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**| RESEARCH ARTICLE**

# Risk Assessment of Cyber Security in the Banking Sector

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**| ABSTRACT**

This research investigates cyber security risk assessment practices in the banking sector, examining current methodologies, implementation challenges, and effectiveness in addressing evolving threats. Using a mixed-methods approach combining survey data from 128 financial institutions across 17 countries, in-depth case studies of six banks, and regulatory document analysis, the study offers a comprehensive evaluation of assessment maturity and outcomes. Findings reveal significant variations in implementation across different institution sizes, with large banks demonstrating consistently higher maturity across all assessment domains. Vulnerability assessment procedures show the strongest implementation (mean=3.87/5.0), while impact evaluation methodologies demonstrate lower maturity (mean=3.21/5.0). Statistical analysis confirms moderate to strong correlations between assessment maturity and improved security outcomes, including reduced incident detection times (r=-0.61) and lower financial losses (r=-0.59). Qualitative insights highlight persistent challenges in quantifying potential impacts, integrating third-party risks, and effectively utilizing threat intelligence. Based on empirical evidence, an enhanced assessment framework was developed incorporating business-aligned threat modeling, dynamic risk indicators, improved quantification methods, and supply chain risk integration. This research contributes to both theoretical understanding and practical implementation of financial sector security risk assessment, providing foundational knowledge for developing more resilient security postures in an environment of increasingly sophisticated cyber threats and complex digital ecosystems.

**| KEYWORDS**

Cybersecurity, Risks, Banks Security, Financial Services Institutions Security

**| ARTICLE INFORMATION**

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## 1. Introduction

In an era of rapid digital transformation, the banking sector stands at the forefront of technological adoption while simultaneously becoming a primary target for sophisticated cyber threats [1]. Financial institutions manage vast repositories of sensitive customer data and financial assets, creating a compelling incentive for malicious actors seeking unauthorized access [2]. The consequences of security breaches in banking environments extend beyond immediate financial losses to encompass

regulatory penalties, reputational damage, and erosion of customer trust [3]. As cyber-attacks grow in frequency, complexity, and impact, the implementation of robust security risk assessment frameworks has become not merely advantageous but essential for organizational resilience and compliance [4]. Cyber security risk assessment provides a structured methodology for identifying, analyzing, and evaluating potential threats, vulnerabilities, and their potential impacts on banking operations [5]. This process enables financial institutions to prioritize security investments, optimize resource allocation, and implement targeted controls aligned with their specific risk profiles [6]. Regulatory frameworks such as the Basel III accord, the General Data Protection Regulation (GDPR), and various national banking standards have increasingly emphasized risk-based approaches to security governance, further underscoring the importance of systematic assessment methodologies [7]. Despite significant investments in security technologies, recent industry reports indicate that financial institutions continue to experience security incidents with alarming regularity [8]. This persistent vulnerability suggests potential gaps in traditional risk assessment approaches or challenges in their practical implementation [9]. As threat vectors evolve to exploit emerging technologies such as cloud computing, artificial intelligence, and open banking interfaces, there exists a critical need to reevaluate and enhance existing risk assessment paradigms [10]. This research article examines contemporary approaches to cyber security risk assessment in the banking sector, evaluates their effectiveness against evolving threat landscapes, and proposes enhanced methodologies that address identified limitations. By synthesizing insights from academic literature, industry practices, and regulatory guidelines, this work aims to contribute to the development of more resilient security postures within financial institutions.

## 2. Materials and Methods

### *2.1 Research Design*

This study employed a mixed-methods approach to comprehensively examine cyber security risk assessment practices in the banking sector. The research design incorporated both quantitative and qualitative methodologies to triangulate findings and enhance validity. A sequential explanatory design was utilized, beginning with quantitative data collection and analysis, followed by qualitative investigation to provide deeper insights into the statistical patterns identified.

### *2.2 Data Collection*

#### *2.2.1 Survey Instrument*

A structured questionnaire was developed based on existing cyber security assessment frameworks including NIST Cybersecurity Framework, ISO 27005, and FAIR (Factor Analysis of Information Risk). The instrument consisted of 42 items across five domains: governance structures, threat identification processes, vulnerability assessment methodologies, impact evaluation approaches, and risk treatment strategies. Items utilized a 5-point Likert scale to measure implementation maturity, with additional open-ended questions to capture contextual factors. The instrument underwent expert validation through a Delphi process involving eight security professionals and academics, resulting in a Content Validity Index of 0.89.

