THE ROLE OF KNOWLEDGE SHARING AND INNOVATION ON THE PERFORMANCE OF BANKING: A GOVERNANCE PERSPECTIVE

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Abstract

Previous studies have demonstrated that knowledge management plays a crucial role in fostering innovation and enhancing organizational performance in highly competitive environments (Mardani et al., 2018; Darroch, 2005). This research delves into several aspects of this issue from a managerial perspective, with a particular focus on the banking industry. Based on the resource-based view (RBV) theory, we develop a research framework to identify the role of knowledge sharing and innovation in the performance of Vietnamese banks. The study conducted a survey and got data from 279 employees of Vietnamese banks from June 2022 to October 2022. We employed structural equation modeling (SEM) using PLS-SMART software to evaluate the hypothesized relationships in the conceptual framework. Research results show that knowledge sharing and innovation play an important role in the performance of Vietnamese banks. The findings highlight the critical role of innovation in enhancing firm performance, emphasizing the importance of investment in innovation and robust innovation management. While these factors proved significant, the study revealed that knowledge sharing, contrary to expectations, did not directly impact bank innovation. The research suggests that Vietnamese commercial banks can enhance their overall performance by promoting both knowledge sharing and innovation. The findings in this paper may be helpful to academics and managers in designing management knowledge programs that achieve these goals.

Keywords: Knowledge Sharing, Innovation, Performance, Vietnamese Bank

1. INTRODUCTION

Recent decades have witnessed the role of knowledge in consolidating the performance of enterprises and contributing to sustainable development. Widely regarded as a critical success factor, knowledge has been the key to boosting innovation and business performance (Mardani et al., 2018). Besides, knowledge plays a crucial role in sustaining competitive advantage through its application to the design of new products or services, or their improvement (Torres et al., 2018).

Knowledge sharing stands as a pivotal process within the realm of knowledge management, serving as a precursor to the harnessing of knowledge assets. Defined as a behavioral phenomenon, knowledge sharing encapsulates the dynamic exchange of insights, information, skills, and expertise among individuals (Ahmad & Karim, 2019). Within organizational settings, this exchange among employees engenders the dissemination of both implicit and explicit knowledge, fostering the genesis of novel insights and the cultivation of organizational knowledge repositories, thereby conferring manifold benefits upon the organization. Such benefits encompass the augmentation of business performance, underscoring the strategic significance of effective knowledge-sharing endeavors. Indeed, the literature shows a positive relationship between knowledge sharing and the improvement of organizational effectiveness and performance in banking (Azeem et al., 2021). Therefore, a good implementation of knowledge sharing in an enterprise will bring better efficiency for its operations.

Previous studies have primarily focused on specific aspects, such as identifying knowledge sharing as a process where individuals exchange their implicit (tacit) and explicit knowledge to generate new insights (van den Hooff & de Ridder, 2004). While other research has suggested that knowledge sharing has the potential to enhance bank performance, much of the literature has been theoretical in nature, analyzing proposed relationships without directly testing the impact of knowledge sharing on firm performance. Thus, there is a need to extend the emerging literature by empirically substantiating the direct link between knowledge scanning and sharing and the prediction of bank performance.

Innovation, characterized by the conception and execution of novel ideas, unfolds through the collaborative interactions of individuals within an institutional framework over time. Renowned for its pivotal role in fostering organizational excellence, innovation emerges as a cornerstone of superior performance. Central to its realization is the intricate web of knowledge exchange among employees, serving as the primary catalyst for innovative endeavors. While modern infrastructure, technological advancements, and economic resources undoubtedly facilitate this process, it is the concerted effort towards knowledge sharing among employees that chiefly propels innovation forward.

The banking system plays a crucial role in Vietnam's economy. According to the General Statistics Office, the banking industry's contribution to gross domestic product (GDP) in 2023 is estimated to reach 4.76%. Vietnam's credit debt/GDP ratio in 2023 is estimated to reach 135.6% with 30 commercial banks in operation[1] Therefore, any potential factor that is believed to influence the performance of Vietnamese commercial banks should be considered carefully. To the best of our knowledge, there has been no study in the literature investigating the impact of knowledge sharing and innovation on the performance of Vietnam's banking system. Our study, therefore, aims to fill this gap. The research questions are as follows:

RQ1: What is the relationship between knowledge sharing, innovation, and bank performance?

RQ2: How does knowledge sharing influence bank innovation and bank performance?

RQ3: How do these factors (knowledge scanning, leadership, culture, and technology) impact knowledge sharing and innovation at banks?

This research aims to determine the role of knowledge sharing on the innovation and performance of banks in Vietnam and to explore the relationship among knowledge sharing, innovation, and performance based on resource-based view (RBV) theory in the context of the Vietnamese banking industry. Specifically, it focuses on the contributions of four factors to the knowledge-sharing efforts (knowledge scanning, leadership, culture, and technology), resulting in improving market performance and business performance of some major commercial banks in Vietnam. We highlight the role of knowledge sharing in the effort of managing knowledge, and the role of innovation in improving performance at Vietnamese commercial banks.

With the research objectives, this study is expected to provide the following contributions: 1) adding knowledge about the role of knowledge sharing in the innovation and performance of Vietnamese banks; 2) testing the validity of resources theory in explaining the relationship among knowledge sharing, innovation, and performance in the banking industry; and 3) propose recommendations for banks to improve knowledge sharing efficiency, promote innovation and improve operating results.

