Factors affecting the effectiveness of internal control in joint stock commercial banks in Vietnam

Dinh The Hung[a] **and Tran Trung Tuan**[a*]

[a]*School of Accounting and Auditing, National Economics University, Vietnam*

C H R O N I C L E	A B S T R A C T
	In Vietnam, the role of commercial banks is extremely important, but the real situation does not really meet the requirements of the economy. The State Bank of Vietnam has implemented many solutions to stabilize the monetary market and regulated internal control and internal audit of credit institutions. Therefore, in order to survive and develop in a sustainable way, each commercial bank itself needs to build good governance policies so that its activities are always effective. The most suitable solution is given: good completion of internal control to improve the operational effectiveness of internal control. This article studies the major factors affecting the effectiveness of internal control in joint stock commercial banks in Vietnam, in order to help them understand the factors affecting, improving and ensuring the effective operations of the banks, aiming at the goals of stabilizing the financial economy of the country.

1. Introduction

Looking back on the history of the world, after the financial crisis of 2008 with the collapse of a series of major banking systems worldwide, many lessons have been learnt about credit risks. In Vietnam, commercial banks are established with great responsibilities for the country's economy (Whitting & Pany, 2001; Onumah et al., 2012). They are a source of capital for the economy, a bridge of businesses to the market, a tool for the state to regulate the macro economy and be a bridge of national finance to international finance. However, in fact, their activities are not really effective: the phenomenon of bad debt continuously increased, the efficiency of using capital was low, more and more banks went bankrupt. In front of the situation above, to survive and develop sustainably, each commercial bank itself needs to develop policies and measures aimed at managing its banks so that the activities always reach highest efficiency. Commercial banks need to improve and enhance the efficiency of internal audit to prevent fraud and errors. This paper is designed to identify the factors affecting the effectiveness of internal control in joint stock commercial banks in Vietnam. With the target object of the effectiveness of internal control at commercial banks, the results of the research will contribute to further improve internal control at commercial banks nowadays. In addition, the study also provides recommendations for the State Bank to provide reasonable policy mechanisms to commercial banks.

* Corresponding author. Tel.: +84-0912843355
E-mail address: trungtuanktqd@gmail.com (T. T. Tuan)

2. Literature review

There have been many studies on various aspects of internal control activities as well as the factors affecting the effectiveness of internal control in many different countries around the world. The authors mainly study the internal factors of internal control according to the COSO's report but have not really paid much attention to the specific characteristics of Vietnamese economy. Amudo and Inanga (2009) investigated the internal controls of countries under the control of the African Development Bank and provided a general model to consider and evaluate internal control including independent variables: (i) Control environment; (ii) Risk assessment; (iii) Information and communication system; (iv) Control activities; (v) Monitoring; (vi) Information Technology. The dependent variable in this study was: The effectiveness of internal control. The two regulatory variables also included: Authorization and Collaboration relationship. This research has shown that the lack of some elements of internal control will make the effectiveness of internal control not achieve as expected. Otherwise, research has the disadvantage that the scope is limited to Uganda, if applied it to other countries, it should depend on the situation and characteristics of these country.

Nguyen and Ha (2010), on the basis of the principles of Basel II, believe there are 5 groups of factors affecting the effectiveness of internal control in commercial banks, including: (i) Control environment and supervision of the Board of Directors; (ii) Identify and assess risks; (iii) Control and assignment tasks; (iv) Information and communication; (v) Monitoring activities and correcting errors. In 2011, with the study in 6 private banks listed in Bangladesh, Sultana and Haque conducted empirical research and pointed out that to evaluate the ability to ensure the organization's activities are consistent with the target, first we need to determine the internal control structure in this organization. The results of the study show a model with these independent variables: Control environment, Risk assessment, Communication information system, Control and monitoring activities. The dependent variable is the Effectiveness of the internal control system; and two regulatory variables are: Authorization and Collaborative relationship. According to Sultana and Haque (2011), the advantage of that study was to show that this model would be reasonable when the independent variables and control objectives of the bank had a close relationship. That means each part of the internal control system (independent variable) working effectively will confirm the reasonableness of control objectives and thus ensure the effectiveness of the internal control system.

