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Effect of Knowledge Application and Knowledge Storage on Bank Performance Through Fintech Innovation: A Study of Yemeni Banks

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ABSTRACT

Yemeni banks are generally performing well in terms of their operations, but their performance needs to be enhanced and developed using knowledge management as there haven't been many studies done yet on them. This article, therefore, aims to investigate the effect of knowledge application (KA) and knowledge storage (KS) on bank performance (BP) of Yemeni banks with mediating role of fintech innovation (FI). A sample size of 360 respondents from the banks were selected for the study. The authors used a Partial least squares structural equation modelling (PLS-SEM) to analyse the data. The study reveals that KA and KS positively and significantly impact bank performance. In addition, fintech innovation positively and significantly mediates the relationship between KA, KS, and BP. This highlights the importance of FI in the effective use of knowledge and its impact on BP. These findings provide valuable insights for banks looking to improve their performance through effective knowledge management (KM) and the implementation of fintech innovations

KEYWORDS

Bank performance, Fintech innovation, Knowledge application, Knowledge storage

INTRODUCTION

In recent years, knowledge has been widely recognized as a critical resource for organizational competitiveness. As a result, there has been a significant increase in the adoption of KM within organizations (McClelland et al., 2014). There has been increasing recognition of knowledge as one of the most important organizational assets (Islam et al., 2015). Furthermore, knowledge has also been

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described as a key prerequisite for the advancement of organizations and a key factor in organizational success (Wu & Hu, 2018). As Hanifah et al. (2021) notes, knowledge is the key to organizational productivity, ahead of capital, labor, and production. Nowadays, organizations measure their self-worth in terms of the importance of knowledge assets (Huang et al., 2012), as well as knowledge is considered dynamic and fluid and is also called “knowledge in action” (Rix & Lièvre, 2008).

KM involves a holistic process that includes creating, disseminating, sharing, and utilizing both new and existing knowledge. It also consists of the identification, storage, and evaluation of the impact of knowledge on organizational performance. This process is essential for improving the efficiency and effectiveness of an organization (Cheng & Leong, 2017). KM involves identifying, acquiring, retrieving, sharing, and evaluating all business information assets including databases, documentation, policies, and procedures, as well as implicit and explicit knowledge (Santoro et al., 2018). Organizations adopting a strategic approach to KM can more effectively utilize their knowledge assets to drive performance and achieve their goals. KM is a critical component of organizational success, as it helps organizations to make the most of their collective knowledge and expertise, enabling them to operate more efficiently and effectively (Valmohammadi, 2017). In addition to its strategic role in driving organizational performance, KM also serves a supporting function by helping organizations to convert their resources into capabilities. KM is crucial to an organization’s success (Kianto et al., 2016).

The banking sector is an essential contributor to the economic development of a country. It plays a key role in the efficient management of funds and financial investments, and a strong banking sector can help strengthen a country’s overall financial and economic system (Ayadi et al., 2015). Moreover, instability, in the banking sector, can have a negative impact on economic growth, according to research by Creel et al. (2015). This is because a strong and stable banking sector is crucial for supporting the flow of credit and financial services, which are essential for driving economic activity. In recent years, the banking sector has become increasingly competitive due to the emergence of new technologies such as FI. As a result, banks are putting significant effort into improving their performance and staying competitive in this rapidly changing landscape (Wonglimpiyarat, 2014). This includes efforts to enhance efficiency, reduce costs, and improve the quality of financial products and services offered to customers. By doing so, banks hope to maintain their market share and continue to play a key role in driving economic growth. Many researchers have argued that KM utilization can contribute to the success of the decision-making process. In the technologically advanced banking industry, it is essential to effectively utilize KM to gain insights into market trends, investment tactics, customer needs, and expectations (Cham et al., 2016). While Yemeni banking is relatively new compared to other banks in developing Arab countries, these recent improvements have not been sufficient to meet the challenges they have faced, despite their significant progress since the Yemeni unification in 1990. Yemeni banks are facing several obstacles due to the recent changes in the banking sector, which need to be overcome, so these institutions can fulfill their roles and their goals (Ayedh & Al-Awadi, 2019). Yemeni banks are generally performing well in terms of their operations, but their performance needs to be enhanced and developed, and additional focus and attention need to be placed on increasing bank performance. Since the concepts of KA and KS are relatively new in Yemen at the moment, there have not been many studies done yet on them, and the ones that have been done tend to concentrate on the educational sector while ignoring other sectors like the banking sector. This study seeks to investigate effect of KA and KS on BP with the mediator role of FI in Yemeni banks.

