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Proposed Framework To Explore The Role Of Consumer Protection And Ecosystem Orchestration In The Banking Industry: Supporting SDG 9

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ABSTRACT

Objective: The banking industry is experiencing significant transformation driven by increasing demands for consumer protection and digital ecosystem development. This study aims to propose a conceptual framework for examining the role of consumer protection and ecosystem orchestration in improving financial and digital performance within the banking industry. The study contributes to Sustainable Development Goal (SDG) 9 by highlighting the importance of innovation and digital infrastructure development in strengthening the competitiveness of financial institutions. **Method:** A conceptual research approach based on the Structure-Conduct-Performance (SCP) paradigm. The proposed framework integrates firm size as a structural variable, consumer protection and ecosystem orchestration as conduct variables, and financial performance and digital performance as outcome variables. The conceptual model is developed through theoretical exploration of previous studies related to banking transformation, consumer protection, digital ecosystems, and organizational capabilities. **Results:** The proposed framework suggests that firm size may influence consumer protection and ecosystem orchestration capabilities, while both consumer protection and ecosystem orchestration are expected to contribute to financial performance and digital performance. The framework provides a comprehensive perspective on how banks can balance digital innovation with consumer trust and protection. **Novelty:** The study offers a novel integrated framework by combining consumer protection and digital ecosystem orchestration within the SCP paradigm. The proposed model provides a foundation for future empirical research examining how banking institutions can achieve sustainable digital transformation aligned with SDG 9.

INTRODUCTION

The banking industry has faced strategic challenges in recent years (Kouzeze, 2023; Mkhaiber & Werner, 2021). The first challenge relates to demands to strengthen consumer protection after the 2008 economic crisis which was triggered by housing credit problems and then spread systemically to other economic sectors until it became a global economic crisis. Consumer protection has a strategic role in encouraging public trust which will further increase the value of financial transactions (Rösner et al., 2020) so that it can increase economic growth (Kriese et al., 2019). The second challenge is the development of information and communication technology which encourages competition from platform-based financial services and demands from the public to provide digital services, thereby encouraging the banking industry to develop digital ecosystem-based banking services (Scardovi, 2023; Dombret & Kenadjian, 2023). Banks are no longer solely focused on branch-based transactions and services; they now provide services through various ICT devices. This transformation has necessitated banks to adapt their existing business models by leveraging the latest ICT developments such as smart algorithms, big data analysis, blockchain, peer-to-peer lending, crowdsourcing, and more (Scardovi, 2023; Dombret & Kenadjian, 2023).

There are many previous studies that have explored consumer protection in the banking sector. In recent years, many studies have begun to discuss digital ecosystem orchestration in the banking sector. However, unfortunately, there are no economic and management studies that explore the relationship between these two issues in an integrated manner. The relationship between these two issues needs to be elaborated in an integrated manner because there is a complex interaction between consumer protection and digital ecosystem orchestration. Digital services can create negative externalities for consumer protection, especially regarding data protection, cyber security, and digital illiteracy (Ferrari, 2022). Efforts to strengthen consumer protection can be a disincentive for bank firms to develop digital ecosystems (Vogelsang, 2017).

The development of information and communication technology has encouraged an increase in digital services in the financial sector in recent years. In the case of Indonesia, for example, the value of loans from Peer-to-Peer (P2P) lending has an annual growth rate of around 300% (Santoso et al., 2019). This trend needs to be anticipated by strengthening digital risk mitigation policies. The Covid-19 pandemic has become a momentum for financial authorities in the world to accelerate digital transformation in the financial sector accompanied by efforts to mitigate digital risks by strengthening consumer protection through protecting personal data, mitigating cyber risks, and increasing digital financial literacy (Santoso et al., 2021; Feyen et al., 2021). These policies need to be accompanied by efforts to strengthen research in the financial sector, especially regarding the interaction between digital financial services and consumer protection.

This research tries to contribute by exploring the relationship and impact of consumer protection and digital ecosystem orchestration in the banking industry. This study will examine the roles of consumer protection and ecosystem orchestration within the Structure-Conduct-Performance (SCP) paradigm (Bain, 1959; Faccarello & Kurz, 2016). The market structure variable explored in this research is firm size because it has a significant effect on bank behavior and performance (Kouze, 2023; Mkhairi & Werner, 2021). In accordance with the research objectives, the conduct elements that will be explored are consumer protection (World Bank, 2017) and ecosystem orchestration (Helfat & Raubitschek, 2018). There are two performance variables that will be elaborated on in this study, namely financial performance (Hall & Weiss, 1967), and digital performance (Verhoef et al., 2021; Dahlan, 2023). The interaction between the variables firm size, consumer protection, ecosystem orchestration, financial performance, and digital performance was studied empirically at commercial banks in Indonesia.

