Factors Influencing the Preparedness of Vietnamese Commercial Banks for Basel III Implementation: A PLS-SEM Approach

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Abstract. This study investigates the factors influencing the readiness of Vietnamese commercial banks (VNCBs) to implement Basel III standards. Using survey data from 211 respondents across 20 VNCBs and the partial least squares structural equation modeling (PLS-SEM) approach, the study examines the effects of expected benefits, awareness, and available resources on banks' readiness to adopt Basel III. The results reveal that both expected benefits and awareness have significant positive impacts on readiness, with awareness having a stronger effect. However, the influence of available resources is negative and not statistically significant. The findings contribute to the limited literature on Basel III implementation in emerging markets and provide valuable insights for policymakers and bank managers in Vietnam. However, the study is limited by its cross-sectional design and the use of self-reported data from a single country context. Future research could explore other potential determinants of bank readiness and compare the experiences of different countries in implementing Basel III.

Keywords: Basel III standards; Basel III implementation; Readiness of Banks; Vietnamese Banking System.

1. Introduction

Following the global financial crisis, the Basel Committee on Banking Supervision ("Basel Committee") developed an international framework to improve liquidity governance, risk management and financial stability in the banking sector. The first version of Basel III was issued by the Basel Committee in 2010 following the 2007–2008 financial crisis. Accordingly, Basel III included a series of comprehensive reform measures designed to improve regulation, monitoring and managing risks in the banking sector. Specifically, Basel III norms focus more on standards in a stricter manner on capital, liquidity and leverage prerequisites (Singh & Gupta, 2017). Also, according to these authors, other issues in Basel III standards include: Additional Equity, Capital Conservation Buffer, Countercyclical Capital Buffer, and Leverage & Liquidity. In addition, along with building on the standards of Basel I and Basel II, Basel III also represents a fundamental assessment of the legal and supervisory framework of the banking industry to enhance stability of the financial system and improve risk management as well as increase transparency in the banking system (Al-Tamimi et al., 2016; Kaur & Kapoor, 2015).

Some assessments (for example: Dedu & Niţescu, 2012; Fidrmuc & Lind, 2020) believe that Basel III was implemented to limit the shortcomings of Basel II through focusing more on risk management for business operating environment of the banking system. On the other hand, some opinions (e.g. Al-Tamimi, 2002; Ferreira et al., 2019) also point out that Basel III represents a significant enhancement of capital standards that contributes to improving both quality and amount of capital in banking operations. According to research by Nucu (2011), the proposal of Basel III comes from three main motivations including negative impacts from banking crises; frequency of banking crises; and, ultimately, the benefits from Basel III will outweigh the costs of implementation. In general, Basel III retains the risk weighting mechanism of Basel II, however the risk weights of some types of securities have been significantly adjusted following the crisis. These adjustments reflect exposure to large financial institutions and highly leveraged banks (Ennis & Price, 2011). With that in mind, the aim of the current study is to revisit this topic and pinpoint which factors including awareness, benefits, and available resources affect the readiness of banks for Basel III implementation. In this light, the Vietnamese banking industry may provide an ideal context to reach a clear answer to the major concern.

In Vietnam, although it has reaped certain economic achievements over the past decade (such as GDP growth rate, inflation rate, etc.), Vietnam's financial market is still considered not yet developed and economic activities seem to depend greatly on the domestic banking system (Nguyen & Lu, 2023b; Phan et al., 2022). In other words, the stability and sustainable development of banks is a solid premise for economic development in this country (Lu & Luong, 2022; Lu & Nguyen, 2023; Nguyen & Lu, 2023a). For that reason, ensuring the health of banks is always the most important factor. In this vein, there have been great efforts in establishing international standards for the domestic banking system in recent years. Indeed, since 2010, to ensure the safety and soundness of the banking system, the guiding standards of the Basel Agreement (Basel I and Basel II) have been included in the system of banking supervision regulations. New regulations have tightened the capital adequacy ratio for each bank. By 2012, the Government issued a comprehensive project to restructure the Vietnamese credit institution system (Decision No.254/QD-TTg dated March 1, 2012), thereby renewing the financial market and increasing economic growth. Enhancing the safety and efficiency of commercial banks is the most important goal. Specifically, in addition to handling bad debt and enhancing capitalization, the general strategy for the banking system to diversify business, and thus increase revenue from multiple operating segments, has been particularly emphasized. These drivers are expected to improve profits, solve bad debt problems and further help stabilize the finances of the Vietnamese banking system. At the same time, one of the most obvious efforts is that relevant regulations have been issued to create a legal corridor for the implementation of international standards in Vietnam. Indeed, following the Project "Development of Vietnam's banking industry until 2010 and orientation to 2020" was issued under Decision 11/2006/QD-TTg dated May 24, 2006 of the Prime Minister, the State Bank of Vietnam quickly issued Official Dispatch No. 1601/NHNN-TTGSNH dated March 17, 2014 on selecting 10