Also using the above model but omitted the two regulating variables, Gamage et al. (2014) studied the effectiveness of the internal control system at 2 state-owned commercial banks together with 64 branches of these 2 commercial banks in Sri Lanka. The paper reported that there was a positive effect of independent variables: (i) Control environment; (ii) Risk assessment; (iii) Information and Communication; (iv) Control activities and (v) Monitoring to the dependent variable The Effectiveness of Internal Control. Ho Tuan Vu (2016) with the research topic "Factors affecting the effectiveness of internal control systems in Vietnamese commercial banks-empirical evidence in Vietnam" fully mentioned about the internal control system. The authors identified 7 factors affecting the effectiveness of internal control in Vietnamese commercial banks: (i) Control environment; (ii) Risk assessment; (iii) Control activities; (iv) Information and communication; (v) Monitoring; (vi) Political institutions and (vii) Group interests. However, research is limited by the Southern space and the new specific factors were not general for internal controls in particular.

The authors such as Phan (2005), Ha (2006), Phan (2007), Dung (2007), Dao and Le (2012), and Nguyen (2015) studied internal controls in commercial banks and detected a common statement that internal control at Vietnamese commercial banks now had some significant improvements. However, there are still some limitations such as: the administrator does not pay much attention to the control, the control work has not been invested much in human resources, the effectiveness of supervision is still low, etc. Besides, the authors also developed control models that are modern and effective in order to fit the

integration needs in the new period such as: applying ISO quality management, checking control associated with risk management, etc.

3. Theoretical basis of research issues

3.1. Overview of commercial banks

According to the French Bank Act (1941): "Commercial banks are enterprises or establishments where a regular occupation is to receive public money in the form of deposits, or in other forms and uses these resources for themselves in the discount, credit, and financial operations". In Vietnam, Article 4 of the Law on Credit Institutions 2010 pointed out: "Commercial banks are monetary organizations that operate primarily and regularly receive deposits from customers with the responsibility to repay and use that money to lend, perform discount operations, and act as a means of payment".

From all of the above points of view, commercial banks are one of the financial institutions operating for profit, characterized by providing a variety of financial services, with basic operations being received deposits, loans and provision of payment services. The operations of commercial banks are very complicated and must manage a huge and diverse amount of assets; large number of transactions, both in value and type; a network of branches and transaction offices throughout; subject to the strict management of government agencies; etc. Besides, the commercial bank's monetary business has specific risks that are rarely seen in other sectors: liquidity risk, credit risk, currency risk, interest rate risk and operational risk. The above requirements set out for commercial banks to build and strengthen internal control in banks to ensure compliance with laws; ensure property safety; ensuring objectives, operational efficiency as well as managing specific risks.

3.2. Overview of internal control in commercial banks

The concept of internal control was first appeared in 1929 and continuously improved to now, in which the biggest milestone is the introduction of the internal control framework of the Association of American Sponsoring Organizations (Committee of Sponsoring Organization - COSO) in 1992. COSO (1992) defined the internal control as "Internal control is a process governed by management, managers and employees of the application, position, designed to provide a reasonable assurance to achieve the objectives: the credibility of financial reporting objectives; the goal of compliance with laws and regulations; goal of effectiveness and efficiency". In 2013, continued to inherit the frame of internal control as in 1992, COSO developed more about internal control but emphasized the expansion of reporting objectives and five elements of internal control, namely: Control environment; Risk management and assessment system; Control activities; Information and communication system; Monitoring activities. Internal control will work effectively if focusing on building and operating these 5 elements well.

Inheriting COSO's report, in the studies of Amudo and Inanga (2009), Ofori (2011), Gamage et al. (2014) argued that internal control is considered effective when it achieves the following three objectives: Compliance with Laws and related regulations; Financial statements achieve reliability; Ensuring efficiency and operational efficiency of the unit, avoiding loss of assets. This is also the indicator that measures the effectiveness of internal control that the research team uses when considering the factors affecting the effectiveness of internal control in Vietnamese commercial banks.

The Basel Committee on Banking Supervision report builds an internal control framework for banks based on inheriting and developing the arguments of the COSO report into the banking sector, typically the construction of 13 principles in the design and evaluation of internal controls in banks corresponds to the components that constitute internal control in the COSO report.

4. Research Methodology

4.1. Building research models and research hypotheses

4.1.1. Research framework

Control Environment

According to Ramos (2004), the control environment has an important influence on the implementation process and the results of control procedures. Banks with a good control environment will limit errors that occur during these procedures. According to Rae and Subramaniam (2006), to assess Environmental Control, it is necessary to consider the following aspects: Organizational structure; Style of managers, Business culture; Commitment to competence; Quality and moral values; etc.

Control Activities

According to Ramos (2004), "Control policies and procedures promote the necessary activities to mini-mize the risks of enterprises and facilitate the objectives to be strictly enforced, efficiency and efficiency throughout the organization. Control activities takes place throughout the organization at every level and every activity".

