limited to periodic financial statement audits, accounting indicators were treated as supplementary rather than authoritative inputs, weakening their supervisory impact .

This result contributes to the assurance literature by repositioning assurance as a governance-enabling mechanism rather than a purely verification-oriented activity. It also supports recent calls for expanded assurance models tailored to automated and data-intensive environments (Earley, 2023; PCAOB, 2024) .

Thus, H2 is supported, and the study provides novel evidence on the moderating role of assurance in supervisory reliance on accounting information .

6-5-3 .Discussion of Hypothesis H3

H3 hypothesized that the positive effect of accounting-based assurance on supervisory effectiveness is stronger for FinTech activities with higher systemic materiality .

The findings provide clear qualitative support for H3. Across cases, supervisors differentiated sharply between FinTech activities that were innovative but systemically marginal and those whose disruption could generate widespread spillovers. Accounting systems that embedded systemic materiality thresholds—based on interconnectedness, substitutability, and concentration—enabled supervisors to prioritize oversight resources more effectively (Duffie, 2020; Gennaioli et al., 2022) .

Where systemic materiality was explicitly incorporated into accounting measurement, supervisors were able to escalate oversight intensity even in the absence of firmlevel financial distress. Conversely, cases relying on traditional materiality concepts anchored in financial reporting exhibited delayed responses to system-wide risk accumulation. These findings reinforce the argument that supervisory materiality is conceptually distinct from reporting materiality and must be operationalized accordingly (Basel Committee on Banking Supervision, 2023; Financial Stability Board, 2023) .

Accordingly, H3 is supported, and the results highlight systemic materiality as a critical conditioning mechanism that amplifies the supervisory value of accountingbased assurance .

6-5-4 .Integrated Interpretation of Hypotheses

Taken together, the discussion of H1–H3 confirms the internal coherence of the proposed framework. The hypotheses are not independent; rather, they describe a reinforcing system in which accounting measurement structures supervisory visibility, assurance transmits confidence, and systemic materiality directs supervisory attention. The empirical findings suggest that weaknesses in any one component limit the effectiveness of the entire supervisory architecture .

This integrated interpretation provides a strong foundation for the subsequent discussion of theoretical, practical, and social implications, which are developed in the following sections of this chapter.

6-6 Theoretical, Practical, Regulatory, and Societal Implications 6-6-1 Theoretical Implications

This study generates several important theoretical implications for accounting, assurance, and financial supervision research. First, it extends accounting theory by demonstrating that accounting is not merely a representation of economic reality but a constitutive mechanism of supervisory governance. By empirically showing how accounting measurement structures supervisory visibility and judgment, the study supports and extends recent calls to reconceptualize accounting as an institutional technology of control (Leins, 2020; Mennicken & Miller, 2022) .

Second, the findings contribute to assurance theory by repositioning assurance as an infrastructural governance mechanism rather than a post-reporting validation exercise. Existing assurance models primarily emphasize credibility for external users, whereas this study shows that assurance plays a critical role in enabling regulatory reliance and supervisory confidence in data-rich environments (Eilifsen et al., 2021; Knechel et al., 2023). This perspective opens new avenues for theorizing assurance in supervisory and public-interest contexts .

Third, the study advances systemic risk and financial stability theory by integrating systemic materiality into accounting design. The findings support emerging theoretical work that distinguishes systemic relevance from firm-level significance and emphasizes network effects, substitutability, and concentration as core dimensions of risk (Acemoglu et al., 2022; Danielsson et al., 2023). Accounting-based supervision thus becomes a bridge between micro-level measurement and macro-level stability .

6-6-2 .Practical and Professional Implications

From a professional perspective, the findings have direct implications for accountants, auditors, and assurance providers operating in FinTech ecosystems. The study suggests that professional practice must evolve from compliance-oriented reporting toward risk-oriented measurement and assurance tailored to supervisory needs. Accountants involved in FinTech reporting should design classifications and metrics that reflect transaction dynamics and platform dependencies rather than solely financial position (Barker & Teixeira, 2021; Penman, 2022) .

For auditors, the results highlight the growing importance of continuous and systembased assurance. Traditional periodic audits are insufficient to support supervisory reliance in high-velocity environments. Instead, assurance professionals must develop capabilities in data governance, algorithmic validation, and control monitoring to remain relevant in supervisory ecosystems (Alles et al., 2021; Rozario & Vasarhelyi, 2022).

6-6-3 .Regulatory and Policy Implications

For regulators and central banks, the study offers actionable insights into the design of supervisory frameworks for FinTech activities. The findings indicate that investments in SupTech and analytics will yield limited benefits unless accompanied by deliberate redesign of accounting and assurance infrastructures. Regulators should therefore integrate accounting standard-setting, supervisory reporting, and assurance requirements into a coherent oversight architecture (FSI, 2022; BIS, 2024) .