LITERATURE REVIEW

Theoretical Background

Based on the literature, it appears that different aspects of KM can be identified that can benefit performance (Ode & Ayavoo, 2019; Singh Gaur et al., 2017). Earlier studies focus on KA and KS, two

essential aspects of KM that have the potential to boost business performance (Daud & Yusoff, 2010; Kinyua et al., 2015). Scholars of management have strongly advocated that competitive advantage is linked to knowledge-based resources, which are the resources that provide organizations with a heterogeneous capability set, which gives them their unique identity (Wei & Chee, 2009). A KA refers to directly applying knowledge to a task or problem-solving situation (Ajmal & Koskinen, 2008). The value of knowledge is not determined by its mere existence but by its practical use. Correctly applying knowledge can significantly impact an organization's success (Gasik, 2011). A study by Darroch (2005) shows KA is a method for improving knowledge and making it more competitive and able to meet the demands of consumers. An organization's knowledge can be easily retrieved through KS, a soft and hard manner of recording and retaining knowledge. KS involves using current technology, such as data and software, to identify and codify an organization's knowledge. This allows the knowledge to be indexed and easily retrieved for future use (Dalkir, 2005).

Knowledge Application

The KA process involves taking the information gathered through various sources and using it to support and accelerate the achievement of an organization's goals and objectives. This process consists in converting specialized knowledge held by experts into information that can be utilized in producing goods and services. In order to effectively apply knowledge, organizations must have systems in place for gathering, storing, and sharing information, as well as mechanisms for ensuring that the information is used in a way that aligns with the organization's goals and objectives. This may include employee training and development programs, collaboration and communication systems, and processes for gathering and analyzing customer feedback and market data (Birasnav, 2014). The application of knowledge can manifest in various ways, such as elaboration (when another interpretation is needed), infusion (finding the underlying issues that needs to resolving), and thoroughness (when different people or teams develop different understandings) (Shujahat et al., 2019).

The KA in decision-making and problem-solving allows a company to respond more efficiently to shifts in the business landscape, which can involve incorporating knowledge into developing new products or processes (Gold et al., 2001). According to Alavi and Leidner (2001), KA is the most crucial knowledge management process for enhancing organizational performance. On the other hand, KA has been discovered to play a vital role in improving operational processes and promoting better judgments, which lead to increased corporate performance (Loke et al., 2020). It is also a significant factor in innovation (Mohamad et al., 2017).

Nevertheless, when considering KA and BF, KA within banks refers to the utilization of information, expertise, and technology to enhance operational efficiency, customer service, and overall performance. Effective KA can lead to improved processes, better risk management, enhanced customer experiences, and increased profitability, thereby positively impacting BP (Osahon & 2022; Safae & Yadegari, 2022). When banks effectively leverage knowledge and apply it in their operations, it can result in better decision-making, innovation, and competitive advantage. Within the relationship between KA and FI, KA plays a vital role in the development and implementation of FI within banks. The effective utilization of knowledge and expertise helps banks identify opportunities for FinTech integration, evaluate potential solutions, and implement them successfully. KA enables banks to navigate regulatory challenges, assess risks, and integrate FI into their existing operations. FI often relies on advanced technologies and data analytics, which require a strong knowledge base and application capabilities within banks (Safae & Yadegari, 2022).

Knowledge Storage

KS refers to the methods and technologies used to capture, store, and organize knowledge within an organization (Dalkir, 2005). This process involves identifying and cataloging valuable knowledge assets and making them accessible for future use. Organizations may use various tools and technologies to facilitate KS such as databases, document management systems, and KM software.

These tools allow for the efficient organization and retrieval of knowledge, enabling individuals within the organization to access and use the information they need to do their jobs effectively. Additionally, KS may involve human processes, such as coding and indexing data, to make it easier to locate and retrieve specific pieces of information. Overall, effective KS is critical for ensuring that an organization can make the most of its collective knowledge and expertise (Dalkir, 2005; Stein & Zwass, 1995).

The rapid pace of technological advancement has made it easier for organizations to digitize and securely store knowledge using backup systems. By encoding and digitalizing knowledge, organizations can ensure that it is easily accessible and can be quickly retrieved when needed. However, it is important to regularly review and update knowledge repositories, as knowledge is constantly evolving and can become outdated over time. This means removing outdated information and replacing it with new, up-to-date knowledge. Failing to do so can lead to the dissemination of incorrect or outdated information, which can negatively affect the organization. Therefore, organizations must adopt a proactive approach to KM, ensuring their knowledge repositories are regularly reviewed and updated to reflect the most current information available (Wong & Aspinwall, 2005).

A literature review study by Novak (2017) examines the relationship between KM and organizational performance, focusing on factors such as knowledge creation, storage, transfer, and application. Most studies reviewed found a positive effect of KM on organizational performance, as measured by both financial and non-financial metrics.

