

Impact of leadership's perspective on the effectiveness of operational risk management at the Vietnamese commercial banks

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Abstract—The research investigates the impact of the leadership's perspective on the effectiveness of operational risk management (ORM) at commercial banks based on the Basel Committee on Banking Supervision (BCBS). A quantitative method is utilized through the scale's reliability analysis, External Factor Analysis and regression with a dataset of 300 observations from the survey in 2021. The survey sample was determined to be senior staff with at least three years of experience working in the risk management department of commercial banks. The research results imply the leader's opinion has a strong positive impact on the commercial bank's ORM. In addition, other factors such as organizational structure, implementation of the ORM process, IT system, training, communication, and contingency business plans have a profound influence on the effectiveness of ORM in the banking business. These findings play an important role in theoretical and practical aspects, demonstrating the decisive role of the leader in ORM. On that basis, the study makes some recommendations to enhance ORM in Vietnamese commercial banks.

Index Terms—Commercial bank; leadership's perspective; operational risk management; operational risk.

I. INTRODUCTION

The global financial crisis of 2007-2008 stemmed from weaknesses in the risk governance structures and bank's excessive risk-taking is considered a milestone marking a change in the financial institution's attitude toward risk as in [11], [16]. Risk and risk management become urgent issues for any commercial bank at any time. Instead of only considering financial losses, commercial banks also relatively quantify non-financial losses. Instead of considering risk types independently, the commercial bank assesses risk in its impact relationship with other risks. There is no clear boundary for all kinds of risks. A cause can lead to many risks, or a type of risk can result from many different reasons, and even entails another risk. The complexity of risk is focused, especially when studying operational risk that is pervasive, spread and interspersed with other types of risk. According to reference [9], operational risk is the risk of loss from inadequate or failed internal processes, people and systems or external events. Operational risk is one of the most serious potential risks and inherent in all activities of any commercial banks. Moreover, it arises from internal and external causes and goes beyond the risks that cause financial loss [19]. Then, ORM to adjust and mitigate operational risk is an inevitable step of modern banking

management. ORM is the entire process of identifying, evaluating, controlling, monitoring and reporting operational risk continuously to minimize losses and ensure business continuity of the commercial bank as in reference [9].

Sound ORM is the inevitable direction of today's Asian banking systems. Asian economies are characterized by weaker investor protection, poor regulatory enforcement, and government intervention as in [15] and [24]. Therefore, the distinct investigation of risk management issues in Asian countries is extremely urgent. Vietnam's commercial banking system is highly appreciated for its risk management system. However, it mainly focuses on managing traditional risks (liquidity risk, credit risk, etc). ORM still has many limitations as not giving an overall risk management strategy, not developing a comprehensive risk management framework, not giving a clear statement about risk appetite, etc. This event's financial losses have reached trillions of dong and have stemmed from processes, systems and external factors, especially serious frauds of bank staff. Therefore, for the Vietnamese commercial banking system, ORM is increasingly becoming an urgent issue and more focused than ever. The increased competition in the financial system, the technological revolution and international integration require the Vietnamese commercial banks to have a comprehensive risk management framework. Therefore, it is necessary to examine determinants of ORM.

Reference [14] argued that a leader is responsible for creating a vision and infusing it into the organization's activities to achieve its goals. Leaders play a fundamental role in strengthening risk management effectiveness because they shape the risk management culture as in [26], [36]. The risk management culture identity is one of the core competitive advantages to help commercial banks overcome the crisis and other competitors. Not only that, but the leader's perspective is evident in the development and implementation of the ORM framework. A suitable ORM framework with a strict management structure and regularly evaluated is the basis for ORM effectiveness. However, to the authors' knowledge, there is no empirical research examining the relationship between the leader's perspective and the ORM.

Overall, this study contributes to the existing literature in several ways. First, to the best of our knowledge, our study is one of the pioneer examinations of the application of the Basel international practice in the research framework to

study determinants of ORM. Based on the Basel international practice about operational risk, the authors built a model and scales of variables. The findings imply that the leadership's perspective strongly influences on ORM. In addition, other factors (organizational structure, implementation of process, IT system, training, communication, and contingency business plan) impact positively on ORM. The study plays an essential role in theoretical and practical contributions that demonstrates the decisive role of the leadership's perspective on the effectiveness of ORM. On that basis, the study makes some recommendations to enhance the ORM effectiveness in the Vietnamese commercial bank.

The remainder of this study consists of four parts as follows. After the introduction, the second session comprehensively reviews research related to ORM. Based on the second part, the third session proposes a methodology. The research results are shown in the fourth part, which is the base for making recommendations in the final session to enhance the ORM of Vietnamese commercial banks in particular and the Asian financial system in general.