Control activities is assessed on four aspects including: Division of responsibilities; Control information processing process; Asset protection; Review analysis.

Monitoring

Springer (2004) and Kaplan (2008) in their study said: "Monitoring is the final part of the internal control system and is the process of assessing the quality of the internal control system over time. Monitoring has an important role, it helps internal control always work effectively. The monitoring process is carried out by responsible people to assess the establishment and implementation of control procedures.". Mon-itoring is carried out in all activities in the enterprise and even outside entities can be monitored by two methods: Regular monitoring of activities and periodic monitoring of activities. According to Calomiris and Khan (1991), the monitoring system needs to detect the shortcomings of internal control and these information needs to be addressed to administrators to promptly make corrective measures.

Risk Assessment

Lannoye (1999), in his research, stated that each enterprise has its own risk assessment method but they must be balanced in terms of costs and benefits. Risk assessment must be based on the operational ob-jectives of the organization, in order to assess the adverse factors for the operation of the entity in a reasonable manner. Walker (1999) said that when there is a change, managers need to manage risks to detect and timely adjust the arising risks.

Information and Communication

According to Steihoff (2001) and Hevesi (2005), information and communication also play an important role in the effectiveness of internal control. All activities need to be agreed between all levels inside the organization as well as between it and the outside. Good information and communication will help all individuals understand their roles and responsibilities, helping the organization become a united body towards their common goals.

Bank Size

In order to get a large bank size, the managers must run the business well, so that the work in the bank must take place well with high credit growth, they must also encourage investment for economic development. In parallel with that, control activities must take place strictly to ensure the growth of enterprises, but not to underestimate the control activities in order to avoid high commercial debt rates and the increasing of black credit.

Credit Status Ranking

A credit status ranking is an assessment of the credibility and willingness to pay personal or government debt under the terms of the loan. There are 3 reputable major organizations in the world performing rankings that are Standard & Poor, Fitch rating and Moody. With these credit rating organizations, there are different ratings of credit status rankings and the rating of credit institutions is assessed on many criteria including the bank's internal control system. From the reference of previous research topics and based on the theoretical foundation mentioned and in addition to the observation, studying the status of Vietnam's economy as well as its characteristics, the research team proposed the research model is as follows:
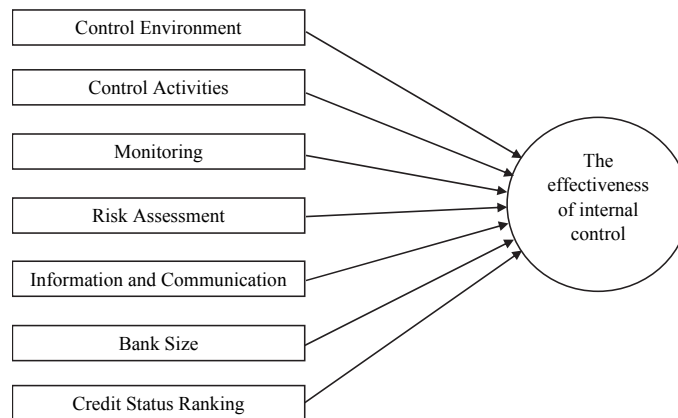
Fig. 1. Research model: Factors affecting the effectiveness of internal control at Vietnamese joint stock commercial banks

(Source: Kaplan (2008), Vu (2016))

4.1.2. The content describes variables, measurement methods and research hypotheses

The study proposes the following influencing factors:

The factors of variables are measured by likert scale with 5 levels: 1- Very poor; 2- Poor; 3- Medium; 4- Good; 5- Very good.

Research hypotheses:

- Hypothesis 1: Control Environment factor (MT) has a positive impact on the Effectiveness of Internal Control in Vietnamese joint stock commercial banks.
- Hypothesis 2: Control Activities factor (KS) has a positive impact on the Effectiveness of Internal Control in Vietnamese joint stock commercial banks.
- Hypothesis 3: Monitoring factor (GS) has a positive impact on the Effectiveness of Internal Control in Vietnamese joint stock commercial banks.
- Hypothesis 4: Risk Assessment factor (RR) has a positive impact on the Effectiveness of Internal Control in Vietnamese joint stock commercial banks.

