Impacts of internal control on the quality of risk control at construction enterprises in Ho Chi Minh city

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Abstract

Risks are found everywhere and every time, therefore, developed countries in the world have conducted researches on risks and risk control. However, till 2004, theory about internal control (IC) related to risk management (COSO 2004 - Committee of Sponsoring Organizations 2004) was officially enforced and there are eight components establishing internal control system accordingly. Construction sector in Ho Chi Minh City (HCMC) in recent years has been facing many risks, making several enterprises suffer huge losses and go bankrupt. Thus, conducting researches and applying the theory of COSO 2004 into building IC system at enterprises to see whether it has eight components or not and how it impacts on risk control quality (RC) are big questions needed to be clarified, thereby proposing recommendations affecting each part of IC properly to improve the quality of RC at construction enterprises next time.

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Keywords

Internal Control; Risk Control; Enterprise Risk Management; Construction Enterprises

1 Introduction

Definitions of risk and risk control (RC) are referred to indispensable requirements for all enterprises operating in the economy, especially for construction sector which faces with risks regularly; any mistakes about survey, design, construction, the changes in exchange rates or interest rates, and faults from management process of enterprises etc. are able to lead to risks or even bankruptcy.

Construction enterprises are in different scale with many ongoing large and small construction works. Consequently, to identify and evaluate component factors affecting management quality of RC system at enterprises in an honest manner is a serious research and an urgent requirement serving activities in construction sector. It indicates strengths and weaknesses in risk management system at enterprises in Ho Chi Minh City, thereby establishing the foundation to propose necessary recommendations to overcome limitations and exploit maximum strengths in the system, helping enterprises to use management resources most effectively, avoiding risks and losses in construction as well as increasing optimal business effectiveness.

2 Literature Review

There are different opinions on risk and risk control regardless of their definitions which were developed long time ago. Till 1992, a committee under Committee of Sponsoring Organizations (COSO) announced the contents of internal control system (IC) for the first time. According to 1992 COSO Report, internal control consists of a series of internal activities in each department in the organization that combine into a unified entity, including five following components: Internal environment; Risk assessment; Control activities; Information and Communication; Monitoring. Till 2004, based on 1992 Report, in the direction of risk control (RC) at enterprises, COSO developed and defined that IC is the process regulated by the board of directors, levels of management and employees. It is applied into the design of strategies related to the whole unit and all levels in the unit and designed to identify potential events which may affect the unit and RC in the acceptable scale of risks to provide the reasonable assurance to achieve targets of the unit. Therefore, 2004 COSO Report was the development from COSO 1992 towards RC. Till 2013, 2013 COSO Report, which was based on 1992 COSO Report in the environment of global information system and business strategies, had 17 additional principal rules to specialize in internal control framework.

On the ground of COSO Report, several organizations and enterprises in many countries have been applying and developing it in accordance with specific management features of each sector, each field such as IC development at public sector (INTOSAI) and credit system (BASELL).