II. LITERATURE REVIEW AND RESEARCH HYPOTHESES

Operational risk has been a topic of great interest to researchers in the past two decades. BCBS officially mentioned it in 2003 and developed it in 2011. References [9, 10] has been one of the fundamental theoretical bases for researchers on this topic. These studies were mainly carried out after the global financial crisis of 2007-2008. At that time, the commercial bank was well aware of the impact of operational risk and the importance of ORM for operating business. As shown in Fig.1, an ORM framework for commercial banks of any size and scope of operations was provided in [9].



Fig. 1 Factors affecting ORM at the commercial bank.
Source: BCBS (2003)

A. Leadership's perspective on ORM

Risk governance mechanisms expressed by the leadership's structure and perspective significantly reduce bank risk-taking [1]. The leader plays a fundamental role in strengthening risk management effectiveness because they shape the risk management culture that has a strategic position that contributes to ORM as in [26], [36]. Not only that, *the leader's perspective* is evident in the development and implementation of the ORM framework.

Reference [9] pointed out that operational risk should be considered a distinct risk type to be able to manage and periodically review in the ORM framework which articulates

risk appetite and risk tolerance. It becomes a needle of the Vietnamese commercial bank's all departments in all operations. Furthermore, the board of directors was also responsible for developing ORM policies, processes and procedures. Reference [4] pointed out that leadership's point of view hugely impacts on ORM in Australian commercial banks. Therefore, the authors expect that it is a positive relationship and hypothesize:

H1. The leadership's perspective has a positive relationship with the commercial bank's ORM.

B. The internal operational risk culture

As in [9], The internal operational risk culture was the set of values, attitudes, capabilities and behaviours of individuals/organizations that define the organization's commitment and style of risk management. The better the commercial bank's *training and communication* is, the stronger the internal operational risk culture [4] [25].

In ORM, training plays an urgent role. Reference [5] argued that risk management is deeply related to the organization's mission and vision. However, there is a clear gap between the board of directors and staff regarding roles and responsibilities. Training is considered an opportunity to exchange ideas between employees, managers and senior management. Moreover, ORM is a new issue for commercial banks in a developing economy like Vietnam. Therefore, the authors expect a positive relationship between training and ORM.

An organization cannot function effectively when poor communication, especially risk communication [28]. Risk communication is the exchange of information between individuals, groups about risks based on continuous forecasting and calculation of the damage possible in the future as in Ref. [22]. Communicating information to the Board of Directors is essential to making timely decisions to help limit operational risk.

C. The internal adjustment culture

According to reference [9], the internal adjustment culture was clarity about the responsibilities and duties of bank staff in the ORM process. It is shown clearly in *employee engagement and empowerment*.

Ref. [31] defined empowerment as giving more authority to employees. Ref. [20] believed that empowerment is an act of building, developing and increasing the power of employees to increase the staff's authority and autonomy. It impacts an organization's performance in both positive and negative ways.

According to Ref.[13], employees must be empowered and encouraged to solve problems they face within their capabilities. In a fast-paced business environment, transferring decision-making power to lower-level employees who directly face and understand the problems will help find solutions quickly. Employees will feel respected and that they contribute directly to the organization's success, which motivating employees in increasing responsibility, as in [4] and [38].

In contrast, reference [32] argued that empowerment negatively affects risk management. Empowering means that employees work with less supervision while lacking experience, which leads to an increase in risk. Another issue is se-

curity. Empowering employees also means sharing organizational information. Confidential data can be leaked to parties that do not have access to that information, which increases operational risk.

The Vietnamese commercial banks are still inexperienced in ORM. Therefore, the authors expect that it is an inverse relationship and hypothesize:

H2. Employee engagement and empowerment has an inverse relationship in the commercial bank's ORM.

D. Information disclosure

Reference [9] suggested that *information disclosure* allows market participants to assess the bank's ORM. Proactive disclosure supports the bank to be more prudent in its operations to reduce risks to attract prospective investors. The timely and regular disclosure tightens market discipline, which enhancing ORM as in references [8], [9], [10] and [29]. Information disclosure has not been implemented synchronously and is likely to affect the ORM's effectiveness. Therefore, a positive relationship between disclosure and ORM is expected by the authors.

H3. Information disclosure and the commercial bank's ORM have a positive relationship.

E. Contingency business plan

Building a business plan for continuous operation is necessary for any bank, as in [9], [10] and [21]. For reasons that may be beyond the control of the commercial bank, an event could result in the bank being unable to carry out its business activities. It leads to financial and non-financial losses as well as an interruption of the financial system. Therefore, the bank needs to establish *contingency business plans* that are considered in many different situations [10], especially for Vietnamese commercial banks inexperienced in ORM. Thus, the authors expect a positive relationship between the contingency business plan and ORM and hypothesize:

H4. The contingency business plan impacts positively on the commercial bank's ORM.

