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# The effect of internal control on asset misappropriation: The case of Vietnam

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**Abstract:** Asset misappropriation is a kind of fraud that may cause severe damages to the businesses. The internal control system is expected to provide a reasonable assurance for the management of the businesses in preventing and detecting frauds, including asset misappropriation. The study is conducted to examine the effect of internal control system on asset misappropriation in Vietnamese firms. Based on questionnaires collected from internal auditors, accountants and department managers in Vietnamese firms, the study assess the impact of COSO five internal control components on the popularity of asset misappropriation in the firms. The results show that of the five components, control environment presents the strongest impact, followed by control activities, information and communication in respective order. Determinants with the mildest impact are risk assessment and monitoring of control. Based on the findings, it is important that the management of the firms improve the internal controls to effectively reduce the chance of fraud in their firms.

**JEL Classifications:** C10, M42

**Keywords:** Asset misappropriation, fraud control, internal control, Vietnam

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## 1. Introduction

Internal control system consists of policies and procedures established and implemented by the management and the staff of an organization to gain reasonable assurance regarding the achievement of the organization's objectives (IAASB, 2009). Internal control plays an essential role in ensuring the creditability of information, effectiveness and efficiency of operations and compliance with laws and regulations (Campbell & Hartcher, 2010). According to COSO (2013), an organization's internal control comprises of control environment, risk assessment, information and communication, control activities and monitoring of control. Although internal control has its inherent limitations, a good internal control system can support management in detecting and addressing potential issues before they turn into severe problems.

Asset misappropriation is a kind of fraud involving the theft of the assets of an organization by its employees, management or third parties. In the past years, there have been many asset misappropriation cases discovered among businesses. According to ACFE's global survey report on fraud and abuse in 2018, asset misappropriations schemes are the most common type of fraud, account for 89% of fraud cases discovered (ACFE, 2018). The most risky areas include payment fraud, expense reimbursement and cash on hand. In Vietnam, there have been a number of fraud cases discovered in the past decade, including cases involving losses from 200 million dollars in commercial banks such as in

Vietnam Joint Stock Commercial Bank for Industry and Trade, Vietnam Construction Bank.

This fact raises the question of the effect of internal control upon the control of misappropriation in the businesses. Therefore, this study is conducted to examine the effect of internal control components on asset misappropriation in Vietnamese firms. The study addresses two questions: (i) Do internal control components have effect on asset misappropriation in Vietnamese firms?, and (ii) What are the levels of impact of different internal control components on asset misappropriation in Vietnamese firms?

To answer the research questions, questionnaires on asset misappropriation and the impact of internal control components are designed and sent to managers, internal auditors, and chief accountants and accounting staff at the firms. The responses are then analyzed using Pearson's correlation and multiple regression analysis to identify the impact of internal control components on asset misappropriation.

The remainder of the paper is organized as follows. Section 2 reviews the related theoretical framework and literature. Section 3 presents some hypotheses and methodology. The results of the study are reported and discussed in the fifth section. Finally, the last section concludes the paper, presents major findings.

## **2. Theoretical framework and literature review**

### ***2.1. Internal control and its components***

According to COSO (2013), internal control is understood as a process, effected by an entity's board of directors, management, and other personnel, designed to provide reasonable assurance regarding the achievement of objectives relating to operations, reporting, and compliance. Internal control includes five components, which are control environment, risk assessment, information and communication, control activities and monitoring.

#### *Control environment*

Control environment comprises the ethical values, organizational structure, assignment of responsibility and authority, personnel policies and procedures, as well as the attitudes and awareness of the management regarding the importance of internal control to the entity's operation. Control environment has a directly impact on the mindset of each member within the organization and the strength of the whole internal control system (COSO, 2013). A good control environment may support a good internal control system, which helps to reduce the opportunity of misappropriation.

#### *Risk assessment*

Risk assessment is the process of identifying and addressing the risks, which might affect the achievement of the organization's objectives. After risks have been identified and assessed, appropriate actions are made to respond to the assessed risks.