- Hypothesis 5: Information and Communication factor (TT) has a positive impact on the Effectiveness of Internal Control in Vietnamese joint stock commercial banks.
- Hypothesis 6: Bank Size factor (QM) has a positive impact on the Effectiveness of Internal Control in Vietnamese joint stock commercial banks.
- Hypothesis 7: Credit Status Ranking factor (XH) has a positive impact on the Effectiveness of Internal Control in Vietnamese joint stock commercial banks.

Table 1
Summary of research factors at joint stock commercial banks

No	Variables	Definition	Measurement factor	Previous studies
		Independent Variables		
1	Control Environment (MT)	"The control environment includes the attitude, awareness and actions of the manager and those responsible for governance related to the Internal Control entity and its importance in the entity."	Management philosophy and operational style (MT1) Integrity and ethical values (MT2) Human resource policies (MT3) The organizational structure (MT4) A commitment to competence of the Board of Directors as well as employees (MT5)	Ramos (2004), Rae & Subramaniam (2006), Nguyen & Ha (2010), Vu (2016)
2	Control activities (KS)	"Control activities are a set of control policies and procedures to ensure that managers' policies are implemented to achieve goals."	Review the activities by senior managers (KS1) Review the activities by senior managers (KS2) Reasonable segregation of duties (KS3) Control of information processing process (KS4) Physical control (KS5)	Ramos (2004), Nguyen & Ha (2010), Ho Tuan Vu (2016)
3	Monitoring (GS)	"Monitoring is the process of assessing the quality of internal control over time"	Regular monitoring of activities in the bank (GS1) Regularly monitor activities outside the bank (GS2) Periodic monitoring of objects implemented in the bank (GS3) Assessment the internal control system by independent auditors (GS4)	Spinger (2004), Muhota (2005), Kaplan (2008), Nguyen & Ha (2010), Vu (2016)
4	Risk Assessment (RR)	"Risk assessment is the identification, analysis and management of risks that may threaten the achievement of organizational goals"	Identify goals of the bank (RR1) Identify risks that may have an impact on the bank (RR2) Analysis risks in the bank (RR3) Assessing risks in the bank (RR4) Quản trị các rủi ro trong ngân hàng (RR5)	Lannoye (1999), Walker (1999), Nguyen & Ha 2010), Vu (2016)
5	Information & Communication system (TT)	"Information that supports the administration, control and communication methods of the business"	Information is provided accurately (TT1) Information is provided appropriately (TT2) Information is provided promptly (TT3) Information is updated constantly (TT4) Internal communication work (TT5) External communication work (TT6)	Steihoff (2001), Hevesi (2005), Dinapoli (2007), Nguyen & Ha (2010), Vu (2016)
6	Bank size (QM)	Bank size is the concept of expressing the bank's size in terms of the amount of capital, asset value, number of branches or transaction offices.	Evaluate the charter capital (QM1) Evaluate IPO indicators (QM2) Evaluate the number of branches or transaction offices nationwide (QM3)	Vu (2016)
7	Credit status ranking (XH)	Credit status ranking is an assessment of the level of trust and willingness to pay personal or government debt according to the bank's loan terms in the financial market.	Assess the level of compliance with loan terms (XH1) Evaluate customer satisfaction with bank credit services (XH2) Evaluate the impact of control activities on the credit status ranking (XH3) Evaluate the ability to pay personal debts and government debt (XH4)	Kaplan (2008), Nguyen & Ha (2010),
		Dependent Variable		
8	Effectiveness of Internal Control (HQ)		Effectiveness and efficiency of activities (HQ1) Financial reports are reliable (HQ2) Compliance with laws and regulations (HQ3)	Steihoff (2001), Hevesi (2005), Dinapoli (2007), Nguyen & Ha (2010), Vu (2016)

(Source: Summary of the research team)