Through a quantitative research approach, utilizing data collected from a survey of bank employees, this study investigates the critical role of knowledge sharing and innovation in enhancing the performance of commercial banks in Vietnam. While both factors are hypothesized to significantly influence bank performance, the research explores the nuanced relationship between knowledge sharing and innovation within this context.

For details, the rest of the paper is structured as follows. Section 2 provides a comprehensive review of previous studies, the theory of RBV, and key concepts (knowledge sharing, innovation, and bank performance), leading to the proposed research model. Section 3 details the research methodology employed in this study. Section 4 presents the research findings, hypothesis testing, and comparison with previous studies. Section 5 discusses the results. Finally, Section 6 outlines the implications of the research findings, offers recommendations based on the results, and identifies limitations and future research directions.

2. LITERATURE REVIEW AND HYPOTHESES DESIGN

2.1. The theory of resource-based

Resource-based theory, also known as the resource-based view (RBV) of the firm, elucidates the ownership, deployment, and utilization of resources within a company. The distinctiveness of a firm's strategic capabilities is contingent upon the rarity, value, and inimitability of its resources, enabling organizations to reconfigure and effectively arrange valuable assets to foster knowledge and innovation. Research on knowledge has been intricately linked to the RBV, particularly its extension known as the knowledge-based view (KBV) (Pereira & Bamel, 2021). Within this framework, knowledge-based assets are regarded as foundational elements that facilitate the creation, integration, and sharing of knowledge to generate superior value. Notably, the RBV emphasizes

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[1] https://www.sbv.gov.vn/webcenter/portal/en/home/sbv/statistic

the significance of intangible assets, such as learning and knowledge, in generating greater profits compared to the acquisition of tangible resources (Nason & Wiklund, 2018).

Furthermore, the RBV offers insights into understanding organizational culture, knowledge sharing, and organizational innovation, aligning closely with the strategic assets and core competencies of a firm to sustain its competitive advantage. This theory underscores the notion that a well-executed organizational culture, as an intangible asset, permeating various levels of the organization, yields specific resources and capabilities that drive superior performance through knowledge and innovation (Utami & Alamanos, 2023). The proposed framework supported by the RBV aids in elucidating the interconnected phenomena of knowledge sharing and organizational innovation through the lens of organizational culture.

2.2. The knowledge sharing

The discourse surrounding knowledge sharing pervades the management literature, underlining its significance as a fundamental process within knowledge management preceding the exploitation of insights through collaborative endeavors and innovation. This process not only facilitates the exchange of knowledge, experiences, facts, and skills among individuals throughout the organization but also plays a pivotal role in enhancing problem-solving abilities and augmenting awareness of decision-making processes (Mirzaee & Ghaffari, 2018). Furthermore, knowledge sharing among employees engenders the dissemination of valuable implicit or explicit knowledge, fostering the creation of new insights and the cultivation of organizational knowledge repositories, thereby accruing benefits for the organization.

However, the mere possession of knowledge resources does not inherently translate into enhanced firm performance, rather, effective knowledge scanning and sharing are imperative for proper knowledge management, thereby transforming knowledge into intellectual assets and driving productivity. In this regard, four pillars — knowledge scanning, organizational culture, technology, and leadership skills — form the foundational support for knowledge-sharing endeavors, with successful knowledge-sharing serving as a positive predictor of firm performance (Crupi et al., 2021).

Organizational culture plays a primary role in influencing employees' attitudes toward knowledge sharing and maintaining their motivation in the workplace, thereby enhancing productivity. Culture in the workplace is an association's information and information the board generally relies upon its insight culture. Factors including preparing, spreading, and sharing of information among bank staff are considered as the guideline for the execution of information to the board at banks. The sharing of information among bank workers is one of the main variables for unviable information to the bank board at the bank. It is important to improve and urge representatives to take part during the time spent in information disclosure and sharing (Azeem et al., 2021).

The support of organizational leadership has a positive impact on knowledge-sharing management and leadership is essential to encourage the culture of sharing, making investment decisions in infrastructure and knowledge-sharing processes,

and emphasizing and affirming the role of knowledge-sharing activities in the organization (Singh et al., 2021). This can be explained that the leaders of the bank are aware of the importance of knowledge-sharing activities, and have supportive policies related to knowledge management activities, rewarding contributions to improve the knowledge of banks (Al-Ahmad Chaar & Easa, 2021).

Technology has a significant impact on bank knowledge sharing by facilitating the creation and transfer of bank knowledge as well as the collection, storage, retrieval, and dissemination of banked knowledge. Due to the diversity of customer information storage, knowledge sharing can update, and provide all information following the needs of employees (Abbasi et al., 2021). Technology at banks is unequivocally affected by the data arrangement of banks. Sharing a wide range of bank information leads the bank to a better understanding of its customers, resulting in encouraged performance (Uğurlu & Kızıldağ, 2013).

2.3. Innovation

Innovation is defined as the activities and processes within an organization aimed at creating and implementing new knowledge to develop new products, services, and processes (Tushman & Nadler, 1986). It is also referred to as a learning process wherein valuable ideas are transformed into new forms of added value for the organization. Various conceptualizations of innovation exist, with the Organisation for Economic Co-operation and Development (OECD) defining it as the application of new solutions or significant improvements to products, services, processes, marketing strategies, organizational structures, or collaborative relationships within a business (OECD & Statistical Office of the European Communities [Eurostat], 2005).

Innovation serves as a potential indicator of creativity that contributes to organizational development and is a key driver of success in the marketplace. Organizational innovation enhances business performance by fostering workplace knowledgeability, satisfaction, and flexibility, thereby supporting organizational advancement and change. It encompasses improvements in products, processes, and technology, all of which are instrumental in enhancing organizational performance (Soomro et al., 2021).