SCP paradigm

The SCP (Structure-Conduct-Performance) paradigm is the dominant perspective in industrial organization economics. This paradigm originates from the views of Edward Chamberlin and Joan Robinson, which were further elaborated by Bain (1959). This paradigm views a firm's structure and business conduct as the main determinants of performance. Market structure influences the economic behavior of firms, which in turn impacts the performance of agents or economic actors in the market (Lipczynski et al., 2017). The SCP paradigm consists of three elements. The first element is market structure, which is a classification or differentiating factor between industries based on the level and nature of competition within them, including the environmental conditions in which an organization or a group of similar organizations (industry) operate. The second element is the firm's business conduct, which relates to specific actions carried out by economic actors. The third element is firm performance, which reflects the level of achievement of economic actors and can be measured through levels of productivity,

efficiency, and profitability. The SCP paradigm has continued to be implemented in recent years in banking studies, beginning with research on how risk-taking, efficiency, and competitiveness affect revenue (Rakshit & Bardhan, 2022), the influence of market power and market concentration on bank stability and profitability (Elfeituri, 2022), and the influence of bank business models, financial structures, and macroeconomic factors on bank profitability (Saif-Alyousfi, 2022).

In this study, the market structure variable is firm size, the business conduct variables are consumer protection and ecosystem orchestration, and the performance variables are financial performance and digital performance. Firm size is the only variable used to explore market structure because it is highly dominant in representing the market structure of the banking industry. According to earlier research, there is a statistically significant correlation between bank size and risks, the increase in loans, brokering expenses, particularly non-interest revenue (Mkhaiber & Werner, 2021). Financial authorities, such as those in Indonesia, also formally group banks based on their size. Financial authorities in Indonesia formally categorize bank groups based on their size in their regulations, which is measured by the amount of bank capital (Otoritas Jasa Keuangan, 2021).

Firm size

Firm size is a classic variable in economics that has been described since the 1930s. There are many prominent economists who have explored this variable in depth, such as Ronald Coase, Herbert Simon, and Robert Lucas (Coase & Fowler, 1937; Lucas, 1978). Firm size is one of the most important variables that has continued to be explored extensively in recent years. Economic research on firm size in recent years has discussed the differences in the behavior of large and small firms (Carnovale & Yenyurt, 2015) as well as the dynamics of firm size distribution (Poschke, 2018; Medrano-Adán et al., 2018). Chi and Choi (2017) developed an agency model to show that the relationship between moral hazard and investment can cause variations in growth rates between large companies and small companies. Poschke (2018) examines the dynamics of changes in firm size distribution between countries by developing a general equilibrium model that includes occupational choice factors and technological change. Medrano-Adán et al. (2018) developed a model that views the distribution of firm sizes as a result of market equilibration of the decisions of workers with different entrepreneurial skills.

Consumer protection

Consumer protection policies are based on the view that there is a risk of market failure in providing adequate information to consumers, preventing them from making efficient choices between products and protecting themselves from unscrupulous sellers (Greenwood & Dwyer, 2015). Consumer protection is essentially the practice of safeguarding consumers of goods and services, and society, from unfair practices in the market (World Bank, 2017). Consumer protection policies in the financial sector developed rapidly and became a priority after the global economic crisis that occurred in 2008. The worldwide financial crisis highlighted how crucial financial consumer protection is to the long-term health of the system. In recent years, global policymakers' attention has been focused on this key issue (World Bank, 2017).

Consumer protection is a key aspect of the financial sector because it is closely related to the trust consumers place in financial institutions. Public trust in the financial sector has a broad influence on driving consumer confidence and digital transactions (Rösner et al., 2020), economic growth (Kriese et al., 2019), as well as stability, efficiency, and

innovation in market finance (World Bank, 2017). This prompted the World Bank to issue "Good Practices for Financial Consumer Protection" as a guide for financial consumer protection (World Bank, 2012), which was subsequently updated again in 2017 (World Bank, 2017).