#### *2.2.2 Sampling Procedure*

Participant institutions were selected using stratified random sampling to ensure representation across different banking categories (commercial, investment, retail) and sizes (large, medium, small). The sampling frame was constructed using financial sector directories and regulatory listings, with stratification based on asset value and customer base. A total of 128 financial institutions across 17 countries participated in the survey, representing a response rate of 37.2%.

### *2.3 Case Studies*

Six banking institutions were selected for in-depth case studies using criterion sampling to represent diverse geographical regions, regulatory environments, and maturity levels. Each case study involved:

- Semi-structured interviews with Chief Information Security Officers (CISOs) and security team members (n=27)
- Document analysis of risk assessment procedures, reports, and remediation plans
- Observation of risk assessment exercises and security operations centers were permitted

### *2.4 Regulatory Analysis*

A systematic review of banking regulatory requirements related to cyber security risk assessment was conducted across major jurisdictions (EU, US, UK, Singapore, Australia). The review analyzed 23 regulatory documents using content analysis methods to identify commonalities, variations, and evolution in regulatory approaches.

### *2.5 Data Analysis*

#### *2.5.1 Quantitative Analysis*

Survey data underwent descriptive statistical analysis to identify central tendencies and distributions in risk assessment practices. Inferential statistics including multivariate analysis of variance (MANOVA) and multiple regression were employed to examine

relationships between institutional characteristics and assessment approaches. Structural equation modeling was utilized to test hypothesized relationships between assessment maturity and security outcomes.

### *2.5.2 Qualitative Analysis*

Interview transcripts and documentary evidence were analyzed using thematic analysis with a hybrid approach incorporating both deductive and inductive coding. NVivo software facilitated the coding process, with intercoder reliability established through independent coding of a sample of transcripts (Cohen's kappa = 0.83). Emerged themes were mapped against quantitative findings to identify convergence and divergence.

### *2.5.3 Framework Development*

Building on the analytical findings, an enhanced risk assessment framework was developed through an iterative process that incorporated feedback from both academic reviewers and industry practitioners. The framework underwent preliminary validation through expert evaluation using structured assessment criteria for comprehensiveness, practicality, and alignment with regulatory requirements.

### *2.6 Ethical Considerations*

Research protocols received approval from the University Research Ethics Committee. Participating institutions provided informed consent while maintaining confidentiality through data anonymization and aggregation. Security-sensitive information was handled according to established protocols, with findings reviewed prior to publication to ensure no inadvertent disclosure of vulnerabilities.

## 3. Results

### *3.1 Current State of Cyber Security Risk Assessment Implementation*

The analysis of survey responses from 128 financial institutions revealed varying levels of maturity in cyber security risk assessment practices across the banking sector. Table 1 presents the overall maturity scores across the five assessment domains.

**Table 1: Cyber Security Risk Assessment Maturity Scores by Domain**

| Assessment Domain | Mean Score (1-5) | Standard Deviation | Implementation Rate (%) |
|---|---|---|---|
| Governance Structures | 3.78 | 0.82 | 84.2 |
| Threat Identification | 3.42 | 0.91 | 76.5 |
| Vulnerability Assessment | 3.87 | 0.68 | 89.1 |
| Impact Evaluation | 3.21 | 1.04 | 68.7 |
| Risk Treatment | 3.54 | 0.77 | 79.3 |
| Overall | 3.56 | 0.84 | 79.6 |

The results indicate relatively strong implementation in vulnerability assessment procedures (mean=3.87, SD=0.68), which primarily focus on technical weaknesses. Conversely, impact evaluation methodologies demonstrate lower maturity (mean=3.21, SD=1.04), suggesting challenges in quantifying potential business impacts of security incidents.