banks to pilot Basel II and proceed to apply Basel II to all domestic banks, and at the same time issued a series of related documents creating a legal framework guiding the implementation of the three pillars of Basel II.

Inspired by the above analytical context, the goal of this study is to evaluate the impacts of expected benefits, awareness, and available resources on the readiness of Vietnamese commercial banks (VNCBs) in implementing Basel III standards. Thereby, based on data from 211 surveys collected from 20 large commercial banks in Vietnam, along with the use of the Partial Least Squares approach, empirical results show that there is a positive relationship between expected benefits, awareness and readiness to implement Basel III of VNCBs. However, the positive effect from perception is relatively stronger than the effect from expected benefits. In addition, the empirical results also show a negative relationship between the availability of necessary resources and the readiness to implement Basel III of VNCBs, but this relationship is not statistically significant. To the best of the authors' knowledge, this is the first empirical study in Vietnam to evaluate the factors affecting the readiness of VNCBs in implementing the Basel III standards. Accordingly, the research results are expected to be a typical reference for policymakers in Vietnam when applying Basel III standards in the near future.

The remainder of the research includes the following main contents. The next section will present a literature review of existing studies. Then, section 3 will illustrate the research method and data collection, while the fourth section will depict the empirical findings. The final section will present a summary of both discussions and conclusions regarding the main results.

2. Literature Review

Compared to Basel I and II, Basel III is still relatively new and few empirical studies have been conducted (Al-Tamimi et al., 2016; Ben Naceur et al., 2018; Roulet, 2018). However, there are still significant efforts in conducting empirical studies on the implementation and application of Basel III. Surveys conducted by BIS on Basel III implementation in several countries show that the preparation process is at different stages as some countries have already developed the necessary regulations to apply Basel III, while other countries are still in the early stages. On the other hand, a survey by Quantifi & Ernst & Young Survey (2013) shows that the majority of banks are implementing Basel III projects (71%) but still seem not ready to apply Basel III credit risk standards from Basel III.

Regarding the readiness of banks for implementation of Basel III, Al-Tamimi et al. (2016) assessed the implementation readiness of Arab banks. Empirical results show that these banks have realized benefits from implementing Basel III. In addition, bank employees have also been properly trained on Basel III and banks are ready to apply new standards because they have fully prepared the necessary resources. Besides, the regression results indicate that the most important factor of Basel III implementation is the availability of necessary resources. Meanwhile, polls conducted by Boora & Jangra (2018) indicate that public sector banks are positively motivated to implement the new standards introduced by Basel. Besides, knowledge, other necessary resources, as well as economic benefits and accompanying costs are fully recognized by bank managers when participating in implementing Basel III standards. Other research on compliance with Basel III proposed standards by public sector banks in the country shows that the regulations will bring greater stability to the banking sector (Santhi, 2014). Research by Norbaya Yahaya et al. (2016) and Yahaya et al. (2016) evaluated the patterns and trends of Basel III in Japanese banks for about 11 years, from 2004 to 2014. The results of the studies suggest that regulators in this country should consider macroeconomic indicators such as employment rate, inflation and economic growth when implementing regulations related to Basel III capital requirements because these indicators affect the risk management of banks. In the study of Mirchandani & Rathore (2013), the authors conducted an assessment of the readiness of public sector banks in India to implement Basel III. The key finding of this study is that public sector banks in India appear to have enough capital to meet immediate capital adequacy requirements as well as ensure credit growth in the Indian banking sector. However, the authors also point out that fully implementing Basel III will be a

more difficult task as the focus will not be on total capital requirements but on Tier I capital, meaning there will be more emphasis on common share capital.