Ecosystem orchestration

Ecosystem orchestration is a new concept in economics and management, which emerged along with the development of the digital economy. Ecosystem orchestration is essentially related to the effort or process of integrating networks and/or external resources (beyond organizational boundaries) in order to encourage an organization's competitive advantage (Helfat & Raubitschek, 2018; Parida et al., 2019). This concept is related to the understanding of "organizational boundaries" or limits on resources owned and controlled directly by the company (Santos & Eisenhardt, 2005). The development of information and communication technology allows companies to develop digital ecosystems so that they can utilize resources outside the boundaries of the organization (Lütjen et al., 2019), often called external resources or network resources (Gulati, 1999; Liu et al., 2021). Helfat and Raubitschek (2018) formulated three main capabilities in ecosystem orchestration, including (1) scanning/sensing capabilities, (2) innovation capabilities, and (3) integrative capabilities. Parida et al. (2019) proposed a simpler framework consisting of two dimensions of ecosystem orchestration, namely readiness assessment and orchestration mechanism. The conceptual frameworks of ecosystem orchestration proposed by Helfat and Raubitschek (2018) and Parida et al. (2019) are compatible with each other because readiness assessment is related to scanning/sensing capabilities and orchestration mechanisms are related to innovation capabilities and integrative capabilities.

Digital performance

Consumer behavior has fundamentally altered as a result of digital transformation and business, putting tremendous pressure on established company models and altering market frameworks (Verhoef et al., 2021). This digital transformation process requires different growth strategies and capabilities. Firm performance in the digital transformation process needs to be measured through specific metrics that can reflect the firm's superiority in the digital transformation process (Nasiri et al., 2020). To determine whether a firm is successful in digital transformation, it needs to assess performance changes on key performance metrics to support learning, improve business models, and foster digital development in the long term. The digital transformation process is also a long-term endeavor that often cannot be measured with short-term oriented indicators. It is more oriented towards user base growth and speed, the speed of digital business expansion, and the quality of digital services, which cannot be approached with conventional performance indicators that prioritize a short-term financial perspective (Verhoef et al., 2021). Literature that examines performance in the context of digital transformation refers to this variable as digital performance (Gamache et al., 2019; Tavalaei & Cennamo, 2021; Vutova et al., 2022).

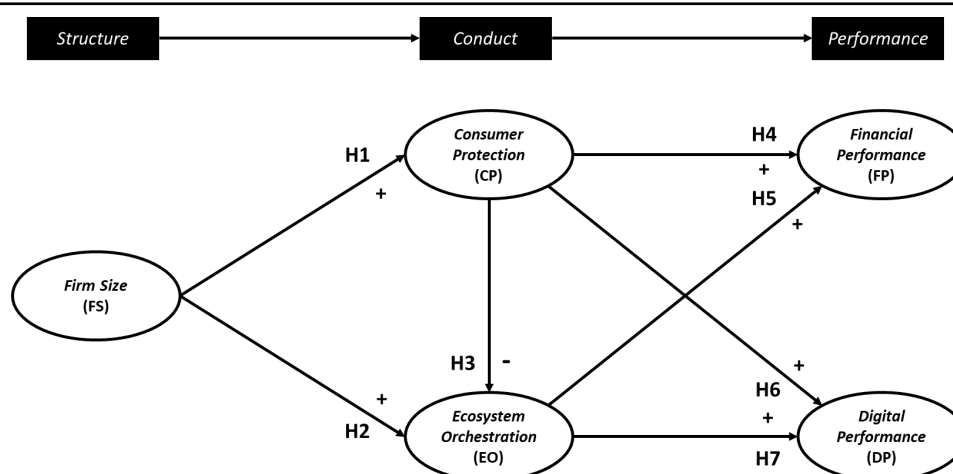


Figure 1. Research hypotheses

Research hypotheses

In the previous section, we discussed the framework for this study, starting from the paradigm used to the five research variables which will be explored further. The research model is built from the SCP (Structure–Conduct–Performance) paradigm (Bain, 1959; Lipczynski et al., 2017), which consists of one structure variable (firm size), two business conduct variables (consumer protection and ecosystem orchestration), and two performance variables (financial performance and digital performance). In this section, we will discuss the relationships between these research variables. In general, there are seven hypotheses that will be explored in this study, as shown in Figure 1.