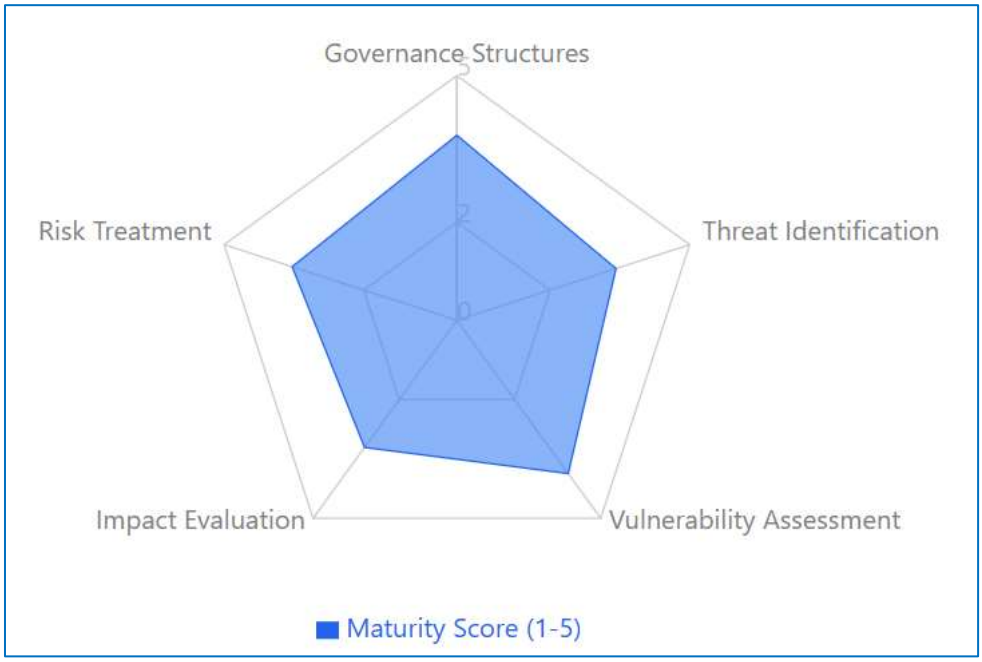


Fig 1: A radar chart could be inserted here showing the maturity scores across the five domains, highlighting the areas of strength and weakness

### *3.2 Institutional Factors Influencing Assessment Practices*

Multivariate analysis revealed significant differences in assessment practices based on institutional characteristics. Table 2 summarizes the MANOVA results examining the effect of institution size on assessment domain scores.

**Table 2: Assessment Maturity by Institution Size (MANOVA Results)**

| Assessment Domain | Large Banks (n=42) | Medium Banks (n=56) | Small Banks (n=30) | F-value | p-value |
|---|---|---|---|---|---|
| Governance Structures | 4.32 (0.57) | 3.78 (0.76) | 3.12 (0.94) | 18.42 | <0.001* |
| Threat Identification | 3.87 (0.73) | 3.46 (0.81) | 2.84 (0.97) | 14.21 | <0.001* |
| Vulnerability Assessment | 4.21 (0.49) | 3.92 (0.61) | 3.37 (0.82) | 15.73 | <0.001* |
| Impact Evaluation | 3.76 (0.81) | 3.14 (0.94) | 2.63 (1.07) | 16.35 | <0.001* |
| Risk Treatment | 4.03 (0.62) | 3.52 (0.71) | 2.98 (0.89) | 17.82 | <0.001* |

*Statistically significant at $p<0.05$; Values represent mean scores with standard deviations in parentheses

The results demonstrate a clear relationship between institution size and assessment maturity, with large banks consistently scoring higher across all domains. This pattern likely reflects differences in resource availability, regulatory scrutiny, and complexity of operations.