2.4. Bank performance

The ability of an organization to use its resources effectively to achieve its goals is known as firm performance. Firm performance is characterized by its capacity to attain organizational goals and objectives, which can be assessed across four dimensions: 1) financial performance, 2) market performance, 3) production performance, and 4) competition performance (Wang & Wang, 2012). Thus, bank performance is related to financial performance that is measured by profitability, market share, and investment return as well as profit margin (Karabulut, 2015).

Market performance is gauged by indicators such as the acquisition of new customers, improvements in customer satisfaction and loyalty, and the business's market share relative to its competitors (Oh et al., 2015). Competition performance is related to better understanding their

capabilities and strengths, thereby helping to increase their competitive advantage over competitors. Production performance is shown through increasing product service quality, increasing trust, and the specialness and newness of service products compared to other competitors, thereby helping businesses improve operational efficiency in general.

2.5. The relationship among knowledge sharing, innovation, and bank performance

The literature review affirms the pivotal role of knowledge sharing in enhancing innovativeness at both the organizational and individual levels (Azeem et al., 2021). Knowledge sharing emerges as a key factor driving innovation, with several studies establishing its positive relationship with innovation and performance. This mechanism facilitates the conversion of tacit knowledge into explicit knowledge, both of which are essential inputs for fostering innovation (Castaneda & Cuellar, 2020). Specifically, within the context of innovation, knowledge sharing involves the exchange of expertise aimed at creating or enhancing valuable products and services, thereby enhancing firm performance (Darroch, 2005). Furthermore, knowledge sharing is identified as a mediator between collaborative innovation and organizational performance, underscoring its significance in improving firm performance (Muhammed & Zaim, 2020). This significance underscores the vital role of knowledge in driving innovation and performance.

Additionally, organizational culture, leadership roles, and technology are identified as factors influencing an organization's innovation capacity. A culture that fosters innovation creates an environment where individuals feel empowered to explore new ideas without fear of reprisal, thereby bolstering the organization's innovation capacity (Azeem et al., 2021). Furthermore, innovation is positively correlated with performance,
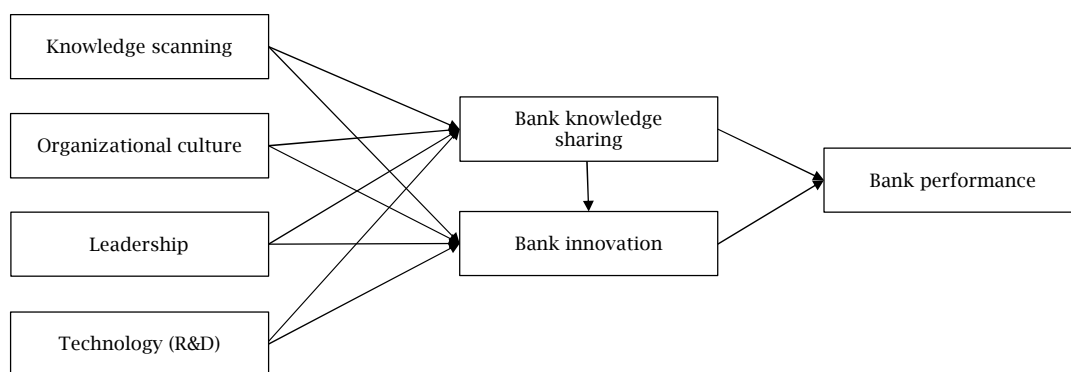
and its efficiency significantly contributes to business growth and overall performance (Singh et al., 2021).

Previous studies have primarily focused on specific aspects, such as identifying knowledge sharing as a process where individuals exchange their implicit (tacit) and explicit knowledge to generate new insights (Crupi et al., 2021, Azeem et al., 2021). While previous research has suggested that knowledge sharing has the potential to enhance bank performance (Al-Ahmad Chaar & Easa, 2021, Mirzaee & Ghaffari, 2018), much of the literature has been theoretical in nature, analyzing proposed relationships without directly testing the impact of knowledge sharing on firm performance. Thus, our study extends the emerging literature by empirically substantiating the direct link between knowledge scanning and sharing and the prediction of bank performance.

2.6. Research model

Drawing from the preceding discussion in the existing literature, the study advances a framework and presents the following hypotheses. The proposed research model is based on the RBV theory. The proposed framework supported by the RBV aids in elucidating the interconnected phenomena of knowledge sharing and organizational innovation through the lens of organizational culture (Alzoubi et al., 2023; Ate et al., 2022). Within this framework, knowledge-based assets are regarded as foundational elements that facilitate the creation, integration, and sharing of knowledge to generate superior value (Alias et al., 2023; Effendi & Ali, 2023; Spallini et al., 2022). So, the model considers the impact of capital factors, including knowledge seeking, organizational culture, leadership, and technology on knowledge sharing and innovation in banks. It also examines the relationship between knowledge sharing, innovation, and bank performance, especially clarifying the role of knowledge sharing in bank innovation and performance.

Figure 1. Conceptual research model

Note: R&D — research and development.

H1a: Knowledge scanning positively influences bank knowledge sharing.
H1b: Knowledge scanning positively influences bank innovation.
H2a: Organizational culture has a positive effect on bank knowledge sharing.
H2b: Organizational culture has a positive effect on bank innovation.

H3a: Leadership positively impacts bank knowledge sharing.
H3b: Leadership positively impacts bank innovation.
H4a: Technology positively affects bank knowledge sharing.
H4b: Technology positively affects bank innovation.