Ref. [10] enhanced the ORM framework with 11 principles emphasizing the role of establishing a depth risk management culture. Commercial banks with a strong risk management culture often have had less operational risk because staff clearly understand the activities allowed and not allowed, their responsibility and authority for risk.

Ref. [10] pointed out that an effective organizational structure plays a fundamental role in ORM. Organizational structure is how the corporate's activity is divided, conducted and coordinated, as in [3]. It is clearly shown in an organizational chart in two aspects: the work department and the communication mechanism as in [34]. Moreover, it contributes to risk-taking behaviours [33] because it makes differences in dividing work and coordinating between positions. Furthermore, inter-position relationships serve as a channel for communication between levels. The organizational structure determines the control system's effectiveness and the risk exposure of commercial banks as in [12] and [25]. Therefore, the authors expect a positive relationship between organizational structure and ORM.

Moreover, it was essential for the commercial bank to build *an effective ORM process and process management*

as in [10]. Instead of mainly relying on internal control systems and audit activities for risk management, they have transformed ORM framework into a suitable procedure [9], which is essential for contributing to ORM [6]. Therefore, the authors expect it is a positive relationship. In addition, reference [4] showed that the ORM process implementation played a core role in enhancing ORM. The implementation of the ORM process is to ensure that the work is in a certain order. Not only contributes to increasing operational efficiency, but a uniform ORM process also serves as a control tool to control operational risk [9]. Therefore, the authors expect that the ORM process execution strengthens ORM.

Reference [9] asserted the impact of *information technology* (IT) on ORM. It can be undeniable that modern IT offers many advantages to businesses, specifically operational speed, stability, and compatibility in generating data [25]. As in [7], it drove organizational efficiency, improved productivity and controlled internal processes. According to Ref. [37], IT was one of the strategies leading to success in risk management effectiveness based on data. Therefore, the authors expect that the IT system plays a core role in ORM.

Reference [2] and [10] emphasized the role of the supervisor who controls the group/individual to ensure the proper operation of their role. Ref. [23] assumed that a large supervisor team lead to poor information communication and fragmented and suboptimal decision making. In contrast, resource dependency theory suggests that large risk committees improve ORM because of the diversity of opinion, expertise, and robust decision-making process as in [27]. Furthermore, they supported limiting operational risk by clarifying the difference between acceptable and unacceptable behaviour [2]. Due to the lack of experience and synchronization in ORM, the supervisor's role is one of the core factors in reducing operational risk at Vietnamese commercial banks. The authors expect a positive relationship between the supervisor's role and ORM and hypothesize:

H5. The role of the supervisor positively impacts the commercial bank's ORM.

Other studies as in [17], [35] examined the impact of financial ratio on ORM. According to Ref. [35], bank size has a negative relationship with the amount of capital requirement for ORM. The larger bank has had an effective risk management system and more experience in ORM, so they hold less capital. Reference [17] demonstrated that ORM and financial performance has a positive relationship. The study proposed that risk management is of importance in the banking business.

Operational risk has been studied in recent years, especially after the 2008 global financial crisis. Reference [4] and [6] examined the impact of factors on the commercial banks' ORM. However, these papers only used a qualitative research method based on operating practice at commercial banks in Australia and Ghana. References [17], [35] used a quantitative research method but only considered the relationship between financial ratios with ORM. By running a regression model, Ref. [25] examined the qualitative factors affecting ORM. However, this research did not base on references [9] [10] to build the model and the variables' scale. Not only that, Ref. [25] only

studied ten commercial banks required to apply Basel II. This study has been expanding the research scope which is all the Vietnamese commercial banks. Especially, based on reference [9], [10] and in-depth interviews with experts, the authors found that some variables likely to impact ORM had not been studied. Therefore, this study has examined the relationship between these qualitative factors on ORM by both quantitative and qualitative research methods. This is one of the selling points of this research. This study will add more theoretical evidence on risk management in general and ORM in particular.

III. METHODOLOGY

A. The research model

To examine the model's appropriateness, the qualitative research method is used through a semi-structured interview with experts. The interviewees are selected based on three criteria namely relevance to research subjects, diversification of research contexts and accessibility [30]. Ten experts divided into two groups are chosen. The interviewees mainly work in the sales department, risk management department and internal audit department for more than five years with extensive experience in ORM.

The authors identify 11 factors shown in Fig.2 that are likely to affect ORM. Four new variables are included in the research (leader's perspective, employee engagement and empowerment, the role of supervisor, information disclosure activities and contingency business plan).