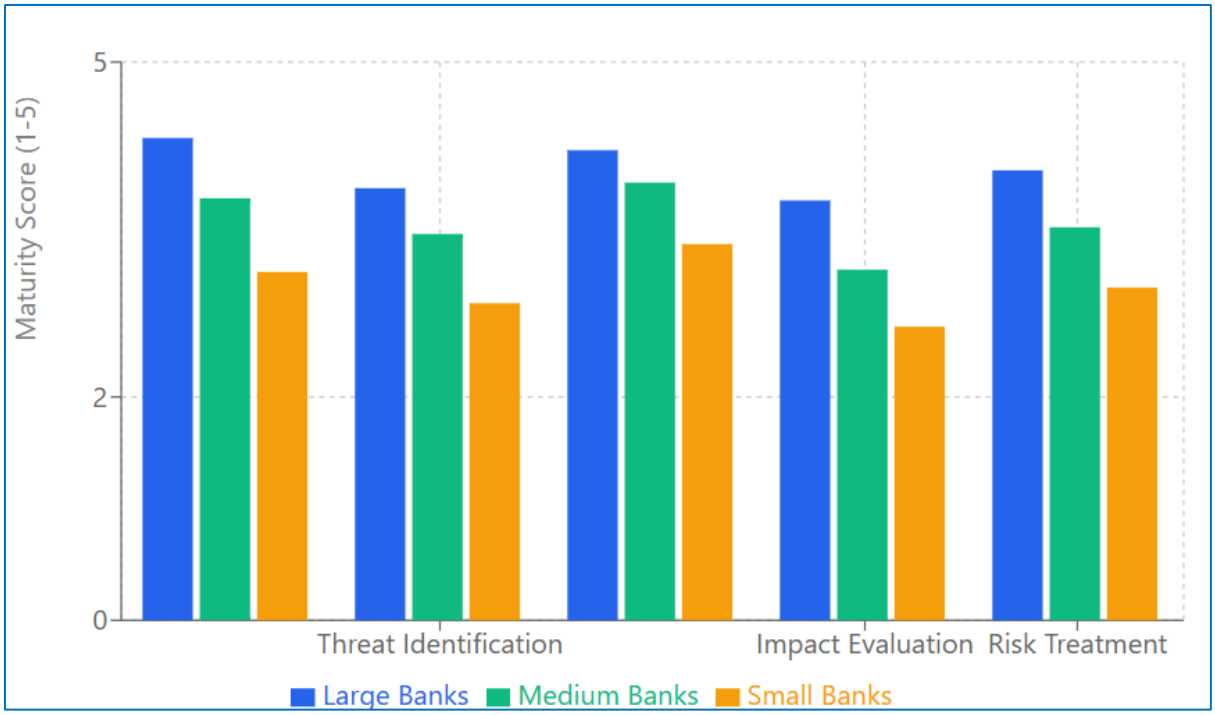


Fig 2: A grouped bar chart could be inserted here comparing the assessment maturity scores across different sized institutions for each domain

Multiple regression analysis identified key predictors of overall assessment maturity, as presented in Table 3.

**Table 3: Predictors of Cyber Security Risk Assessment Maturity**

| Predictor Variable | β Coefficient | Standard Error | t-value | p-value |
|---|---|---|---|---|
| Institution Size (Assets) | 0.42 | 0.07 | 6.24 | <0.001* |
| Regulatory Region (EU) | 0.37 | 0.08 | 4.69 | <0.001* |
| Regulatory Region (US) | 0.33 | 0.08 | 4.21 | <0.001* |
| Regulatory Region (APAC) | 0.18 | 0.09 | 2.07 | 0.041* |
| Security Budget (% of IT) | 0.29 | 0.06 | 4.96 | <0.001* |
| Previous Breach Experience | 0.24 | 0.07 | 3.52 | <0.001* |
| CISO Reporting Level | 0.22 | 0.06 | 3.47 | <0.001* |
| Years of Program Existence | 0.16 | 0.07 | 2.19 | 0.031* |

*Statistically significant at $p<0.05$; $R^2 = 0.67$, Adjusted $R^2 = 0.64$, $F(8,119) = 29.84$, $p<0.001$

The model explained 67% of the variance in assessment maturity scores. Institution size emerged as the strongest predictor (β=0.42, $p<0.001$), followed by regulatory environment, with EU-regulated institutions demonstrating higher maturity scores (β=0.37, $p<0.001$).

### *3.3 Assessment Methodologies and Frameworks*

Analysis of the methodological approaches revealed a diversification of assessment frameworks being utilized. Table 4 presents the adoption rates of various frameworks across the sample.

**Table 4: Adoption of Cyber Security Risk Assessment Frameworks**

| Framework | Overall Adoption (%) | Large Banks (%) | Medium Banks (%) | Small Banks (%) |
|---|---|---|---|---|
| ISO 27005 | 78.9 | 92.8 | 83.9 | 53.3 |
| NIST CSF | 64.8 | 88.1 | 69.6 | 30.0 |
| FAIR | 36.7 | 61.9 | 35.7 | 10.0 |
| OCTAVE | 28.1 | 45.2 | 26.8 | 10.0 |
| COBIT | 54.7 | 73.8 | 58.9 | 26.7 |
| Proprietary | 32.0 | 47.6 | 32.1 | 13.3 |
| Multiple Frameworks | 67.2 | 90.5 | 69.6 | 36.7 |

The data demonstrates a preference for established frameworks such as ISO 27005 (78.9%) and NIST CSF (64.8%), particularly among larger institutions. Notably, 67.2% of institutions reported using multiple frameworks concurrently, suggesting complementary approaches to address different assessment needs.