H5: Knowledge sharing positively impacts bank innovation.

H6: Knowledge sharing positively influences bank performance.

H7: Innovation positively influences bank performance.

3. RESEARCH METHODOLOGY

3.1. Data collect

This study employed a deductive approach and utilized a non-probability purposive sampling technique, as outlined by Sarker and AL-Muaalemi (2022). Therefore, the target population comprised managers and employees within the commercial banking industry in Vietnam. To mitigate the likelihood of common method variance, surveys were distributed to 18 banks, thereby ensuring data collection from diverse sources, including both managers and their subordinates. The minimum sample size was estimated using the minimum R-squared method, resulting in a required sample size of $n = 174$, with an R-squared value of approximately 0.1 (Cohen, 1988).

Surveys were distributed to a total of 300 employees and 100 managers. Prior to survey administration, approval for the study was sought from the headmasters of each bank, and data collection commenced following their authorization. Respondents were contacted via Google Forms, and a cover letter accompanying the survey outlined the study's objectives, assured respondents of the confidentiality of their responses, and requested their completion and submission of the questionnaire.

3.2. Variables measurement

To establish a reliable measurement model, a comprehensive literature review was conducted to identify suitable items. All survey items employed in this study were adapted from previously validated scales. Minor modifications to item wording were made as necessary to align with the study's context. All variables were assessed through self-reporting on multiple-item scales adapted from previous research. Utilizing a five-point Likert-type scale, respondents were asked to indicate their level of agreement, with 1 denoting "strongly disagree" and 5 denoting "strongly agree".

The knowledge scanning (*KC*) scale was derived from the instrument developed by van den Hooff and de Ridder (2004) with seven items. The sample item reads as "*We get knowledge from experienced colleagues*" The reliability coefficient Cronbach's alpha for knowledge scanning was 0.959.

The organizational culture (*IC*) scale was adapted from Chang and Lee (2007) with five items. The sample item reads as "*Members are vested with the spirit of innovation and adventure*" The reliability coefficient Cronbach's alpha for culture was 0.936.

The leadership (*LD*) scale was sourced from Xue et al. (2011) with four items. The sample item reads as "*My leader encourages team members to express ideas/suggestions*". The reliability coefficient of Cronbach's alpha for leadership was 0.937.

Questions pertaining to technology (*RD*) with four items, knowledge sharing (*KS*) with four items, and innovation (*IN*) with eight items were drawn from Kamaşak and Bulutlar (2010) and OECD and Eurostat (2005). The reliability coefficient for technology was 0.959, the reliability coefficient for knowledge sharing was 0.939, and the reliability coefficient for innovation was 0.950.

Finally, the scale for assessing bank performance (*PF*) was adapted from Wang and Wang (2012) with five items. The reliability coefficient for performance was 0.816.

3.3. Procedure

After completing the scale development process, we edited and deployed the questionnaire for the survey. All items in the scales were translated from English to Vietnamese using the back-translation method and changed into questions. The questionnaire comprised two sections. The first section gathered demographic information and details about respondents' work. The second section included questions related to seven variables.

The survey was conducted in two main stages. Phase 1 was the pilot and definition. During this phase, the questionnaire was translated, and pilot interviews were conducted with three innovation researchers, three managers, and four bank employees. The aim of this phase was to ensure that the questions were clearly worded, easy to understand, and avoid misunderstandings. At the same time, we also collected feedback to assess the comprehensiveness of the questionnaire and make appropriate adjustments. Phase 2 was a formal survey. After completing the questionnaire based on the results of the pilot phase, we conducted a formal survey on the previously identified research sample.

Data analysis was conducted using SmartPLS v. 3, a software based on partial least squares structural equation modeling (PLS-SEM), to assess the hypothesized relationships among constructs. This method is particularly advantageous in social science research, especially when dealing with survey data from small sample sizes compared to the target population (Hair et al., 2017).

Following the procedure outlined by Hair et al. (2021), the PLS-SEM analysis was conducted in two stages. In the first stage, the measurement model was evaluated to assess the reliability, validity, and discriminant validity of the scales used in the research. The second stage involved evaluating the structural model to identify and test the research hypotheses. To determine the statistical significance of the path coefficients, the PLS analysis utilized 500 subsamples to generate bootstrap t-statistics with degrees of freedom equal to ($n - 1$), where n represents the number of subsamples.

3.4. Data analysis

The authors used PLS-SEM to analyze the data. This study employs SEM due to its superior advantages over traditional analysis methods such as correlations, regressions, and analysis of variance (ANOVA). While regression and ANOVA are valuable tools, they have limitations when dealing with complex research models involving multiple causal relationships. Regression, for instance, is typically restricted to analyzing individual relationships between variables, while ANOVA is primarily designed for comparing group means. SEM, on the other hand, is capable of examining interconnecting relationships among multiple variables simultaneously. First, SEM's ability to analyze multiple causal relationships within a single model aligns perfectly with the proposed research model, which involves

examining simultaneous relationships among three variables and testing seven hypotheses. In contrast, traditional methods are limited to analyzing individual relationships in isolation. Second, SEM offers a more robust approach to empirically testing theoretical models by incorporating both measurement and structural models. This allows for the evaluation not only of the relationships between variables, but also of the quality of the measurement instruments used. By focusing on how well the proposed factors fit the observed data, SEM provides a more accurate and reliable understanding of the underlying theoretical framework. Third, SEM significantly reduces the likelihood of Type II errors by explicitly accounting for measurement errors. By recognizing that some unexplained variance is attributed to measurement error, SEM minimizes the risk of incorrectly rejecting a true relationship.