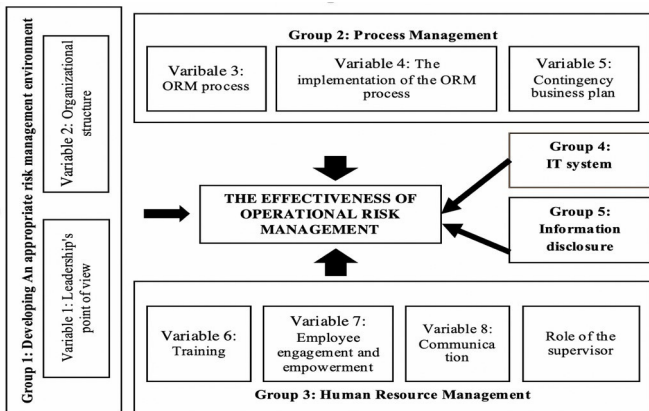


Fig.2 Proposed research model.

Based on references [9] [10], the authors have built the scale for the variables. The five-level Likert scale is chosen. After that, the questionnaire has been sent to 20 experts and used in in-depth interviews. The variables' scale is shown in Appendix - Table A1.

B. Research Sample

The sampling method is the non-probability convenience sampling method. The research sample was determined to be staff with at least three years of experience working in the risk management department of commercial banks. The sample size is 300 observations. The data collection process has been implemented in two ways: face-to-face and online. The number of online questionnaires collected is 253, and the number of usable questionnaires is 214. About the face-to-face survey, the number of sheets issued is 150, the num-

ber of votes collected is 113, and the number of usable votes is 86. The total number of valid sheets for analysis is 300. According to Ref. [18], the minimum sample size is five times the total number of observed variables. With 43 observations variables, the sample size includes 300 observations to meet the analysis requirements. The data collection period is from April 2021 to September 2021.

C. Data Processing

After data collection and cleaning, the research paper used the quantitative method to process the data set through the SPSS program. First, Cronbach's Alpha value is used to **evaluate the scale's reliability**. That the Cronbach's Alpha value is higher than 0.6 confirms that the variables' scale is enough coherence to synthesize into independent variables. The authors remove inappropriate items after considering their meaning to increase the scale's reliability.

The exploratory factor analysis (EFA) is utilized to group variables closely related to each other to form new factors by determining the scale's converging value. Besides, the EFA support separating variables whose scales are less relevant by examining the scale's distinguishing value. The EFA has proceeded through the five following steps.

Firstly, the authors consider the data's appropriateness by examining the sample size, the relationship between sample size and the number of observed variables and between variables through the correlation matrix, the KMO coefficient and the Bartlett test.

Secondly, the analysis of the principal components is utilized to determine the factors formed from the set of observed variables. It is the most viral method in recent years.

Thirdly, based on the Eigenvalue value, the authors have kept the factors having the Eigenvalue value greater than 1 as in [39].

Next, the authors conduct factor rotation by the Varimax method. Groups of variables must satisfy "convergence value" (observed variables converge on the same factor) and "discriminatory value" (observed variables belonging to this factor are distinguished from other variables).

Finally, the authors decide on the number of observed variables of each factor through Factor loading which must be greater than or equal to 0.5 (Nguyen et al 2015).

The authors run a **multivariable regression model** to evaluate the impact of factors on the Vietnamese commercial banks' ORM. The Eview software is utilized to run the model, examine and overcome diagnostics to meet Best Linear Unbiased Estimator (BLUE).

IV. RESULTS AND DISCUSSIONS

A. Testing the reliability of the scale

As shown in Table I, the corrected item-total correlation coefficient is higher than 0.3, ensuring the coherence between the variables. Cronbach's Alpha coefficient of all scales is higher than 0.6, showing that the scales have enough reliability to synthesize into independent variables.

The Cronbach's Alpha coefficient if Item deleted of the variable PLA3 is 0.760, higher than the Cronbach's Alpha coefficient of PLA (0.740). However, the authors have considered that the meaning of PLA3 plays an essential role in

the scale and the Cronbach's Alpha coefficient of the PLA variable is higher than 0.7. Therefore, the authors have not removed PLA3. All other variables have The Cronbach's Alpha coefficient if the Item deleted is lower than the Cronbach's Alpha coefficient of the scale. The result testing the scale's reliability showed that the correlation coefficient of the total variable > 0.3 and the Cronbach's alpha coefficient > 0.6 , so it has concluded that all 43 observed variables have enough reliability and coherence to be able to form 11 independent variables and a dependent variable.

