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Bridging the Assurance Gap: A Systematic Literature Review and Proposed Conceptual Framework for the Assessment of First-Line Defense Maturity in Banking Institutions

Muhamad Sidik Heruwibowo[1], Moch Abdillah Nafis[2]
[1]Tarumanagara University, Jakarta, Indonesia, muhamad.1182525001@stu.untar.ac.id
[2]Institut Teknologi Sepuluh Nopember, Surabaya, Indonesia, manafis@its.ac.id

Corresponding Author: muhamad.1182525001@stu.untar.ac.id[1]

Abstract: This study aims to (1) synthesize the existing literature on the maturity of First Line of Defence risk management through the PRISMA 2020-based Systematic Literature Review (SLR), and (2) propose the FLOMA-C (First-Line-of-Defence Maturity Assessment—Comprehensive) Framework as the first maturity assessment instrument for banking operational units. This study used a two-phase design, namely SLR with the PRISMA 2020 protocol covering four databases (Scopus, Web of Science, ProQuest, EBSCO) which produced 47 final articles after a double blind screening process and CASP quality assessment with an inter-coder reliability test (Cohen's Kappa $\kappa = 0.84$); and (2) the development of conceptual frameworks through the thematic synthesis of TCCM. The results show that SLR identifies six dominant themes that collectively confirm " Asymmetric Assurance "—a systematic imbalance in which the maturity frameworks for the Second and Third Lines are well established, while the First Line of Defense does not have a single standardized maturity assessment instrument. In response, the FLOMA-C Framework is proposed with six weighted dimensions and five maturity levels, operationalized through a hybrid assessment mechanism (self-assessment and independent validation). This framework is conceptual and requires cross-institutional empirical validation. Literature searches are limited to English and Indonesian publications from specific databases, so the potential for publication bias cannot be completely eliminated. This study uses FLOMA-C which provides a self-diagnosis tool for leaders of banking business units and a structured benchmark for the Financial Services Authority (OJK) in evaluating the Risk-Based Bank Rating (RBBR) parameters related to First Line of Defense accountability. Strengthening risk ownership at operational origin contributes to macrofinancial system stability and reduced probability of systemic governance failure. This study is the first to formally conceptualize "Asymmetric Assurance" as a new academic construct, and offers a maturity assessment framework (FLOMA-C) devoted exclusively to the First Line of Defense—filling a methodological gap that has never been addressed before in the banking risk management literature.

Keyword: Risk Management, First Line of Defense, Risk Maturity, Asymmetric Assurance, FLOMA-C.

INTRODUCTION

The implementation of more effective and integrated Risk Governance is one of the main demands in the midst of the complexity of the dynamics of the banking industry. In this case, the common framework that is often used is the Three Lines Model as a model for risk management and organizational governance. The model published by the Institute of Internal Auditors (IIA) places operational units as the First Line of Defence, risk management and compliance functions as the Second Line of Defense, and internal audit as the Third Line of Defense (Institute of Internal Auditors, 2020). The significance of this model is reflected in its adoption rate reaching more than 85% of global financial institutions (Arena et al., 2010; Deloitte, 2023).

However, the development of evaluation instruments in each defense line did not take place in a balanced manner. Various international frameworks and standards, such as COSO ERM, ISO 31000, the International Professional Practices Framework (IPPF), as well as the Supervisory Review and Evaluation Process (SREP) mechanism from Basel, have provided a relatively mature approach to assessing the effectiveness of Second and Third Line functions. In contrast, the operational units that make up the First Line of Defense still do not have a standardized and academically recognized maturity assessment framework. This condition gives rise to a governance paradox which in this study is conceptualized as "Asymmetric Assurance", which is a situation when the organization formally designates a business unit as a risk owner, but does not have adequate instruments to measure the extent to which the ownership of the risk is carried out effectively and maturely.

This issue has become increasingly important as various international regulators have consistently emphasized the importance of risk accountability in the operational line. The Basel Committee Banking Supervision (2011, 2015) affirms that risk management should be an inherent part of daily business activities. In line with that, the Financial Stability Board (2014) places a culture of risk and accountability as the foundation of sound governance. In Indonesia, similar demands are realized through the Financial Services Authority Regulation Number 18/POJK.03/2016 (Otoritas Jasa Keuangan, 2016) concerning the Implementation of Risk Management for Commercial Banks and POJK Number 17/POJK.03/2023 (Otoritas Jasa Keuangan, 2023) concerning the Implementation of Governance. Both regulations affirm banks' obligations to ensure the implementation of effective risk management across all organizational lines.