In this era of globalization, the managers often face with uncertain events. To overcome all the risks successfully, the current businesses have built for themselves a system of internal control towards modernization, it is called as Enterprise Risk Management (COSO – ERM). Therefore, the management has made important investments in establishing an ERM system, and an effective measurement system for business to ensure sustainable growth. So in this paper, we focus on the research on and application of COSO 2004 into production and business activities. To point out the benefits that COSO 2004 brought to the firms when they applied it. According to the results of Xianbo Zhao et al., (2014) found that three most critical success factors are "commitment of the board and senior management", "risk identification, analysis and response" and "objective setting". The next three most important successful factors are (1) execution and integration; (2) communication and understanding (3) commitment and involvement of top management. It is not different from 2004 COSO Report regarding components of RC system at different construction enterprises. Besides, in the study of Bon – Gang Hwang, Xianbo Zhao, et al., (2014), showed there were less than 50% of small projects surveyed had conducted RC, indicating that the implementation level of RC in small projects in Singapore is relatively low. The reasons for that are due to "lack of time", "lack of budget", "low profit margin" and "uneconomical", they were prominent barriers needed to be fixed from which experts highly evaluated benefits of RC in small projects. The article of Giorgio Stefano Bertinetti et al., (2013), concluded that significant positive relationships between the RC and firm value. The important factors are company size, profitability, etc. The viewpoint of Xianbo Zhao et al., (2013), said that commitment of board and senior management; risk identification; analysis and response; objective setting are three most important criteria. Along with these results and the improvement of a good RC model, construction companies are able to identify weaknesses in the RC system to which they allocate their resources. Along with this research trend, Nguyen Thi Mai Sang, 2015, indicated that 08 components and the management quality of RC have positive influence and variation. Components which have greatest effect on RC at construction enterprises respectively include Internal Environment; Objective Setting; Risk Evaluation; Risk Response; Identification of Potential Events; Control Activities and Monitoring. The factor which has lowest effect on quality of RC is information and communication. Additionally, the research demonstrated that the quality of RC at enterprises depends on their investment capital and is independent of the number of employees and revenue. Even the thesis achieved some certain the results, the scope of research was not quite large, the reliability of research results, therefore, might not high. The study of Vo Thi Phuong Nguyen, 2015, illustrated 08 components of RC system based on 2004 COSO Report, benefits and limitations of applying COSO 2004 and drew lessons of experience related to RC for enterprises next time. The author performed research on status of RC at Hung Thuan Joint Stock Company through 70 survey questionnaire designed in accordance with 08 components of RC system. The same opinion above, author Nguyen Thi Xuan Linh, 2014, pointed out the existing system of RC at wood processing and export companies in Binh Dinh Province, however, it was mostly spontaneous. In addition, RC system was not fully and systematically accessed. Moreover, instead of paying much attention to RC, board of directors took preventive measures based on previous risks following accountant standards such as fluctuation of material resources, interest rate, exchange rates. Furthermore, wood processing and export companies in Binh Dinh Province suffered from the shortage of resources to build RC functions. From the above identification, solutions with all 08 components to improve RC system serving wood processing companies of Binh Dinh Province were proposed. Contribute to this research line was Nguyen Van Chau, 2013. The author conducted interviews with three groups of experts who worked at the field of road construction and were representatives from three areas: Group 1 (Hanoi for Northern region), Group 2 (Danang for Central region) and Group 3 (Ho Chi Minh City for southern region). Consequently, the author set up 51 risky factors in road construction in Vietnam to serve further researches. In addition, Truong Thi Bich Ngoc, 2012, in her research "Effective solutions to improve risk control in Vietnam enterprises during the world economic integration". The thesis analyzed the practical situation in terms of risk identification and RC at Vietnamese enterprises based on which measures to improve RC effectiveness were recommended in accordance with 2004 COSO Report.

The group authors learned a lot about the method of measuring the scale, designing research models to explore and carry out quantitative research. Research topics that authors are doing it around the world have performed at many different aspects, but no matching characteristics in businesses in Vietnam's construction sector in general and Ho Chi Minh City in particular. At the same time research topics of COSO 2004 published last time many results in the improvement of the system COSO 2004 in the company, the results of previous studies on this issue are diverse because it depends on the characteristics of each enterprise and mainly uses qualitative research methodology. Till now, any researches to evaluate the impact of components of RC system and the relationship between these components towards RC quality at construction companies in Ho Chi Minh City have not been found by group of authors.

3 The Conceptual Framework and Hypothesis Development

2004 COSO Report includes 08 components: Internal Environment, Objective Setting, Identification of Potential Events, Risk Evaluation, Risk Response, Control Activities, Information and Communication and Monitoring. According to 2004 COSO Report, we build a model based on 08 components of RC quality system to check if construction companies in Ho Chi Minh City develop all these components in system of enterprise risk control? In presence of enterprise risk control, then how does each component influence the RC quality management at construction companies? To build a set of measurement tools, we identify RC quality as the basic characteristics in terms of identification of risks and risk control at construction companies.

a.Research model

Variables in the model:

– Internal Environment – IE: Internal Environment reflects general cultural features of a unit, affects members' awareness of risks and acts as the foundation for other factors in RC system. This component creates structure and mode of operation in terms of RC at enterprises. Variable IE has 06 observed variables encoded from Q1.1 to Q1.6.

– Objective Setting – OS: Each enterprise must face with different external and internal risks. The first and foremost condition to evaluate risks is to set up objectives. Objectives need to be set up at different levels and must be unified. Variable OS has 04 observed variables encoded from Q2.1 to Q2.4.

– Event Identification - EI: The process of risk identification and analysis is a repeated process and also a core factor to make RC to come into effect. Variable EI has 10 observed variables encoded from Q3.1 to Q3.10.

– Risk Assessment - RA: Risk assessment is the process to identify and analyze risks affecting objective achievement from which we can control risks. Variable RA has 06 observed variables from Q4.1 to Q4.6.