TABLE I.
TESTING THE RELIABILITY OF THE SCALE

Variables	Cronbach's Alpha coefficient
PER	0.872
STR	0.721
PRO	0.704
IMP	0.781
PLA	0.740
TRA	0.666
EMP	0.800
COM	0.847
SUP	0.702
IT	0.701
DIS	0.860
ORM	0.668

B. Exploratory Factor Analysis

1) EFA for the independent variable

With independent variables, the EFA is carried out three times. The test results in Table II have shown that the factor loading coefficients are all higher than 0.5, which demonstrated the appropriate correlation between the variables (indicators) and selected variables in the model. However, in the first analysis, due to not guaranteeing the "discriminatory value", IT1, STR4, SUP1, SUP2 are removed.

The second exploratory factor analysis points out that SUP3 has appeared in two columns, does not guarantee "discriminatory value", so SUP3 is removed. SUP4 to be used to measure the independent variable "Role of supervisor" is likely to combine with the items PLA1, PLA2, PLA3 to form a new factor. When considering the meaning of the content of SUP4, it has a certain similarity with PLA1, PLA2, PLA3 expected to be used to measure the independent variable "Contingency business plan". Therefore, these four items can form a new factor named PLA, according to the name of the original variable.

Thus, the items form 10 variables (PER, COM, IMP, DIS, EMP, PRO, PLA, IT, TRA, STR) which are likely to impact the dependent variable. All variables have ensured "convergent value" and "discriminatory value" with Factor loading coefficients higher than 0.3. The KMO coefficient = 0.720 (> 0.5) and Barlett's test have statistical significance (Sig. = 0.000 < 0.05), which shows that there are enough observed variables to form factors and correlated with each other. All variables' Eigenvalue values are higher than 1. It can be explained 66.005% of the variability of all variables.

TABLE II.
THE EFA TEST'S RESULT FOR INDEPENDENT VARIABLES

EF A test	KMO coefficient	Sig value	Extracted variance	Eigenvalue of factors	Factor loading factor	Conclusion
1 st	0.737	0.000	68.755	> 1	All > 0.5	Remove IT1, STR4, SUP1, SUP2
2 nd	0.711	0.000	67.612	> 1	All > 0.5	Remove SUP3
3 rd	0.720	0.000	66.005	> 1	All > 0.5	Ensure requirements

2) EFA for the dependent variable

KMO coefficient = 0.627 (> 0.5) and the Barlett test has statistical significance (Sig. = 0.000 < 0.05) means that there are enough observed variables to form a variable and are interrelated. 60.879% of the dependent variable is explained by the variability of the data. Eigenvalue = 1.826 > 1 . Therefore, the scale of the dependent variable is accepted. Thus, it can be concluded that ORM represents the dependent variable, which ensures reliability for regression analysis.

After conducting the reliability and EFA, the model consists of ten independent variables and a dependent variable ensuring the scale's reliability, convergence and distinguish value.

C. The regression model

1) Descriptive Statistical Analysis

The result of the dataset's descriptive statistics is shown in Table III. The maximum value of the independent variables reaches the highest level with the "very good" meaning. The variable TRA has the highest mean of all variables, reaching 3.8456. In other words, training activity is evaluated highly by staff banks who have at least three years of experience in risk management. The difference between the independent variables' mean is low, which shows that all activities have been focused on by commercial banks and are likely to affect ORM.

TABLE III.
DESCRIPTIVE STATISTICS

Variables	Mean	Median	Max	Min	S.D
PER	3.7017	3.7500	5.000	2.000	0.7190
COM	3.6817	3.7500	5.000	2.250	0.7173
IMP	3.8160	3.8000	5.000	2.000	0.5383
DIS	3.6778	3.6667	5.000	2.000	0.7430
PRO	3.8067	3.7500	5.000	2.500	0.5722
EMP	3.6867	3.6667	5.000	2.000	0.7127
PLA	3.7617	3.7500	5.000	2.000	0.6102
IT	3.8078	3.6667	5.000	2.333	0.6197
TRA	3.8456	3.6667	5.000	2.333	0.5855
STR	3.7311	3.6667	5.000	2.000	0.5969
ORM	3.8056	3.6667	5.000	2.333	0.5442

The correlation coefficient represents the degree of linear dependence between the variables. Table IV shows that the correlation coefficients of the variables are in the range (0.008 – 0.4). The variables are not strongly correlated with

each other. Therefore, there is no non-separation phenomenon which is influence the model result.