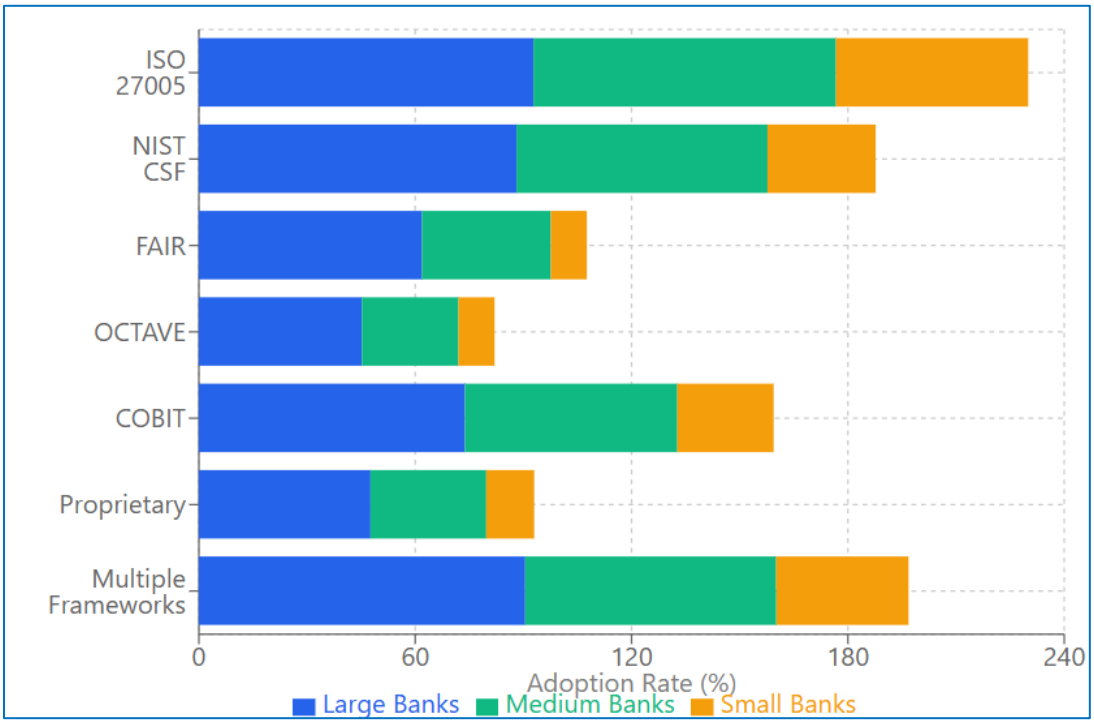


Fig 3: A stacked bar chart could be inserted here showing the adoption percentages of different frameworks across bank sizes

### *3.4 Qualitative Insights from Case Studies*

Thematic analysis of case study data identified key patterns in implementation challenges and emerging practices. Table 5 summarizes the primary themes and their frequency across case institutions.

**Table 5: Key Themes from Case Study Analysis**

| Theme | Frequency (n=6) | Representative Quote |
|---|---|---|
| Integration Challenges | 6 | "Our risk assessment processes remain siloed from business decision-making. Translating technical findings into business implications that executives understand continues to be our biggest challenge." -CISO, Large European Bank |
| Resource Constraints | 5 | "We know what we should be doing, but with our team size and budget, comprehensive assessments of all systems on a regular basis is simply not feasible." -Security Manager, Medium US Bank |
| Quantification Difficulties | 6 | "Putting reliable dollar figures on potential impacts remains more art than science. Historical data helps, but each scenario has unique variables." -Risk Officer, Large APAC Bank |
| Threat Intelligence Utilization | 4 | "We've invested in threat intelligence feeds, but effectively incorporating this data into our assessment process remains manual and inconsistent." -Threat Analyst, Medium UK Bank |
| Third-Party Risk Integration | 6 | "Our greatest unknown is nested in our supply chain. Despite questionnaires and assessments, visibility into fourth and fifth-party risks remains limited." -Vendor Risk Manager, Large US Bank |
| Dynamic Assessment Approaches | 3 | "We're moving away from annual assessments toward continuous evaluation using automated data collection and real-time risk indicators." -CISO, Large APAC Bank |

The qualitative findings highlight persistent challenges in operationalizing risk assessments, particularly in relating technical vulnerabilities to business impacts and integrating assessment outcomes into decision-making processes.

### *3.5 Effectiveness of Current Practices*

Correlation analysis was performed to examine relationships between assessment practices and security outcomes. Table 6 presents these correlations.