From the view of opportunities and challenges for implementation of Basel III, Kombo & Njuguna (2017) conducted an assessment of the methods used by commercial banks in implementing Basel III. A total of about 43 commercial banks in Kenya were selected and studied. The results show that banks in this country have cut back on lending activities and dividend payments. Furthermore, to overcome the challenges of implementing Basel III, these banks also focus more on quality assets with longer maturities, especially individual deposits. Ramlall & Mamode (2017) conducted an investigation into the application of Basel III in the banking sector in Mauritius. The results conclude that well-capitalized banks and good Basel III implementation will ensure greater financial stability. Besides, the authors also propose that in order to take advantage of the benefits from Basel III, banks need to have effective solutions. However, the study also points out challenges in the process of implementing Basel III in this country, including the lack of data management capabilities, risk reporting systems and technology.

For the effect of Basel III, Cooper et al. (2012) conduct an overview of Basel III regulations. The authors conclude that the main goal of Basel III is to improve the safety of banking operations and increase both the quality and quantity of banks' capital. Previous documents (for example: Gambacorta & Mistrulli, 2004; Holmstrom & Tirole, 1997; Kim & Santomero, 1988) also expressed support for reform according to Basel standards, which will make the banking system become more flexible and safer by minimizing risk taking as well as the probability of default by banks. Kaur & Kapoor (2015) find that implementation of Basel III can assist banks in enhancing risk management, supervision, transparency, and well balance between risks and returns. Based on the data set of 28 commercial banks in Vietnam during the 2007-2018 period, Dang (2021) finds that the compliance with the net stable funding ratio rule of Basel III can help banks improve their profitability and minimize their funding costs and credit-relate risks. Veeramoothoo & Hammoudeh (2022) examine the effect of Basel III liquidity standards on performance of US banks and find that both the liquidity coverage ratio and the net stable funding ratio have a small impact on banks' performance. Besides, it should be noted that regardless of benefits from implementation of Basel III, there are still some concerns from policymakers and financial sector participants that implementing the Basel rules could impose a significant cost burden on the banking and financial systems. the economy in general (for example: BCBS, 2010; Nguyen, 2019).

Based on the review of existing literature, it is obvious that while the evaluation of banks' readiness in implementation of Basel III has attracted many researchers, empirical studies to explore this topic is seemingly scarce in the Vietnamese industry. Furthermore, the existing studies in Vietnam tend to focus much on the impact of Basel III on banking business operations (e.g., Dang, 2021; Le, 2018). With that in mind, the main goal of this study is to re-examine the above issue through assessing the factors affecting the readiness of Vietnamese commercial banks in implementing Basel III standards. First of all, it is true that expected benefits from employing Basel III standards can stimulate the involvement and engagement of bank managers. Some existing studies (e.g., Al-Tamimi et al., 2016; Boora & Jangra, 2018) have underscored the positive impact of this factor on banks' readiness for implementing Basel III, hence the first hypothesis is constructed as follows.

H1: There exists a positive relationship between the readiness to implement Basel III of Vietnamese commercial banks and the expected benefits from Basel III.

Second, there is an appropriate expectation that when banks' awareness about the importance of Basel III requirements is enhanced, they have proactive preparedness to turn challenges of implementing Basel III into opportunities in their operations, meaning that this adaptation becomes more effective. Therefore, the next hypothesis is created as follows.

 H2: There exists a positive relationship between the readiness to implement Basel III of Vietnamese commercial banks and the awareness of Vietnamese commercial banks about Basel III;

Regarding the last factor, it is true that to implement Basel III standards more effectively, banks have to possess required resources such as human capital and technologies (Boora & Jangra, 2018; Quantifi & Ernst & Young Survey, 2013). Because the research sample relies mainly on the largest banks in the Vietnamese banking industry, it is anticipated that these banks have enough necessary resources to adapt Basel III regulations effectually. Therefore, the final hypothesis is created as follows.

H3: There exists a positive relationship between the readiness to implement Basel III of Vietnamese commercial banks and the necessary available resources of Vietnamese commercial banks to implement Basel III.

3. Methodology

3.1. Survey and Data Collection

For sampling and data collection, the research focuses mainly on senior and middle-level managers as well as other management personnel related to the implementation of Basel III at 20 Vietnamese commercial banks. As mentioned earlier, the current study selects the largest commercial banks based on the criterion of total assets of each bank. In fact, compared to around the total of 31 commercial banks in the Vietnamese banking system, the total number of chosen banks and their total assets account for about nearly 65% and over 70%, respectively. Hence, to some extent, the research sample can be seen as acceptable and representative. Also, focusing mainly on commercial banks can help to achieve a homogeneous research sample (Lu & Nguyen, 2023; Nguyen & Lu, 2023b). Besides, the present analysis concentrates on large banks because they are expected to possess necessary resources such as well-experienced employees and advanced technologies (Phan, Lu, Hoang, et al., 2022), leading to implement Basel III standards more effectively.