In practice, the regulatory demands have not been fully offset by the availability of measurement instruments that are able to evaluate the maturity level of risk management implementation in operational units. This condition is very crucial in the context of the implementation of Risk-Based Bank Rating (RBBR) by the OJK, which implicitly expects effective risk accountability on all lines of defense. Without an assessment instrument specifically designed for the First Line of Defense, the evaluation process has the potential to capture only formalistic administrative compliance or compliance theater, i.e. conditions when documentation and procedures appear to be adequate, but operational violations persist because the risk culture and risk management capabilities at the operational level have never been systematically measured or improved. Recent evidence from Indonesian banking also supports the importance of risk governance structures in enhancing organizational outcomes. Studies have shown that effective risk governance mechanisms, including risk management committees and governance oversight structures, contribute to lower systemic risk exposure and improved banking performance in Indonesia (Irawan & Hanggraeni, 2025; Kurniawan et al., 2024; Tan et al., 2026).

This gap is also reflected in the development of academic literature. Various studies have successfully defined roles and responsibilities in the Three Lines Model (Deloitte, 2023; Institute of Internal Auditors, 2020; Slapničar et al., 2023), developing an Enterprise Risk Management maturity model at the corporate level (COSO, 2017; International Monetary Fund,

2019; International Organization for Standardization, 2018), and emphasizing the importance of risk culture as an indicator of governance quality (Financial Stability Board, 2014; International Organization for Standardization, 2018; KPMG International, 2023; Lechner & Gatzert, 2018). In addition, a number of studies and practitioner reports have identified weak accountability and risk ownership in the First Line of Defense (Bromiley et al., 2015; Grant Thornton, 2024; Power, 2007; PricewaterhouseCoopers, 2022; Wyman, 2018). However, these studies have not produced a formally, standardized, and replicable maturity assessment instrument to assess the risk management capabilities of operational business units.

Based on the existing body of literature, no prior study has developed or empirically validated a dedicated maturity assessment framework for evaluating First Line of Defense capabilities in the banking sector. The findings indicate several research gaps. The lack of a clear conceptualization of the form of operational maturity of risk ownership in business units is one of the conceptual gaps that need to be studied further. In addition, there is a methodological gap where the dominant maturity is still designed top-down and oriented towards corporate control, making it less suitable for measuring capabilities at the operational level. The empirical gap is also indicated by the lack of research that models and tests the maturity construct of risk management in the First Line of Defense. There is even a regulatory gap that highlights that regulators are only limited to setting the obligation to implement risk management without providing a standard instrument to measure the maturity level of its implementation. Practical gaps can also be seen in the use of tools such as Risk and Control Self-Assessment (RCSA), which are vulnerable to managerial optimism bias and are often limited to meeting administrative needs.

Departing from these various gaps, this study aims to synthesize the literature on the Three Lines Model, risk management maturity, and accountability of the First Line of Defense through the PRISMA 2020-based Systematic Literature Review (SLR) approach. Furthermore, this study developed FLOMA-C (First-Line-of-Defence Maturity Assessment Comprehensive) as a conceptual framework to assess the maturity of risk management in the First Line of Defence. In addition, this study also proposes a hybrid assessment mechanism that combines *self-assessment* with independent validation to increase the objectivity of measurement results.

Theoretically, this study seeks to contribute to the literature on banking risk governance by exploring the concept of Asymmetric Assurance, extending the application of agency theory to the operational context of the First Line of Defense, and examining the suitability of Capability Maturity Model (CMM) principles for assessing non-information technology functions in banking institutions. Furthermore, the study aims to bridge the Three Lines Model literature with the maturity model literature, two streams of research that have largely evolved separately. From a practical perspective, the study is expected to support the development of an assessment framework that can assist business units in evaluating their risk management capabilities, provide reference standards for compliance and internal audit functions, and contribute to discussions on strengthening supervisory and regulatory assessment mechanisms within the banking sector. From a practical perspective, the study is expected to support the development of an assessment framework that can assist business units in evaluating their risk management capabilities, provide reference standards for compliance and internal audit functions, and contribute to discussions on strengthening supervisory and regulatory assessment mechanisms within the banking sector. By addressing these issues, the study seeks to fill important conceptual, methodological, and practical gaps in the assessment of First Line of Defense risk management maturity. To the best of our knowledge, this study is the first to systematically conceptualize Asymmetric Assurance and propose a dedicated maturity assessment framework for the First Line of Defense in banking. Accordingly, this review addresses the following research questions:

RQ1: What theories, frameworks, and empirical evidence exist regarding First Line of Defense risk management maturity in banking institutions?

RQ2: What critical dimensions and behavioral maturity levels should constitute a robust conceptual framework for assessing First Line of Defense maturity?
RQ3: How can a hybrid assessment mechanism combining self-assessment and independent validation be structured to operationalize the proposed conceptual framework?