However, in the context of KS and BP, KS refers to the systematic collection, organization, and retention of knowledge within a bank. Effective KS allows banks to capture and preserve valuable information, expertise, and best practices. By having access to stored knowledge, bank employees can make informed decisions, improve processes, and enhance overall performance. Well-organized KS systems enable banks to leverage institutional knowledge, facilitate collaboration, and foster continuous learning, which can positively impact BP (Nnabuife et al., 2015; Rehman et al., 2015; Osayande, 2021). Amid the relationship between KS and FI, KS plays a crucial role in fostering FI within banks. A well-organized KS system enables banks to accumulate knowledge about emerging technologies, market trends, regulatory requirements, and customer preferences. This knowledge can be used to identify opportunities for FinTech integration, evaluate potential solutions, and make informed decisions regarding FinTech adoption. Effective KS ensures that banks can leverage their internal knowledge assets and external information to drive FI and stay competitive in the rapidly evolving financial landscape (Safaei & Yadegari, 2022; Alaassar et al., 2022).

FinTech Innovation

The advancement of financial technology significantly impacts the banking sector and how it conducts business. To keep up with the rapid pace of FI, banks are embracing digital transformation and enhancing their own FinTech capabilities. This helps them stay competitive and better meet the changing needs of consumers and businesses (Khan et al., 2017). Previous research suggests that banks can benefit from the technological spillover effect of FI, including by improving their risk management capabilities and optimizing operational performance. According to Gomber et al. (2017), FI may empower banks in terms of operational performance by expanding service alternatives, catering to a variety of client wants, and expanding their development potential. This will increase profitability. FI involves using advanced technology, such as biometrics and voice recognition, to streamline processes and reduce labor, capital, and time costs. By leveraging these technologies, FinTech companies can improve data accuracy and reduce internal and systemic risk. For example, biometrics involves using unique physical characteristics, such as fingerprints or facial features, to authenticate an individual's identity. This can be used to improve security and reduce the risk of fraudulent activities.

Similarly, voice recognition technology allows for the automated identification and verification of an individual based on their voice. This can be used to improve efficiency, reduce the need for

manual labor, and improve accuracy by eliminating the possibility of human error. Overall, using sophisticated technology in FI can help minimize expenses and reduce risk while improving data accuracy and overall performance (Fuster et al., 2019). Furthermore, FI may be combined with bank loan services to minimize information asymmetry between banks and borrowers, making institutions safer and more adaptable (Gomber et al., 2017), in contrast, lowering the likelihood of borrowers defaulting. FI impacts bank development from two directions: outside and inside the bank. External FI refers to FinTech developed by entities other than banks, such as FinTech businesses, which may impact the growth of banks due to competitive dynamics and technological spillovers (Cheng & Qu, 2020).

In the context of FI and BP, FI refers to the development and implementation of technological solutions within the financial industry. When banks embrace FI, they can enhance their performance in several ways. FinTech solutions can streamline operations, automate processes, and improve efficiency, leading to cost savings and increased productivity. Additionally, FI often focus on enhancing customer experiences, offering personalized services, and improving accessibility, which can drive customer satisfaction and loyalty, ultimately contributing to improved BP (Zhao et al., 2022).

HYPOTHESES DEVELOPMENT

Knowledge Application, Knowledge Storage, and FI

KM has the capacity to connect corporate knowledge and performance (Sofiyabadi & Valmohammadi, 2020). KM may assist managers in improving their performance (Bukh et al., 2005) by developing new products, producing value, and sustaining a competitive advantage in a highly complex and dynamic environment (Castro et al., 2013). Organizations may respond to external changes and generate new capabilities more quickly by depending on their own knowledge structures. As a result, KM may be seen as an aid to innovation (Inkinen et al., 2015). Thus, one of the corporations' main concerns is how to use their resources effectively while also coming up with innovative products and services that will provide businesses with an edge over their competition. As a result, according to Löfsten (2014), a company must include knowledge in the procedure of value creation obtained from an organization's intangible resources. KM consists of many components including identifying, recognizing, applying, and storing. Martinez-Conesa et al. (2017) finds that KM activities are critical for innovation application. As a result, the organizational function extends beyond the development of capabilities. Furthermore, companies are obligated to create organizational knowledge, since it is viewed as a resource and the cornerstone of an organization's competitiveness and distinction. KA is an important aspect of the KM process. As a result, Husnain et al. (2021) claims that the value of knowledge resourced is acknowledged while generating new goods, delivering services, or transacting these items or services for the value. It is considered the key component of the KM method (Haider & Kayani, 2020). On the other hand, KS entails keeping the information in a centralized area that is easily available to the people of an organization who can utilize it for day-to-day work. The information that is kept might be either digital or physical, much like the archives kept by educational institutions like colleges and universities. In addition to this, it is essential to make sure that records are kept up to date on a consistent basis (Alegre et al., 2011). Accordingly, the hypotheses proposed are below:

- H1: KA is positively associated with BP.
- H2: KS is positively associated with BP.
- H3: FI is positively associated with BP.