About 300 self-administered questionnaires were sent to collect information, in different forms, including: via email, surveys sent by mail, and a number of small workshops were conducted during the period from June to August 2023. Due to the limitation of time and other resources, the analysis selects the convenient sampling method to gather data. Accordingly, the authors received feedback from more than 222 answers. However, 11 of these responses were not fully informed. Therefore, after eliminating these answer sheets, the total number of valid questionnaires is 211, suggesting that the response rate was 70.33% compared to the total number of questionnaire samples sent. According to Sekaran & Bougie (2016) and Visser et al. (1996), this figure can be seen as ideal when it ranges from 5% to 35% in the case of social research. Hence, the response rate in the current study is suitable and representative. Furthermore, when compared to other studies in this field, the sample size is also so acceptable. For instance, Boora & Jangra (2018) used about 150 questionnaires to analyze the level of readiness of Indian banks in the public sector when implementation of Basel III standards. The study conducted by Al-Tamimi et al. (2016) utilized around 88 questionnaires to examine the factors affecting the preparedness of UAE banks in implementing Basel III. Taken together, our sample size is quite acceptable and representative.

3.2. Measurements

The authors used a questionnaire developed and adjusted from previously conducted questionnaires (for example: Al-Tamimi et al., 2016; Boora & Jangra, 2018; Quantifi & Ernst & Young Survey, 2013). In addition, the authors also use a five-level Likert scale, from 1: "completely disagree" to 5: "completely agree" to reflect and evaluate the perceptions of managers of Vietnamese commercial banks on the implementation of Basel III. In addition, to ensure compatibility with domestic practice, a draft questionnaire was discussed, reviewed, and commented on by 5 researchers and 6 different bank managers before conducting surveys to collect opinions on a broader scale. Thereby, the questionnaire has had some necessary corrections and changes to suit the situation in Vietnam.

Ultimately, the final questionnaire consisted of two main parts. The first part includes basic information such as gender, work experience as well as educational level of the respondents. The second

part includes 30 questions on four different aspects of Basel III implementation. Accordingly, 8 questions about expected benefits from implementing Basel III, 11 questions about Basel III awareness, 6 questions about banks' readiness to implement Basel III, and finally 5 questions about the availability of the necessary resources to effectively implement Basel III. This research employs the PLS-SEM method with the help of the SmartPLS 3.2.9 application to solve the main concerns. As Hair et al. (2012) suggested, this approach is suitable for the small sample size to analyze the structural model in comparison with the CB-SEM method. Moreover, the PLS-SEM method can allow the analysis to measure formative and reflective constructs (Khan et al., 2023). Unsurprisingly, this method has become a favorable instrument employed in many social studies in recent times (e.g., Khan et al., 2023; Yusoff et al., 2019). Table 1 below details the questions related to the aspects of interest.

Table 1. Structure of the survey questionnaire

Construct	Item	No	Adapted from
Benefits		BE	Al-Tamimi et al., (2016); Boora & Jangra (2018); Quantifi & Ernst & Young Survey (2013)
	Manage portfolio risk more effectively	BE1	
	Reduce loan losses thanks to better credit risk assessment of new credits	BE2	
	Manage operational risk more effectively	BE3	
	Improve image and reputation	BE4	
	Basel III helps complete the necessary steps to strengthen bank capital standards	BE5	
	Improve the use of legal capital	BE6	
	Basel III is important in establishing a foundation for capital quality and helps improve liquidity	BE7	
	Basel III is balanced and specifically designed to address lessons learned	BE8	
Awareness		WA	Al-Tamimi et al., (2016); Boora & Jangra (2018); Quantifi & Ernst & Young Survey (2013)
	Basel III is a major step forward in capital regulation	WA1	
	Basel III is a necessary step to strengthen capital standards in banking operations	WA2	