METHOD

This study uses an interpretivist paradigm with a constructivist approach that is carried out in two phases. The first phase is in the form of a Systematic Literature Review (SLR) to identify, evaluate, and synthesize literature related to risk management maturity, Three Lines of Defence (3LOD), and First Line of Defence (1LOD). The second phase is in the form of the development of the FLOMA-C (First-Line-of-Defence Maturity Assessment—Comprehensive) conceptual framework based on the results of the literature synthesis.

SLR is carried out following the guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 (Page et al., 2021). The literature search process was carried out on four international databases, namely Scopus, Web of Science (WoS), ProQuest (ABI/INFORM), and EBSCO (Business Source Complete). The search was conducted on titles, abstracts, and keywords using four keyword groups which included the concept of Three Lines of Defence, maturity model, First Line of Defence, and conceptual framework development.

Inclusion criteria include peer-reviewed journal articles published in the 2010–2024 period, focusing on the banking, financial services, or risk governance sectors, discussing 3LOD, 1LOD, or risk ownership, available in English or Indonesian, and fully accessible. On the other hand, books, editorials, opinions, working papers, articles before 2010, studies that focus on maturity models outside the context of risk governance, studies that only discuss quantitative risk modelling, and articles that are not available in full-text form are excluded from the analysis. A summary of inclusion and exclusion criteria is presented in Table 1.

Table 1. Inclusion and Exclusion Criteria

Criteria Inclusion	Exclusion Criteria
1. The article is published in *a peer-reviewed* journal.	1. Books, book reviews, editorials, opinions, and *working papers* that are not peer-reviewed.
2. Publication between 2010 and 2024 (the post-global crisis period and the initial formalization of 3LOD).	2. Articles published before 2010.
3. Focus on the banking, financial services, or corporate risk governance sector in general.	3. Maturity model in purely technical sectors (e.g. nursing, civil construction) without risk governance relevance.
4. Explicitly discuss the role of the First Line of Defense, 3LOD, or ownership of operational risks.	4. Studies that focus exclusively on quantitative risk modeling (e.g. calculation of VaR algorithms, *stress testing*).
5. Written in English or Bahasa Indonesia.	5. Articles in languages other than English and Indonesian.
6. *Full-text* is available for analysis.	6. Full text cannot be accessed through institutional subscriptions or open databases.

The article selection process follows the stages of identification, screening, eligibility, and inclusion as shown in the PRISMA diagram (Figure 1). All articles that passed the full-text stage were then evaluated using the Critical Appraisal Skills Programme (CASP) instrument modified for management research. Assessments were carried out on ten aspects of methodological quality with a score range of 0–2 for each indicator. Articles with a minimum score of 12 out of a total maximum score of 20 are declared worthy of analysis.

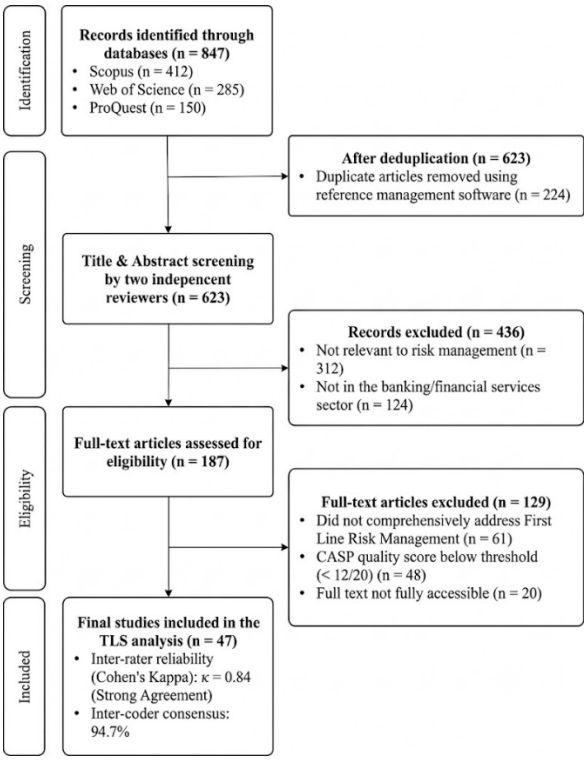


Figure 1. PRISMA Flow Diagram

To increase the objectivity of the research, the screening, quality assessment, and coding processes were carried out independently by two researchers. Inter-coder reliability is tested using Cohen's Kappa coefficients:

$$\kappa = (Po - Pe) / (1 - Pe)$$

The test results showed a value of $\kappa = 0.84$ which indicated a very strong agreement rate based on Landis & Koch (1977) classification, with an absolute agreement rate of 94.7%.