Hypothesis H1 explores the relationship between firm size and consumer protection. Previous studies show that firm size is positively related to contract enforcement and property rights protection (Beck et al., 2006), how well the judicial system functions (Kriese et al., 2019), law enforcement (Dang et al., 2018), and compliance (Bachas et al., 2019), which are elements of consumer protection in the financial sector (World Bank, 2017). These studies demonstrate a positive effect of firm size on consumer protection, leading to the formulation of H1:

H1: Firm size has a positive influence on consumer protection.

Hypothesis H2 examines the relationship between firm size and ecosystem orchestration. Large digital firms tend to have a large user base, which is positively related to the market size of the digital platform, allowing them to offer business prospects for complementors or partners by attracting potential consumers and increasing profit prospects (Zhang et al., 2020). The size of the digital platform also provides more incentives for complementors/partners to acquire potential customers and can encourage collaboration within the digital ecosystem (Hoskisson et al., 1993). Additionally, it offers opportunities for the co-creation of value (Jovanovic et al., 2021). Based on these considerations, the following hypothesis is formulated:

H2: Firm size has a positive influence on ecosystem orchestration.

Hypothesis H3 posits that consumer protection has a negative influence on ecosystem orchestration. The development of digital financial services can threaten consumer protection, especially regarding data protection, cyber security, and digital illiteracy (Ferrari, 2022). Digital financial transactions use and generate highly informative personal data, which can be misused for commercial or other purposes, thereby endangering privacy and competition. It is feared that strengthening consumer protection could reduce incentives for innovation (Vogelsang, 2017), where one form of

this is the development of a digital ecosystem. Regulations can have a negative impact on technological development (Alesina et al., 2018). From these considerations, the following hypothesis is formulated:

H3: Consumer protection has a negative influence on ecosystem orchestration.

Hypotheses H4 and H5 examine the impact of consumer protection on financial performance and digital performance, respectively. Previous studies show that consumer protection significantly influences performance by increasing the impact of research, development, and network costs on performance (Liu et al., 2021), and by affecting consumer loyalty and trust (Friesike et al., 2019), which are crucial for financial performance in the service sector (Verhoef et al., 2021), including the banking industry (Ruiz et al., 2014). On the other hand, empirical studies related to digital performance indicate that consumer protection policies greatly influence digital performance by fostering digital trust (Bińczak et al., 2018; Rosamartina et al., 2022) and enhancing digital reputation (Rosamartina et al., 2022; Ruiz et al., 2014). Based on these studies, the following hypotheses are formulated:

H4: Consumer protection has a positive influence on financial performance.

H5: Consumer protection has a positive influence on digital performance.

Hypotheses H6 and H7 discuss the relationship of ecosystem orchestration to financial performance and digital performance. Previous empirical studies indirectly show that ecosystem orchestration positively influences financial performance in the context of supply chain structure (Carnovale & Yenyurt, 2015), digital capabilities (Mkhaiber & Werner, 2021), and digital governance (Yang et al., 2021). Additionally, several studies demonstrate that ecosystem orchestration efforts through application development (Ferrari, 2022), control over intellectual property, and portfolio expansion strategies (Lütjen et al., 2019) positively influence digital performance. Dahlan (2023) clearly shows that ecosystem orchestration has a positive and significant influence on digital performance. From this literature exploration, the following hypotheses are formulated:

H6: Ecosystem orchestration has a positive influence on financial performance.

H7: Ecosystem orchestration has a positive influence on digital performance.

RESEARCH METHOD

Research design

Research approach, unit of analysis, and population

The choice of research approach is largely determined by the research objectives (Creswell, 2013). The aim of this research is to determine the role of firm size, consumer protection, and ecosystem orchestration on firm performance, both financial performance and digital performance. This research intends to explain the relationship between variables starting from theory to data, from theoretically formulating hypotheses to testing hypotheses through data and not vice versa, so it is more appropriate to study it using a quantitative approach (Bettis et al., 2014). Determining the unit of analysis is closely related to the research objectives (Babbie, 2012). As discussed previously, the goal is to determine the role of firm size, consumer protection, and ecosystem orchestration on firm performance, both financial performance and digital performance. These five variables exist at the bank (meso) level, do not exist at the individual (micro) level, or at the country (macro) level. From these considerations, the unit of analysis in this study was decided at the bank level. The population of this study is commercial banks that have developed a digital ecosystem in Indonesia. At the beginning of 2022, there are 107 commercial banks in Indonesia, but 8 banks have not yet developed a digital ecosystem. Therefore, the population of this study is 99 commercial banks that are developing digital

ecosystems in Indonesia. This population selection was carried out by considering the adequacy of data to be elaborated statistically and the accessibility of research data.