Mediating Role of FI

Innovation introduces new ideas, methods, or technologies into a business or organization. It can involve the development of new products or services, introducing new processes or techniques

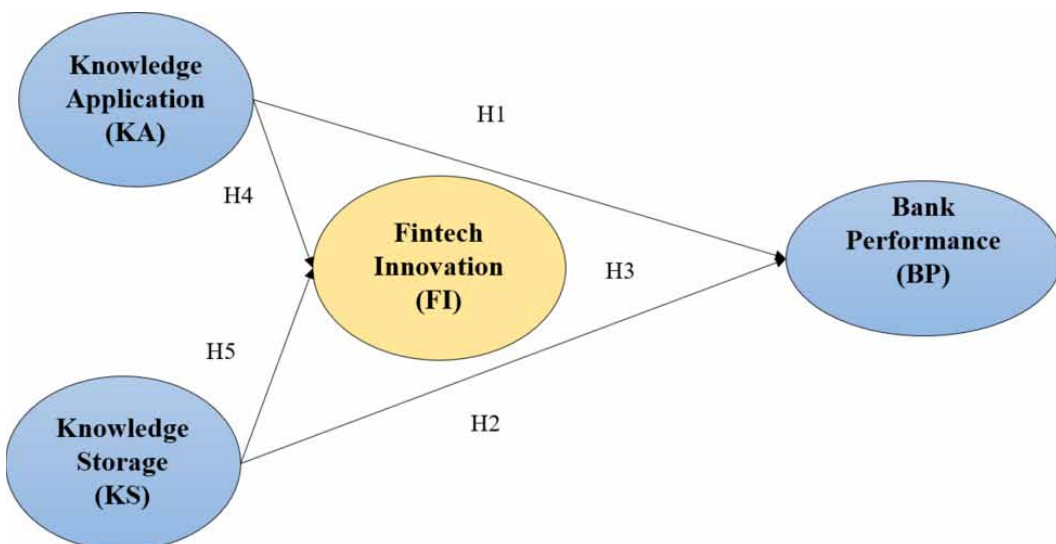
for production, or adopting new business models or strategies. Innovation is important because it allows organizations to stay competitive and respond to changing market conditions and customer needs. It can also improve efficiency, productivity, and profitability (Rajapathirana & Hui, 2018). For innovation to be successful, organizations need to create a culture that supports and encourages innovation and to have systems in place for identifying and pursuing new ideas. This can involve investing in research and development, fostering collaboration and open communication, and providing resources and support for employees to pursue new ideas. Many organizations, including large corporations, small- and medium-sized enterprises, and individuals can use FI. These services can cover various financial processes including capital market activities, banking system connectivity, credit scoring, asset securitization, risk management, and trade processing. In addition, FI can be applied to middle- and back-office functions such as reporting, customer service, collections, and recovery (Klapper et al., 2016). Accordingly, the hypotheses proposed are below:

- H4: FI mediates the relationship between KA and BP.
- H5: FI mediates the relationship between KS and BP.

RESEARCH MODEL

There is a shortage of research examining the relationship between KM and BP, particularly concerning the KA and KS. This is a significant gap in the literature, as understanding the link between these two variables can provide valuable insights for banks looking to improve their performance. Previous studies identify a lack of attention to this topic, and there is a need for more research to better understand how the KA and KS can impact the performance of banks. By investigating this relationship, researchers can help inform the development of strategies banks can use to enhance their performance through effective KM. This study examines the effect of KA and KS on the performance of Yemeni banks and the role of FI as a mediator in this relationship. To achieve this, the researchers use the model depicted in Figure 1.