A total of 47 articles that met all criteria were then analyzed using the TCCM (Theories, Contexts, Characteristics, and Methods) framework. This framework is used to map the theoretical foundation, the context of the research, the characteristics of the construct being studied, and the methodological approach used. The results of the TCCM synthesis were then used to identify the dominant themes and research gaps that became the basis for the development of the FLOMA-C framework.

As a conceptual validation stage, the initial design of FLOMA-C was reviewed through expert judgment involving three senior banking practitioners with more than ten years of experience in the fields of risk management, internal audit, and corporate governance. Semi-structured interviews lasting approximately 60–90 minutes each were used to obtain input related to the relevance of the proposed dimensions, indicators, and maturity levels. Interview transcripts were analyzed using thematic analysis following the six-phase process outlined by Braun and Clarke (2006), in which recurring themes were identified across expert responses, coded systematically, and reviewed for convergence or divergence with the draft framework. Based on this analysis, several specific refinements were incorporated into the final FLOMA-C design. First, the weighting of the Risk Ownership and Accountability dimension (D1) was increased to 20% following consistent expert feedback that accountability clarity is the primary predictor of First Line of Defence effectiveness. Second, experts recommended the addition of explicit behavioral anchors distinguishing proactive from reactive risk escalation at Levels 3 and 4. Third, the hybrid assessment scoring formula was revised to assign a higher weight (40%) to independent validation to better mitigate self-assessment optimism bias. These changes are reflected in Table 3. Based on the results of the literature synthesis and expert validation, the final FLOMA-C framework consists of six dimensions and five maturity levels

to assess risk management capabilities in the First Line of Defence. It is further recommended that the PRISMA diagram (Figure 1) be reproduced at a minimum resolution of 300 dpi in the final publication to ensure full legibility in both print and digital formats.

RESULTS AND DISCUSSION

Bibliometric Literature Profile and Analysis

An analysis of 47 articles that met the criteria showed an increase in academic attention to banking risk governance during the period 2010–2024. As shown in Table 2, almost half of the publications (49%) were published in the period 2020–2023, indicating increasing attention to the effectiveness of the Three Lines of Defence (3LOD) in an increasingly complex regulatory environment.

In terms of methodology, the literature is dominated by conceptual or normative studies (42%), followed by quantitative empirical research (31%), case studies or qualitative (18%), and mixed approaches (9%). The dominance of conceptual studies shows that the discourse on risk governance is still developing faster than the development of measurement instruments that can be empirically tested. This condition indicates a methodological limitation in evaluating the effectiveness of the First Line of Defence (1LOD) objectively.

The analysis of the theoretical foundations showed the dominance of Agency Theory (38%) and Institutional Theory (27%), followed by the Capability Maturity Model approach (19%). These findings suggest that the main issues discussed in the literature relate to information asymmetry, accountability, and organizational compliance pressures.

Table 2. Bibliometric and Methodological Profile of the Literature (n = 47)

Dimensions of Analysis	Category Parameter	Frequency	Percentage	Synthesis Implications
Temporal Distribution	2010 - 2015	8	17%	Initial anxiety in the post-introduction phase of IIA (2013).
	2016 - 2019	16	34%	A surge in responsiveness after the FSB & Basel regulatory reforms.
	2020 - 2023	23	49%	The dominance of literature attention on current governance.
Methodology Orientation	Conceptual/Normative Discussion	20	42%	The dominance of normative writing reflects the severity of methodological caveats; It is very difficult to carry out empirical tests in the absence of standardized measurement metrics.
	Empirical-Quantitative (Survey/Data)	15	31%	
	Case/Qualitative Studies	8	18%	
	Mixed Approach	4	9%	
Foundations of Dominant Theory	Theory Keagenan	18	38%	The conflict of information asymmetry (agency) and compliance pressure (institutional) is the main problematic anchor in the First Line of Defense.
	Institutional Theory	13	27%	
	CMM Derivatives/Maturity Capabilities	9	19%	
	Other Frameworks / Non-specific	7	16%	
Affiliate Platforms (Dominant Journals)	Managerial Auditing Journal (15%), Journal of Banking Regulation (12%), Risk Management (10%)			

Thematic Synthesis and Identification of Asymmetric Assurance

The results of the analysis of 47 articles showed that there were six groups of findings that were interrelated. These findings collectively lead to the identification of phenomena which in this study are conceptualized as Asymmetric Assurance.

The literature shows that the Three Lines of Defence (3LOD) is still the most dominant risk governance architecture in the banking sector. Its broad adoption rate reflects a global acceptance of the division of roles between operational functions, risk management functions, and independent assurance functions. However, various studies have also highlighted recurring structural weaknesses, especially the emergence of silo mentality and the tendency to shift risk management responsibilities from business units to risk management functions. When the functions in the second line are maturing in terms of resources and competence, operational units tend to view risks as the responsibility of other parties so that moral hazard symptoms appear in the First Line of Defence.