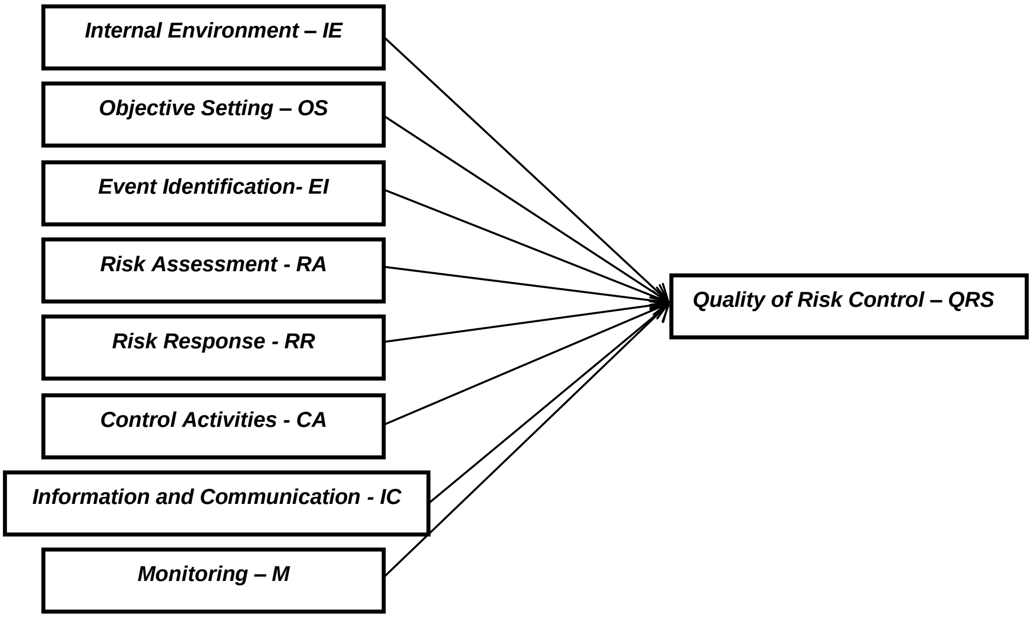
– Risk Response - RR: Risk control provides diversified responses and proposes cycle to make the unit to respond to risks. After evaluating related risks, the unit identifies methods to respond to these risks. Measures used for risk response include risk avoidance; risk reduction; risk transference; and risk tolerance. Variable RR has 04 observed variables encoded from Q5.1 to Q5.4.

– Control Activities - CA: Control activities include policies and procedures implemented by relevant employees to have managers' policies and directions regarding risk response performed. Control activities can be classified on the ground of targets of the unit to which control activities relate such as strategy, operation, report and compliance. According to contents of implementation, control activities are performed at the unit including senior control, control of functional activities, control of information processing and operations, material control, analysis control to recheck, division of responsibilities. CA variable has 5 observed variables encoded from Q6.1 to Q6.5.

– Information and Communication - IC: Information and communication is an indispensable factor for units to identify potential events, evaluate and respond to risks. Variable IC has 06 observed variables encoded from Q7.1 to Q7.6.

Monitoring – *M:* To achieve better results, units shall regularly and periodically monitor. Variable M has 03 observed variables encoded from Q8.1 to Q8.3

Figure 1 Components of Enterprise Risk Management and Quality of Risk Control



(Source: 2004 COSO Report)

Quality of Risk Control – QRS: Quality of RC mainly evaluated in this research is to identify potential risks, respond to risks timely and control risks at construction companies. The author uses three measurement scales of RC quality's characteristics and 5-point Likert scale to evaluate each section among which point 1 is for the weakest level and point 5 for the strongest one of supposed standards. Variable QRS has 03 observed variables encoded from Y1 to Y3.

b.Methodology

Quantitative research method is used to achieve objectives. Particularly, exploratory factor analysis is used to check components of RC system at enterprises to see whether they built it. Afterwards, multiple linear regression model is designed to test the influence of components on RC quality management. For multiple linear regressions, the author expected as below:

$QRS = \beta_0 + \beta_1 IE + \beta_2 OS + \beta_3 EI + \beta_4 RA + \beta_5 RR + \beta_6 CA + \beta_7 IC + \beta_8 M + e_i$

4 Sample, Data and Methodology

According to Gorsuch, R.L. (1983) and Tho, Nguyen Dinh (2012), sample size is often defined by the formula of experience: $n \geq 8m + 50$ in which n of 50 is the required minimal sample size, m is the independent variable. In this paper, the author has 08 independent variables, then the sample size is 8*8 + 50 = 114. The research survey uses 5-point Likert scale from 1 to 5 (1-None, 2-Less, 3-Average, 4-Few and 5-Full). To reach the sample size above, the author sent survey questionnaires to several construction companies in Ho Chi Minh City. Even they have different names, they must have the building feature, especially construction via email (100 questionnaires), supported by friends and relatives (100 questionnaires) and the author directly conducted survey at construction companies in Ho Chi Minh City (100 questionnaires). The survey results in 2014 collected 200 questionnaires among which there are 70 invalid ones to be removed and the remaining 130 questionnaires satisfied the research conditions.