TABLE IV.
CORRELATION BETWEEN THE MAIN VARIABLES

	PER	COM	IMP	DIS	PRO	EMP	PLA	IT	TRA	STR
PER	1.0000									
COM	0.0390	1.0000								
IMP	0.2072	0.0375	1.0000							
DIS	-0.0308	0.0040	-0.0618	1.0000						
PRO	0.3451	-0.0476	0.3195	-0.0533	1.0000					
EMP	0.0487	0.2186	0.1921	0.0838	-0.0342	1.0000				
PLA	0.1781	0.0271	0.2514	0.0255	0.2771	0.0610	1.0000			
IT	0.2499	-0.0159	0.2519	-0.0075	0.3374	-0.0367	0.2639	1.0000		
TRA	0.2589	0.0451	0.3085	-0.0857	0.3531	0.0083	0.1938	0.2528	1.0000	
STR	0.3249	-0.0059	0.2501	-0.0896	0.1704	0.0197	0.1242	0.0678	0.2370	1.0000

The regression model results in Table V show that Prob (F-Statistic) = 0.0000 < 0.05, which means that the model's results are significant. Adjusted R² = 0.3505 shows that the model can explain 35.05% of the change of the dependent variable.

The model has seven independent variables that positively impact the dependent variable with 95% confidence. Specif-

TABLE V.
THE RESULT OF THE REGRESSION MODEL

Dependent variable: ORM	Coefficient	VIF
C	-0.0062 (0.3443)	
PER	0.1059*** (0.04001)	1.286
COM	0.0847** (0.0364)	1.059
IMP	0.1087** (0.0540)	1.315
DIS	0.0354 (0.0346)	1.026
PRO	0.0578 (0.0524)	1.396
EMP	0.0062 (0.0376)	1.118
PLA	0.1181*** (0.0448)	1.163
IT	0.2422*** (0.0455)	1.237
TRA	0.1305*** (0.0488)	1.269
STR	0.1210*** (0.0465)	1.197
R-squared	0.3723	
Adjusted R squared	0.3505	
Prob (F-statistic)	0.0000	
Durbin-Watson	1.7402	
Observations	300	

Note: Statistically significant at ** 5%, *** 1%.

ically, PER, PLA, IT, TRA, and STR affect ORM at a 1% significance level; COM and IMP impact ORM at a 5% significance level. However, these variables (C, DIS, PRO, EMP) are not statistically significant because the P-value > 0.05. Using Wald Test, the test result shows that Pro (F-Statistic) = 0.5915 > 0.05, so the variables C, DIS, PRO, and EMP are removed without affecting model results.

Testing for the model's diagnostics

Test for multicollinearity: Variance Inflation Factors (VIF) are lower than 2, which implies that multicollinearity is not an issue of this model.

Test for heteroskedasticity: The White test's result finds out the model has no heteroskedasticity problem due to P-value = 0.8993 > 0.05.

Test for autocorrelation: The Serial Correlation LM test result finds out that the model has an autocorrelation defect because Prob (F-statistic) = 0.0278 < 0.05. The authors use AR(p) to overcome this problem and have the model results in Table VI.

TABLE VI.
THE RESULT OF THE REGRESSION MODEL AFTER OVERCOMING THE AUTOCORRELATION PROBLEM

Dependent variable: ORM	Coefficient
PER	0.1093*** (0.0378)
COM	0.0799** (0.0303)
IMP	0.1354** (0.0459)
PLA	0.1424*** (0.0431)
IT	0.2586*** (0.0385)
TRA	0.1478*** (0.0449)
STR	0.1336*** (0.0452)
R-squared	0.3770
Adjusted R squared	0.3599
Prob (F-statistic)	0.0000
Durbin-Watson	1.9909
Observations	300

Note: Statistically significant at ** 5%, *** 1%

The regression model has statistical significance (P-value = 0.0000 < 0.05) and the model explains 35.99% of the change of the dependent variable (Adjusted R squared = 0.3599). For the explanatory model, the fit of this model is acceptable.

After overcoming the defects of the regression model, the paper has pointed out seven independent variables that impact on ORM of Vietnamese commercial banks as follows.

Firstly, IT (information technology system) has a strongest impact on the Vietnamese commercial bank's ORM at a 1% significance level, which is consistent with references [7], [25] and [37]. When IT increase (decrease) by 1%, the ORM will increase (decrease) by 0.2586%. The research result is suitable for practice in Vietnam. The Vietnamese commercial banks' IT system has been invested in and centrally managed. However, to meet the calculation requirements by the advanced methods such as Advanced Measurement Approach, the Vietnamese commercial banks have many limitations in terms of data as well as investment in IT systems. It is the main reason why the Vietnamese commer-

cial banks have not yet calculated the expected and unexpected losses, which limits ORM's effectiveness.

Secondly, TRA (training) has a positive relationship with ORM at a 1% significance level, which is compatible with reference [4], [25]. When TRA rises (declines) by 1%, the ORM efficiency will climb (falls) by 0.1478%. Because ORM is complex for Vietnamese commercial banks, training is extremely crucial. Most training courses in Vietnamese commercial banks focused on general risk management activities or traditional risks (credit and liquidity risk), not many in-depth training courses on operational risk. Moreover, in the current context, there are more and more occurred operational risk events stemming from the bank staff's support. Therefore, the ethical issue of bank staff in Vietnamese commercial banks becomes an urgent topic. For the above reasons, training is one of the necessary solutions to minimize operational risk.