Figure 1. The conceptual model
Source: Researchers



RESEARCH METHODOLOGY

Measurement

To collect primary data for this study, the researchers designed a questionnaire based on the findings of previous studies. The questionnaire is divided into four sections. The first section of the questionnaire examines demographic data and asks respondents to respond to six questions (Kinyua et al., 2015). The second section measures the dimensions of KM, divided into two parts: KA and KS. and asks respondents to answer 12 questions. The third section of the questionnaire focuses on measuring BP and consists of seven statements related to this concept. The fourth section measures FI and asks respondents to rate their level of agreement with five FI-related statements using a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Using the five-point scale, detailed insights were gained into participants' opinions and attitudes related to the research questions (Villar et al., 2014). In the study, the measuring tool is adapted after a review of existing studies. Thereafter, the instrument is given to experts in the field from the academia and the industry to validate the instrument in Yemen. This is because most of the previous studies that use these variables were conducted in other countries. The reference to the values of these variables is the following:

Sample and Data Collection

The study aims at investigating the effect of KA and KS on BP with the mediator role of FI in Yemeni banks. The data collection encompasses nine banks operating in Yemen, namely the Islamic Bank of Yemen for Finance and Investment, the Arab Bank, the Tadhamon Bank, the Saba Islamic Bank, the Bank of Yemen and Kuwait, the Commercial Bank of Yemen, the Cooperative and Agricultural Credit Bank, and the Central Bank of Yemen. These banks have branches located across multiple governorates, including Sana'a, Dhamar, Ibb, Taiz, Aden, Hodeidah, Abyan, Al-Dhale', Hajjah, Hadramout, Amran, and Saada.

It took five months to gather all this data, from May 2022 through September 2022. A sample size of 360 respondents were selected to receive questionnaires. A simple random sampling method was employed in the selection process of the managers responding to the questionnaires. The managers were in a better position to answer the questions properly, considering their years of experience. We used a questionnaire with 24 questions to collect survey data. All the instruments were rated on the five-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. This questionnaire was designed to measure the key variables of the study including KA, KS, FI, and BP. The questionnaire was distributed to the selected bank managers, and responses were collected and analyzed to conclude the relationships between the variables.

ANALYSIS AND RESULTS

To analyze the data collected through the questionnaire, researchers used SmartPLS4 software and applied a partial least squares (PLS) approach to conduct component-based structural equation

Table 1. Item references

Variable name	References
KA	(Elhassan, 2021)
KS	(Ode & Ayavoo, 2020)
BP	(Al-Dmour et al., 2020)
FI	(Fraihat & Al-Afeef, 2022)

Source: Researcher

modeling (SEM) (Ringle et al., 2015). The PLS modelling was used with the aid of Smart PLS 4 software. This statistical approach, delineated within a theoretical framework, is employed to gauge the causal connections among two or more conceivably intricate concepts (Vinzi et al., 2010). Reliable results can be obtained with PLS analysis for small samples in comparison with covariance-based software (Haenlein & Kaplan, 2004). It is, therefore, considered appropriate for this study. To analyze the collected data, we performed two stages: (a) analysis of measurement models and (b) analysis of structural models. By analyzing measurement models, we tested the data’s reliability and validity. The researcher employed several methods including composite reliability (CR), Cronbach’s alpha (CA), average variance extracted (AVE), and factor loadings analyzed for validity (Henseler et al., 2015).

A structural model analysis uses path coefficients, p-values, t-values, and variance accounted-for (VAF) scores to test the hypothesized relationships. The following are the details of these three steps:

Descriptive Statistics

After concluding the process of collecting the study’s data, the researchers performed an analysis of the variables using descriptive statistics, as is seen in Table 2.

Table 2 shows that the mean of KS is 4.343 (SD=0.604), and the standard of KA is 4.175 (SD=0.720). The findings show that the mean of BP is 4.368 (SD=0.641). Finally, the results show that the mean of FI is 4.312 (SD=0.714).

Measurement Model

As shown in Figure 2, the measurement model depicts the relationships between the items and the factor loadings that these indicators measure, in addition to the predicted relationship between these variables. It displays the predicted relationship between the exogenous variable KA, KS, and the explanatory variables BP. Therefore, the measurement model adopted for this study is a reflective models based on the assumption that the scale items observed on the basis of classical test theory contribute to the measurement of the latent variable. The FI, mentioned as a mediator variable, might affect this relationship. To assess the validity of the measurement or outer model in PLS-SEM, it is essential to verify both convergent and discriminant validities, as described by Hair Jr et al. (2017).