Operationalization of research variables

This study uses the operationalization of variables that have been studied in previous research. The operationalization of the firm size variable is carried out using logarithmic indicators of total assets, total sales, and number of employees (Dang et al., 2018; Carnovale & Yenyurt, 2015). The consumer protection variable consists of six dimensions which are implemented in 37 questions in a questionnaire with a Likert scale based on the guidelines provided by Pasiouras (2018). Ecosystem orchestration variables were formulated from a questionnaire with a Likert scale created based on the codification prepared by Parida et al. (2019). The operationalization of financial performance variables is carried out using return on assets, return on equity, and return on sales (Hall & Weiss, 1967). Digital performance is measured based on the conceptual framework compiled by Dahlan (2023). The dimensions, indicators, data, and data sources of each variable can be seen in detail in Table I.

Table 1. Dimensions, indicators, data, and data sources from each variable

Variable and Main Reference	Dimension	Indicators		Data	Source
		Code	Name		
Firm Size (Dang et al., 2018; Hashmi et al., 2020)	firm size measurement	FSM1	Logarithm of total assets	Financial Report	Financial Services Authority of Indonesia
		FSM2	Logarithm of total sales		
		FSM3	Logarithm of number of employees	Banking Directory Report	
Consumer Protection (Pasiouras, 2018)	legal framework	LFW1-7		37 indicators from 37 Likert scale questions	Consumer protection survey
	supervisory structure/institutional arrangements	SVS1-6			
	supervisory monitoring and enforcement	SME1-6			
	disclosure requirements	DRQ1-6			
	fair treatment	FTR1-6			
	resolution of disputes and complaints	RDC1-6			
Ecosystem Orchestration (Parida et al., 2019)	readiness assessment	RAS1-6		13 indicators from 13 Likert scale questions	Ecosystem orchestration survey
	orchestration mechanism	OMC1-7			

Variable and Main Reference	Dimension	Code	Indicators Name	Data	Source
Financial Performance (Hoskisson et al., 1993)	financial performance measurement	FPM1	Return on assets	Financial Report	Financial Services Authority of Indonesia
		FPM2	Return on equity		
		FPM3	Return on sales		
Digital Performance (Dahlan, 2023)	technology performance	TNP1	Logarithm of the number of downloads	Application statistics	Google Play and Apple App Store
		TNP2	Logarithm of the number of reviews		
		TNP3	API status	Application partnership publications	Bank Report
		TNP4	API documentation status		
	digital financial performance	DFP1	Ratio of fee-based income to total income	Financial Report	Financial Services Authority of Indonesia
		DFP2	Ratio of fee-based income to total expenses		
		DFP3	Logarithm of fee-based income		

Data analysis method

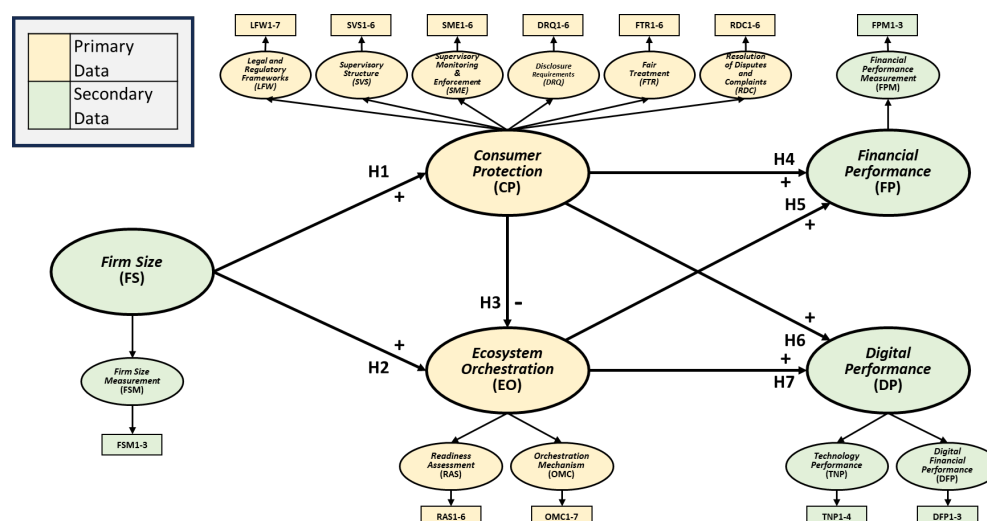


Figure 2. Research model

This study's research model can be seen comprehensively in Figure 2. This model shows that the type of relationship examined is dependent, consists of several dependent variables, and involves multiple relationships. Based on the algorithm developed by Hair et al. (2017), it is known that the appropriate data analysis method for analyzing dependent relationships with multiple dependent variables and various interrelationships is Structural Equation Modeling (SEM).