Thirdly, PLA (contingency business plan) and ORM have a positive relationship at a 1% significance level. H4 is accepted, which is one of the selling points of this study. Specifically, when PLA increases by 1%, the ORM efficiency will witness a rise of 0.1424% and vice versa. All interviewed experts implied that operational risk is inevitable. Therefore, it is necessary to develop a contingency business plan to maintain business continuity. However, some Vietnamese commercial banks have not yet issued regulations on business continuity plans. When an operational risk occurs, they only build temporary contingency plans, which makes them passive in responding to operational risk.

Fourthly, IMP (the implementation of the ORM process) impacts positively ORM at the 5% significance level, which has the same opinion as references [4] and [9]. A drop of 0.1354% will be seen in the ORM efficiency when IMP fall by 1% and vice versa. Some Vietnamese commercial banks that manage operational risk well as BIDV, Vietcombank, Vietinbank, etc have developed an ORM process under the guidance of references [9] [10] and uniformly implemented the process. Meanwhile, some Vietnamese commercial banks such as Agribank have just issued a framework with a risk management process applied to all types of risks, including operational risk. Therefore, ORM is performed sporadically, without coordination between departments, which leads to low ORM effectiveness. In other words, the ORM process of the Vietnamese commercial banks has not been implemented synchronously.

Fifthly, STR (organizational structure) impacts positively on the Vietnamese commercial bank's ORM at a 1% significance level, which is consistent with references [10] [12] and [25]. Specifically, ORM will increase (decrease) by 0.1336% when STR rises (drops) by 1%. Currently, most Vietnamese commercial banks have built an organizational structure with three layers of defence according to references [10] but has not been implemented effectively. The defence lines overlap functions and tasks, especially in the first line and the second line, which reduces the ORM effectiveness at the Vietnamese commercial banks.

Sixthly, PER (the leadership's perspective) has a positive strong relationship with the dependent variable ORM at a 1% significance level. The hypothesis H1 is accepted, which is compatible with references [4], [26] and [36]. In specific,

when PER increases by 1%, ORM will see growth by 0.1093% and vice versa. However, other commercial banks have not yet enacted a separate ORM policy. Risk appetite and risk tolerance are integrated into the general policy on risk management or in the business strategy of commercial banks, which reduces the Vietnamese commercial bank's ORM effectiveness.

Finally, COM (communication) has positively impacted the ORM. A drop of 0.0799% is witnessed in the ORM efficiency when COM falls by 1% and vice versa. The Vietnamese commercial bank does not have much experience in ORM. Therefore, through communication, the leadership has transmitted information to employees to improve staff's awareness and understanding of ORM. Moreover, timely communication about the operational risk will help make timely decisions, thereby minimizing the loss.

The remaining variables as EMP (employee engagement and empowerment), SUP (role of supervisor), DIS (information disclosure activities), and PRO (ORM process) are not statistically significant. The hypotheses H2, H3 and H5 are refused, which is contrary to the authors' expectations. However, it is consistent with the reality in Vietnam. Survey subjects are bank staff with at least three years of experience. Therefore, the characteristics of the ORM process and the controller's activities have not been approached directly by bank officials. The difference in the degree of empowerment for employees working at positions in the Vietnamese commercial banks leads to inconsistent levels of impact on ORM. Therefore, the research results do not have enough basis to confirm that employee engagement and empowerment impact ORM. Besides, the information disclosure on operational risk at the Vietnamese commercial banks is still very poor. The Vietnamese commercial banks have only published general overviews of ORM. No commercial banks have yet to build a database on operational risk loss. Therefore, no evidence shows the impact of the information disclosure on ORM.

V. CONCLUSIONS AND RECOMMENDATIONS

Based on the application of BCBS's principles in the research framework, the paper aims to test the impact of leadership's perspective on ORM at the Vietnamese commercial bank. The research's result is concluded as follows:

Firstly, the finding of this study has demonstrated the decisive role of the leader's viewpoint, which is one of highlights of this study. The board of directors develops policies, sets goals as well as shapes the ORM culture. Building a suitable ORM framework plays an essential role in minimizing operational risk. At the same time, the review of the ORM framework also aims to re-evaluate the suitability of policies for activities, systems and processes to support commercial banks capture operational risk.

Secondly, a strictly organizational structure contributes to improving the ORM effectiveness. It contributes to departments dividing duties and responsibilities and acts as a communication channel for policy and information between levels. Therefore, the organizational structure also affects the ability to capture, process and communication between departments. It concluded that the organizational structure affects directly the internal control system's effectiveness, es-

pecially for the type of risk existing in all operations like operational risk.