Convergent Validity

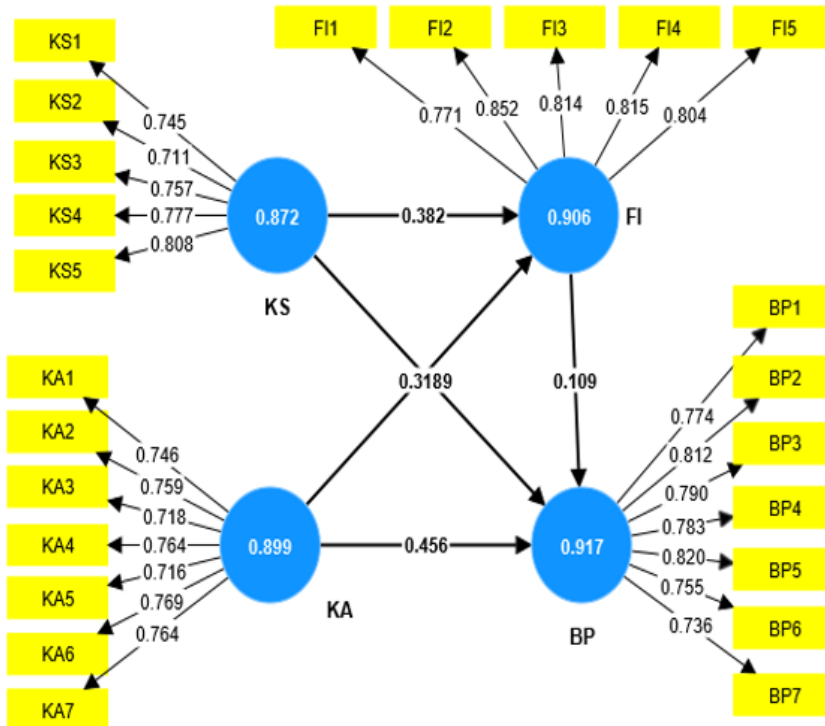
Convergent validity relates to the model’s capacity to explain the indicator’s variation. To verify convergent validity, as recommended by Bagozzi et al. (1991), all the reflective index loads above the required 0.60 level and the CA and CR are more significant than 0.70. The AVE must be greater than 0.50 (Fornell & Larcker, 1981). Table 3 shows the measuring model’s results. It demonstrates that all factor loadings are more than 0.70, as are CA and CR. The AVE is more significant than 0.50, which means all values are acceptable and retain the reflective indicator.

Table 2. The descriptive statistics

Variable	N	Mean	SD
KS	360	4.343	0.604
KA		4.175	0.720
BP		4.368	0.641
FI		4.312	0.714

Source: Outputs of Smart PLS.

Figure 2. Measurement model
Source: Outputs of Smart PLS4



DISCRIMINANT VALIDITY

Discriminant validity demonstrates if a test meant to evaluate a particular concept does not correlate with tests that measure distinct constructs. This is predicated on the premise that we would not expect to receive the same findings from two tests that are supposed to assess different things. Table 4 demonstrate that the Fornell-Larcker method has discriminant validity if the square root of the AVEs increases the correlations between the measured variable of interest and every other measure. The Smart-PLS4 approach is used to get the AVE estimate of each construct, which in turn, encourages the assessment of the discriminant validity of the model. As a result, the findings demonstrate that the criteria established by Fornell and Larcker (1981) are satisfied as shown in bold in Table 4.

Structural Model

The structural model is used to depict the relationships between latent variables and to evaluate the degree of correlation between them, as measured by path coefficients. This model allows the researcher to understand the relationships between variables and how they relate. By examining the structural model and the path coefficients, the researcher can gain insights into the underlying structure of the data and how the variables are related to one another. This information can be used to draw conclusions and make recommendations based on the study's findings (Hair Jr. et al., 2020). According to the researchers' conclusions, four evaluation criteria are named for assessing the structural model. Path coefficient β -values, R-square (R^2) value, effect size (F^2), and predictive relevance (Q^2). Initially, the relevance of the structural model linkages was determined using PLS-SEM 5000 bootstrapping (Henseler et al., 2016; Hair et al., 2013).

Table 3. Convergent validity

Item Indicators	Items Loadings	Items Loadings	CA	CR	AVE
BP	PB1	0.774	0.894	0.917	0.611
	PB2	0.812			
	PB3	0.790			
	PB4	0.783			
	PB5	0.820			
	PB6	0.755			
	PB7	0.736			
FI	FI1	0.771	0.870	0.906	0.658
	FI2	0.852			
	FI3	0.814			
	FI4	0.815			
	FI5	0.804			
KA	KA1	0.746	0.869	0.899	0.560
	KA2	0.759			
	KA3	0.718			
	KA4	0.764			
	KA5	0.716			
	KA6	0.769			
	KA7	0.764			
KS	KS1	0.745	0.818	0.872	0.578
	KS2	0.711			
	KS3	0.757			
	KS4	0.777			
	KS5	0.808			

Source: Outputs of Smart PLS

Table 4. Discriminant validity

Item Indicators	BP	FI	KA	KS
BP	0.782			
FI	0.529	0.811		
KA	0.695	0.554	0.748	
KS	0.633	0.579	0.617	0.760

Source: Outputs of Smart PLS

Table 5 shows that there a significant link between exogenous and endogenous variables. Moreover, the results of Table 5 show that there is a substantial link between KA and BP ($\beta = 0.456$, $SD=0.050$, $P=000$), KS and BP ($\beta= 0.289$, $SD=0.052$, $P=000$), FI and BP ($\beta= 0.109$, $SD=0.046$, $P=018$), which means all hypotheses (H1, H2, and H3) are strongly supported and accepted.