4.2. Research sample

The scope of research of the project is accomplished for joint stock commercial banks in Vietnam and does not include foreign or foreign-invested banks in Vietnam. The research team used the data obtained from the sending of surveys, questionnaires designed by the team to the survey subjects by direct and online methods. Subjects of the survey are directed to the heads of professional departments, controllers of the internal supervisory departments, and employees who perform professional operations at bank offices, branches of commercial banks and researchers and teaching accounting, auditing and banking.
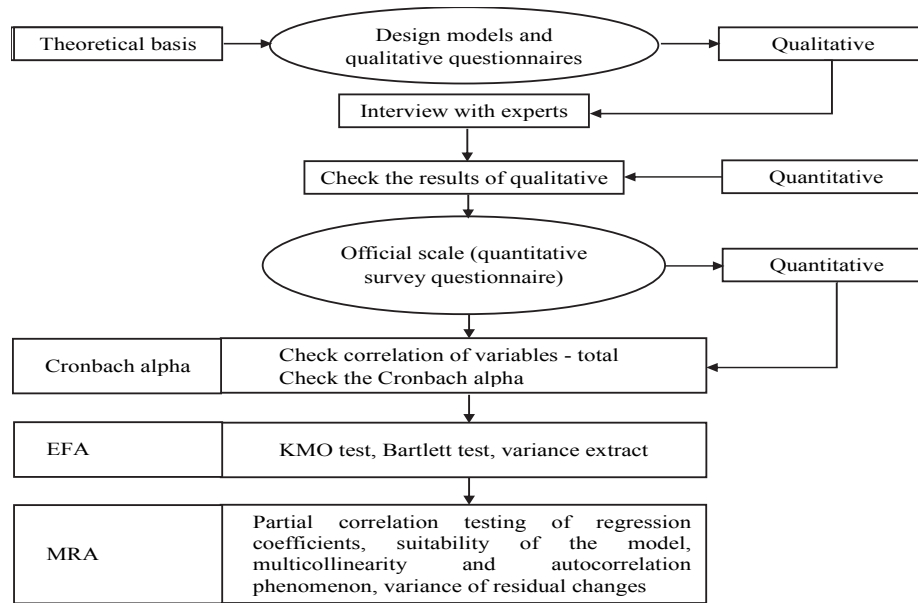
The research team sent 200 questionnaires, of which 114 were collected (76% rate). The research team then filtered the satisfactory surveys with the following two criteria:

Eliminate votes whose levels are judged to be inconsistent, not suitable for survey objectives (randomly appearing values from 1 to 5); and we eliminate survey forms that all levels only receive one value.

With such a cleaning process, in 114 votes collected, the team selected 99 remaining samples (equivalent to 86.8%) to use and run the model.

4.3. Building research models

This study uses a mixed research process shown in the following diagram:

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┌────────────────────┐     ╭──────────────────────╮          ┌────────────────┐
│  Theoretical basis │ ──▶ │   Design models and  │ ───────▶ │   Qualitative  │
└────────────────────┘     │ qualitative questionnaires │    └────────┬───────┘
                           ╰──────────┬───────────╯                   │
                                      ▼                               │
                           ┌────────────────────────┐ ◀───────────────┘
                           │  Interview with experts │
                           └───────────┬────────────┘
                                       ▼
                           ┌──────────────────────────┐        ┌────────────────┐
                           │ Check the results of qualitative │ ◀─ │  Quantitative  │
                           └───────────┬──────────────┘        └────────────────┘
                                       ▼
                           ╭──────────────────────────╮        ┌────────────────┐
                           │   Official scale (quantitative │ ──▶ │  Quantitative  │
                           │   survey questionnaire)   │        └────────┬───────┘
                           ╰───────────┬──────────────╯                  │
┌────────────────┐         ┌──────────────────────────────┐             │
│ Cronbach alpha │         │ Check correlation of variables - total │ ◀──┘
│                │         │   Check the Cronbach alpha    │
└────────────────┘         └───────────┬──────────────────┘
┌────────────────┐         ┌──────────────────────────────┐
│      EFA       │         │ KMO test, Bartlett test, variance extract │
└────────────────┘         └───────────┬──────────────────┘
┌────────────────┐         ┌──────────────────────────────┐
│      MRA       │         │ Partial correlation testing of regression │
│                │         │ coefficients, suitability of the model,   │
│                │         │ multicollinearity and autocorrelation     │
│                │         │ phenomenon, variance of residual changes  │
└────────────────┘         └──────────────────────────────┘
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(Source: Nguyen Dinh Tho - 2013)

Fig. 2. Detailed research process

4.3.1. Qualitative research

The research team collects data from published studies, economic journals, summary reports, dissertations, etc. along with data obtained from the analysis and synthesis of the results obtained through interviews with experts, experienced in the fields of accounting, auditing, banking, etc. in Vietnam. From the target groups, the research team conducted a temporary list of interviewees including 30 experts. Through discussions with experts by direct calling or email, 14 experts agreed to interview and participate in the survey according to the appropriate time and place. The research team conducted a survey of experts at different times to solve the research question:

- *Question 1: How do you evaluate the performance of the joint stock commercial banks in Vietnam?*
- *Question 2: How do you comment on the reality of the Effectiveness of Internal Control at Vietnamese joint stock commercial banks?*
- *Question 3: Which factors do you think affects the Effectiveness of Internal Control in Vietnamese joint stock commercial banks?*
- *Question 4: What measurement factors do you find appropriate to assess the Effectiveness of Internal Controls at Vietnamese joint stock commercial banks?*