Moreover, there are two primary forms of SEM: 1) covariance-based SEM (CB-SEM) and 2) PLS-SEM. PLS-SEM is particularly well-suited for exploratory research and models with higher-order constructs due to its flexibility and ability to handle a wider range of statistical techniques. Unlike CB-SEM, which represents constructs as factors, PLS-SEM represents constructs as components, making it more adaptable to complex models and smaller sample sizes. Additionally, PLS-SEM incorporates a broader array of statistical techniques, including principal components analysis, multiple regression, and multivariate analysis of variance.

PLS-SEM is a statistical method that analyzes relationships between latent variables which uses both regression and factor analysis to examine the relationships between observed and hidden variables. This method is designed to explain how different factors influence the outcomes or results we're interested in. The structural model represents these relationships as directional arrows, tested for significance using path coefficients. The measurement model connects latent variables to their indicators, assessing their reliability and validity.

In PLS-SEM, we use hypothesis testing to examine the relationships between latent variables. We focus on the "path coefficients", which essentially show how strong and in what direction these relationships are. For each connection (path) in our model, we start with the assumption that there's no significant relationship between the variables (null hypothesis — H_0). Our goal is to find evidence that supports the existence of a meaningful relationship (alternative hypothesis).

The hypothesis test is conducted using bootstrapping to calculate standard errors and p-values for each path coefficient. The decision to reject or fail to reject H_0 is based on the p-value. If the p-value < 0.05, the path coefficient is considered significant, and H_0 (no relationship) is rejected. In contrast, if the p-value ≥ 0.05, the relationship is not statistically significant (can not reject H_0).

3.5. Sample size

The demographic characteristics of the respondents encompassed gender, age, education level, job experience, and job position. Among employees of 18 banks in Vietnam, 58.42% were female and 41.58% were male. In terms of age distribution, 46.95% were under 30 years old, 37.28% were between 30 years old and 40 years old, and 15.77% were above 40 years old. Regarding educational attainment, 78.49% held a diploma or bachelor's degree, 21.15% held a master's degree, and 0.36% held a doctorate degree. Concerning job experience, 31.90% had less than three years of experience, 15.77% had 3–5 years, 21.86% had 6–10 years, and 30.47% had more than 10 years of experience. Lastly, in terms of job positions within the bank, 80.64% of respondents were employees, while 19.35% held managerial roles. Further details can be found in Table 1.

Table 1. Sample and descriptive statistics

Demographic items	Categories	Frequency (N)	Percentage (%)
Gender	Male	116	41.58
	Female	163	58.42
Age	Under 30 years old	131	46.95
	From 30 years old to 40 years old	104	37.28
	Over 40 years old	44	15.77
Education level	Diploma Bachelor's degree	219	78.49
	Master's degree	59	21.15
	Doctorate degree	1	0.36
Job experience	less than 3 years	89	31.90
	3–5 years	44	15.77
	6–10 years	61	21.86
	Over 10 years	85	30.47
Job substitute	Employee	225	80.64
	Manager	54	19.35
Total		279	100

4. RESEARCH RESULTS

This study utilizes PLS-SEM, a statistical method that combines exploratory factor analysis and multiple regression to analyze complex relationships between variables. The results are evaluated based on two components: 1) the measurement model and 2) the structural model. Hypotheses are then concluded based on p-values. The measurement model assesses the relationship between observed variables (indicators) and latent constructs (constructs), evaluating the measurement instruments' validity and reliability. The structural model examines the hypothesized relationships between latent constructs and assesses the overall model fit and the significance of individual path coefficients. Model coefficients are derived from estimating a series of regression equations. Hypothesis testing uses p-values. Each hypothesis corresponds to a path in the model. One-tailed p-values at the 0.05 significance level are used, accepting a hypothesis if p ≤ 0.05. For detailed information, please refer to the following subsections.

4.1. Measurement model evaluation

The measurement model's adequacy was assessed based on reliability, convergent validity, and discriminant validity criteria. The findings presented in Table 2 indicate satisfactory reliability for individual items comprising reflective constructs, as evidenced by their standardized loadings exceeding the minimum acceptable threshold of 0.7 (Hair et al., 2021). Additionally, construct reliability was confirmed, with composite reliabilities (CR) for all reflective constructs reaching 0.7 or higher (Hair et al., 2021). Moreover, convergent validity was established as the average variance extracted (AVE) surpassed 0.50 (Henseler et al., 2015). These findings collectively support the construct validity of the measurement model.

Table 2. Evaluation of measurement model

Scale	Construct	No. of items	AVE	CR	Cronbach's alpha	Outer loadings		Items source
						Max	Min	
KC	Knowledge scanning	7	0.803	0.966	0.959	0.873	0.913	van den Hooff and de Ridder (2004)
IC	Organizational culture	5	0.796	0.951	0.936	0.875	0.906	Chang and Lee (2007)
LD	Leadership	4	0.842	0.955	0.937	0.822	0.897	Xue et al. (2011)
RD	Technology (R&D)	4	0.886	0.969	0.957	0.927	0.953	Kamaşak and Bulutlar (2010), OECD and Eurostat (2005)
KS	Knowledge sharing	5	0.755	0.939	0.919	0.821	0.868	
IN	Innovation	8	0.762	0.950	0.937	0.844	0.899	
PF	Bank performance	5	0.816	0.957	0.944	0.881	0.925	Wang and Wang (2012)

In terms of the discriminant validity of reflective measures, the findings depicted in Table 2 demonstrate that the AVE for each reflective construct exceeds the variance shared with other constructs (Henseler et al., 2015). Furthermore, the cross-loading matrix results provided in Table 3 indicate support for discriminant validity, as evidenced by the indicators of measures loading more significantly on their respective constructs compared to others (Fornell & Larcker, 1981). Therefore, the results of this study validate the scale.