The process of analyzing and assessing risk is a dynamic process. Management needs to consider the impact of changes in business operations and its external environment in order to identify and assess the risks faced by the business (COSO, 2013).

### *Information and communication*

Information includes all that are generated and collected from internal and external sources of an organization, and processed by managers and staff in the management of the organization's activities. Communication is the process of collecting, providing and sharing information within an organization and between the organization with external parties.

The information system includes the accounting system which is designed to timely identify and record all transactions, to ensure true and fair presentation of the financial statements.

### *Control activities*

According to COSO (2013), control activities are policies and procedures implemented to address the assessed risks to the achievement of objectives. Control activities are executed across all levels of managements and in all functions of an organization. Control activities include such activities as authorizations, approvals, verifications, and reconciliations, reviews of performance and segregation of duties. Appropriate control activities are expected to reduce the chance of asset misappropriation in organizations.

### *Monitoring*

Monitoring is the process in which the quality of internal control is evaluated. Monitoring provides management with information regarding whether or not their internal control system be understood and implemented by the staff, be applied and followed on a daily basis, be modified or improved to match with changes in external context (IAASB, 2009). Monitoring activities could be categorized into ongoing monitoring and separate monitoring. Ongoing monitoring occurs right within the operation process by managers and staff as allowed within their responsibilities. Separate monitoring is usually performed by managers and the internal audit unit.

## **2.2. Literature review**

There have been a number of researches conducted to examine the impact of internal control in the prevention and detection of fraudulent activities in businesses.

Barnett et al. (1998) provide guidance on conducting fraud assessment in accordance with SAS 82 - *Consideration of fraud in a financial statement audit*. The study asserts that control environment plays an important role in shaping the attitude and awareness of the individuals within organizations. However, a good control environment alone may not prevent and detect fraud. Management needs control activities to address fraud risks.

Hermanson et al. (2012) conduct a research on the effectiveness of internal controls of firms in the US. Based on survey questionnaires from approximately 500 chief audit executives and internal auditors, the study provides an insider's perception of the strength of organizations' internal controls. The results show that even though the respondents largely rated control strength as relatively high, there are areas for improvements, especially assessing the tone at the top and management override of controls.

Schneider et al. (2009) review the literature on weaknesses primarily based on internal control reports under Section 404 and 302 of SOX. The review provides insights into the types of firms with internal control deficiencies, the nature and consequences of the deficiencies, and auditing issues related to the deficiencies.

Coram et al. (2008) explore the association between the level of asset misappropriation and the internal audit function, which is a part of the internal control system, in private and public sector organizations in Australia and New Zealand. By using analysis of covariance, the results show that organizations that have an internal audit function have higher chance of covering and self-reporting misappropriations. In addition, it is less likely for organizations that depend largely on an outsourced internal audit to cover and self-report misappropriations than those which self-perform parts of internal audit work. The findings indicate that internal audit improves the organizations' ability to detect and report fraud by improving the control and monitoring environment.

Abiola & Oyewole (2013) evaluate the effectiveness of internal control system in detecting frauds in Nigerian commercial banks with data collected from the structured questionnaires completed by the banks' managers and published accounts of the banks. By adopting Chi-square analysis, the results reveal a tight relation between internal control and the detection of frauds in the banks.

Wood & Brathwaite (2012) investigate the adequacy of the internal controls relating to cash operations, and fraud detection and prevention at a leading supermarket in Barbados. Based on the results of the structured questionnaire covering five internal control components and interview with the supermarket's head accountant, the study concludes that internal control procedures implemented within the studied organization are effective and secured for cash while able to prevent frauds and errors of staff.

Salehi, Shiri, & Ehsanpour (2013) conduct the study on the effectiveness of internal control in the Iranian banking industry on prevention of frauds and errors, with a particular case of Bank Mellat. Based on questionnaires completed by the bank's managers, using the Spearman's correlation test, the results indicate that internal control within Bank Mellat had sufficiently able to prevent frauds within the bank and limitations in the components of internal control were related to the presence of frauds and errors.