	Basel III standards are relatively strict in terms of quality and amount of capital required	WA3	
	The Basel III framework focuses on two standards: liquidity coverage ratio (LCR) and net stable funding ratio (NSFR).	WA4	
	For NSFR requirements, available stabilizing capital must be greater than required stabilizing capital	WA5	
	For LCR requirements, high quality liquid assets must be equal to or greater than the total net cash outflow for the next 30 days	WA6	
	One of the requirements of Basel III is to increase tier 1 capital from 2% of total risk-weighted assets to a minimum of 7%	WA7	
	The 2008 financial crisis demonstrated the need to impose higher costs of capital, liquidity ratios as well as leverage ratios.	WA8	
	The NSFR requirement is quite useful in dealing with the risks associated with financing long-term assets from short-term liabilities.	WA9	
	The Basel III regulations will strengthen banks' ability to absorb losses by requiring higher levels of equity-like capital instruments.	WA10	
	There is a common understanding of Basel I, II, and III	WA11	
Readiness		RE	Al-Tamimi et al., (2016); Boora & Jangra (2018); Quantifi & Ernst & Young Survey (2013)
	Liquidity assurance standards - LCR	RE1	
	Understand capital requirements	RE2	
	Risk assurance	RE3	
	Capital preservation provisions	RE4	

	Counter-cyclical provisioning	RE5	
	Leverage ratio	RE6	
Availability of required resources		AV	Al-Tamimi et al., (2016); Boora & Jangra (2018); Quantifi & Ernst & Young Survey (2013)
	Ability to maintain effective management and organization with quality human resources	AV1	
	Ability to evaluate reporting metrics and monitor operations	AV2	
	Ability to collect and store data effectively	AV3	
	Ability to ensure deployment resources	AV4	
	Ability to update and innovate technology	AV5	

4. Results

4.1. Demographic Profile

As stated above, survey participants were asked to provide some basic personal information, including gender, work experience in the banking sector and education level. Table 2 below provides descriptive statistics about the characteristics of these survey participants. Accordingly, approximately 55% of respondents were male and more than 45% were female. Regarding work experience in the banking sector, the majority of survey participants have over 5 years of experience, specifically accounting for nearly 48% of the total number of respondents. Next is the proportion of survey participants with experience from over 3 to 5 years, accounting for nearly 37%. Finally, the rate with experience from 01 to 03 years is more than 15%. In terms of educational level, nearly 29% of survey participants have a postgraduate diploma. Meanwhile, a large proportion have university degrees, accounting for more than 60%. The rate of people owning a college degree is nearly 11%. High educational level along with long-term working experience in the banking sector demonstrates the suitability and relatively high reliability of the research sample.

Table 2. Summary of demographics analysis

Characteristic	Number	Ratio (%)
Gender		
Male	116	54.98%
Female	95	45.02%
Other	0	0.00%
Experience		
From 01 to 03 years	32	15.17%

	From over 3 years to 5 years	78	36.97%
	Over 5 years	101	47.87%
Academic level			
	College	23	10.90%
	University	127	60.19%
	Postgraduate	61	28.91%

4.2. Measurement Model

Following some existing studies (e.g., Yong et al., 2020; Yusoff et al., 2019), the reliability of all constructs was assessed first by using Cronbach's alpha coefficient. In general, this coefficient greater than or equal to 0.7 is acceptable and ensures that the measurement scales are valid (Hair et al., 2012). As shown in Table 3 below, the overall Cronbach's alpha coefficients of the four individual scales, including benefits of Basel III, awareness, implementation readiness and availability of resources, are all guaranteed to be greater than 0.7. Therefore, all four scale aspects meet the reliability level.

However, it should be noted that the traditional reliability assessment, Cronbach's alpha coefficient, has many shortcomings and tends to underestimate the inherent reliability of the scale, hence, the current study uses Composite reliability (CR) and Average Variance Extracted (AVE) to further test the convergent validity of constructs employed. While CR values illustrate the extent to which construct indicators signify latent constructs, AVE values mirror total amount of variance in latent structure indicators (Khan et al., 2023). In general, the values of both CR and AVE have to surpass the threshold of 0.7 and 0.5, respectively (Hair Jr et al., 2021). As the figures displayed in Table 3 below, the values of CR surpass 0.7, while that of AVE exceed 0.5. This means that the convergent validity is acceptable.