Thirdly, the better the ORM process's steps are implemented, the higher the ORM is. The ORM process implementation is consistent with prescribed steps, principles, tools and methods. It contributes as a control tool for managers, ensuring the commercial bank's business continuity.

Fourthly, the commercial bank's specific contingency business plan plays a core role in enhancing the ORM system. This is one of the selling points of this study. Operational risk is pervasive, inevitable and interspersed in all activities. When operational risks occur, this solution is an urgent measure to help minimize operational risk.

Fifthly, training plays an urgent role in improving ORM. It not only helps staff enrich their knowledge, but also provides an opportunity to exchange ideas between employees and senior managers. In recent times, when ethical issues of bank staff is a "hot" topic, training is a necessary measure to minimize operational risk.

Sixthly, communication contributes to improve ORM in Vietnamese commercial banks. An effective communication channel help make timely decisions. In addition, through the communication channels, the commercial bank's leadership transmits information to employees to raise staff's awareness of ORM.

Last but not least, it is undeniable that the IT system plays a crucial role in improving ORM. The modern IT system promotes ORM activities mainly based on data. Because of the characteristics of the banking industry, the IT system needs to be improved regularly, especially in the context of digitalization of the banking system in Vietnam nowadays.

Based on the research results, the authors have proposed some recommendations to enhance the ORM effectiveness in Vietnamese commercial banks.

First, the Vietnamese commercial banks need to build and develop an ORM culture in line with their business strategy. A strong ORM culture plays an essential in encouraging sharing of knowledge and a deep commitment to ethical and responsible business. At a higher level, risk management culture defines how risk is managed when occurring. It can be said that the culture creates stability and competitive advantages for commercial banks.

Second, the Vietnamese commercial banks need to build an organizational structure according to the model of three lines of defence, synchronizing with risk management of the whole line. Some banks have already done that. However, this model still overlaps tasks across departments, especially in the first and second lines of defence.

Third, the Vietnamese commercial banks should implement the ORM process following references [9] [10]. The ORM process's steps are set up depending on the operation of commercial banks. The commercial bank system needs to strengthen the synchronous implementation in utilizing risk management tools.

Moreover, the Vietnamese commercial banks should develop a transparent and clear policy regarding the contingency business plan. Commercial banks should aim to transform the digital banking model partially or completely to service the contingency business plan.

Fifth, the Vietnamese commercial banks should improve understanding of ORM for all staff. They need to build a communication flow following the established organizational structure. It is essential to diversify content and forms of communication and training suitable for each conveyed object.

Finally, the Vietnamese commercial banks need to promote IT separate applications for ORM to integrate data. ORM software needs to automatically integrate with the data source of the business software system.

Some research hypotheses testing the impact of the supervisor's role, employee engagement and empowerment, and information disclosure on ORM have not met the authors' expectations. However, the study results do not mean that this factor does not affect ORM. The evidence of this impact is concluded only for this survey sample. The researcher can study the survey object as the board of directors, and staff in the risk management department to test the impact of these factors on ORM.

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APPENDIX

TABLE A1.
THE VARIABLES' SCALE IN THE REGRESSION MODEL

No	Variables	The scale meaning	
1	PER	PER1	ORM framework construction
		PER2	ORM framework content
		PER3	Structure establishment
		PER4	Regular monitoring
2	STR	STR1	Execution
		STR2	Capacity and experience
		STR3	Communication
3	PRO	PRO1	Clear process
		PRO2	The specific assignment
		PRO3	The independence degree
		PRO4	Regular reporting
4	IMP	IMP1	Implementation of identification
		IMP2	Implementation of assessment
		IMP3	Implementation of monitoring
		IMP4	Implementation of internal control
		IMP5	Implementation of tools
5	PLA	PLA1	Set up
		PLA2	Meplacement mechanism
		PLA3	Periodically review
6	TRA	TRA1	Periodic organization
		TRA2	Content
		TRA3	Forms
7	EMP	EMP1	Being empowered
		EMP2	Regularly participate
		EMP3	Consider seriously
8	COM	COM1	Information update
		COM2	Information exchange
		COM3	Content
		COM4	Form
9	SUP	SUP1	Independence of control
		SUP2	Information exchange
		SUP3	Contribution for planning
		SUP4	Contribution for overcoming
10	IT	IT1	Upgrades
		IT2	Completeness
		IT3	Synchronization
		IT4	Timeliness
11	DIS	DIS1	Fully
		DIS2	Timely
		DIS3	Content
12	ORM	ORM1	Losses
		ORM2	Disruption
		ORM3	Concordance between ORM and business objectives