Table 3. Testing for discriminant validity (Fornell and Larcker criterion)

Variable	IC	IN	KC	KS	LD	PF	RD
IC	1.000						
IN	0.718	1.000					
KC	0.885	0.762	1.000				
KS	0.771	0.675	0.766	1.000			
LD	0.637	0.604	0.650	0.605	1.000		
PF	0.710	0.841	0.769	0.665	0.584	1.000	
RD	0.748	0.777	0.793	0.713	0.627	0.734	1.000

4.2. Structural model evaluation

The structural model coefficients representing the relationships between the constructs are determined by estimating a sequence of regression equations. Prior to evaluating these structural relationships, collinearity must be scrutinized to ensure that it does not distort the regression outcomes. The predictor constructs in a partial regression are used to calculate the VIF values. Ideally, the VIF values should be close to three and lower (Hair et al., 2021). In the result of the PLS algorithm, all the inner VIF values are equal to 0. So, there is no collinearity between the latent variables in the structure model.

4.3. Testing the hypotheses

For testing the research hypotheses *H1–H7*, we have calculated the direct effects. The direct impact relationship of the variables in the structure model is shown in Table 4 and Figure 2 below. The results show that knowledge sharing and innovation have positive and significant effects on bank performance. In the context of Vietnamese banking, innovation is the main factor that positively affects the bank performance which has a p-value lower than 1%. Knowledge scanning and technology are positively and significantly related to both knowledge sharing and innovation of the bank. While culture is positively and significantly related to the bank's knowledge sharing, and positively and insignificantly related to the bank's innovation (p-value = 0.921 > 0.05). Vice versa, leadership has a positive and significant impact on the bank's innovation but has no significant impact on the bank's knowledge sharing (p-value = 0.089 > 0.05).

However, contrary to most of the results of previous studies, in the context of the banking sector in Vietnam, the hypothesis of knowledge sharing promoting innovation of banks is not accepted. Although knowledge sharing has a positive impact on promoting innovation at banks, it is only true within the selected banks in the survey sample but cannot be generalized to the entire banking industry in Vietnam. This can be explained by the fact that knowledge management at the bank has not been strictly established, so an environment for knowledge sharing has not been created. This is also consistent with the results in this study when knowledge sharing has a very modest contribution to the bank performance (B = 0.180, standard deviation (STDEV) = 0.051, confidence interval (CI) = 0.084, 0.281) compared to the contribution of innovation (B = 0.730, STDEV = 0.046, CI = 0.640, 0.820).
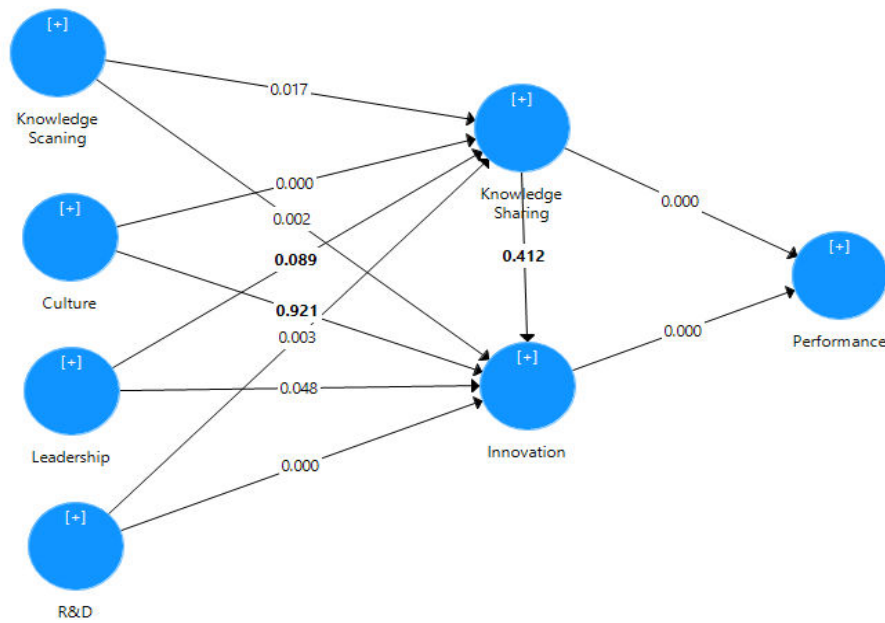
Figure 2. Results model