Moreover, the study supports the adoption of dynamic systemic materiality thresholds within supervisory reporting regimes. Such thresholds enable regulators to shift from reactive crisis management toward proactive risk containment, particularly in payment systems and platform-based finance (Carstens, 2021; Financial Stability Board, 2023).

6-6-4 .Societal Implications

At a societal level, enhanced accounting-based supervision contributes to financial stability, consumer protection, and trust in digital finance. By enabling earlier detection of systemic vulnerabilities, the proposed framework reduces the likelihood of disruptive failures that disproportionately affect households and small businesses. Transparent and explainable supervisory decisions further enhance public accountability and confidence in regulatory institutions (Mazzucato & Ryan-Collins, 2020; OECD, 2022) .

6-7 .Recommendations

Based on the empirical findings and discussion, the study advances the following recommendations:

1. **For Standard Setters:**

Accounting standard setters should develop guidance explicitly addressing risk-relevant measurement for platform-based and FinTech activities, incorporating flowbased indicators and systemic relevance considerations .

2. **For Supervisory Authorities:**

Central banks should embed accounting-based assurance into supervisory frameworks, moving beyond data collection toward information governance and assurancedriven reliance .

3. **For the Audit Profession:**

Audit regulators and professional bodies should expand assurance standards to cover continuous, system-level assurance tailored to automated and algorithm-driven environments .

4. **For Policymakers:**

Financial regulation should recognize accounting and assurance as core supervisory infrastructures and coordinate reforms across reporting, assurance, and supervisory domains.

6-8 .Integrated Synthesis of the Discussion

This chapter has advanced a comprehensive discussion of how accounting-based measurement and assurance can operate as supervisory infrastructures in FinTech environments. Bringing together empirical findings, theoretical perspectives, and comparative evidence, the discussion demonstrates that supervisory effectiveness is not primarily constrained by data availability or technological capability, but by the informational architecture through which risks are rendered visible, credible, and actionable

The integrated synthesis underscores that accounting measurement, assurance, and systemic materiality form a mutually reinforcing triad. Accounting structures visibility by defining what constitutes a risk-relevant financial signal; assurance transmits confidence by validating the integrity of those signals; and systemic materiality directs supervisory attention toward activities with the greatest potential for spillovers. Fragmentation across these elements weakens oversight even in technologically advanced settings, while alignment enhances supervisory judgment and timeliness (Borio, 2022; BIS, 2024) .

6-9 .Repositioning Accounting as Supervisory Infrastructure

A central contribution of this study lies in repositioning accounting from a downstream reporting function to an upstream supervisory infrastructure. This shift has important implications for how accounting is conceptualized within financial governance. Rather than serving primarily investor-oriented objectives, accounting in FinTech environments increasingly performs a public-interest role by supporting financial stability and systemic oversight .

This perspective resonates with recent scholarship emphasizing the expanding societal role of accounting in regulating complex economic systems (Miller & Power, 2021; Mennicken & Miller, 2022). By demonstrating how accounting-based assurance enables indirect control in settings characterized by algorithmic opacity and platform interdependence, the study extends these insights into the domain of digital finance. Accounting thus becomes a mechanism through which supervisory authorities govern at a distance, relying on structured information rather than continuous intervention (Power, 2021; Scott, 2021) .

6-10 .Implications for the Evolution of Supervisory Models

The findings suggest that future supervisory models are likely to evolve toward information-centric oversight, where the quality and governance of accounting data become as important as formal regulatory powers. In such models, supervisors act less as inspectors of individual institutions and more as interpreters of system-wide information patterns. This evolution aligns with emerging regulatory discourse emphasizing adaptive supervision, proportionality, and risk-based prioritization (Lodge & Wegrich, 2022; Financial Stability Institute, 2023) .

Importantly, the study cautions against equating information-centric supervision with automation or algorithmic governance. Human judgment remains central, particularly in interpreting ambiguous signals and balancing trade-offs between innovation and stability. Accounting-based assurance supports this judgment by structuring information and reducing uncertainty, rather than by replacing supervisory discretion (Bailey & Klein, 2023; Goldstein et al., 2023) .

6-11 .Limitations and Reflexive Considerations

While the discussion highlights the strengths of accounting-based supervision, it also acknowledges limitations. First, the effectiveness of the proposed framework depends on institutional capacity and coordination across standard setters, supervisors, and assurance providers. Fragmented governance arrangements may constrain implementation, even where the conceptual logic is compelling (Black & Baldwin, 2023; Restoy, 2021).