Structural Equation Modeling (SEM) is a statistical approach that can be used to address complex multilevel problems (Hair et al., 2017; Sarstedt et al., 2019), which involve several dependent variables in multiple relationships (Hair et al., 2017). This approach is essentially a causal modeling framework built from the integration of mathematical models, statistical methods, computer algorithms, and database systems. The advantage of SEM compared to other structural models developed in economics is its ability to explore latent concepts that cannot be directly observed (Sarstedt et al., 2019; Hair et al., 2017). In SEM, latent variables are represented through one or more observable indicators. The ability of SEM to construct latent variables makes it widely used in studies employing abstract concepts such as those in economics, management, and psychology (Hair et al., 2017; Sarstedt et al., 2019).

Further work

The banking industry is currently facing 2 strategic challenges, namely strengthening consumer protection, and developing the digital ecosystem. This study has formulated a conceptual framework and variable operationalization to empirically examine 2 strategic challenges simultaneously. The next work is to test the conceptual framework and operationalization of these variables according to empirical data. In the next study the authors will test this framework in the case of commercial banks in Indonesia using the Structural Equation Modeling approach.

RESULTS AND DISCUSSION

Results

Development of the integrated SCP-based framework

The conceptual analysis conducted in this study resulted in an integrated Structure-Conduct-Performance (SCP)-based framework explaining how structural characteristics, strategic conduct, and organizational performance interact within the digital banking transformation context.

The framework was developed by integrating the SCP paradigm proposed by Bain (1959) and further developed in industrial organization studies (Lipczynski et al., 2017) with contemporary perspectives on consumer protection, digital ecosystem orchestration, and digital transformation. In the traditional SCP perspective, market structure influences firm behavior, which subsequently affects organizational performance (Bain, 1959; Lipczynski et al., 2017). This study extends this perspective by incorporating digital capabilities and consumer-oriented governance mechanisms as important strategic conduct dimensions.

The proposed framework positions firm size as a structural variable, consumer protection and ecosystem orchestration as conduct variables, and financial performance and digital performance as performance outcomes. This configuration is consistent with previous studies highlighting that firm characteristics influence organizational capabilities, while digital transformation requires firms to develop new capabilities beyond conventional financial resources (Dang et al., 2018; Verhoef et al., 2021).

The framework indicates that banking performance is not generated directly from organizational scale but through the development of strategic capabilities. Consumer protection represents a governance capability that strengthens trust, transparency, and customer relationships (World Bank, 2017; Rösner et al., 2020), while ecosystem orchestration represents the ability of firms to integrate external resources, networks, and partners to create digital value (Helfat & Raubitschek, 2018; Parida et al., 2019).

Conceptual relationships among research variables

The first conceptual finding concerns the role of firm size as a structural foundation for developing strategic capabilities. Previous studies demonstrate that firm size represents an important organizational characteristic because it reflects differences in resources, investment capacity, and managerial capability (Dang et al., 2018; Hashmi et al., 2020).

Based on this theoretical foundation, the framework proposes that firm size positively influences consumer protection capability (H1). Larger banking institutions are expected to have greater ability to invest in regulatory compliance, cybersecurity systems, customer protection mechanisms, and institutional governance structures (World Bank, 2017; Pasiouras, 2018).

Furthermore, firm size is proposed to positively influence ecosystem orchestration capability (H2). Digital ecosystems require substantial technological infrastructure, organizational resources, and network legitimacy to coordinate multiple external actors. Previous studies indicate that ecosystem orchestration depends on firms' ability to integrate external resources and manage relationships beyond organizational boundaries (Helfat & Raubitschek, 2018; Lütjen et al., 2019).

The second conceptual finding relates to the relationship between consumer protection and ecosystem orchestration (H3). The framework identifies this relationship as complex because consumer protection may generate both constraints and enabling mechanisms. Digital financial ecosystems create challenges related to data protection, cybersecurity, and consumer vulnerability (Ferrari, 2022). At the same time, effective consumer protection mechanisms may strengthen trust and encourage participation in digital financial services (Rösner et al., 2020; Kriesse et al., 2019).