In summary, after the qualitative research process, compared with previous studies, the research team found that there are 5 inherited factors including: Control environment, Control activities, Information and Communication, Monitoring, Risk Assessment. Besides, stemming from the actual situation of Vietnam's economy as well as its own specific characteristics, two new factors were discovered: Bank Size and Credit Status Ranking. After the general assessment, it is found that the above factors have a great impact on the Effectiveness of Internal Control, in line with the objectives of the project as well as the state of the domestic economy. This is the basis for the group to conduct qualitative research to measure the influence of each factor.

4.3.2. Quantitative research

Based on the qualitative research results above, the research team has built a linear regression model describing the influence of factors on the dependent dependent variable:

$$HQ = \beta_0 + \beta_1 \times MT + \beta_2 \times KS + \beta_3 \times GS + \beta_4 \times RR + \beta_5 \times TT + \beta_6 \times QM + \beta_7 \times XH$$

where

HQ: Effectiveness of Internal Control

$\beta_1, \beta_2, \beta_3, ..., \beta_7$: regression coefficients   RR: Risk Assessment

MT: Control Environment   TT: Information and Communication

KS: Control Activities   QM: Bank Size

GS: Monitoring   XH: Credit Status Ranking

The research team used the results obtained from the questionnaires collected from the subjects. After sending 200 survey papers, 114 votes (76%) were collected. Then proceed to filter, in 114 votes collected, the group selected 99 remaining samples (86.8%) to use and conduct measurement. According to Hair et al. (2010), the minimum number of samples to ensure the quality of quantitative surveying is calculated according to the formula:

Minimum number of samples = 50 + 5 × number of independent variables

According to this study, the number of independent variables is 7 variables, so according to the above formula, the minimum number of samples needs to be 85 samples. With a sample of 99 samples selected, the number of samples was suitable for the survey to ensure quality.

The research team will follow the following work steps:

- Quality control scale through Cronbach's Alpha coefficient
- EFA discovery factor analysis
- Testing regression models

5. Research results

5.1. Statistical analysis describes variables

After Cronbach's Alpha test analysis of scales, the model eliminated 1 non-quality observation variable, retaining 8 scales with 34 observable variables of good quality, summarized as follows:

Table 2
Results of running Cronbach's Alpha audit analysis

Scale	Average of scale if remove variable	Variance of scale if remove variable	Correlation of the total variables	Cronbach's Alpha if remove variable
		Control Environment		
MT1	16.3838	2.157	.697	.817
MT2	16.3737	1.992	.655	.834
MT3	16.3535	2.190	.615	.839
MT4	16.4343	2.126	.735	.807
MT5	16.3535	2.455	.710	.826
		Monitoring		
GS1	11.7677	2.792	.482	.739
GS2	11.5152	2.518	.593	.679
GS3	11.5354	2.721	.572	.693
GS4	11.4545	2.495	.577	.689
		Information and Communication		
TT1	20.2525	4.048	.735	.844
TT2	20.3131	4.197	.654	.859
TT3	20.3535	4.374	.667	.856
TT4	20.1616	4.321	.704	.850
TT5	20.1818	4.354	.639	.861
TT6	20.2020	4.265	.680	.854
		Control Activities		
KS1	12.1515	1.701	.634	.851
KS2	12.1313	1.421	.750	.807
KS3	12.1818	1.681	.725	.819
KS4	12.1717	1.552	.736	.811
		Risk Assessment		
RR1	15.7172	3.205	.562	.697
RR2	15.5556	3.311	.508	.717
RR3	15.6263	3.645	.465	.732
RR4	15.7576	3.186	.564	.696
RR5	15.6465	3.292	.512	.716
		Bank Size		
QM1	8.2020	.836	.593	.620
QM2	7.8081	.993	.586	.647
QM3	7.5455	.801	.538	.699
		Credit Status Ranking		
XH1	11.3939	2.037	.686	.814
XH2	11.3131	2.197	.654	.828
XH3	11.2222	1.971	.709	.804
XH4	11.2222	1.909	.724	.798
		Effectiveness of Internal Control		
HQ1	8.2222	.562	.607	.785
HQ2	8.0505	.681	.756	.662
HQ3	8.0101	.582	.628	.753

(Source: SPSS 20 running result)

5.2. Results of analysis of discovery factors (EFA)

Testing the appropriateness of the EFA factor analysis model

Table 3
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy,		.620
Bartlett's Test of Sphericity	Approx, Chi-Square	1945.662
	Df	465
	Sig.	.000

(Source: SPSS 20 running result)

KMO coefficient = 0.620, meeting the condition of 0.5 <KMO <1, shows the exploratory factor analysis suitable for actual data. Testing the correlation of observed variables in the representative measure

Bartlett test has Sig. <= 0.05, indicating that the representative and observed variables are linearly correlated with each other.