Data processing is as follows: (1) after collecting reasonable data, all data will be handled on computer and encoded to use for the software SPSS 18.0 and Microsoft Excel 2010 (Figure 1); (2) encoded data will be brought into descriptive statistics analysis to discover characteristics of research sample (type of enterprises, investment capital, labor scale, revenue in 2014, position); (3) Cronbach's Alpha reliability coefficient is used to do preliminary evaluation of the measurement scale based on which correlation level between question sections in the measurement scale is evaluated as foundation to remove observed variables or measurement scales which did not meet requirements; (4) Exploratory Factor Analysis (EFA) is applied to test credibility of observed variables used to measure components in the scale; (5) variables meeting conditions of exploratory factor analysis (EFA) will be put into descriptive statistics analysis Frequency to discover characteristics of research sample (Internal Environment, Objective Setting, Identification of Potential Events, Risk Evaluation, Risk Response, Control Activities, Information and Communication, Monitoring and RC quality at enterprises); (6) data will be put into analysis of correlation and multiple regression analysis to test the appropriateness of the research model, to test theories to clarify correlation level between components in RC system towards RC quality at enterprises in accordance with 2004 COSO Report at construction enterprises in Ho Chi Minh City.

5 Summary, Recommendations and Conclusions

The construction industry is a major contributor to the Gross Domestic Product (GDP) and is a pillar of the national economy. The construction industry has been growing at an alarming rate. Despite this growth, construction projects in HCMC are fraught with low productivity and frequent work stoppages. This low productivity has been exacerbated by low retention of employees and construction practitioners lacking the prerequisite skills. The construction industry and construction companies are activities involved with architectural services, engineering services, integrated with engineering services, urban planning, urban landscape architecture services and construction work. It is widely acknowledged that construction company activities consist of significant complexity and diverse risks. These characteristics increase the level of uncertainty regarding project outcomes, economic losses and liabilities of construction activities. Therefore, it is necessary to develop and implement risk management systems for construction organizations to minimize negative consequences of risks and maximize positive results. Most organizations manage risks at the project level, while implementing COSO – ERM is often ignored or does not receive sufficient consideration by company management. This leads to a lack of transparency and strategies to achieve corporative objectives within an organization. Focusing on managing risks of individual projects can lead to failure of other projects when there is disparity in risk management across different projects. Therefore, it is necessary to implement ERM in most construction companies to allow common risks be managed more efficiently and consistently within a company.

After taking preliminary evaluation of 08 components of RC system by Cronbach's Alpha coefficient, the results show that following variables are deleted: *Q1.6, Q1.4, Q3.10, Q6.4, Q6.5, Q7.3,* and *Q7.6.* Through preliminary evaluation of dependent variables regarding RC quality, there are no variables to be removed.

Table 1 The final result of Cronbach's Alpha coefficient

No.	**Component code**	**Number of observed variables**	**Cronbach's Alpha**	**Lowest Corrected Item-Total Correlation**
A. Independent variables				
1	Internal environment	4	0,877	0,706
2	Objective setting	4	0,812	0,585
3	Identification of potential event	9	0,920	0,651
4	Risk assessment	6	0,919	0,723
5	Risk response	4	0,859	0,646
6	Control activities	3	0,902	0,793
7	Information and communication	4	0,920	0,754
8	Monitoring	3	0,930	0,830
B. Dependent variables				
9	Risk control quality at enterprises	3	0,798	0,591

(Source: author group's calculation)

To conduct exploratory factor analysis (EFA), large value of KMO (between 0.5 and 1) is the required condition for EFA method, and variables having factor loading < 0.4 will be deleted in EFA. The method of coefficient extraction used is principal components factor analysis along with Varimax rotation, and the rest point when extracting factors has Eigenvalue > 1.