This problem is increasingly visible when viewed from the perspective of organizational maturity. The literature shows a relatively rapid development in the maturity model for supervision and assurance functions, both in the second and third lines. Instead, no instrument specifically designed to assess the maturity level of the First Line of Defence was found. Most of the available models operate at the organizational level on a macro basis and have not been able to translate how mature operational behavior should be realized at the business unit level. These findings show that there is an imbalance of academic attention to various lines of defense.

The absence of such maturity instruments has direct implications for the issue of ownership and risk accountability. Although almost all of the literature confirms that business units are the primary risk owners, studies have found that these responsibilities are often not clearly translated into performance indicators or formal accountability mechanisms. Mikes (2009), Oliver Wyman (2018), dan PricewaterhouseCoopers (2022) identified role ambiguity, diffusion of responsibility, and the tendency of operational units to be reactive to risk. In many cases, mitigation measures are only taken after a directive from the audit or risk management function.

In response to the difficulty of measuring the effectiveness of the First Line of Defence, some organizations are starting to rely on the concept of risk culture as a substitute indicator. This approach has gained support from various regulators and practitioners because it is able to drive risk awareness at the individual and organizational level. However, the Arena et al. (2010), Financial Stability Board (2014) dan KPMG Internasional (2023) affirm that a risk culture cannot replace the need for a structured maturity framework. Without clear behavioral indicators and systematic measurement mechanisms, risk culture risks stalling at an awareness level without producing observable operational changes.

These limitations encourage the emergence of various assessment approaches that seek to increase the objectivity of assessment. Several studies, particularly those examining the implementation of the Senior Managers Regime in the UK, show that self-assessments conducted exclusively by business units are vulnerable to biased optimism and overconfidence. Therefore, the literature is increasingly leading to the use of a hybrid assessment approach that combines self-assessment with independent validation of the risk or assurance function (Deloitte, 2023).

The findings suggest a more fundamental gap between regulatory expectations and organizational measurement capabilities. Various international standards, including Basel Committee Banking Supervision (2011, 2015), as well as national regulations such as POJK No. 18/POJK.03/2016, consistently place First Line of Defence as the primary owner of operational risks. However, the literature shows that the mandate is not accompanied by the availability of instruments that are able to measure the level of maturity of its implementation objectively. As a result, organizations are often only able to demonstrate administrative

compliance without adequate evidence of the effectiveness of risk management at the operational level.

FLOMA-C Conceptual Framework

Based on the results of the SLR, this study proposes FLOMA-C (First-Line-of-Defence Maturity Assessment Comprehensive) as a maturity assessment framework specifically designed for First Line of Defence (1LOD) in the banking sector. This framework was developed to address the literature gap that indicates the unavailability of maturity instruments focused on operational units.

FLOMA-C is built on three main components, namely a conceptual foundation based on the Three Lines Model (Institute of Internal Auditors, 2020), Agency Theory and banking regulation, an assessment matrix that integrates the dimensions of capability and maturity level, and a repair mechanism that translates the results of the assessment into recommendations for capability improvement.

This framework consists of six main dimensions, namely Risk Ownership and Accountability (D1), Risk Culture and Awareness (D2), Risk Identification and Assessment (D3), Control Design and Implementation (D4), Monitoring and Reporting (D5), and Capability and Competency (D6). The six dimensions are formulated through a synthesis of the most consistent indicators appearing in the literature and are weighted according to their significance to the effectiveness of risk management.

To describe the development of organizational capabilities, FLOMA-C adopts five levels of maturity adapted from the Capability Maturity Model (CMM), namely Initial/Ad-hoc, Repeatable, Defined, Managed, and Optimizing. The combination of six dimensions and five levels of maturity results in a 5×6 assessment matrix consisting of 30 behavioral anchors that can be used to evaluate the actual condition of the operational unit. The complete matrix of FLOMA-C is presented in Table 3.