Table 4. Hypotheses testing

No.	Relationship	Original sample (O)	Sample mean (M)	Std. dev. (STDEV)	T-statistics (|O/STDEV|)	p-values	Bias corrected bootstrap 97.5% CI		Decision
							LL 97.5% CI	UL 97.5% CI	
H1a	*Knowledge scanning → Knowledge sharing*	0.216	0.220	0.090	2.393	0.017	0.039	0.406	Accepted
H1b	*Knowledge scanning → Innovation*	0.336	0.342	0.107	3.126	0.002	0.143	0.556	Accepted
H2a	*Organizational culture → Knowledge sharing*	0.354	0.352	0.084	4.220	0.000	0.179	0.508	Accepted
H2b	*Organizational culture → Innovation*	0.009	0.003	0.092	0.099	0.921	-0.182	0.162	Rejected
H3a	*Leadership → Knowledge sharing*	0.108	0.106	0.064	1.706	0.089	-0.018	0.227	Rejected
H3b	*Leadership → Innovation*	0.102	0.102	0.051	1.983	0.048	-0.001	0.205	Accepted
H4a	*Technology → Knowledge sharing*	0.209	0.211	0.071	2.937	0.003	0.059	0.345	Accepted
H4b	*Technology → Innovation*	0.400	0.400	0.067	6.007	0.000	0.263	0.521	Accepted
H5	*Knowledge sharing → Innovation*	0.052	0.053	0.063	0.820	0.412	-0.075	0.178	Rejected
H6	*Knowledge sharing → Bank performance*	0.180	0.180	0.051	3.553	0.000	0.084	0.281	Accepted
H7	*Innovation → Bank performance*	0.730	0.730	0.046	15.917	0.000	0.640	0.820	Accepted

4.4. The quality of the structural model

To evaluate the structural model's quality, the R^2 determination coefficient, redundancy index, and goodness of fit (GoF) were examined. Higher values of these indices indicate better model quality. The R^2 adjusted values ranged from 0.648 for knowledge sharing to 0.738 for bank performance (see Table 5). These values suggest that the R^2 in this model is high ($R^2 > 0.6$), indicating a strong predictive capability (Sanchez, 2013). The highest redundancy, at 0.738 for bank performance, implies that other constructs (knowledge sharing, innovation, knowledge scanning, organizational culture, leadership, and technology) collectively account for 73.8% of the variance in the bank's performance. However, the GoF index fell below the recommended threshold of 0.7 (Sanchez, 2013).

Table 5. Quality criteria of the structural model

Variables	R-square	Adjusted R-square
IN	0.670	0.664
KS	0.653	0.648
PF	0.740	0.738

5. DISCUSSION

This study examines the interplay among knowledge sharing, innovation, and bank performance in the banking industry. The research model was validated using data collected from 279 employees in Vietnamese banks. It offers a detailed exploration of factors contributing to enhanced performance within banks, highlighting the significance of knowledge sharing and innovation as valuable resources as previous research (Al-Ahmad Chaar & Easa, 2021; Mirzaee & Ghaffari, 2018). It underscores the potential for knowledge sharing and innovative capabilities to thrive in a supportive environment,

leading to the development of new or improved products and procedures, thereby benefiting banks. These findings reaffirm the same results as earlier published studies demonstrate that knowledge/ resources and innovativeness enhance bank performance (Singh et al., 2021; Al-Ahmad Chaar & Easa, 2021). Significantly, the findings also reveal that knowledge scanning and technology have positive effects on performance by increasing knowledge sharing and innovation for bank effectiveness (Singh et al., 2021). Hence, this result underscores several critical points. Innovation emerges as a pivotal driver for achieving superior performance, aligning with the principles of the RBV theory. According to this perspective, knowledge and innovation serve as fundamental strategic assets in generating new business value and enhancing organizational capabilities (Muhammed & Zaim, 2020). Therefore, for sustained success in strategic development, bank managers should prioritize the enhancement of organizational capabilities driven by knowledge and innovation to achieve greater effectiveness in the long term.

This study's unexpected findings suggest that knowledge sharing may have an insignificant impact on bank innovation. This result appears to contradict previous research that enhances knowledge sharing as a key driver of innovation (Azeem et al., 2021; Castaneda & Cuellar, 2020). This discrepancy may be attributed to the specific research context. The banking industry is known for its high emphasis on information security, potentially hindering knowledge sharing due to concerns about proprietary information leakage. Additionally, the infrastructure for knowledge sharing within banks may be inadequate or inconvenient, further limiting the extent of knowledge exchange. Consequently, restricted knowledge sharing within the banking sector could lead to a limited effect on innovation.

The findings of this research reaffirm previous conclusions suggesting that knowledge and innovation are essential factors that organizations must leverage to remain competitive in the long term. Knowledge sharing, in particular, emerges as a crucial element in enhancing organizational capacity to manage knowledge resources effectively, thereby enabling individuals to achieve business objectives more efficiently. Consequently, this study offers a novel framework to facilitate the development of banks in a successful trajectory. As a significant extension, we contribute to and validate existing literature by applying an RBV to construct a framework encompassing knowledge sharing, bank innovation, and bank performance. Furthermore, a major contribution of this study lies in providing a broader perspective on the multidimensionality of knowledge management, which includes factors such as knowledge scanning, technology, leadership, and culture. These dimensions have been statistically evaluated and substantiated, enhancing our understanding of their impact on organizational performance.

6. CONCLUSION

The empirical research findings demonstrate a positive and significant relationship among knowledge sharing, innovation, and bank performance. This is evident in the fact that banks with better performance often adopt wide knowledge sharing in knowledge management and vigorously implement and promote bank innovation. However, the study focuses solely on the role of knowledge sharing in driving improved bank performance, without elucidating its role in fostering creative activities leading to innovation. Furthermore, the study reveals that culture has an impact on promoting knowledge sharing but does not influence innovation in commercial banks in Vietnam. Contrary, leadership is found to promote bank innovation but does not impact bank knowledge sharing. The findings of this research contribute to both the theory and practice of business research in several significant ways. This study enriches the existing body of knowledge in the banking sector by investigating the role of knowledge management, specifically focusing on knowledge scanning, and sharing, in enhancing bank performance.