EFA for independent variables. Result: For the first EFA, *Q1.1* is removed as factor analysis indicated the difference in factor loading between factors less than 0.4 and variable *Q1.1* does not meet requirements. For the second EFA, with 36 observed variables extracted to 08 factors, there are no variables which have factor loading less than 0.4 to be deleted. Factor loadings of variables are greater than 0.5 so these variables have practical significance. KMO coefficient = 0.871 (> 0.5), so EFA is suitable to data. Chi-Square statistics of Bartlett's test reach the value of 3480,717 with significance (Sig. 0.000 <0.05). Total variance explained of 74.295% shows that 08 extracted factors helps to explain 74.295% of data variation. The rest point Eigenvalues = 1.151. Therefore, 08 independent variables extracted are as follows: Internal Environment includes 03 observed variables Q1.2, Q1.3, and Q1.5; Objective Setting has 04 observed variables Q2.1, Q2.2, Q2.3, and Q2.4; Event Identification has 09 observed variables Q3.1, Q3.2, Q3.3, Q3.4, Q3.5, Q3.6, Q3.7, Q3.8 and Q3.9; Risk Evaluation has 06 observed variables Q4.1, Q4.2, Q4.3, Q4.4, Q4.5, and Q4.6, Risk Response has 04 observed variables Q5.1, Q5.2, Q5.3, and Q5.4; Control Activities have 03 observed variables Q6.1, Q6.2, and Q6.3; Information and Communication have 04 observed variables Q7.1, Q7.2, Q7.4, and Q7.5; Monitoring has 03 observed variables Q8.1, Q8.2, and Q8.3.

The analysis results of EFA for independent variables demonstrate that these three observed variables are extracted to 01 factor with the same name, and no variables have factor loadings < 0.4 to be deleted. KMO coefficient = 0.666 > 0.5 so EFA was suitable to data. Chi-Square statistics of Bartlett's test reached 132.136 with significance (Sig = 0.000<0.05). Total variance explained reach 71.771% showing that extracted factors could explain 71.771% of data variation. The rest point Eigenvalues = 2.153.

Cronbach's Alpha test of all new factors is assured to be greater than 0.6 and Corrected Item – Total Correlation > 0.3 (the lowest is X2 = 0.393).

Table 2 Testing result of measurement scales by Cronbach's Alpha for new factors extracted by EFA

No.	Component code	Number of observed variables	Cronbach's Alpha	Lowest Corrected Item-Total Correlation
A. Independent variables				
1	Internal environment	4	0,877	0,706
2	Objective setting	4	0,812	0,585
3	Event identification	9	0,920	0,651
4	Risk assessment	6	0,919	0,723
5	Risk response	4	0,859	0,646
6	Control activities	3	0,902	0,793
7	Information and communication	4	0,920	0,754
8	Monitoring	3	0,930	0,830
B. Dependent variables				
9	Risk control quality at enterprises	3	0,798	0,591

(Source: author group's calculation)

The score result for components of RC system and RC quality are summarized in:

Table 3 Descriptive statistics of values of the measurement scale

Measurement scale	Number of observed variables	Lowest	Highest	Mean	Standard deviation
Internal environment	130	1,00	5,00	2,9769	0,99021
Objective setting	130	1,25	5,00	3,4077	0,83651
Event identification	130	1,22	5,00	2,8547	0,85058
Risk assessment	130	1,17	4,83	2,8628	0,93765
Risk response	130	1,25	5,00	3,0731	0,78346
Control activities	130	1,00	5,00	2,9974	0,99741
Information and communication	130	1,00	5,00	3,2731	1,03216
Monitoring	130	1,00	5,00	3,5308	1,07649
Risk control quality at enterprises	130	1,33	5,00	3,3026	0,73833

(Source: author group's calculation)

The statistical result from Table 3 demonstrates the mean of answers as follows: 2.9769, 3.4077, 2.8547, 2.8628, 3.0731, 2.9974, 3.2731, 3.5308 and 3.3026 for Internal Environment; Objective Setting; Event Identification; Risk Response; Control Activities; Information and Communication; Monitoring and Risk Control Quality at enterprises respectively. From the mean of 08 components of RC system, we can see that all is greater than the middle level of the 5-point Likert scale, however, they are not really high and many of them do not reach the value of few = 4 in questionnaires. It means that RC quality at enterprises based on 2004 COSO Report is existing but it is not high.

From the outcome of exploratory factor analysis (EFA) and descriptive statistics, the author determined 08 components of RC system that construction companies in Ho Chi Minh City pay full attention in accordance with 2004 COSO Report. Therefore, we continue to measure the impact level of each component on RC quality at construction companies.

Multiple regression method used in this research is ordinary least squares OLS with dependent variable "RC quality at enterprises" and independent variables are 08 components of RC system. Values of components are calculated by average of observed variables of each component determined from the exploratory factor analysis EFA. The official regression equation is not different from the supposed one.

Pearson Correlation Coefficient Matrix

Table 4 Correlation analysis results

		X1	X2	X3	X4	X5	X6	X7	X8
Y	Pearson Correlation	0,660**	0,538**	0,445**	0,632**	0,704**	0,623**	0,690**	0,675**
	Sig. (2-tailed)	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000

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

(Source: author group's calculation)

Table 4 demonstrates the significant 2-tailed value between the dependent variable and the independent variables. The significant value between each of the independent variables and the dependent variable are 0.000 which indicates that all the independent variable has a positive significant value towards "Quality of Risk Control". Therefore, the author put all 08 independent variables into regression analysis using Enter Method.