The third conceptual finding indicates that consumer protection contributes positively to financial performance (H4) and digital performance (H5). Previous literature suggests that consumer trust, reputation, and customer loyalty are important factors influencing performance in financial services (Ruiz et al., 2014; Rösner et al., 2020). In digital environments, consumer protection mechanisms also contribute to digital adoption by improving customer confidence toward technology-based financial services (Bińczak et al., 2018; Rosamartina et al., 2022).

The fourth conceptual finding highlights the strategic role of ecosystem orchestration in improving financial performance (H6) and digital performance (H7). Digital ecosystem capability enables organizations to utilize external resources, develop partnerships, accelerate innovation, and create new service opportunities (Helfat & Raubitschek, 2018; Parida et al., 2019). Previous studies also indicate that ecosystem-related capabilities contribute to digital transformation and organizational performance improvement (Lütjen et al., 2019; Jovanovic et al., 2021).

Summary of conceptual findings

Based on the theoretical synthesis, this study identifies seven conceptual relationships within the proposed SCP framework can be seen in Table 2.

Table 2. Summary of conceptual findings and proposed relationships

Relationship	Conceptual Finding	Supporting Literature
Firm Size → Consumer Protection	Organizational scale provides resources supporting governance, compliance, and consumer protection capability	Dang et al. (2018); World Bank (2017)
Firm Size → Ecosystem Orchestration	Larger banks possess greater capacity to develop and coordinate digital ecosystems	Helfat & Raubitschek (2018); Parida et al. (2019)
Consumer Protection → Ecosystem Orchestration	Protection mechanisms may create constraints but also strengthen ecosystem trust	Ferrari (2022); Rösner et al. (2020)
Consumer Protection → Financial Performance	Consumer trust and reputation contribute to sustainable financial outcomes	Ruiz et al. (2014); Kriese et al. (2019)
Consumer Protection → Digital Performance	Protection mechanisms increase confidence and digital service adoption	Bińczak et al. (2018); Rosamartina et al. (2022)
Ecosystem Orchestration → Financial Performance	Ecosystem capabilities create efficiency and new value creation opportunities	Lütjen et al. (2019); Carnovale & Yenyurt (2015)
Ecosystem Orchestration → Digital Performance	Ecosystem integration accelerates innovation and digital capability development	Helfat & Raubitschek (2018); Jovanovic et al. (2021)

Discussion

Consumer protection and ecosystem orchestration as strategic capabilities

The findings of this study suggest that sustainable digital banking transformation requires the integration of consumer protection and ecosystem orchestration capabilities. Previous studies have generally examined these concepts separately, where consumer protection focuses on reducing information asymmetry and protecting consumers (World Bank, 2017), while ecosystem orchestration emphasizes the integration of external resources and network capabilities (Helfat & Raubitschek, 2018; Parida et al., 2019).

This study extends previous perspectives by positioning both concepts as complementary strategic capabilities within the SCP framework. Consumer protection provides the trust foundation required for digital financial adoption, while ecosystem orchestration enables banks to expand innovation through collaboration with external partners. Therefore, digital transformation success depends not only on technological investment but also on the ability of banks to build trust-based digital ecosystems.

The relationship between consumer protection and digital ecosystem development

One important implication of this study is the complex relationship between consumer protection and ecosystem orchestration. Strong consumer protection requirements may increase compliance costs, restrict data utilization, and create additional governance responsibilities in digital ecosystems (Ferrari, 2022; Vogelsang, 2017).

However, consumer protection should not be viewed only as a constraint on innovation. Effective protection mechanisms may increase consumer trust, strengthen institutional reputation, and encourage participation in digital financial services (Rösner et al., 2020; Kriese et al., 2019).

Therefore, this study argues that the relationship between protection and innovation represents a balancing mechanism. Appropriate consumer protection frameworks may

function as an enabling factor for sustainable ecosystem development rather than merely a regulatory burden.

Extending the SCP perspective in digital banking transformation

This study contributes to SCP literature by extending the traditional relationship between structure, conduct, and performance into the digital banking context. Previous SCP studies primarily emphasized competition, efficiency, profitability, and market power (Bain, 1959; Lipczynski et al., 2017; Rakshit & Bardhan, 2022).