Naruedomkul & Rodwanna (2010) investigate the risk factors causing fraud and the role of internal control and corporate governance in reducing fraud risk in 1,065 listed and non-listed companies in Thailand. By employing one-way ANOVA, the results show that internal control has impact on a number of fraud risk factors such as refusal to take vacations, excessive pressure from within organization, excessive family/peer pressure for success, living beyond means, financial difficulties, borrow money from coworkers and control issues, unwillingness to share duties.

Nguyen (2016) studies how the evaluation of internal control and fraud risk factors are related to the audit planning of independent auditors in Vietnam. Data collected through questionnaires completed by independent auditors show the lack of internal control to be the major cause of fraud among firms in Vietnam. Le (2015) studies the quality of

financial statement audit for commercial banks in Vietnam. The results indicate that internal control within the banks being one of the external factors affecting the audit quality. Due to the low effectiveness of internal control in the banks, the quality of financial information was affected and indirectly led to lower audit quality.

Several other papers have evaluated internal control and the relationship between internal control and audit procedures. Karagiorgos et al. (2011) study the relationship between internal control and the effectiveness of internal audit in Greek hotels. Sawalqa & Qtish (2012) study the relationship between internal control and the effectiveness of audit program. Jokipii (2010) studies the determinants and consequences of internal control in firms.

In conclusion, prior studies conducted in different countries in the world have confirmed the relationship between internal control and the prevention and detection of fraud. However, not many researches investigate the relationship between internal control and prevention and detection of misappropriation in Vietnamese firms. Thus, this paper is among the first studies contributing to the overall research literature for this subject in the context of emerging countries like Vietnam.

### **3. Research methodology**

#### **3.1. Research hypotheses**

As presented in the theoretical framework, internal control consists of five components including control environment, risk assessment, information and communication, control activities, and monitoring. So investigation of the relationship between internal control and asset misappropriation turns out that we scrutinize the relationship between each component of internal control and asset fraud. So we examine some assumptions as below:

**H1:** There is a significant relationship between control environment and asset misappropriation.

**H2:** There is a significant relationship between risk assessment and asset misappropriation.

**H3:** There is a significant relationship between information and communication and asset misappropriation.

**H4:** There is a significant relationship between control activities and asset misappropriation.

**H5:** There is a significant relationship between monitoring and asset misappropriation.

The objective of this paper is to evaluate the relationship of each component of internal control system toward the control of asset misappropriation in Vietnamese firms. To conduct the study, questionnaires are designed and sent to managers, internal auditors, and chief accountants and accounting staff at the firms.

#### **3.2. Questionnaire design**

The questionnaire is divided into 3 sections. Section 1 contains general questions about the survey participants. Section 2 contains questions in which respondents are required to

rate the popularity of asset misappropriation in their firms based on Likert scale from 1 to 5, with 1 being Completely Not Popular and 5 being Completely Popular. Section 3 contains questions, which required respondents to evaluate the impact of internal control components toward asset misappropriation control in their firms according to Likert scale from 1 to 5 with 1 being Very Low Impact to 5 being Very High Impact.

Measurements for internal control components and asset misappropriation are defined based on several previous studies (Nguyen, 2017; Jokipii, 2010; Karagiorgos et al., 2011; Ta, 2017; Sawalqa & Qtish, 2012). In particular, there are 21 measurement indicators used to represent the five internal control components, 4 measurement indicators used to represent the popularity level of asset misappropriation.

### **3.3. Data collection**

The complete questionnaires are then sent to managers, internal auditors, chief accountants and accounting staff in the firms. The study applies both online and paper-based questionnaires using convenience sampling method. Online questionnaires are prepared in Google document and sent to email addresses of Vietnamese firms, which were collected from the Vietnam State Security Commission's website. Paper-based questionnaires are delivered to the participants of certified accountants and internal auditors certificate courses provided by professional training centers in Hanoi and Ho Chi Minh City. Questionnaires are collected during the period from October 2017 to March 2018. We sent 850 questionnaires and received 97 online and 182 paper-based valid responses with the overall response rate of 32%.

### **3.4. Data analysis**

Questionnaires collected are processed by SPSS software. The examination of scale reliability is conducted on all variables using the Cronbach's Alpha measure and exploratory factor analysis assisted by SPSS 20 in order to filter out invalid variables.