At the same time, to evaluate whether the observed outcome variable is meaningful or not, we analyze the PLS-SEM algorithm to obtain the factor loadings (outer loadings). Overall, as Hair Jr et al. (2021) suggested, outer loading below 0.4 observed variables need to be removed from the model. When this coefficient is between 0.4 and below 0.7, the decision to remove or keep will depend on the researcher when evaluating along with indicators such as CR and AVE of that factor. Hence, along with the three criteria mentioned above (Cronbach's Alpha, CR and AVE), Table 4 displays factor loadings of items that have values of over 0.6.

Table 3. Validation and Reliability of Constructs

	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Readiness (RE)	0.799	0,855	0,598
Benefits (BE)	0.817	0,878	0,644
Awareness (AW)	0.923	0,936	0,595
Available resources (AV)	0.872	0,906	0,658

Table 4. Outer Loadings

		AV	BE	RE	WA
AV1		0,807			
AV2		0,765			
AV3		0,843			
AV4		0,804			
AV5		0,836			
BE1			0,820		
BE2			0,771		
BE3			0,786		

BE4	0,832	
RE1	0,691	
RE2	0,720	
RE3	0,756	
RE4	0,693	
RE5	0,675	
RE6	0,685	
WA1		0,822
WA2		0,781
WA3		0,840
WA4		0,828
WA5		0,815
WA6		0,789
WA7		0,728
WA8		0,794
WA9		0,661
WA11		0,624

4.3. Results of Hypotheses Testing

To test the hypotheses stated previously, the authors perform the structural model with PLS, in which the three independent variables consist of BE, AW, and AV. The results are shown in Table 4 below. As shown in the table, in general, the research model has an R2 coefficient of 44.1%. Accordingly, the change in the dependent variable is explained by the independent variables at 44.1%. In other words, 44.1% of the variation in readiness to implement Basel III is explained by components such as benefits, awareness and available resources. Furthermore, the values of VIF are all lesser than 2, indicating that there is no multicollinearity problem in the analysis model.

Table 5. Hypotheses Testing

Hypothesis	Std Beta	Std Error	T Statistics	P Values	f^2	VIF	Decision
H1: BE -> RE	0.121	0.061	1,997	0.045	0.018	1,429	Accepted
H2: WA -> RE	0.618	0.059	10,414	0.000	0.357	1,914	Accepted
H3: AV -> RE	-0.056	0.056	1,004	0.320	0.004	1,428	Not Accepted
R square	0.441						
Adjusted R square	0.432						

❖ Regarding the relationship between expected benefits and readiness to implement Basel III

The regression results show that the estimated coefficient of benefits is as expected. Accordingly, this figure is positive with a value of 0.121 and statistically significant at the 5% level. This means that expected benefits have a positive impact on the level of readiness to implement Basel III of Vietnamese commercial banks. Specifically, when this factor increases by 1 point, banks' readiness to apply Basel III will increase by 0.121. point. Thus, this result supports Hypothesis 1 about: "There exists a positive relationship between the readiness to implement Basel III of Vietnamese commercial banks and the expected benefits from Basel III". The finding means that expected benefits from implementation of Basel III have attracted the special attention from Vietnamese commercial banks. Besides, this result is also in line with the preceding finding of both Al-Tamimi et al. (2016) and Boora & Jangra (2018), who find that preparedness of Indian and UAE banks in implementing Basel III has a positive association with expected benefits.

❖ Regarding the relationship between awareness and readiness to implement Basel III

From a cognitive perspective, the estimated coefficient is positive with a value of 0.618 at the 1% statistical significance level. This shows that the awareness of Vietnamese commercial banks has a

significant positive impact on their readiness to implement Basel III. Thereby, it can be said that when this factor increases by 1 point, banks' readiness to apply Basel III will increase by 0.618 points. In addition, this result tends to support Hypothesis H: "There exists a positive relationship between the readiness to implement Basel III of Vietnamese commercial banks and the awareness of Vietnamese commercial banks about Basel III". Contrary to the aforementioned factor, expected benefits, this finding is inconsistent with the previous result of Al-Tamimi et al. (2016) and Boora & Jangra (2018), who do not find the relationship between awareness of banks and implementation of Basel III. To some degree, the current analysis result indicates that requirements and standards of Basel III are being perceived clearly by managers of Vietnamese commercial banks. The feasible reason to explain this well-heightened awareness is that the communication of management agencies, especially the leading role of the state bank, about Basel III in Vietnam in recent times, has proven quite effective and contributed to improving the awareness of most bank leaders.