Table 3. FLOMA-C Matrix: Description of Behavior by Dimension and Maturity Level

Dimension	Level 1 – Initial	Level 2 – Repeatable	Level 3 – Defined	Level 4 – Managed	Level 5 – Optimizing
D1: Ownership & Accountability (20%)	Risk responsibilities are not reflected in KPIs. Unit heads are unaware of their unit's key risk exposures.	Some staff understand their risk-related roles, but responsibilities are not formally assigned. A RACI matrix exists but is not implemented.	Job descriptions include specific risk metrics. The RACI matrix is actively updated and communicated.	Risk performance is incorporated as a weighted KPI component. Escalation occurs proactively without prompting from the Second Line.	The unit serves as a benchmark for internal accountability best practices. Risk ownership is embedded in recruitment and promotion culture.
D2: Risk Culture & Awareness (20%)	Risk issues are rarely discussed in operational meetings. Staff are reluctant to report errors due to a blame-oriented culture.	Unit heads occasionally communicate risk-related messages, but inconsistently. Incident reporting remains reactive.	Risk discussions are a regular agenda item in weekly briefings. An anonymous reporting channel is actively utilized by staff.	Risk culture is measured through quarterly surveys. Psychological indicators are used to identify vulnerable areas.	The unit has trained risk champions. New employees are inducted into the risk culture from their first day.
D3: Risk Identification &	RCSA is completed as a	RCSA is conducted but	RCSA is structured and	The unit independently	The unit contributes to

Dimension	Level 1 – Initial	Level 2 – Repeatable	Level 3 – Defined	Level 4 – Managed	Level 5 – Optimizing
Assessment (20%)	formality without thorough investigation. KRIs are absent or not actively monitored.	only covers surface-level risks. Incident recording is inconsistent.	facilitated by the Second Line. Departmental KRIs are available and updated regularly.	identifies emerging risks without waiting for audit findings. Incident data are analyzed for systemic patterns.	the development of the bank's risk methodologies. New risk scenarios are proposed based on operational experience.
D4: Control Design & Implementation (20%)	Controls exist only on paper. Control failures are often first identified by auditors rather than the unit itself.	Some key controls are tested periodically. However, remediation of findings is slow and unsystematic.	A self-assessment control testing schedule is established and executed as planned. Findings are documented and followed up.	The unit is capable of detecting control failures before they are identified by auditors. Remediation rates exceed 90% within the prescribed timeframe.	The unit designs innovative data-driven controls and actively contributes to updates of the bank's control policies.
D5: Monitoring & Reporting (10%)	No local MIS exists. Risk reporting to the Second Line is sporadic and unstructured.	Risk reports are prepared only when significant incidents occur. Reporting formats are not standardized.	A departmental risk dashboard is available and updated monthly. Reports to the Second Line follow established templates.	Real-time risk dashboards are available. Unit heads use risk data for daily operational decision-making.	The unit integrates risk data into business planning systems. Reporting is automated with KRI threshold-based notifications.
D6: Capability & Competence (10%)	No structured risk training is provided. Unit heads lack basic risk management certification.	Risk training is conducted on an ad hoc basis when new regulations emerge. Competency levels vary among staff.	An annual risk training curriculum is in place. At least one staff member per unit holds a risk management certification.	Unit heads possess professional risk certifications. Cross-functional rotation programs are implemented systematically.	The unit serves as a center for risk competency development and internships. Unit heads actively mentor participants in the bank's risk forums.

As an assessment mechanism, FLOMA-C proposes a hybrid assessment approach that combines self-assessment by operational units with independent validation of the risk or assurance function. This approach aims to increase the objectivity of assessment results and reduce the potential for assessment bias. The formula for calculating and interpreting the maturity score is presented in Table 4.

Table 4. Interpretation of FLOMA-C Scores and Intervention Recommendations

Score Range	Maturity Level	Interpretasi	Action Recommendations
1,0 – 1,8	Level 1 – Beginning	Risk management under critical conditions	Urgent management intervention; appointment of *local* risk champion
1,9 – 2,6	Level 2 – Recurring	Foundations exist but are not standardized	Program of formalization of risk procedures in 6 months

2,7 – 3,4	Level 3 – Defined	Governance is quite good, there is still a lot of room for improvement	Focus on strengthening KRI measurement and timely reporting
3,5 – 4,2	Level 4 – Managed	Above-industry average risk capability	Replication *of best practices* to other units; nomination as a pilot
4,3 – 5,0	Level 5 – Optimizing	Highest capability; *Benchmark* Industry	Active contribution to the development of bank risk policies

As a basis for further research, the FLOMA-C framework also generates six research propositions (P1–P6) that can be used to test the empirical validity of the relationship between the maturity dimension and the effectiveness of risk governance in the First Line of Defence.

Discussion

The findings of this study show that the main gap in the banking risk governance literature does not lie in the lack of regulations or governance models, but in the absence of instruments capable of measuring the maturity level of the First Line of Defence (1LOD). This condition supports the concept of Asymmetry Assurance identified in the study, which is an imbalance between the maturity of the assurance mechanism in the supervision line and the measurement ability in the operational line.