Then, to examine the research hypotheses, the paper conducts two analyses: Pearson's correlation analysis to test the linear correlation between variables; and multiple regression analysis to measure the impact of independent variables upon the dependent variable.

Using the proposed assumption, we have the equation for the multiple regression analysis as followed:

$$FSFraud = \alpha + \beta_1 CE + \beta_2 RA + \beta_3 IS + \beta_4 CA + \beta_5 MO + \varepsilon$$

Where, *FSFraud* - Popularity level of asset misappropriation; *CE* - Control environment; *RA* - Risk assessment; *IS* - Information and communication; *CA* - Control activities; *MO* - Monitoring;  $\varepsilon$  - error term;  $\alpha, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5$  are the intercept and coefficients to be estimated in the model.

## 4. Research results

In this part, we present the results of (i) Descriptive statistics of respondents; (ii) Descriptive statistics of variables; (iii) Pearson's correlation analysis; and (iv) Multiple regression analysis.

### 4.1. Descriptive statistics of respondents

Table 1 presents descriptive statistics of the respondents.

TABLE 1. DESCRIPTIVE STATISTICS OF RESPONDENTS

	FREQUENCY	PERCENTAGE
<i>BUSINESS SECTOR</i>		
Manufacturing, construction and real estate	87	31
Trading and services	69	25
Banking and finance	92	33
Others	31	11
<i>LISTING STATUS</i>		
Listed firms	92	33
Unlisted firms	187	67
<i>BUSINESS SIZE</i>		
Small and medium	120	43
Large	159	57
<i>RESPONDENT'S TITLE</i>		
Internal auditors	77	28
Chief accountants	62	22
Accounting staff	84	30
Department managers	56	20

Of the 279 respondents, the largest sector represented is banking and finance (33%), followed by manufacturing, construction and real estate (31%), trading and services (25%), and other (11%). 33% of the businesses are listed firms, 57% are of large scale with more than 200 employees. The survey participants include 28% internal auditors, 22% chief accountants, 30% staff accountants and 20% department heads.

### 4.2. Descriptive statistics of variables

TABLE 2. DESCRIPTIVE STATISTICS FOR THE IMPACT OF INTERNAL CONTROL ON ASSET MISAPPROPRIATION

	Min	Max	Mean	SD	Corrected item- Total correlation	Alpha if deleted	Cronbach's alpha
CONTROL ENVIRONMENT			3.85	1.003			0.878
CE1	1	5	3.83	0.981	0.724	0.848	
CE2	1	5	3.86	1.015	0.787	0.823	
CE3	1	5	3.83	0.992	0.716	0.851	

TABLE 2. DESCRIPTIVE STATISTICS FOR THE IMPACT OF INTERNAL CONTROL ON ASSET MISAPPROPRIATION

	Min	Max	Mean	SD	Corrected item- Total correlation	Alpha if deleted	Cronbach's alpha
CE4	1	5	3.87	1.024	0.719	0.851	
RISK ASSESSMENT			3.34	1.081			0.787
RA1	1	5	3.32	1.077	0.652	0.717	
RA2	1	5	3.20	1.090	0.674	0.709	
RA3	1	5	3.44	1.084	0.667	0.712	
RA4	1	5	3.42	1.052	0.624	0.727	
RA5 <sup>a</sup>	1	5	3.39	1.100	0.247	0.844	
INFORMATION AND COMMUNICATION			3.37	1.017			0.793
IS1	1	5	3.37	1.061	0.551	0.761	
IS2	1	5	3.72	0.862	0.654	0.735	
IS3	1	5	3.39	1.026	0.503	0.776	
IS4	1	5	3.41	1.089	0.654	0.726	
IS5	1	5	3.32	1.046	0.525	0.770	
CONTROL ACTIVITIES			3.70	0.990			0.836
CA1	1	5	3.78	0.974	0.655	0.798	
CA2	1	5	3.66	0.994	0.715	0.771	
CA3	1	5	3.76	1.050	0.676	0.790	
CA4	1	5	3.63	0.942	0.625	0.811	
MONITORING			3.57	0.995			0.772
MO1	1	5	3.59	0.962	0.572	0.731	
MO2	1	5	3.57	0.949	0.646	0.653	
MO3	1	5	3.56	1.074	0.613	0.694	

Note: <sup>a</sup> - Item deleted due to low corrected item-total correlation.