❖ Regarding the relationship between available resources and readiness to implement Basel III

The coefficient of the variable on the availability of necessary resources in implementing Basel III has an insignificant negative impact on the readiness to apply Basel III of Vietnamese commercial banks. However, this coefficient is not statistically significant. Therefore, this regression result does not support Hypothesis 3 about: "There exists a positive relationship between the readiness to implement Basel III of Vietnamese commercial banks and the necessary available resources of Vietnamese commercial banks to implement Basel III." This result is consistent with the preceding finding of Boora & Jangra (2018), but it is contrary to the that of Al-Tamimi et al. (2016). It is true that to implement Basel III effectively, banks have to possess necessary resources such as advanced technologies and well-experienced employees. Hence, based on the finding, it can be partially concluded that the availability of required resources of Vietnamese commercial banks does not yet meet the Basel III requirements. Some existing studies and international reports (WB and IMF) also highlight a lack of skilled employees and insufficient technological investments of domestic banks (e.g., see more: Lu & Nguyen, 2023; Phan, Lu, Hoang, et al., 2022).

Besides, it should also be noted that in terms of effect size, the f2 indicator that can be calculated as the change in R2 when a certain exogenous construct is removed from the model can suggests whether the removed structure has a significant impact on endogenous structures (Hair et al., 2012; Hair Jr et al., 2021). Accordingly, this indicator reflects the contribution of exogenous variables to the R2 of endogenous latent variables (Yong et al., 2020; Yusoff et al., 2019). According to the principle proposed by Cohen (2013), a value of f2 around 0.02 is weak; 0.15 is moderate and 0.35 has a strong impact. Based on this argument and principle, it can be seen that the positive relationship between expected benefits and the readiness to implement Basel III of Vietnamese commercial banks is quite weak (f2 = 0.018), whereas the positive relationship between banks' awareness and readiness to implement Basel III is quite strong (f2 = 0.357). At the same time, the current analysis also uses the blind-folding procedure to access the predictive relevance. Accordingly, the predictive relevance of the analysis model can be deemed acceptable if the Q2 value is over zero (Hair Jr et al., 2021; Yusoff et al., 2019). By applying PLS-Smart application, the result suggests that this value of Q2 is around 0.201, hence the predictive relevance of constructs is achievable.
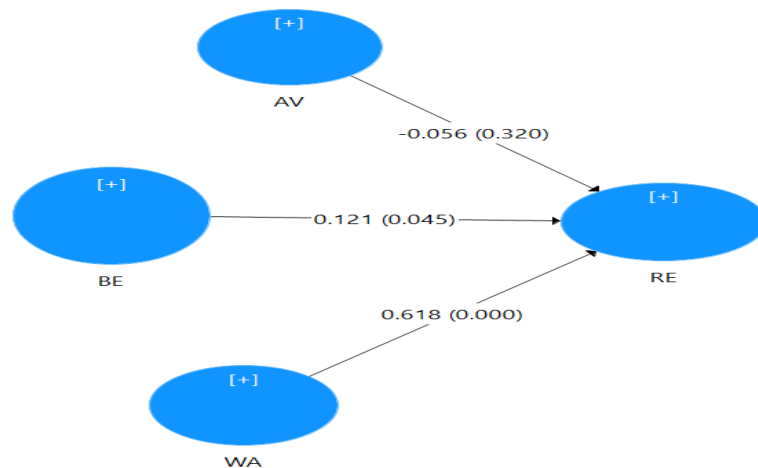
Fig. The Structural model analysis

5. Discussion and Conclusion

This study aims to understand the factors affecting the level of readiness of Vietnamese commercial banks in implementing Basel III. An adjusted survey questionnaire consisting of two main parts was conducted in the study. Accordingly, the first part includes basic information such as: gender, experience in the banking field and educational level. The second part includes 30 questions related to four different aspects of Basel III implementation, including: expected benefits from Basel III implementation; awareness of Basel III; the readiness of Vietnamese commercial banks in implementing Basel III; and the availability of the necessary resources to apply Basel III.