From the perspective of Agency Theory (Jensen & Meckling, 1976), the findings regarding responsibility ambiguity, diffusion of accountability, and risk passivity indicate that there is still a strong problem of information asymmetry between decision-makers at the strategic level and operational implementers. These findings are in line with the concept of moral hazard and adverse selection that arise when monitoring mechanisms do not run effectively. In contrast to previous research that generally focused on principal-agent relationships at the board and top management levels, this study shows that agency relationships also occur in layers down to the level of operational units. In this context, the dimensions of Risk Ownership and Accountability and Monitoring and Reporting in FLOMA-C function as a monitoring mechanism to reduce information asymmetry at each organizational level, as stated by Eisenhardt (1989).

The research findings are also related to the Capability Maturity Model (CMM) and Capability Maturity Model Integration (CMMI) which explain the development of the organization from initial conditions to optimized conditions (Software Engineering Institute, 2018). The results of the SLR show that the maturity logic is relevant to be applied in the context of banking risk governance, in line with the findings of Lechner & Gatzert (2018) regarding the relationship between risk management maturity and organizational value creation. However, FLOMA-C does not simply adopt the existing maturity model. This framework adapts the concept of CMM to the context of banking operations through the use of more applicable behavioral indicators, the addition of Risk Culture and Awareness dimensions, and the application of a hybrid assessment approach to overcome the limitations of traditional self-assessment.

From the point of view of Institutional Theory DiMaggio & Powell (1983), the phenomenon found in this study shows a tendency to decouple between formal structures and operational practices. Various regulations and governance standards have encouraged organizations to build formal risk management systems, but their implementation at the business unit level has not always reflected true capabilities. The absence of a measurement instrument specific to 1LOD is one of the factors that allows this gap to occur. In this context, FLOMA-C can be positioned as a re-coupling mechanism that helps to realign formal expectations with operational practices through more structured and transparent measurements.

The findings of the study also show that there is a gap between regulatory expectations and available measurement capabilities. Regulations such as Basel Committee Banking

Supervision (2011, 2015) and POJK No. 18/POJK.03/2016 consistently affirm that business units are responsible for risk management in their respective work areas. However, the literature indicates that there are no instruments available that can be used to systematically evaluate the level of maturity of the implementation of these responsibilities. Therefore, FLOMA-C is proposed as a framework that bridges the need between regulatory mandates (what to do) and standardized measurement mechanisms (how to measure).

Theoretically, this research makes several important contributions. First, this study introduces the concept of Asymmetric Assurance as a construct that explains the imbalance in the development of assurance mechanisms between various defense lines. Second, this research expands the application of Agency Theory to the operational level of the organization. Third, this study adapts the logic of the Capability Maturity Model into the context of the First Line of Defence in the banking sector. Fourth, this study integrates two streams of literature that have been developing separately, namely the Three Lines Model and the maturity model, through the development of the FLOMA-C framework as a maturity assessment instrument that focuses on operational units.

Comparison with Existing Frameworks. FLOMA-C differs from existing maturity models in several important respects. The COSO ERM (2017) framework operates at the enterprise level, evaluating risk management sophistication across the organization as a whole. ISO 31000:2018 similarly provides general principles and guidelines applicable to any organization and any type of risk, without differentiating the maturity expectations of individual lines of defense. Both frameworks thus lack the granularity required to assess whether operational business units the actual risk owners are executing their accountability responsibilities effectively. FLOMA-C addresses this gap by providing a business-unit-level assessment instrument with dimension-specific behavioral anchors calibrated to operational contexts. Furthermore, FLOMA-C's hybrid assessment mechanism (self-assessment combined with independent validation) overcomes a documented limitation of self-assessment-only tools such as RCSA, which are susceptible to managerial optimism bias (Deloitte, 2023; Kunz & Heitz, 2021; Mikes, 2009; PricewaterhouseCoopers, 2022). In this respect, FLOMA-C offers an advance over existing tools by embedding an external validation layer that promotes more objective measurement outcomes.

Theoretical Implications of Asymmetric Assurance. The construct of Asymmetric Assurance introduced in this study has implications beyond the immediate context of banking risk governance. At its core, the construct identifies a structural inconsistency in how governance systems are designed: organizations invest heavily in the development of second- and third-line oversight mechanisms while leaving the primary site of risk production the operational unit without standardized measurement tools. This phenomenon can be understood as a form of institutional decoupling (DiMaggio & Powell, 1983), in which the formal adoption of the Three Lines Model signals compliance without ensuring that each line possesses the capability infrastructure necessary for the model to function as intended. By naming and conceptually anchoring this phenomenon, this study opens a new avenue for empirical research into the conditions under which governance asymmetries emerge, persist, and can be corrected. Researchers in banking regulation, organizational theory, and governance design may find the Asymmetric Assurance construct applicable in contexts beyond Indonesia, particularly in jurisdictions where the Three Lines Model has been formally adopted but operational accountability mechanisms remain underdeveloped (Deloitte, 2023; Kunz & Heitz, 2021).