Table 5. Path coefficient of the structural model

Hypo	Relationship	Std. Beta	Std. Error	t-Value	p-Value	Decision	R^2
H1	KA -> BP	0.456	0.050	9.096	0.000	Supported **	0.558
H2	KS -> BP	0.289	0.052	5.535	0.000	Supported **	
H3	FI -> BP	0.109	0.046	2.362	0.018	Supported *	

Significant at ** $p < 0.01$, * $p < 0.05$. Source: Outputs of SmartPLS

Additionally, the findings show that the proposed model has an explanatory power of 58.8% for BP (Falk & Miller, 1992; Chin, 2009).

To explain the mediation, we use the bootstrapping indirect effect approach with 5,000 resamples (Preacher & Hayes, 2008). Table 6 shows the result of the mediation variables, demonstrating that the total effect of KA on BP is statistically significant ($\beta = 0.491, t = 10.502, P < 0.000$), direct effect of KA on BP became significant ($\beta = 0.456, t = 9.096, P < 0.000$), and the indirect effect of KA on BP through FI is significant ($\beta = 0.035, t = 2.153, P < 0.031$). KS on BP also is statistically significant ($\beta = 0.330, t = 6.536, P < 0.000$), direct effect of KS on BP became significant ($\beta = 0.289, t = 5.535, P < 0.000$), and the indirect effect of KS on BP through FI is significant ($\beta = 0.042, t = 2.270, P < 0.023$) This shows that the relationship between KA, KS, and PB is partial mediated by FI.

To investigate the relationships between KA, KS, and FI's effects on BP, Table 7 demonstrates the effect size (F^2) of the variables. The KA, and FI on BP, have small effects, and KS on PB has a medium effect (Cohen, 1988).

To determine the predictive relevance (Q^2), we use a blindfolding analysis to obtain the Q^2 . According to Henseler et al. (2015), a research model is deemed to have predictive value if the Q^2 statistic is greater than zero. According to the findings of the research, the endogenous latent variable has a Q^2 value of 0.034. Since this value is more than zero, it indicates that the model is predictive.

Table 6. Mediation results

Total effect (KM<BP)		Direct effect (KM<BP)		Indirect effect (KM<BP)				
β - Value	p-Value	β - Value	p-Value	Hypo	SD	t-Value	p-Value	B1 2.5%;97.5%
0.491	0.000	0.456	0.000	H4: KA-> FI-> BP	0.035	2.153	0.031	0.007 0.071
0.330	0.000	0.289	0.000	H5: KS-> FI-> BP	0.042	2.270	0.023	0.009 0.082

Source: Outputs of Smart PLS

Table 7. Effect size (F^2)

Constructs Relation	BP	Result
KA	0.026	Small effect size
KS	0.264	Medium effect size
FI	0.172	Small effect size

Source: Outputs of Smart PLS

DISCUSSION

Many researchers suggest that KM is an essential predictor of a firm's innovation and performance ability (Calantone et al., 2002). In recent years, several researchers have investigated the effect of KM on organizations. Despite the rising academic interest in KM and performance, relatively few studies have given empirical evidence connecting KA and KS with BP, particularly from the viewpoint of developing countries. This study fills gaps in the current literature by developing a structural model to investigate the effect of KA and KS on BP with the mediator role of FI in Yemeni banks.

The empirical findings of this study confirm all of the hypotheses proposed. The first hypothesis examined the relationship between KA and BP. The findings reveal that there is a strong positive correlation between the two variables ($\beta = 0.456$, $SD=0.050$, $P=000$). This suggests that the effective use of knowledge can significantly improve a bank's performance. This supports the hypothesis that KA significantly affects BP (H1).

The second hypothesis explored the relationship between KS and BP. The results show a strong positive correlation between these two variables ($\beta = 0.289$, $SD=0.052$, $P=000$). This suggests that the ability to store and retain knowledge is a significant factor in determining a bank's performance. The findings support the hypothesis that KS significantly affects BP (H2).

The third hypothesis examined the relationship between FI and BP. The results indicate a significant effect between the two variables ($\beta = 0.109$, $SD=0.046$, $P=018$). This suggests that implementing FI within a bank can significantly improve its performance. This supports the hypothesis (H3) that FI has a significant effect on BP.