5.3. Analyzing the correlation between variables

Table 4
Results of correlation between variables

		Correlations							
		HQ	MT	KS	GS	RR	TT	QM	XH
HQ	Pearson Correlation	1	.314**	.512**	.396**	.239*	.321**	.222*	.209*
	Sig. (2-tailed)		.002	.000	.000	.017	.001	.027	.038
MT	Pearson Correlation		1	.284**	-.038	.272**	-.094	-.100	-.101
	Sig. (2-tailed)			.004	.711	.007	.356	.324	.319
KS	Pearson Correlation			1	.194	.151	.154	.041	.194
	Sig. (2-tailed)				.054	.135	.127	.689	.054
GS	Pearson Correlation				1	-.060	.184	-.040	-.236*
	Sig. (2-tailed)					.554	.069	.697	.019
RR	Pearson Correlation					1	.048	-.078	-.107
	Sig. (2-tailed)						.639	.443	.293
TT	Pearson Correlation						1	.014	-.307**
	Sig. (2-tailed)							.890	.002
QM	Pearson Correlation							1	.200*
	Sig. (2-tailed)								.047
XH	Pearson Correlation								1
	Sig. (2-tailed)								

**, Correlation is significant at the 0.01 level (2-tailed),

*, Correlation is significant at the 0.05 level (2-tailed),

(Source: SPSS 20 running result)

Sig of Pearson correlates between independent variables *MT, KS, GS, RR, TT, QM, XH* and dependent variable when the level of significance is 5 percent. Therefore, there is a linear relationship between these independent variables and the variable *HQ*. Between *XH* and *HQ*, the strongest correlation with the coefficient *r* is 0.512, and the weakest correlation with the coefficient *r* between *XH* and *HQ* is 0.209. The independent variable pairs have relatively weak correlation with each other, so the high probability that no multi-line phenomenon will occur.

5.4. Analysis of regression models

Table 5
Results of regression run

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-2.906	.582		-4.996	.000		
	MT	.332	.072	.324	4.610	.000	.794	1.259
	KS	.152	.066	.168	2.290	.024	.730	1.369
	GS	.303	.049	.423	6.237	.000	.852	1.174
	RR	.161	.056	.192	2.907	.005	.897	1.115
	TT	.327	.063	.359	5.161	.000	.811	1.232
	QM	.164	.054	.194	3.019	.003	.947	1.056
	XH	.321	.060	.400	5.377	.000	.707	1.414

a. Dependent Variable: HQ

(Source: SPSS 20 running result)

Mean level column (Sig.) shows that all variables have Sig coefficient. <0.05, so these independent variables are meant to explain the dependent variable, no variables are excluded from the model. The coefficient VIF of independent variables is less than 2, so there is no multi-linear phenomenon occurs.

The factors that directly affect the effectiveness of internal control in Vietnamese commercial banks are expressed through linear regression equation:

$$HQ = -2.906 + 0.332 \times MT + 0.152 \times KS + 0.303 \times GS + 0.161 \times RR + 0.327 \times TT + 0.164 \times QM + 0.321 \times XH$$

Testing the relevance of the model

Table 6
Level of explanation of the model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.802[a]	.643	.616	.23057	1.503

a. Predictors: (Constant), XH, MT, QM, GS, RR, TT, KS
b. Dependent Variable: HQ

(Source: SPSS 20 running result)

From Table 6, we see that the Durbin Watson index is 1.503 (1 <d <3), so there is no autocorrelation in the model. The model can explain 61.6% of the variation of the KS variable (due to Adjusted R-Square) of 0.616) so that 7 independent and control variables influence 61.6%. The change of the dependent variable, the remaining 38.4% is due to other factors and random errors.

Table 7
Verification of relevance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.720	7	1.246	23.433	.000[b]
	Residual	4.838	91	.053		
	Total	13.558	98			

a. Dependent Variable: HQ
b. Predictors: (Constant), XH, MT, QM, GS, RR, TT, KS

(Source: SPSS 20 running result)

Sig. coefficient tested F <0.05, so the multiple linear regression model is suitable for the data set and can be used.