To assess the model's appropriateness, researchers used R^2 (R - Square) value, R^2 value demonstrates that the function will not be declined based on the number of independent variables put into model. In Multiple Regression, Adjusted R – Square value is often used to assess the model's appropriateness because it does not inflate the model's appropriateness. Simultaneously, it is necessary to check the correlation by Durbin-Watson coefficient (satisfcondition: 1 < Durbin-Watson coefficient < 3) and Multi-Collinearity by Variance inflation factor – VIF (VIF < 10). The Standardized Coefficient Beta value (β) is used to evaluate the significance of each factors. The higher β value of an independent variable means that independent variable has a stronger impact on "Quality of risk control".

To show the convincible characteristic and accuracy of regression analysis's result, the author would test some hypotheses:

Testing the model's appropriateness and hypothesis in terms of error independence (no correlation between the residuals):

Table 5 Testing model's appropriateness

Model	R	R^2	Adjusted R^2	Std. Error	Statistical change					Durbin-Watson Coefficient
					R^2 change	F change	df1	df2	Sig. F change	
	,927[a]	0,859	0,850	0,28603	0,859	92,316	8	121	0,000	1,767
a. Prediction: (Constant), M, EI, OS, IC, CA, RA, IE, RR										
b. Dependent variable: QRS										

(Source: author group's calculation)

Table 6 Result of variance analysis

Model	Sum of squares	df	Mean square	F	Sig.
Regression	60,422	8	7,553	92,316	0,000[a]
Residual	9,899	121	0,082		
Total	70,321	129			
a. Prediction: (Constant), M, EI, OS, IC, CA, RA, IE, RR					
b. Dependent variable: QRS					

(*Source: author group's calculation)*

An F-test is performed for the regression model's appropriateness. This is to check whether dependent variable has linear correlation with all independent variables. Assuming the hypothesis: H_0: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8$ (all the regression coefficients equal 0, except constant). In the result of variance analysis (Table 6), Sig. = 0.000 < 0.05, therefore, H_0 should be rejected. It means that all independent variables are in accordance with data set, in other words, the integration of independent variables can explain the dependent variable's change. At the same time, Durbin-Watson Coefficient = 1.767 (1 <1.767< 3) proves that there is no correlation among residuals, regression model does not violate the hypothesis of error independence.

Residuals with normal distribution:

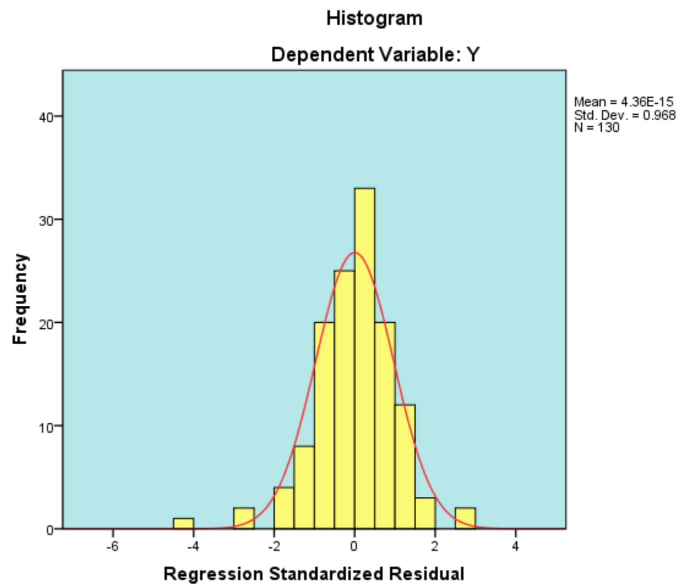


Figure 2 Histogram of Quality of Risk Control at construction enterprises

(Source: author group's calculation)

From the Histogram we see that the residual has normal distribution with Mean = 0 and Std.Dev = 0,968 close to 1; therefore, it does not violate the hypothesis of normal distribution. P-P Histogram also shows the same conclusion with dots scattered close to the diagonal line.

Variance of residual is assumed to be constant; looking at the scatter-plots, the dots are scattered randomly around the line passing 0 Ordinate but do not form any shapes. Thus, the hypothesis of constant variance of regression model is not rejected.