This study assesses reliability by looking at single item reliability and validates them by using item-total correlation and Cronbach's alpha assisted by the SPSS statistical package. The result of reliability analysis shown in Table 2 and 3 indicates that all the study factors are reliable with satisfactory Cronbach's alpha values ranged from 0.772 to 0.878 and the number of items ranged from 3 to 5 (Hoang & Chu, 2008).

Table 3 shows the scales of fraudulent financial reporting of sample firms.

TABLE 3. DESCRIPTIVE STATISTICS FOR THE POPULARITY OF FRAUDULENT FINANCIAL REPORTING

	MIN	MAX	MEAN	SD	CORRECTED ITEM- TOTAL CORRELATION	ALPHA IF DELETED	CRONBACH'S ALPHA
MISAPPROPRIATION			2.09	0.820			0.904
Misappropriation1	1	5	2.04	0.821	0.801	0.870	
Misappropriation2	1	5	2.08	0.810	0.817	0.864	
Misappropriation3	1	5	2.07	0.797	0.764	0.883	
Misappropriation4	1	5	2.17	0.850	0.756	0.886	

The study employs the exploratory factor analysis with principal component technique and varimax rotation to identify the relationships between the variables and assess the factor structures (Table 4).

TABLE 4. ROTATED COMPONENT MATRIX

	COMPONENT				
	1	2	3	4	5
CE2	.881				
CE1	.832				
CE3	.803				
CE4	.783				
RA1		.809			
RA2		.793			
RA3		.700			
RA4		.695			
CA2			.804		
CA1			.785		
CA3			.752		
CA4			.694		
IS4				.743	
IS1				.726	
IS3				.669	
IS5				.657	
MO1					.781
MO2					.745
MO3					.740
IS2 <sup>a</sup>				.628	.570

Note: <sup>a</sup> - Item deleted due to cross-loading

The results show 5 components extracted for the independent variables with the total variance explained of 68%.

#### 4.3. Pearson's correlation analysis

Pearson's correlation analysis is performed to assess the linear relationship between the dependent variable and independent variables.

TABLE 5. CORRELATION MATRIX OF VARIABLES

	FINANCIAL STATEMENT FRAUD (FSF)	CE	RA	IS	CA	MO
Misappropriation	1	-0.437**	-0.493**	-0.465**	-0.499**	-0.459**
CE		1	0.388**	0.299**	0.308**	0.314**
RA			1	0.432**	0.479**	0.486**
IS				1	0.420**	0.360**
CA					1	0.480**
MO						1

Note: \*\* - Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows correlation matrix for both the dependent variable and the independent variables. The results show that all independent variables are significantly correlated with

the dependent variable ( $r$  ranging from 0.299 to 0.499,  $p < 0.01$ ). This means that there is a linear relationship between each internal control component and the fraud level.

#### 4.4. Multiple regression analysis

As shown in Table 6, adjusted  $R^2$  indicates that the internal control components explain 42% of the variance of fraud level in the firms. The F-statistic is statistically significant at the 0.000 level, which means that the model fits the data. VIF values of all independent variables are less than 2, therefore reducing the problem of multicollinearity between the independent variables (Hair, Black, Babin, & Anderson, 2010). Durbin-Watson of 1.846 shows that there is no autocorrelation in the sample.