6. Discussion and recommendations suggestions

Through the quantitative research process, the factors as well as the proposed model, all 7 hypotheses have been accepted. Means that elements of internal control include: Control environment (MT), Control activities (KS), Monitoring (GS), Risk assessment (RR), Information and communication (TT) and two additional variables, the Bank Size (QM), the Credit Status Ranking (XH) all have positive impacts on the Effectiveness of Internal Control. In which, the Control Environment variable (MT = 0.332) has the greatest impact on the efficiency of internal control, followed by Information and Communication variables (TT = 0.327) and Credit Status Ranking (XH = 0.321). The variable that has the least impact on the Effectiveness of Internal Control is Control (KS = 0.152). Thus, the effectiveness of internal control in commercial banks suffers the greatest impact of the Control Environment factor. If the control environment is focused on construction by joint stock commercial banks, the operation of internal control is more effective. In addition, information and communication activities also play an important role in improving the effectiveness of internal control in joint stock commercial banks. This indicates that the establishment of information systems and ways of communication on activities affect the performance of the internal control. Two additional variables are Bank Size (QM = 0.164) and Credit Status Ranking (XH = 0.321) also affect the Effectiveness of Internal Control. In particular, the credit rating shows that the higher the credit rating index, the more banks will pay attention to the activities of internal control to limit risks affecting the bank. The hypothesis 1, 2, 3, 4, 5 of this study are consistent with previous studies of Spinger (2004), Ramos (2004), Muhota (2005), Rae and Subramaniam (2006), Kaplan (2008), Jenkinson (2008), Nguyen and Ha (2010), Vu (2016). Two hypotheses related to the two new variables are also accepted and this is a new finding on the factors affecting the Effectiveness of Internal Control.

For the purpose of implementing the proposed plans, at the same time, the effectiveness and efficiency of business operations in joint-stock commercial banks must be achieved, requiring improvement of the effectiveness of the internal control system. The research team proposes some recommendations as follows:

- Recommendations for improvement the Control environment: Develop specific regulations on separation of functions, powers and responsibilities for each division, whilst enhancing professional ethics, business culture of joint stock commercial banks, give a strict control mechanism and stringent self-control. Strengthening the training of employees in professional skills and ethics, implementing tight recruitment activities only accept appropriate qualified employees;

- Recommendations for improvement Control activities: Develop better, more appropriate control methods, increase the number of periodic controls. Review activities to implement and check individual independence or process and application of information technology to control activities;

- Recommendations to improve Monitoring: Design cross-checking activities between employees, between departments. Draw experiences from control and supervision reports to develop regulations on fraud prevention and error. Design training programs to improve knowledge for controllers;

- Recommendation to complete the process Risk assessment: Determine the level of system risk, credit risk is acceptable. Design software programs to assess types of risks. Decide to take appropriate action to cope with those risks;

- Recommendations for perfecting the Information and Communication system: Information is quick, timely and accurate, including financial information and non-financial information. Using the common system for the entire banking system, limiting outsiders' access to the system, the information must be aggregated and reported to the senior for timely decision making;

- Recommendations on completing internal control corresponding to the level of credit rating: Establishing a subsidiary with the ability to implement debt and asset management. Develop a compliance and risk management system to limit negative impacts that may affect the level of credit status ranking; and

- Recommendation to improve the internal control corresponding to the bank scale: Maintain the control of three control lines of control and risk management implemented from the smallest level of transaction offices to branches level 1, 2, 3 and Head Office. Establish regulatory approval, approval authority in business units, supervised by other relevant departments and units.

7. Conclusion

Enhance the Effectiveness of Internal Control will contribute on improving management efficiency as well as the performance itself at Vietnam joint stock commercial banks. The study of factors affecting the effectiveness of internal control and the level of influence of each factor thereby making recommendations to improve the effectiveness of internal control in joint stock commercial banks are an essential requirement and the main objective of this study.

The achieved results have brought about theoretical and practical significance. The systematization of the theoretical aspects of internal control and the internal control system have created an overall picture for subjects which have related to the topic and for the interested parties, opened new research directions for other authors to look forward to. In practice, the research results will contribute to the orientation of developing policies and mechanisms for state management agencies for the banking, auditing, and bank

managers, etc. enhancing training effectiveness for training institutions and universities. In addition, it also helps to make information transparent in the field of banking and finance, improve management efficiency as well as operational efficiency at banks, and creating confidence to attract domestic and foreign investment.

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