Limitations of the Proposed Framework. Several limitations of FLOMA-C must be acknowledged. First, as a conceptual framework developed through literature synthesis and expert judgment, FLOMA-C has not yet been empirically validated. Its six dimensions and associated behavioral anchors represent theoretically grounded propositions rather than empirically confirmed constructs. The internal consistency, convergent validity, and predictive validity of the framework's dimensions remain to be tested. Second, the hybrid assessment

mechanism, while designed to mitigate self-assessment bias, relies in part on independent validators from within the same organization (e.g., the risk management function). In banks where risk functions lack independence or seniority relative to business units, this validation layer may be insufficiently robust. Third, the FLOMA-C weighting scheme assigns equal significance to Risk Ownership (20%) and Risk Culture (20%) as the two highest-weighted dimensions. These weights were derived from expert judgment and literature synthesis, but may not be equally appropriate across banks of different sizes, ownership structures, or operating contexts. A large state-owned bank operating across hundreds of branches faces fundamentally different governance challenges than a focused digital bank, and a single weighting scheme may not capture this heterogeneity. Finally, the framework was developed drawing primarily on English-language literature, supplemented by Indonesian regulatory documents. Cultural and institutional factors specific to the Indonesian banking context such as the influence of relationship-based governance norms or the regulatory enforcement capacity of the OJK may require further adaptation of the framework before it is applied in practice.

Empirical Agenda for Future Validation. The most immediate priority for future research is the empirical validation of FLOMA-C. A cross-sectional survey study involving at least 200 banking business units across a diverse sample of Indonesian banks would provide the minimum statistical power required to test the internal consistency of the six dimensions using confirmatory factor analysis (CFA). This validation study should also test the predictive validity of FLOMA-C maturity scores against objective outcome measures, such as operational risk incident frequency, regulatory finding rates, or RBBR component scores. Beyond internal validation, researchers should examine whether FLOMA-C scores systematically co-vary with contextual variables such as bank size, ownership type, and regional regulatory intensity. Longitudinal designs would be particularly valuable for establishing whether improvements in FLOMA-C maturity scores over time predict reductions in operational risk incidents a relationship that is theoretically plausible but has not been empirically demonstrated. International comparative studies could test whether the Asymmetric Assurance phenomenon is specific to the Indonesian context or reflects a broader structural characteristic of banking governance systems globally (Ofori et al., 2025; Uddin et al., 2023).

CONCLUSION

This study successfully confirms the existence of the phenomenon of Asymmetric Assurance in banking risk governance, which is a condition when the First Line of Defense is positioned as the main risk owner and is at the forefront of operational risk control, but does not have a standardized maturity assessment framework to measure the effectiveness of the implementation of this role. The results of the PRISMA-based Systematic Literature Review (TLS) of 47 articles show that the existing literature is still dominated by conceptual discussions on the Three Lines Model, risk culture, and corporate risk governance, while instruments specifically designed to evaluate risk management capabilities in operational units have not been found. These findings indicate conceptual, methodological, empirical, regulatory, and practical gaps that make First Line Defense accountability difficult to measure objectively, even though regulators such as the Basel Committee and the OJK place these functions as key elements in the effectiveness of banking risk management.

In response to these gaps, this study proposes FLOMA-C (First-Line-of-Defence Maturity Assessment—Comprehensive) as a conceptual framework for maturity assessment specifically aimed at First Line of Defence. This framework was developed through the synthesis of Agency Theory, Capability Maturity Model (CMM), and Institutional Theory, and resulted in six critical dimensions of maturity, five levels of capability development, thirty operational behavioral anchors , and a hybrid assessment mechanism that combines self-assessment with independent validation. Thus, this study not only introduces the concept of Asymmetric Assurance as a new academic construction in the study of risk governance, but

also provides a conceptual foundation for the development of more objective, measurable, and empirically testable instruments to strengthen accountability, risk management effectiveness, and quality of banking governance in Indonesia.

Future research should empirically validate the FLOMA-C framework through a cross-sectional survey of at least 200 banking business units across Indonesia, testing the internal consistency of its six dimensions using confirmatory factor analysis (CFA) and the predictive validity of maturity scores against actual operational risk incident rates and RBBR component assessments. Longitudinal panel studies would further establish whether improvements in FLOMA-C maturity scores predict measurable reductions in governance failures over time. Beyond Indonesia, researchers are encouraged to test whether the Asymmetric Assurance phenomenon is context-specific or reflects a broader structural characteristic of banking governance systems in other emerging economies. Additionally, future studies could examine the moderating role of bank size, ownership type, and regulatory enforcement intensity on the relationship between First Line of Defence maturity and risk management outcomes.

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