Table 7 Result of Regression Coefficient

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Multi-Collinearity statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	- 0,155	0,139		-1,118	0,266		
IE	0,125	0,033	0,167	3,781	0,000	0,593	1,686
OS	0,223	0,033	0,253	6,723	0,000	0,820	1,219
EI	0,096	0,033	0,111	2,933	0,004	0,812	1,232
RA	0,118	0,035	0,150	3,406	0,001	0,599	1,669
RR	0,167	0,044	0,177	3,807	0,000	0,538	1,860
CA	0,094	0,032	0,128	2,984	0,003	0,636	1,572
IC	0,170	0,033	0,237	5,168	0,000	0,551	1,815
M	0,102	0,031	0,148	3,277	0,001	0,570	1,756

(Source: author group's calculation)

The Multi-Collinearity does not exist within the model: analyzing results of regression coefficient in Table 7 illustrate that the Sig. of 08 factors of risk control system meet requirement because Sig. < 0.05. All the VIF coefficients which are less than 2 (the maximum is 1.860) indicate that Multi-Collinearity does not exist. (VIF coefficient > 10: Multi-Collinearity).

Result of Multiple Regression Analysis

The above tests show that the hypotheses of multiple regression function are not rejected and the regression model is compatible.

In testing the model's appropriateness (Table 5), the Adjusted R^2 = 0.850 (85%) means that the regression model is in accordance with data at 85%, or 85% of change in quality of risk control can be explained by 08 variables: Internal Environment, Objective Setting, Event Identification, Risk Assessment, Risk Response, Control Activities, Information and Communication, and Monitoring.

From Table 7, it can be concluded that 08 variables put into the regression model all have linear relationship with Quality of Risk Control at the significance of 5%. Specifically, Internal Environment (β_1 = 0.167, Sig. = 0.000 < 5%), Objective Setting (β_2 = 0.253, Sig. = 0.000 < 5%), Event Identification (β_3 = 0.111, Sig. = 0.004 < 5%), Risk Assessment (β_4 = 0.150, Sig. = 0.001< 5%), Risk Response (β_5 = 0.177, Sig. = 0.000 < 5%), Control Activities (β_6 = 0.128, Sig. = 0.003 < 5%), Information and Communication (β_7 = 0.237, Sig. = 0.000 < 5%), Monitoring (β_8 = 0.148, Sig. = 0.001 < 5%).

The equation for the standardized multiple linear regression is as follows:

Y = 0,167*IE + 0,253*OS + 0,111*EI+ 0,150*RA + 0,177*RR + 0,128*CA + 0,237*IC + 0,148*M

Based on the initial survey questionnaire to check if there are any differences in quality of risk control at construction enterprises which have different investment capital?

Table 8 Test of Homogeneity of Variances

Test of Homogeneity of Variances			
Quality of Risk Control at Enterprises			
Levene's test	df1	df2	Sig.
0,432	2	127	0,650

(Source: author group's calculation)

Table 9 ANOVA analysis

ANOVA					
Quality of Risk Control at Enterprises					
	Sum of squares	df	Mean Square	F	Sig.
Between groups	1,993	2	0,996	1,852	0,161
Within groups	68,329	127	0,538		
Total	70,321	70,321			

(Source: author group's calculation)

Looking at Test of Homogeneity of Variances (Table 8), we see that Sig. = 0.650 > 0.05; therefore, the variance of Quality of Risk Control at construction enterprises between groups of investment capital of enterprises are not statistically significantly different. The result of ANOVA analysis can be used.

In Table 9, ANOVA analysis result with Sig. = 0.161 > 0.05 indicates that there is no statistical difference between groups of investment capital of enterprises.

Similar tests are taken to check if there are any differences in Quality of Risk Control at construction enterprises in terms of number of employees and revenue. The research outcome demonstrates no statistical difference affecting Quality of Risk Control in terms of employees and revenue.

Recommendations

The quality of KSRR management in construction firms in Ho Chi Minh City is influenced by the 08 components that make up the report COSO 2004. Therefore, this study suggest the following specific recommendations:

Internal Environment: Internal Environment creates the overall nuance for the whole enterprise controlling the consciousness of members participating in the KSRR system. In order to control environment effectively, the construction companies in Ho Chi Minh City should implement: Further promote the role of the Board of Supervisors. Need to set up a full range of policy documents attached to integrity and ethical standards. For specific policies defined, clear evaluation criteria for rewarding and disciplining employees.

Objective Setting: Management regularly builds strategic business objectives in accordance with the time requirements of the market economy. The company always deploys and disseminates widely the business strategy objectives to all employees. Each enterprise goal establishes specific acceptable risk tolerance standards.

Event Identification: Attention to strategic risks - related to business strategy, capital, customers, competitors and investors. Note to financial RR - appear from market volatility and the economy. Attention to the operational risk - related to the operation of the KSRR system and/or people in the enterprise, affecting the daily business activities of enterprises. Attention to compliance risks - stemming from laws, regulations, policies and enterprise management issues.