The fourth and fifth hypotheses focused on the role of FI as a mediator in the relationship between KA, KS, and BP. The results show that the combined effect of KA and KS on BP was statistically significant (H4: $\beta = 0.491$, $t = 10.502$, $P < 0.000$) and (H5: $\beta = 0.330$, $t = 6.536$, $P < 0.000$). This finding supports the validity of hypotheses H4 and H5, which highlights the significance of FI in the relationship between KA, KS, and BP.

This study examined the effect of KA and KS on BP with the mediator role of FI in Yemeni banks. To gather data for the study, we used a random sampling technique to select 360 samples from the Yemeni banking sector managers. A questionnaire consisting of 25 questions was used to collect the survey data. Our findings showed that KA and KS positively and significantly influence BP. In addition, FI identified as a mediator in the relationship between KA, KS, and BP. This highlighted the importance of FI in effectively using knowledge and its impact on BP.

These findings provide valuable insights for banks looking to improve their performance by effectively managing knowledge and implementing FI. Numerous research studies have explored the relationship between KM and FI on BP (Setyawan, 2021; Wijaya & Suasih, 2020; Al-Dmour et al., 2020; Al-Dmour et al., 2022; Nurdin & Yusuf, 2020; Hammami et al., 2021; Kinyua et al., 2015). In today's fast-paced banking industry, it is essential to analyze the concepts of KM, innovation, and performance. These concepts are critical in creating competitive advantages in a rapidly changing environment. Empirical analysis, or real-world data and evidence, is necessary to understand how KM, innovation, and performance can be effectively utilized to benefit banks. By understanding these concepts and how they can be applied, banks can gain a competitive edge and improve their performance.

MANAGERIAL IMPLICATIONS

Banks should foster an organizational culture that promotes KS and knowledge sharing among employees. This can be achieved through various means such as creating dedicated platforms for sharing insights, organizing regular knowledge-storage and knowledge-sharing sessions, and recognizing and rewarding employees who actively contribute to KS and knowledge sharing. Banks should invest in the continuous training and development of programs to enhance employees' KA

skills. This can include providing training on emerging FinTech trends, digital tools, and technologies, as well as fostering a learning environment where employees can stay updated with the latest industry developments (Almuayad et al., 2022).

In addition, banks should facilitate collaboration and communication across different departments and teams. This can be achieved by implementing collaborative tools and platforms that enable employees to store and share knowledge, exchange ideas, and work together on FI projects. Cross-functional teams can also be formed to leverage diverse expertise and perspectives. Banks should actively embrace and leverage FI to enhance KA, KS, and knowledge sharing. This may involve adopting new digital tools, platforms, and technologies that facilitate knowledge sharing, improve information flow, and streamline processes. Embracing emerging technologies like artificial intelligence, machine learning, and blockchain performance can also enable the efficient application of knowledge in FI.

In order to encourage experimentation and risk-taking, banks should create an environment that encourages employees to experiment with new ideas and take calculated risks. This can be facilitated through innovation labs, pilot projects, and incentivizing employees to propose and implement innovative FinTech solutions. Encouraging a culture of experimentation can foster KA, KS, and knowledge sharing by providing opportunities for employees to test and validate new ideas (Osahon & 2022).

Furthermore, banks should develop appropriate metrics to measure the impact of KA, KS, and knowledge sharing on BP through FI. These metrics can include indicators such as the number of successful FI systems implemented, improvement in customer satisfaction, increase in operational efficiency, and financial performance indicators. Regular monitoring and evaluation of these metrics can help identify areas of improvement and guide future strategies.

CONCLUSION

In conclusion, the positive and significant findings of the effect of KA and KS on BP through FI underscores the critical role that KM plays in driving success in the banking industry. The study reveals that when banks effectively apply and store knowledge within their organizations, leveraging FI as a catalyst, they experience enhanced performance and competitive advantages.

Overall, the positive and significant finding highlights the importance of knowledge application and storage in driving BP through FI. By implementing the above managerial implications, banks can create a conducive environment that promotes knowledge application and storage, leading to improved performance, competitive advantage, and sustainable growth in the rapidly evolving FinTech landscape.

LIMITATIONS AND FUTURE DIRECTION

While this study produced valuable insights, there are limitations to consider when attempting to generalize the findings. Firstly, the study only examined the performance of the banking sector in Yemen, a developing country. Additionally, the scope of the study was limited to two aspects of KM: KA and KS. The study was also conducted over a short period and in a geographically constrained area. The respondents of the survey were solely bank managers rather than all employees. Therefore, future research could improve the model by including a more diverse sample of bank employees and exploring other mediating factors such as absorptive capacity and employee knowledge-sharing behavior.

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