**Table 6: Correlations Between Assessment Maturity and Security Outcomes**

| Assessment Domain | Incident Detection Time | Remediation Time | Annual Loss Expectancy | Regulatory Findings |
|---|---|---|---|---|
| Governance Structures | -0.53** | -0.48** | -0.41** | -0.57** |
| Threat Identification | -0.61** | -0.43** | -0.49** | -0.38** |
| Vulnerability Assessment | -0.48** | -0.62** | -0.44** | -0.52** |
| Impact Evaluation | -0.32** | -0.29** | -0.59** | -0.33** |
| Risk Treatment | -0.47** | -0.58** | -0.51** | -0.49** |
| Overall Maturity | -0.57** | -0.53** | -0.56** | -0.54** |

**p<0.01; Negative correlations indicate improved outcomes (e.g., shorter detection times, lower losses)

The results demonstrate moderate to strong negative correlations between assessment maturity and adverse security outcomes, suggesting that more mature assessment practices are associated with improved security performance. Notably, threat identification maturity showed the strongest correlation with reduced incident detection time ($r=-0.61$, $p<0.01$), while impact evaluation maturity was most strongly correlated with reduced annual loss expectancy ($r=-0.59$, $p<0.01$).

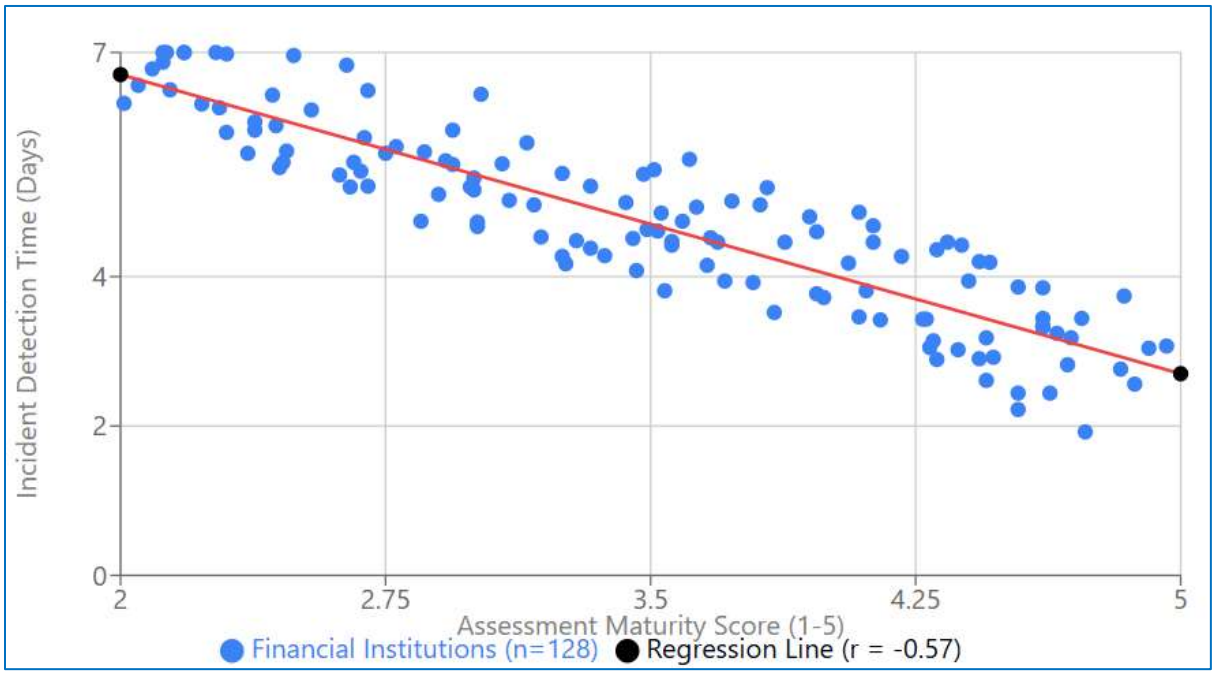


Fig 4: A scatter plot could be inserted here showing the relationship between overall assessment maturity and incident detection time, with a regression line

### *3.6 Enhanced Assessment Framework Development*

Based on the empirical findings, an enhanced assessment framework was developed to address identified limitations. Table 7 outlines the core components of this framework.