The proposed framework expands this perspective by introducing consumer protection and ecosystem orchestration as strategic conduct mechanisms and incorporating digital performance as an additional performance dimension. This approach recognizes that banking competitiveness in the digital era is determined not only by financial outcomes but also by digital capability, ecosystem connectivity, and customer trust (Verhoef et al., 2021).

Thus, the framework provides a more comprehensive explanation of how banks transform structural resources into sustainable digital performance.

Practical implications and future research

The proposed framework provides practical implications for banking institutions and regulators. Banks should integrate consumer protection principles into digital transformation strategies, including product development, data governance, cybersecurity management, and ecosystem partnership decisions. At the same time, banks need to strengthen ecosystem orchestration capabilities to effectively manage collaboration with fintech companies and technology partners.

For regulators, the findings highlight the importance of balancing innovation and consumer protection. Regulatory approaches should encourage responsible digital innovation while ensuring adequate protection mechanisms for financial consumers.

Although this study provides a conceptual contribution, empirical validation remains necessary. Future research may examine the proposed relationships using Structural Equation Modeling (SEM) and consider additional factors such as cybersecurity capability, regulatory environment, and digital literacy.

Sustainable digital transformation and contribution to SDG 9

The proposed framework contributes to SDG 9 by explaining how digital banking transformation can support innovation, resilient infrastructure, and sustainable financial ecosystems. Consumer protection strengthens trust and reliability in digital financial services, while ecosystem orchestration promotes collaboration and innovation among banks and external partners (World Bank, 2017; Helfat & Raubitschek, 2018; Parida et al., 2019). Therefore, sustainable digital transformation requires not only technological advancement but also effective governance mechanisms that ensure secure, inclusive, and responsible digital financial infrastructure.

CONCLUSION

Fundamental Finding: This study develops a conceptual framework explaining the relationship between consumer protection, ecosystem orchestration, and banking performance through the Structure-Conduct-Performance (SCP) perspective. The fundamental finding indicates that consumer protection and ecosystem orchestration are strategic factors that may enhance both financial performance and digital performance in the banking industry. The integration of these two dimensions provides a comprehensive

approach to understanding sustainable digital transformation in financial institutions. **Implication:** The proposed framework provides practical implications for banking institutions and regulators by emphasizing the importance of balancing digital innovation with consumer protection mechanisms. Strengthening ecosystem orchestration capabilities and improving consumer trust can support the development of resilient digital banking infrastructure, contributing to SDG 9 through innovation-driven and sustainable financial transformation. **Limitation:** This study is limited to conceptual framework development and theoretical exploration without empirical validation. The proposed relationships among firm size, consumer protection, ecosystem orchestration, financial performance, and digital performance require further testing using empirical data from banking institutions. **Future Research:** Future research should empirically examine the proposed framework using quantitative approaches, such as Structural Equation Modeling (SEM), to evaluate the relationships among variables in the Indonesian banking context. Further studies may also explore additional factors, such as regulatory environment, cybersecurity capability, digital literacy, and customer behavior, to provide a more comprehensive understanding of sustainable digital banking transformation.

AUTHOR CONTRIBUTIONS

Anto Prabowo: Conceptualisation, methodology, literature review, theoretical framework development, investigation, formal analysis, visualization, Writing-original draft, project administration. **Wimboh Santoso:** Conceptualisation, supervision, validation, theoretical review, Writing-review and editing. **Djoko Suhardjanto:** Supervision, methodology, validation, Writing-review and editing. **Irwan Trinugroho:** Supervision, theoretical framework development, validation, Writing-review and editing.

CONFLICT OF INTEREST STATEMENT

The authors declare that they have no financial or non-financial competing interests that could have influenced the research reported in this article.

ETHICAL COMPLIANCE STATEMENT

This study does not involve human participants, animal subjects, or primary data collection requiring ethical approval. The research was conducted through systematic analysis of previously published academic literature following principles of academic integrity, transparency, and responsible research practices.

STATEMENT ON THE USE OF AI OR DIGITAL TOOLS IN WRITING

The authors acknowledge the use of Grammarly as a language editing tool to improve grammar, spelling, clarity, and overall language quality during the manuscript preparation process. However, all research concepts, methodological decisions, data interpretation, and conclusions remain entirely the responsibility of the authors. Grammarly was used solely for language refinement and did not contribute to data generation, analysis, or scientific decision-making.

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