The analysis results show that in general, Vietnamese commercial banks are relatively aware of the benefits of implementing Basel III and are ready to implement these new standards because banks can partially ensure the necessary resources when implementing Basel III. Specifically, in terms of regression analysis, the result suggests that there is a positive relationship between expected benefits and readiness to implement Basel III of Vietnamese commercial banks, indicating that this finding is aligned with the preceding studies such as Al-Tamimi et al. (2016) and Boora & Jangra (2018). Meanwhile, a positive association between awareness and readiness to implement Basel III of banks is seemingly contrary to the two studies mentioned above. At the same time, the positive effect from perception is relatively stronger than the effect from expected benefits. In addition, empirical results also show a negative relationship between the availability of necessary resources in implementing Basel III and the readiness to implement Basel III of Vietnamese commercial banks, but this relationship is not statistically significant. This finding is consistent with the result of Boora & Jangra (2018) but inconsistent with that of Al-Tamimi et al. (2016).

From the theoretical view, to the best of knowledge, this study can be seen as the first empirical analysis that contributes to the understanding of the factors affecting the readiness of Vietnamese commercial banks to implement Basel III standards. By examining the roles of expected benefits, awareness, and available resources, the study provides empirical evidence on the key determinants of bank readiness in an emerging market context. The findings highlight the importance of raising awareness and communicating the potential benefits of Basel III among bank managers and employees. However, the non-significant effect of available resources suggests that other factors, such as regulatory support and organizational culture, may also play a crucial role in facilitating Basel III implementation.

From the results of this research, the study has several implications for practice. It can be concluded that further strengthening the awareness of Vietnamese commercial banks in the coming time will be one of the necessary factors to promote the comprehensive implementation of Basel III standards in Viet Nam. Therefore, it is necessary for bank administrators as well as regulatory agencies to regularly

organize training and orientation sessions, in addition to enhancing communication to raise awareness of employees and other stakeholders as well as functional departments about the role of Basel III in banking business activities. Indeed, by focusing on promoting awareness and understanding of Basel III among banks, perhaps through training programs, workshops, and media campaigns, policymakers and regulators can contribute to further promoting the effective implementation and application of more stringent requirements from Basel III. Moreover, bank managers should prioritize the communication of the expected benefits of Basel III to their employees and stakeholders, as this can help build support and commitment for the implementation process.

At the same time, although the analysis results show that the impact of available resources on Basel III implementation activities is not statistically significant, bank managers need to be clearly aware of the importance of required resources and should still ensure that they have adequate financial, technological, and human resources to support the transition to Basel III. It is important to be prepared to have the necessary resources, especially in terms of updating technology and human resources in the coming time. Indeed, while a number of recent empirical studies have shown the important role of both technology investment and knowledge-based management in banking business (Nguyen & Lu, 2023; Phan et al., 2022a; Phan et al., 2022b), the fact that managers ignore this factor can be a significant shortcoming in the business management strategy according to international standards that Basel III brings.

Although the research has achieved certain successes, there are still some shortcomings that future studies can carry out to fill these research gaps. First, the study sample set is relatively small, so future studies can expand the study sample and conduct empirical research analysis to provide more general findings. In addition, future studies can also perform empirical analysis based on a sample of foreign banks operating in Vietnam and analyze and compare with the results of this study to have more clear view about the level of readiness to implement Basel III of Vietnamese banks. Besides, the cross-sectional design does not allow for causal inferences, and the reliance on self-reported data from a single country may limit the generalizability of the findings. Future research could address these issues by employing longitudinal designs, using objective measures of bank readiness, and comparing the experiences of different countries in implementing Basel III. Additionally, researchers could explore other potential determinants of bank readiness, such as regulatory pressures, market competition, and organizational culture. Also, because we do not yet provide any information on the control variables used in the analysis, future research an include relevant control variables, such as bank size, ownership structure, and financial performance, to rule out alternative explanations for our observed relationships. Furthermore, it is believed that future studies should be conducted related to different aspects of this research topic, for example, possible challenges when implementing and applying Basel III standards, or as the relationship between market risk management and Basel III implementation. Through this research, the authors hope that it will pave the way for many future studies on this important issue - Basel III - in the business activities of Vietnamese commercial banks.

In conclusion, this study takes an important step towards understanding the factors influencing the readiness of Vietnamese commercial banks to implement Basel III standards. By providing empirical evidence on the roles of expected benefits, awareness, and available resources, the study offers valuable insights for researchers, policymakers, and bank managers involved in the implementation of Basel III. However, more research is needed to fully understand the complex process of Basel III adoption in emerging markets and to identify the most effective strategies for facilitating a smooth transition to the new standards.

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