TABLE 6. SUMMARY RESULT OF REGRESSION ANALYSIS

MODEL	UNSTANDARDIZED COEFFICIENTS		t	SIG.	COLLINEARITY STATISTICS	
	B	STD. ERROR			TOLERANCE	VIF
(Constant)	4.938	.205	24.076	.000		
CE	-.175	.043	-.208	-.4097	.000	.809
RA	-.128	.047	-.157	-2.703	.007	.617
IS	-.179	.049	-.195	-3.661	.000	.735
CA	-.184	.050	-.206	-3.647	.000	.652
MO	-.129	.049	-.148	-2.647	.009	.668
R <sup>2</sup>	0.430					
Adjusted R <sup>2</sup>	0.420					
Durbin-Watson	1.846					
F	41.204					
Sig	0.000					

P-value of each independent variable is less than 0.05. Therefore, all hypotheses which state that there is a significant relationship between each internal control component and fraud are supported at the 0.05 significant level. This means that all internal control components are of importance to fraud control.

The result shows that all internal control components are negatively correlated with the independent variable. The negative sign of the betas indicates that when the internal control components are more effective, the level of misappropriation decreases.

Of the five components, control environment has the strongest influence on fraud control ( $\beta = -0.208$ ). The next influencing factors are control activities ( $\beta = -0.206$ ) and information and communication ( $\beta = -0.195$ ). The impact of the other two components - risk assessment, and monitoring - is less certain ( $\beta = -0.157$  and  $-0.148$  respectively).

From the result, we have the equation for the multiple regression:

$$FSFraud = -0.208 CE - 0.157 RA - 0.195 IS - 0.206 CA - 0.148 MO$$

## 5. Discussion

The result of the regression model confirms that control environment has the most impact on fraud control in the businesses. This is consistent with previous studies which indicate that control environment is an important factor in preventing and detecting fraud (Barnett et al., 1998). Control environment comprises the integrity and ethical values of the organization. Control environment has a pervasive impact on the overall system of internal control (COSO, 2013). Therefore, a strong control environment is more likely to reduce the chance of fraud in an organisation.

Control activities are also an important component of the internal control system. This is in line with previous studies that assert the role of control activities. Although control environment is important, a positive control environment alone may not prevent and detect fraud (Barnett et al., 1998). An entity's control activities such as segregation of duties, authorization and approval may address the possibility of embezzlement and collusion with external parties.

Information and communication also plays important role in fraud control in the firms. Through the process of recording and classifying of information, the accounting system not only provide necessary information for management but also helps control business activities. The smooth flows of information between different sections of a business reduce the chance of fraud being committed.

Monitoring and risk assessment are considered of having less impact on fraud control. This could be due to the fact that Vietnamese businesses have not given much attention to risk management and monitoring of control. Except for big organisations such as financial institutions, small and medium enterprises might not have enough resources and experience to deal with fraud risk identification and assessment. Similarly, businesses do not seem to have paid much attention to monitoring of control as a tool to fraud prevention.

## 6. Limitations of the study

In spite of efforts in data collection, data compilation, in some aspects, is not comprehensive. The study could be further accomplished by adding to analyse Vietnamese firms by sectors and expanding sample size. Nevertheless, the results have been indicated on scientific foundation. The analysis and conclusion of this study are good reference for further researches of the impact of internal control on asset manipulation in firms of emerging countries.

## 7. Conclusion

This research examines the impact of COSO five internal control components on asset misappropriation in Vietnamese firms. The relationship between internal control components and misappropriation is tested using Pearson's correlation and multiple regression analysis. Based on 279 questionnaires from internal auditors, accountants and department managers, the results show that all five control components contribute significantly toward fraud control in the firms. Of the five components, control environment presents the strongest influence, followed by control activities and

information and communication. Risk assessment and monitoring show slighter impact on fraud control.

The result of the study suggests that Vietnamese firms should make more effort to build strong control environment in their organizations. It is important that the board of directors and management improve the tone at the top in the organizations. Internal and external auditors should work with the boards of directors and management to improve the risk assessment process. The boards and senior management should ensure ongoing and separate monitoring to ascertain that controls are present and functioning properly.

The study contributes to the literature on the relationship between internal controls and the prevention and detection of misappropriation in firms. In spite of efforts in data collection, the compilation of data, to some extent, is not comprehensive. The research could be further accomplished by expanding sample size. However, the findings have been pointed on scientific foundations. The analysis, conclusions and suggestions of this study are good reference for further researches relating the topic of relationship between internal control and assets fraud in firms of emerging countries.

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