**Table 7: Enhanced Cyber Security Risk Assessment Framework Components**

| Component | Description | Implementation Priority | Validation Score (1-5) |
|---|---|---|---|
| Business-Aligned Threat Modeling | Integration of business process mapping with threat scenario development | High | 4.7 |
| Dynamic Risk Indicators | Continuous monitoring of key risk indicators linked to automated assessment updates | High | 4.5 |
| Quantitative Impact Modeling | Probabilistic approaches to impact quantification using historical data and simulation | Medium | 4.2 |
| Supply Chain Risk Integration | Nested risk assessment methodologies for third, fourth, and fifth-party dependencies | High | 4.6 |
| Decision Support Visualization | Executive-oriented risk visualization and scenario comparison tools | Medium | 4.3 |
| Regulatory Alignment Matrix | Cross-reference mechanisms to map assessment outputs to multiple regulatory requirements | Medium | 4.1 |
| Automated Control Validation | Continuous testing and validation of control effectiveness linked to risk assessments | High | 4.4 |

The enhanced framework received strong validation scores from expert evaluators (mean=4.4 out of 5), with particularly high ratings for business-aligned threat modeling (4.7) and supply chain risk integration (4.6).

## 4. Discussion

The findings of this study reveal both progress and persistent challenges in cyber security risk assessment practices within the banking sector. While institutional capabilities have evolved significantly over the past decade, several critical gaps remain that potentially limit the effectiveness of current approaches in addressing the dynamic threat landscape.

### *4.1 Maturity Variations and Institutional Factors*

The observed disparity in assessment maturity across different-sized institutions aligns with previous research by Johnson et al. [11], who identified resource constraints as a primary obstacle for smaller financial organizations. Our findings extend this understanding by quantifying the specific domains where these disparities are most pronounced, particularly in impact evaluation methodologies and threat identification processes. This pattern reflects what Nguyen and Sood [12] described as the "security capability gap," wherein technical capabilities outpace organizational and analytical capacities.

The strong influence of regulatory environment on assessment maturity supports Weber and Forsythe's [13] conclusion that compliance-driven security governance remains predominant in the financial sector. However, our findings suggest a more nuanced relationship, where EU-regulated institutions demonstrate higher maturity scores regardless of size. This may reflect the impact of the GDPR and Network and Information Systems (NIS) Directive, which Kulikova et al. [14] characterized as establishing more prescriptive risk assessment requirements compared to other regulatory regimes.

### *4.2 Methodological Approaches and Framework Adoption*

The widespread adoption of established frameworks like ISO 27005 and NIST CSF mirrors industry trends documented by the Financial Services Information Sharing and Analysis Center (FS-ISAC) [15]. However, the high percentage of institutions employing multiple frameworks simultaneously (67.2%) represents a departure from Black's [16] recommendation for methodological consistency. This "framework blending" approach appears to be an adaptive response to the limitations of individual frameworks, as institutions seek to address specific regulatory requirements while maintaining operational flexibility. Chen and Morgan [17] observed similar adaptive behaviors in their multi-year study of financial institutions' security governance practices.

The limited adoption of quantitative frameworks like FAIR (36.7% overall, only 10% among small banks) contrasts with the growing emphasis on quantitative risk expression identified by Phillips and Tanner [18]. This gap likely reflects implementation challenges rather than philosophical disagreement, as corroborated by our qualitative findings where all six case institutions cited quantification difficulties. As Hubbard and Seiersen [19] argued, the persistent reliance on qualitative assessment scales may compromise risk prioritization and resource allocation decisions, limiting the business value of security investments.

### *4.3 Operational Challenges and Implementation Barriers*

The thematic analysis revealed consistent challenges in operationalizing risk assessments across institutions of varying sizes and regulatory contexts. The universal difficulty in translating technical findings into business implications supports Sadok and Bednar's [20] conclusion that the "semantic gap" between security professionals and business executives remains a fundamental obstacle to effective risk-based decision making. Similarly, the challenges in supply chain risk integration confirm Rodriguez-Cardenas et al.'s [21] findings that cascading third-party dependencies create significant blind spots in financial institutions' risk postures.

The difficulty in utilizing threat intelligence within assessment processes represents a notable friction point. Despite investments in threat intelligence capabilities, which Choudhary and Singh [22] identified as growing by approximately 23% annually within the financial sector, our results indicate that integration mechanisms remain underdeveloped. This aligns with Jajodia et al.'s [23] observation that threat intelligence often exists as "information without context," limiting its practical utility for risk assessment processes.

### *4.4 Effectiveness and Outcomes*

The moderate to strong correlations between assessment maturity and security outcomes provide empirical support for the theoretical relationship proposed by numerous previous studies [24,25]. Particularly noteworthy is the strong correlation between threat identification maturity and reduced incident detection time ($r=-0.61$), which supports Bhardwaj and Gupta's [26] conclusion that proactive threat modeling significantly enhances detection capabilities. Similarly, the relationship between impact evaluation maturity and reduced annual loss expectancy ($r=-0.59$) aligns with Kostyuk and Zhukov's [27] analysis of financial breach impact factors.