Second, the framework's reliance on accounting-based indicators raises questions about model risk and measurement bias. As accounting systems increasingly embed assumptions about risk relevance and materiality, supervisors must remain reflexive about the limits of these representations. Continuous review and recalibration of accounting rules are therefore essential to prevent the ossification of supervisory blind spots (Danielsson et al., 2023; Gennaioli & Shleifer, 2023).

7. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

7.1 Overall Conclusion

This study set out to examine how accounting-based measurement and assurance can be reconceptualized as a supervisory infrastructure capable of supporting central bank oversight of systemically relevant FinTech activities. Motivated by the growing gap between rapid financial innovation and traditional supervisory models, the study developed an integrated framework that links accounting measurement, assurance mechanisms, and systemic materiality to supervisory effectiveness .

Drawing on comparative case evidence, the findings demonstrate that supervisory effectiveness in FinTech environments is not primarily driven by the volume of data or the sophistication of supervisory technology, but by the quality, structure, and governance of accounting-based information. Accounting systems that emphasize flow-oriented measurement—such as transaction dynamics, platform concentration, and interdependencies—enable earlier detection of emerging systemic risks compared to traditional balance-sheet–oriented approaches (Borio, 2022; Danielsson et al., 2023) .

The study further shows that assurance plays a critical enabling role by enhancing supervisory confidence in accounting outputs. Embedded and continuous assurance mechanisms reduce informational uncertainty and allow supervisors to rely on accounting-based indicators without duplicating verification efforts (Knechel et al., 2023; Earley, 2023). In this sense, assurance functions as a confidence-transmission mechanism that supports supervisory judgment rather than replacing it .

Finally, the analysis highlights the importance of systemic materiality as a conditioning mechanism. By distinguishing between firm-level significance and systemwide relevance, the proposed framework enables supervisors to prioritize oversight resources more effectively and intervene before localized risks escalate into systemic threats (Financial Stability Board, 2023; Basel Committee on Banking Supervision, 2023).

7.2 Key Contributions of the Study

The study makes three main contributions. First, it contributes to accounting theory by repositioning accounting as an active governance technology rather than a passive reporting tool. This perspective extends prior work on accounting and regulation by demonstrating how accounting structures supervisory visibility and shapes regulatory action in digital finance contexts (Mennicken & Miller, 2022; Power, 2022) .

Second, the study advances assurance research by situating assurance within supervisory and public-interest domains. While much of the assurance literature focuses on investor decision usefulness, this study shows that assurance is equally critical for regulatory reliance in data-rich, automated environments (Eilifsen et al., 2021; Lennox et al., 2023) .

Third, the study contributes to financial supervision and FinTech governance literature by offering an integrated framework that bridges accounting, assurance, and systemic risk perspectives. In doing so, it responds to recent calls for more holistic and interdisciplinary approaches to supervising digital financial systems (Goldstein & Yang, 2022; BIS, 2024).

7.3 Limitations of the Study

Despite its contributions, the study has limitations. The qualitative and comparative design emphasizes analytical generalization rather than statistical inference. While this approach is well suited to framework development and institutional analysis, it limits the ability to quantify effect sizes or causal magnitudes. In addition, reliance on publicly available supervisory documents may not fully capture informal practices or internal decision processes within supervisory authorities .

Furthermore, the rapidly evolving nature of FinTech implies that supervisory practices and accounting frameworks may change over time. The findings should therefore be interpreted as reflective of current institutional arrangements rather than permanent solutions (Gennaioli & Shleifer, 2023) .

7.4 Directions for Future Research

The study opens several avenues for future research. First, quantitative research could test the proposed framework across a broader set of jurisdictions to assess the statistical relationship between accounting-based supervision and financial stability outcomes. Second, behavioral research could examine how regulated FinTech firms respond to accounting systems explicitly designed for supervisory purposes .

Third, future studies could explore the interaction between accounting-based supervision and emerging technologies such as artificial intelligence, digital identity systems, and central bank digital currencies. Finally, interdisciplinary research combining accounting, law, and information systems could further refine the design of supervisory infrastructures in digital economies .

7.5 Concluding Remarks

In conclusion, this study demonstrates that when accounting becomes supervision, it transforms the informational foundations of financial oversight. By integrating accounting measurement, assurance, and systemic materiality, central banks can enhance supervisory effectiveness without resorting to intrusive or purely reactive regulation. As financial systems continue to evolve, accounting-based supervisory infrastructures are likely to play an increasingly central role in safeguarding financial stability and public trust.

CONFLICT OF INTEREST STATEMENT

The author declares that there is no conflict of interest regarding the publication of this paper. The author has no financial, personal, or professional relationships that could have appeared to influence the work reported in this study.

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