Risk Assessment: Evaluating factors influencing from within the enterprise, the type of RR related to the construction business that most concern as follows: RR construction schedule. RR planning, implementation of the project. RR preparation ideas, implementation of investment (collecting information to put into the project, contractual links, the bidding process, the land lease ...).

Evaluating factors influencing outside companies, the type of RR related to most concern to the construction business as follows: RR building permits (the agency's permits or actions are delayed or take longer than expected). RR inflation, foreign currency. RR interest rate.

Risk Response: Dealing with and dealing with RRs is mainly related to the control or reduction of RRs through a variety of measures. Companies should develop guidelines by process:

Avoid RR → Accept and transfer RR → Facing RR →
Handle RR

Control Activities: Enterprises should regularly remind, check, and monitor the implementation of control procedures, policies that the company has issued. This has the effect of prompting employees to be aware of the implementation of control regulations, while also deterring intentional actions by employees to increase the risk for businesses. At the same time, through the process of monitoring, managers can also detect the weaknesses and shortcomings of the system KSRR to make timely corrective measures.

Information and communication: Companies need to improve the communication to employees about business plans, organizations' issuing documents, avoid the information status only to the intermediate level is not further spread. Know the goals of enterprises will help employees who share the vision and direction of collective interests, thereby building striving direction.

Enterprises should diversify and improve information channels so that information on risks and response measures are communicated to all functional departments and the whole enterprise. Information must be promptly updated.

Monitoring: Monitoring is the process of evaluating the quality of a KSRR system over time. Identification system and KSRR though well-built but still needs to be checked, monitored because if not checked, monitored, it will lose effectiveness. Supervision to determine whether the KSRR system is operating properly with the design, whether to modify them to suit each stage of development of the company. Enterprises should monitor the principle of "push back". The following section evaluates the quality of the preceding parts by reporting. Leaders must evaluate the report to organize timely remedial, correct the incident.

Enterprises should regularly conduct extraordinary inspections to detect frauds as well as to monitor the performance of the work of the site supervisors in terms of volume; work quality; construction progress; labor safety; environmental sanitation...to accurately identify the stages in the construction process, avoid over-reliance on information reports of the lower levels.

Conclusion

Through the research data above, it is necessary for the construction enterprises to focus on improving 08 components of the risk control system. The results show that the eight components of COSO 2004 (Internal Environment, Objective Setting, Event Identification, Risk Assessment, Risk Response, Control Activities, Information and Communication, and Monitoring) have a positive impact on the quality of risk control. All regression coefficients are positive (IE = 0,167, OS = 0,253, EI = 0,111, RA = 0,150, RR = 0,177, CA = 0,128, IC = 0,237, M = 0,148). Furthermore, the component of Event Identification (EI) is the weakest, and Risk Assessment (RA) and Risk Response (RR) are still low. Based on statistics of capital size, number of employees and revenue, there is no difference.

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Tác động kiểm soát nội bộ đến chất lượng kiểm soát rủi ro trong các doanh nghiệp xây dựng ở Tp.HCM

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Tóm tắt Rủi ro xuất hiện ở mọi lúc mọi nơi. Vì vậy, từ lâu các nước phát triển trên thế giới đã nghiên cứu về rủi ro và kiểm soát rủi ro. Tuy nhiên, đến năm 2004 thì lí thuyết kiểm soát nội bộ (KSNB) theo hướng quản trị rủi ro (COSO 2004 - Committee of Sponsoring Organisations 2004) mới chính thức ban hành. Theo đó, có 8 bộ phận cấu thành nên hệ thống kiểm soát nội bộ. Ngành xây dựng tại thành phố Hồ Chí Minh (Tp.HCM) trong thời gian qua có rất nhiều rủi ro, dẫn đến nhiều công ty tổn thất lớn và một số phá sản. Việc nghiên cứu sự vận dụng lí thuyết COSO 2004 vào xây dựng hệ thống KSNB ở doanh nghiệp có đầy đủ 8 bộ phận cấu thành hay không, và tác động như thế nào đến chất lượng kiểm soát rủi ro (Risk Control – KSRR) là câu hỏi lớn cần làm rõ. Từ đó đề xuất các kiến nghị tác động vào từng bộ phận KSNB phù hợp, nhằm nâng cao chất lượng KSRR tại các doanh nghiệp xây dựng ở Tp.HCM trong thời gian tới.

Từ khóa kiểm soát nội bộ; kiểm soát rủi ro; quản trị rủi ro doanh nghiệp; doanh nghiệp xây dựng.