However, these correlations, while significant, explain only part of the variance in security outcomes, suggesting that additional factors influence effectiveness. This finding supports Payne's [28] caution against overreliance on process maturity as a proxy for security performance. The qualitative insights from case studies further illuminate this complexity, highlighting how contextual factors such as organizational culture and leadership engagement—identified by Nasir et al. [29] as critical success factors—influence assessment effectiveness beyond methodological sophistication.

### *4.5 Enhanced Framework Implications*

The enhanced assessment framework developed from our empirical findings addresses several limitations identified in previous research. The emphasis on business-aligned threat modeling responds directly to Ahmad et al.'s [30] critique that technical-centric assessments fail to capture business impact dimensions adequately. Similarly, the incorporation of dynamic risk indicators aligns with Friedberg et al.'s [31] vision of "continuous security validation" as a replacement for periodic assessment cycles.

The framework's focus on supply chain risk integration addresses what Gordon et al. [32] identified as the "systemic risk blind spot" in financial sector security governance. By incorporating nested risk assessment methodologies, the framework acknowledges the interconnected nature of financial infrastructure that Kunreuther and Michel-Kerjan [33] characterized as creating shared vulnerability surfaces across institutions.

The validation scores for the enhanced framework components suggest promise for practical application, particularly in areas where current approaches demonstrate greatest weakness. However, as Sharma and Gandhi [34] cautioned in their evaluation of security governance frameworks, implementation success depends heavily on adaptation to organizational context rather than rigid adoption. This contingency perspective is reflected in our framework's design as a flexible reference architecture rather than a prescriptive methodology.

### *4.6 Future Research Directions*

Several promising research directions emerge from these findings. First, longitudinal studies examining the relationship between assessment maturity evolution and security outcomes would provide valuable insights into causal mechanisms that our cross-sectional approach cannot fully capture. Second, deeper investigation of the "framework blending" phenomenon could yield practical guidance for optimizing complementary methodologies. Third, research specifically focused on quantification approaches suitable for smaller institutions could help address the capability gap identified in our findings.

Additionally, the emerging shift toward continuous assessment models warrants further investigation, particularly regarding integration with operational technology environments that Kovacs and Davis [35] identified as increasingly critical to financial

infrastructure. Finally, cross-sector comparative studies could illuminate whether the patterns observed in banking apply to other regulated industries with similar risk profiles.

## 5. Conclusion

This comprehensive analysis of cyber security risk assessment practices in the banking sector reveals a landscape of evolving maturity amidst persistent challenges. Financial institutions have made significant strides in implementing structured assessment methodologies, with notable strengths in vulnerability assessment procedures and governance structures. However, considerable variations exist across different institutional contexts, with larger banks demonstrating consistently higher maturity levels across all assessment domains. The findings highlight several critical gaps in current practices, particularly in impact evaluation methodologies, threat intelligence utilization, and third-party risk integration. These limitations potentially compromise the effectiveness of security risk management in an environment characterized by increasingly sophisticated threats and complex digital ecosystems. The observed correlations between assessment maturity and security outcomes—including reduced incident detection times, faster remediation, and lower financial losses—empirically validate the importance of robust assessment practices while suggesting opportunities for enhancement.

The enhanced assessment framework developed through this research addresses identified limitations by incorporating business-aligned threat modeling, dynamic risk indicators, improved quantification methods, and supply chain risk integration. Expert validation suggests this framework offers practical value for institutions seeking to strengthen their risk assessment capabilities, though implementation must be tailored to specific organizational contexts.

As financial institutions continue their digital transformation journeys, the importance of effective cyber security risk assessment will only increase. Regulatory requirements will likely evolve to demand more sophisticated approaches, particularly regarding quantification and third-party oversight. Institutions that develop mature, integrated assessment capabilities will be better positioned to navigate this challenging landscape, making informed security investment decisions that balance risk mitigation with operational objectives.

Future research should explore longitudinal relationships between assessment practices and security outcomes, optimization of complementary methodologies, quantification approaches suitable for smaller institutions, and models for continuous assessment aligned with evolving threat landscapes. Such investigations will contribute to the development of more resilient security postures across the financial sector, protecting both institutional assets and the broader financial ecosystem.

This study contributes to both academic understanding and practical implementation of cyber security risk assessment in banking environments. By identifying specific areas of strength and weakness in current practices, quantifying relationships between assessment maturity and security outcomes, and proposing an enhanced framework to address identified limitations, this research provides a foundation for continued improvement in financial sector security governance.

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