From the research results, it is shown that for commercial banks in Vietnam to increase bank performance, it is necessary to promote knowledge sharing and innovation at the bank. We offer a diagnostic tool designed to enhance the performance capabilities of banks and facilitate improved overall bank performance. First, knowledge scanning may be considered a powerful factor that inputs the knowledge inside and from out to share and set the open innovation within the organization. Second, technology is needed for the bank to be innovative and share knowledge that leads to better performance. It is an encouraging indication when knowledge advancements occur more readily alongside a positive organizational innovation atmosphere. Consequently, this leads to an increase in organizational performance levels.

Knowledge sharing needs to be further enhanced for banks so that employees can clearly understand work processes, learn from internal and external information sources, and then be proactive at work to achieve high efficiency. To do so, it is necessary to identify the knowledge that needs to be managed internally and externally to have valuable knowledge that contributes to increasing operational efficiency and source of innovation. Along with that is building a culture of innovation and learning to enhance knowledge and promote creativity. The development and application of new technology need to be emphasized, especially investing in research and development activities to increase new knowledge and share it to create value for the bank.

In addition to the results achieved, this study also has certain limitations due to the small sample size, time-sensitive research, and only considering innovation from the perspective of results. This research uses survey to collect data, so it can be influenced by the subjective opinions, biases or expressed desires of the surveyed people. Besides that, the data is collected at a certain point in time, making it difficult to determine clear cause-and-effect relationships between variables. This study does not compare the effectiveness of knowledge sharing between different banks; or analyze the impact of other external factors (such as economic environment and policies) on innovation and performance results.

This research can develop in the direction of considering banking operations as a process and with an open approach from openness to receiving knowledge from outside, to open innovation to impact operational results. Future research could combine different research methods such as surveys, interviews, and case studies to collect more comprehensive and accurate data.

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APPENDIX. QUESTIONNAIRE

Part I	Please circle the box that best fits your personal opinion. (1) Strongly disagree → (5) Strongly agree					
	Our bank can receive knowledge from the following channels:					
Knowledge scanning	1. Experienced colleagues.	1	2	3	4	5
	2. Follow new market trends in our field.	1	2	3	4	5
	3. Learn from regularly searching for useful information.	1	2	3	4	5
	4. Learn from benchmarking best practices in our field.	1	2	3	4	5
	5. Learn from experimenting with new technologies.	1	2	3	4	5
	6. Learn from customers and suppliers.	1	2	3	4	5
	7. We seek to learn from capturing new business opportunities.	1	2	3	4	5
Culture	**The cultural characteristics of my bank are as follows:**					
	1. Members are provided for self-development.	1	2	3	4	5
	2. Members are vested spirit of innovation and adventure.	1	2	3	4	5
	3. Members are allowed to participate in the decision-making.	1	2	3	4	5
	4. The bank is willing to take risks.	1	2	3	4	5
	5. The bank focuses on work efficiency and effectiveness.	1	2	3	4	5
Leadership	**The characteristics of my bank leader are as follows:**					
	1. Encouraged me to express my ideas/suggestions.	1	2	3	4	5
	2. Listened to my ideas.	1	2	3	4	5
	3. Encouraged me to participate in problem-solving.	1	2	3	4	5
	4. I was explained the rules and expectations of the job.	1	2	3	4	5
Technology (R&D)	**My bank has:**					
	1. Updated software.	1	2	3	4	5
	2. Implemented the latest technology in the industry.	1	2	3	4	5
	3. Always implemented new technology changes.	1	2	3	4	5
	4. Used system integration and technology.	1	2	3	4	5
Knowledge sharing	**My bank has:**					
	1. Encouraged me to share my experiences.	1	2	3	4	5
	2. Encouraged me to learn experiences from colleagues.	1	2	3	4	5
	3. Encouraged sharing knowledge across departments.	1	2	3	4	5
	4. Emphasized the importance of sharing knowledge.	1	2	3	4	5
Innovation	**My bank has outperformed other banks in the same industry in the following activities:**					
	1. Developing ideas for new products and services.	1	2	3	4	5
	2. Launching new products.	1	2	3	4	5
	3. Improving operational actions.	1	2	3	4	5
	4. Marketing of brand and products/services.	1	2	3	4	5
	5. Improving facility configuration management.	1	2	3	4	5
	6. Innovation in technology.	1	2	3	4	5
	7. Innovation in banking management.	1	2	3	4	5
	8. Developing diverse relationships with partners.	1	2	3	4	5
Bank performance	**When comparing banks in the same industry, my bank does better in the following aspects:**					
	1. Customer satisfaction.	1	2	3	4	5
	2. The service quality.	1	2	3	4	5
	3. Growth and profitability.	1	2	3	4	5
	4. Market share.	1	2	3	4	5
	5. Risk management.	1	2	3	4	5
Part II	Please provide some information about yourself and the bank you are working for.					

1. Do you work at the bank:
- Bank name:
- Province/city:
- Type:

☐ State-owned commercial bank ☐ Joint-stock commercial bank ☐ Joint venture bank
☐ Foreign bank ☐ Other:

2. Your current position in the bank:
☐ Member of the executive board/board of directors
☐ Department/center level manager under head office
☐ Branch level manager
☐ Department level manager under branch/department
☐ Employee

3. How long have you worked for the bank?
☐ Less than 1 year ☐ From 1 to 3 years ☐ From 4 to 5 years
☐ From 6 to 10 years ☐ Over 10 years

4. Your gender:
☐ Male ☐ Female

5. Your age:
☐ Under 25 years old ☐ 25–30 years old ☐ 31–40 years old
☐ 41–50 years old ☐ Over 50 years old

6. Your current education level:
☐ Bachelor's degree ☐ Master's degree ☐ Doctorate ☐ Other: