Original article

Factors Affecting Moral Hazard Management in Banks: Case of Vietnam

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Abstract:

The authors aim at investigating factors influencing moral hazard management in banks with case of emerging countries such as Vietnam. The dataset was achieved from questionnaire survey conducted in November of 2019 with 320 respondants were valid. By using SPSS 23.0 software, Cronbach's Alpha tool was used to check the reliability of the ranges in the model as well as Exploratory Factor Analysis was used to test the influencing factors. The results showed that Bank managers, Information, Banking Inspectors and Supervisors had positive impacts on model of moral hazard management in banks; while, Bank staff and Customer had negative effects. Based on findings, some recommendations were proposed to enhance efficiency of moral hazard management in banks.

Keywords: Moral Hazard Management, Banks, Bank Managers, Information, Banking Inspectors and Supervisors, Bank Staff, Customer.

1. Introduction

Moral hazard is an economic, financial term used to indicate the risk that arises when the subject's morality is degraded. Moral hazard in bank with its consequences are becoming a controversial issue which is concerned by the whole society. Moral hazard in banks not only cause financial losses for businesses and customers but also affect the socio-economic development of the country. Bank cannot collect the granted credit capital that cause an imbalance in revenue and expenditure and may fall on a state of financial capacity decline as well as damage to assets and reputation of the bank. Moral hazard derives from bank staff dealing with customers who have implemented acts of taking bribes from customers to provide credit for funding projects with many risks. On the other hand, moral hazard shown in frauds action of customer, falsifying records for benefit. Thus, moral hazard in banks related to people, can occur in different positions. Therefore, by determining factors impacting, this paper' aim with proposing recommendations to improve the efficiency of moral hazard management in banks.

2. Theoretical and research model framework

2.1 Theoretical basis

Reasonable Theory of Reasoned Action (TRA, Ajzen & Fishbein, 1975), assumes that a behavior can be predicted or explained by behavioral trends to implement it. Behavioral trends are assumed to include the factors and motivations that influence the behavior and this is defined as the level of effort which people attempt to perform that behavior (Ajzen, 1991). According to this theory, individuals have a basis and motivation in their decision-making process and make a reasonable choice among solutions, the best tool for judging behavior is intention and behavior which are determined by the intention to perform one's conduct. According to Ajzen & Fishbein, (1975), behavior is influenced by attitudes to behavior and subjective criteria of behavior. Therefore, this theory is used to explain the intention causing standard deviations behavior such as crimes, violations of moral standards or moral hazard. Theory of Planned Behavior (Ajzen, 1991) is an improved development of Theory of Reasoned Action. According to Ajzen, the presence of TPB is derived from the limit of behavior where

people have little control, even though the motivation of the subject is very high from subjective attitudes and standards, but in some case, they still do not act because of the effects of external conditions on the intention of behavior. This theory has been supplemented by Ajzen since 1991 by introducing additional factor of Perceived Behavioral Control. Perceived Behavioral Control reflects it is easy or difficult, it is to just conduct a behavior and whether its behavior is controlled or limited (Ajzen, 1991, p.183). According to the TPB model, motivation or intention is the basic motivating factor for consumer behavior. The motives or intentions are guided by three basic prefixes: attitude, subjective norms and Perceived Behavioral Control. From these theoretical perspectives, it shows that the management of moral hazard in the bank is closely related to Behavioral Control factor. Thus, the moral hazard in the financial sector can derive from their individual behavior, perceptions and behavior control that have a major impact on decisions. At the same time, the banks' control mechanisms which are not close may create opportunities for misconduct to occur and vice versa. Innovation Diffusion Theory (Everett Rogers, 1995) is used to explain the factors affecting the use of new services as well as the intention to violate moral issues of users in the new field of consumers such as Niina Mallat (2007); Jiajun Jim Chen and Carl Adams (2005). According to Krugman (2009), moral hazard occurs when one party makes decisions or takes action that benefits themselves while another party incurs all losses if that decision or action fails. Similarly, Haubenstock (2002) proposes an operational risk management framework that includes three main contents: defining risk management strategies; implement risk management processes and adopt or reevaluate risk management activities. In particular, identifying risk management strategies includes defining administrative goals, administrative models and policy formulation. After that, implementing a risk management process including risk identification, control, evaluation, monitoring and measurement and reporting. All operational risk management activities are supported by the risk management infrastructure and environment. Infrastructure includes tools used to carry out risk management processes including information and data systems, policies, processes and measurement tools.

2.2 Research hypotheses

- Moral hazard factors from customers: In banking activities, Moral hazard from customers are often expressed in customers' improper implementation of commitments with the bank, they use capital with the wrong purpose. When the bank lacks information and lacks supervision, it is lax to control the customers' money and this makes it easy to have Moral hazard when customers violate moral. On the other hand, Moral hazard manifests itself in frauds and defrauding of customers in order to appropriate bank assets. Therefore, if the bank does not know this source of information, there will be a potential moral hazard after signing a contract with the customer. Since the hypothesis was laid out

+ Hypothesis H1: Moral violations of customers have negative effects on the moral hazard management model in banks.

- Moral hazard factors from the bank: Moral hazard in the bank are related to human and can occur in different positions. Moral hazard arises from bank staff when dealing with customers. It is the act of taking bribes from customers to grant credit for funding, lending to projects with many risky, intentionally making difficulties for customers to receive feeding-up allowances ... increasing the value of collaterals to borrow in excess compared to actual value of assets. This demonstrates the moral degradation of bank officials and staff and creates moral hazard inside bank

Moral hazard which occurs to bank managers: These are managers who have a beneficial relationship with customers. Therefore, bank managers comply with corporate management principles in recruiting and selecting personnel as well as closely monitoring loan processes and procedures. Banking inspection and control plays an important role in preventing moral hazard and promptly solving arising problems. However, if the bank lacks strict and scientific control then the trend of moral hazard will increase. Since then, the research hypothesis is set up as:

+ Hypothesis H2: The moral violations of bank staff have negative influence on the moral hazard management model in banks.

+ Hypothesis H3: The role of bank managers has a positive influence on the moral hazard management model in banks.

+ Hypothesis H4: The bank strengthens the inspection and control at all stages of the appraisal process, strictly controlling the human factor that has a positive influence on the moral hazard management model in Bank

- Factors which are affected from sources of information and data: Seizing and understanding the information related to customer and the information on financial market developments, information security and internal databases. At the same time, the banks have a connection in controlling customer and market information that will be important factors to help management and forecast for possible moral hazard. On the other hand, controlling negative information, forging information, stealing information and high-tech crime in the banking sector. Therefore, the hypothesis is set up as:

+ Hypothesis H5: Accurately seizing information, data on customers, developments of financial markets will have a positive impact on the model of moral hazard management in the bank.

2.3 Research model framework

From the analysis and research theories, the proposed research model is as follows:

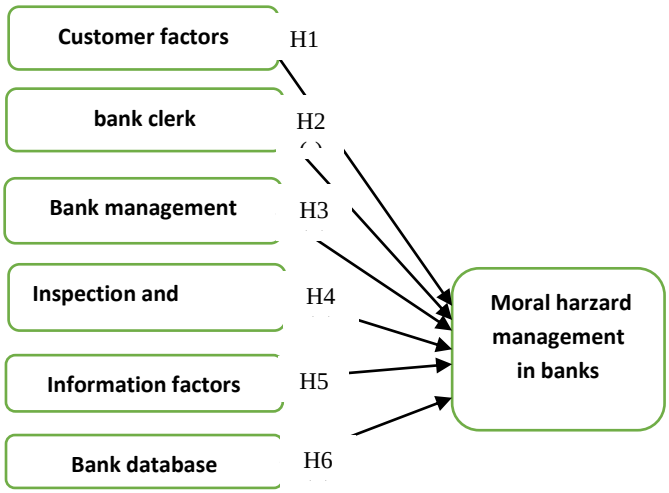

Fig 1: Proposed research model

3. Methodology

The study used both qualitative and quantitative methods. Qualitative method is discussed among experts, managers at current banksti figure out 6 observed variables are presented to evaluate the research. Cronbach's Alpha tool was used to check the

reliability of the ranges in the model. From the results of the reliability analysis of the ranges, the factor analysis (EFA) was used to test the influencing factors and identify the factors that are considered suitable for putting in double linear regression analysis, determining the influence of each factor to the model of moral hazard management in the bank. Research data for testing the ranges and hypotheses is by SPSS 23.0 software

Data collection was conducted through the questionnaire survey. The questionnaire uses a 5-level Likert ranges to evaluate the factors that affect the model of moral hazard management in the bank with Level 1-Fully disagree, Level 2 - Disagree; Level 3 - Normal; Level 4 - Agree; Level 5 - fully agree. The survey respodants included managers, staffs who are working in banks with 350 survey questionnaires to collect evaluation opinions of respondents with research variables. Only 320 valid voted (92% response rate), in which, there were 125 men accounting for 39% and 195 people are female accounting for 61%. Besides, majority of respondents were from 25 to 35 years old, accounting for 40.6%, the age group was from 36-50 years old (37.5%), the group was under 25 years old (12.1%), the age group is over 50 accounting for 9.8%. In addition, the group with income was below 10 million vnd accounting for 34.5%, while the group had income from 10 million - 25 million vnd accounting for 46.2%, the group with income was over 25 million vnd accounting for 19.3%.

4. Results and Discussions

4.1 Testing the reliability of the range

The Project is conducted for analyzing Cronbach's Alpha reliability to eliminate non-representative variables. A range with a Cronbach's Alpha coefficient of ≥ 0.6 is acceptable. Variables which have a total correlation coefficient less than 0.3 will be excluded. (Hoang Trong - Chu Nguyen Mong Ngoc (2008)). In testing the reliability of the first range, there are 9 observed variables including 7 independent variables and 2 dependent variables (NVNH5, CBQL4, CBQL5, TTGS1, TT1, TT6, CSDL1, QTRR3, QTRR8) with total correlated variables is less than 0.3. Therefore, these variables will be eliminated from the range and will be tested again. Cronbach's Alpha analysis results for the observed variables are described in Table 3.1

Table 1: Analysing reliability of the range

Code	Observed variable	Coefficient of correlation of total variables	Cronbach's Alpha coefficient if the variable is eliminated
Customer factors (KH), Cronbach Alpha = 0,724			
KH1	Failing to comply with commitments with the bank	0,664	0,711
KH2	Acts of fraud or defrauding in making dossiers and sale contracts	0,615	0,693
KH3	Providing incomplete information, lacking in clear accuracy	0,597	0,715
KH4	Customers do not know the bank's terms	0,642	0,720
Bank clerk (NVNH), Cronbach Alpha = 0,836			
NVNH1	Staff do not have the deep professional qualification in the banking sector	***0,583***	0,712
NVNH2	Having a beneficial relationship with customers when loan conditions are not yet sufficient	0,578	0,714
NVNH3	Lack of strict control over customers	0,512	0,809
NVNH4	Taking bribes from customers	0,545	0,726
NVNH6	Failure to comply with the process and regulations of the bank	0,545	0,726
Factor of Bank managers (CBQL), Cronbach's Alpha = 0,742			
CBQL1	Recruiting staff in the bank	0,627	0,721
CBQL2	There is the close management and supervision	0,632	0,732
CBQL3	Developing clear lending policies and standards	0,613	0,713
CBQL6	Raising the level of awareness, professional knowledge	0,611	0,612
CBQL7	Appreciating professional morality in the banking sector	0,515	0,668
Banking inspection and supervision factor (TTGS), Cronbach's Alpha = 0,721			
TTGS2	Regularly performing the work of inspection and supervision	0,620	0,701
TTGS3	Inspecting and supervising in compliance with business processes and approved limits	0,658	0,715
TTGS4	Inspecting and supervising the high-risk stages to detect risks early	0,635	0,698
TTGS5	Taking measures to prevent moral hazard in time	0,615	0,674
Information factors (TT), Cronbach's Alpha = 0,765			
TT2	Securing customer information and internal databases	0,598	0,726
TT3	Seizing the complete information about customers	0,635	0,750
TT4	The exchange and connection of information between banks	0,680	0,731
TT5	The quality and reliability of information in service of risk analysis and assessment	0,544	0,655
Bank database (CSDL), Cronbach's Alpha = 0,785			
CSDL2	There is a connection between the banks on the customer database	0,591	0,638
CSDL3	The statistical data is useful for the management of moral hazard prediction	0,533	0,673
CSDL4	Having accurate and timely data system will help the policymakers make the right decisions	0,495	0,703
Managing moral hazard in banks (QTRR), Cronbach's Alpha = 0,705			
QTRR1	Seizing accurate information about customers through various channels of information	0,593	0,669
QTRR2	Promoting recruitment, selecting personnel	0,619	0,701
QTRR4	Performing cross-checking between divisions	0,611	0,644

QTRR5	Educating to raise awareness, expertise and respecting professional morality	0,623	0,685
QTRR6	Identifying and forecast risks and there are strict sanctions against those who violate banking morality	0,625	0,659
QTRR7	Strictly following the regulations, process of loan appraisal, loan approval, supervision of payback	0,611	0,635

(Source: Statistics from the survey)

The results of the second reliability test in Table 3.1, the observed variables have Alpha coefficient that is greater than 0.6 and the total correlation coefficient is greater than 0.3. Thus, after rerun the data, 6 factors of the independent variable and 1 dependent variable used in the study, all of them meet the reliability coefficient requirement and there are 31 observed variables retained for kernel Exploratory Factor Analysis (EFA) in the next research step

4.2 Exploratory Factor Analysis

Table 2: Factor analysis results for the independent variable

Coding	Observed variable	loading factor coefficient				
		1	2	3	4	5
KH1	Failing to comply with commitments with the bank	0.785				
KH2	Acts of fraud or defrauding in making dossiers and sale contracts	0.773				
KH4	Customers do not know the bank's terms	0.768				
NVNH1	Staff do not have the deep professional qualification in the banking sector		0.754			
NVNH2	Having a beneficial relationship with customers when loan conditions are not yet sufficient		0.751			
NVNH3	Lack of strict control over customers		0.763			
NVNH6	Failure to comply with the process and regulations of the bank		0.738			
CBQL1	Recruiting staff in the bank			0.732		
CBQL2	There is the close management and supervision			0.726		
CBQL3	Developing clear lending policies and standards			0.793		
CBQL7	Appreciating professional morality in the banking sector			0.762		
TTGS2	Regularly performing the work of inspection and supervision				0.750	
TTGS3	Inspecting and supervising in compliance with business processes and approved limits				0.748	
TTGS4	Inspecting and supervising the high-risk stages to detect risks early				0.729	
TT2	Securing customer information and internal databases					0.765
TT3	Seizing the complete information about customers					0.758
CSDL2	There is a connection between the banks on the customer database					0.742
TT4	There is exchange and connection of information between banks					0.748
CSDL3	The statistical data is useful for the management of moral hazard prediction					0.761

(Source: Statistics from the survey)

The EFA analysis results show: Bartlett's test: Sig. = 0.000 <0.05 so the observed variables in the above factor analysis are correlated with each other in the whole and show that the factor analysis is appropriate for the research data. KMO coefficient = 0.724> 0.5 so factor analysis is appropriate for the research data. Cumulative coefficient % = 62,148%> 50% indicates that the above 5 factors explain the variation of 62,148% of the data. Eigenvalues coefficient value = 1.831> 1 and extracted 5 factors are greater than 1, thus it has met the requirements. After rerunning, all observed variables have factor loading coefficient (factor loading)> 0.5. The results of factor analysis show a change in the group of variables compared with the results of initial qualitative research. There are 5 factors extracted from the EFA analysis:

- The first factor: including 3 observed variables (KH1, KH2, KH3) closely related to each other, this factor is named to be Customer factor (KH)

4.2. 1 Factor analysis for the independent and dependent variables

After analyzing the Cronbach Alpha reliability coefficient, the range is further evaluated by the Exploratory Factor Analysis (EFA) method. Twenty-five observed variables of six independent factors are putting in the analysis using the Principal Component method with Varimax rotation. The results show that in the rotation matrix there are 6 observed variables: KH3, NVNH4, CBQL6, TTGS5, TT5, CSDL4 with loading factor less than 0.5, so they are eliminated and run again. Result of Factor analysis is shown in table 3.2 as following:

- The second factor: Including 4 observation variables (NVNH1, NVNH2, NVNH3, NVNH6) closely correlated with each other, this factor is named to Bank staff (NVNH)

- The third factor: including 4 observation variables (CBQL1, CBQL2, CBQL3, CBQL7) closely correlated with each other, this factor is named to be Manager Factor (CBQL)

- The fourth factor: Including 3 observation variables (TTGS2, TTGS3, TTGS4) closely correlated with each other, this factor is named to be the factor of Banking Inspection and Control (TTGS).

- The fifth factor: Including 5 observed variables (TT2, TT3, CSDL2, TT4, CSDL3) closely correlated with each other, this factor is named to be Data Information Factor (TTDL).

These groups of factors will be put in the regression analysis along with control variables such as age, gender, income and the dependent variable is the Bank's moral hazard Management (Risk Management).

4.2.2 Factor analysis for the dependent variable

Table 3: EFA analysis results for the dependent variable

Coding	Observed variable	Managing moral hazard
QTRR1	Seizing accurate information about customers through various channels of information	0,785
QTRR2	Promoting recruitment, selecting personnel	0,796
QTRR4	Performing cross-checking between divisions	0,797
QTRR5	Educating to raise awareness, expertise and respecting professional morality	0,806
QTRR6	Identifying and forecast risks and there are strict sanctions against those who violate banking morality	0,821
QTRR7	Strictly following the regulations, process of loan appraisal, loan approval, supervision of payback	0,824
Cronbach's Alpha		0,806
Sig		0,000
KMO		0,687
Eigenvalues		2,085
Average Variance Extracted (%)		63,824

(Source: Statistics from the survey)

The EFA analysis of dependent variable shows that Bartlett's: Sig. = 0.000 <0.05: The observed variables in factor analysis are correlated with each other in the whole. KMO coefficient = 0.687> 0.5: factor analysis is appropriate for the research data, Eigenvalues value = 2,085> 1: satisfactory, the total value of extracted variable: 63,824%: satisfactory. All observed variables have loading factor coefficient> 0.5: satisfactory. Thus, the range of "Moral hazard management in banks" reaches convergence value.

The results of the EFA factor analysis show that the independent and dependent variables in the model, all of them have convergence and acceptable discriminant values. Therefore, the EFA analysis is appropriate to the research data. Thus, from the 6 factors of the original proposed research model, and with the research results, only 5 factors affected the Moral hazard management in the bank with 19 observed variables.

Also assess the influence of (qualitative) observations (gender, age group and average income) on the model of moral hazard management. Qualitative variables are considered dummy variables, coded to run the regression as follows:

Table 4: Variable coding

Name of Variable Symbol					Explanation
Gender	GENDER				1: Male; 0: Female
Age	AGE1		AGE2		
	1		0		Age 1 (From 25 to 35 Years old)
	0		1		Age 2 (From 36 to 50 Years old)
	0		0		Over 50 Years old
Income	INCOME1		INCOME1		
	1		0		Income 1 (Under 10 million)
	0		1		Income 2 (From 10 to 25 million)
	0		0		Over 25 Million

Table 5: Results of double linear regression analysis with dependent variable (Moral hazard Management - Moral hazard management in banks)

Independent variables	Regression coefficient	VIF
Consant	0,526	
Gender	-0,264	3,682
Age 1 (From 25 to 35 Years old)	-0,346	2,051
Age 2 (From 36 to 50 Years old)	-0,429	1,845
Income 1 (Under 10 million)	-0,367*	1,129
Income 2 (From 10 to 25 million)	-0,132*	1,245
Customer	-0,389**	1,053
Bank staff	-0,426**	1,031
Bank manager	0,392**	1,248
Inspector, Supervisor	0,214**	1,060
Data information	0,357**	1,271

(*) The correlation is statistically significant at 1%, (*) the correlation is statistically significant at 5%

The results of regression analysis show that the model of moral hazard management in a bank is influenced by 5 factors. In which factors that positively impact the moral hazard management model including: Bank managers (0.392), Information (0.357), Banking Inspectors and Supervisors (0.241). Meanwhile, factors that have a negative impact on the moral hazard management model including: Bank staff have a negative impact (-0,426), Customer factors (-0,389). At the same time, the research results also show that there are differences in income in the model of moral hazard management. The impact level of each factor is as follows:

- Bank managers: Research results show that the factor of bank managers is statistically significant at 1% and positive with the initial expectations of the model, there is a highest positive correlation coefficient with moral hazard management model (β =

0.392). This means that when bank managers comply with corporate management principles, there is a thorough selection in recruitment and personnel screening as well as strict supervision of the process, procedures and the development of clear lending policies and standards, the moral hazard will be overcome. On the other hand, the managers always uphold the education, professional skills and respect professional mortality in the banking sector, at the same time, there are good executive and leadership skills which will create an effective moral hazard management model. The fact that moral hazard is derived from bank managers in recruiting and using personnel who does not appreciate the capacity and morality qualifications of employees. This leads to collusion between managers and bank staff with customers and causing a great consequence for the bank.

- Information factor: Research results show that Information factor is statistically significant at 1% and positive with the initial expectation of the model, has a positive correlation coefficient with the moral hazard management model (β = 0.357). Accordingly, in order to manage moral hazard and take measures to prevent moral hazard, understanding the information system that plays a particularly important role such as customer information, information security and internal databases. The connection between banks is in controlling customer information. At the same time, the information factor will help the management to forecast moral hazard before market and customer fluctuations. However, the current development of information technology also has negative effects on the moral hazard in the bank, especially information fraud, information theft and high-tech crime in the banking sector.

- Inspection and supervision factor: The research results show that the Banking inspection and supervision factor is statistically significant at 1% and positive with the initial expectation of the model, there is a Positive correlation coefficient with the moral hazard management model (β = 0.241). Improving the ability of banking inspection, supervision and control will prevent moral hazard and arising problems, inspection must be conducted regularly especially at high risk-prone stages. Therefore, Managers must have an effective organizational model to coordinate the workforce. However, if the bank lacks strict control, the trend of moral hazard from customers will increase. Therefore, inspection and supervision factors have a great impact on the model of moral risk management in banks.

- Bank staff: The research results show that the factor Bank staff is statistically significant at 1% and positive with the initial expectations of the model, there is a negative correlation coefficient with the model of moral hazard management (β = -0,426). This shows that bank staff do not have the professional capacity or relationship of interest, taking bribes from customers will be a huge risk in moral hazard. Bank staff abets with customers to forge loan documents, fake signatures, collude with organizations and individuals to appropriate bank assets, appropriate customers' money in mobilizing and withdrawing money. Collusion with customers to increase the value of collateral to borrow money in excess of the value of the actual mortgaged assets or to revolve the collateral many times in customer banks. These are diverse behaviors, demonstrating the moral degradation of bank officials and staffs. Therefore, professional morality of bank staff is one of the important factors to solve the moral hazard problem.

- Customer factor: Results of the regression study also showed that the factor Bank staff is statistically significant at 1% and positive with the initial expectation of the model, there is a negative correlation coefficient with moral hazard management model (β = -0,389). This means that if a customer fails to comply with their commitments to the bank, commits frauds or defrauding in making documents and sales contracts, and provides incomplete and wrong information it will increase moral hazard in the bank, causing loan losses and cannot retrieve loans.

- Income factor: Results of the regression study for the income factor are statistically significant at the 5% level and have a negative correlation coefficient with the moral hazard management model (β = -0,367). This shows that income is inversely related to moral hazard management. Those with lower incomes have a higher risk of moral hazard.

5. Conclusions and recommendations

The study was conducted with the objective of analyzing the factors affecting the establishment of a moral hazard management model in the bank. In fact, the model of moral hazard management in banks has many influencing factors in both positive and negative directions. In the scope of the study, the research results show that there are 6 factors affecting the moral hazard management model in the bank. In which, factors such as management capacity of bank officers, inspection and supervision factors in the bank, information factors have a positive impact on the model of moral hazard management. That means if these factors are well implemented, they will have a positive impact on moral hazard management. On the other hand, the factors of customers, the factor of bank staff and the income factor have a negative impact on moral hazard management. This shows that the bank staff is weak in professional capacity or has a beneficial relationship, taking bribes from customers, helping customers with counterfeit records and documents, committing frauds or defrauding to appropriate the property that will increase the moral hazard in the bank, adversely affecting the prestige and financial potential of the bank. On the other hand, the lower the income, the higher the risk of moral hazard in the bank.

The results of the study have helped identify the factors affecting the model of moral hazard management in the bank. This helps managers establish appropriate moral hazard management models, promulgate and develop policies and procedures that are appropriate to practical conditions. In order to minimize the moral hazard that may occur, Managers need to establish specialized risk management units, have a process of checking, strictly controlling customers' cash flow, and closely monitoring process, the process of document approval, all transactions must be done by the cross supervisor. To predict moral hazard, it is necessary to collect accurate and complete information about customers, especially mortgage assets, there is the connection between banks to seize customers' information well to forecast risks and take timely preventive measures. Banking is the field that requires high transparency and professionalism of people. Therefore, improving the quality of the staff is very important, the recruitment and training of staffs must be associated with good morality, considering professional morality as one of the prerequisite criteria in the process. select and consider it as a basic strategic task in the restructuring process, creating a foundation for sustainable development in the banking system

Conflicts of Interest

We - The authors declare that there is no conflict of interest regarding the publication of this paper

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