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THE IMPACT OF OPPORTUNITY FACTORS LEADING TO FRAUDULENT BEHAVIOR IN VIETNAM STOCK MARKET

Abstract:

To evaluate the opportunity factors that lead to fraudulent behavior in Vietnam stock market, the authors combine the case study methodology with in-depth interviews and surveys. During the survey process, the answers from 568 experts were collected from securities companies, fund management companies, Stock Exchanges and the State Securities Commission in Vietnam. By using the exploratory factor analysis method, the authors have identified opportunity factors leading to fraudulent behavior in Vietnam stock market including: (i) Group of opportunity factors due to an internal person and an issuer (Person whose internal information has not been published by the company; Collusion of the issuer and securities company; An important person in the company who abuses power; An issuer has complex organizational structure; A person has multiple positions; An issuer does not control internal information well). (ii) Group of opportunity factors by investors (Investors trade securities following an internal person; Investors trade securities following foreign investors; Investors trade securities according to brokerage company recommendations; Investors make securities transaction according to advisory information on securities forums). (iii) Group of opportunity factors due to market management and supervision (The penalty is not strict and deterrent; The penalty is untimely; The authority of the securities committee is limited). The authors then use the regression model to determine the order of the impact of each group of factors that lead to fraudulent behavior in Vietnam stock market from high to low including: opportunity factors due to an internal person and the issuing organization, the opportunity factors due to the market management and supervision and finally the opportunity factors due to investors.

Keywords:

Fraudulent behavior, Price manipulation, Insider trading, Opportunity factors

JEL Classification: G28

1. Introduction

The first recorded case of market manipulation was the Tulip Bulb scandal in 1636 in the Netherlands. Since then, the number of frauds had remarkably increased in the 17th and 18th centuries, especially during the economic crisis (Johnstone, 1998). As long as opportunities for profitability exist, fraud will likely continue (Rezaee et al. (2004)). Fraud in the stock market can lead to many consequences including negative impacts on the company's stock price, damage to shareholders, employees and customers, reduction in the ability to raise capital for the firm (Rezaee et al. (2004), Murphy & Tibbs (2010)). Fraud not only results in economic damage but also leads to litigation cost, insurance premiums, depletion of trust and distortion in investment markets (Rezaee et al. (2004)). According to Rezaee et al. (2004), not only researchers but also managers are making great efforts to prevent fraud, so it is necessary to analyze the causes of fraud. One of the important factors is the analysis of opportunities as well as loopholes for possible fraud.

In Vietnam, since its official operation, fraud in the stock market has become more sophisticated and complicated. Although legal documents are getting stricter, the examination and inspection are increasingly and widely implemented, especially the application of the criminal code to criminals in the stock field; fraud continues to surge in terms of quantity and severity. In addition to violations that have been detected and resolved, in fact there are many breach, due to insufficient evidence, have yet to be sanctioned. State Securities Commission of Vietnam once transferred three investigations to the police and all of them were returned due to lack of evidence, even though signs of insider trading, especially for market manipulation were clear. Therefore, it is necessary to conduct research on opportunity factors leading to fraud in the stock market so management bodies can propose solutions to prevent and limit fraud. This study focuses on fraudulent behaviors including price manipulation, insider trading, and misinformation disclosure. Specifically, the authors uncovered opportunity factors leading to fraud, thereby offered solutions to enhance the management of fraudulent behaviors in Vietnam stock market.

2. Literature Review

2.1 *Methods to commit fraud in the stock market*

Various types of fraud in the stock market can be committed. They are listed as the followings:

- Continuously buying and selling securities to create the false supply and demand for the market. The increase in account trading is the optimal method to raise false liquidity in the market. This is a popular technique to carry out price manipulation which was studied by many authors such as Kyle (1984), Back & Baruch (2004), Rajesh (2003)... It is in "Pump and dump" plan.

- Continuously trading with a manipulated volume. A typical example of this orchestration is a group of investors sells a large quantity of shares belonging to a company with a good business plan, which causes the stock price to decline and trick the market into believing that the investment in this company would be bad. Conversely, manipulators can buy a substantial amount of stock from another company which creates a false belief of great opportunities for investment in that company. This leads to other investors misjudge the company's prospects and stock price and inappropriate investment decisions. (Back & Baruch (2004), Archisman & Bilge Yilmaz (2004)).

- Promoting investment trends to influence the stock price. The optimal strategy of those participating in the market is to "manipulate" other investors' belief. An investor with insider information can "deceive" by making contradictory behaviors with their insights as a part of their strategy (Van (2003), Back & Baruch (2004), Archisman & Bilge Yilmaz (2004)). Investors can spread rumors of "shoul buy, I bought" or "should sell, I sold" (Van, 2003) as a part of their strategy to maximize business profits based on their inside information.

- Disclosing misinformation or creating misunderstandings regarding the company's prospects in order to increase stock price significantly and sell them at a higher price. However, there are activities disclosing misinformation to defame the company and cause its stock price to decrease. This type of fraud is mostly used in goods' collection before review or in business merge and acquisition (Kyle (1984), Rajesh (2003)).

- Using inside information in securities transactions. Insider trading has a tendency of involving changes in efficiency or company events as people within the enterprise are informed of the company's future cash flow before any external parties. Some studies show that insider trading can take place before the company event which includes announcement of acquisition, merge and share repurchase, diviend payout and stock buyback (Carlton & Fischel (1983), Bonaime & Ryngaert (2013).

2.2 *Opportunity factors leading to fraud in the stock market*

Opportunity factors due to insiders and issuing organizations

- People with undisclosed inside information have the opportunity to conduct illegal transactions to make significant profits compared to the market as they have more sufficient information related to the company's prospects, especially before events that would have significant impacts on the stock price (Meulbroeck (1992))

- Collusion between insiders and brokerage firms has been identified as a common form of fraud in research by Rajesh (2003), Klein & Maxson (2006), Dorminey and others. the (2010); Free and Murphy (2015). Issuing organizations and underwriters take advantage of their privileged positions to limit supply while collude with brokers to create false demands from investors.

- Those with high status in the firm such as members of management board, board of directors, may have the opportunity to perform or entice their employees into committing fraud. Many investors consider insider trading as a signal of the company's business activities and cash flow (Sokolov & Piatov (2000), Mackevicius & Bartaska (2003)). Due to this knowledge, insiders can share the opposite information to create misunderstandings for investors, some as the information publisher can take advantage of their position to disclose insights in a subjective manner. Numerous studies demonstrated that managers and employees committing fraud usually work in the company for a long period of time, and they understand thoroughly weaknesses in internal control as well as have an extensive knowledge of committing crimes without any stress or fears (Ewa & Udoayang (2012), Cressey (1953))

- Issuing organizations have transactions with related parties, parent companies - subsidiaries.

Many studies reported that the presence of involved parties' transactions rank second among the most frequent opportunities for fraud. Several other studies claimed that related parties' transactions are placed in third rank among the most common opportunities for financial fraud. The fact that firms having unusual transactions, group models, multinational enterprises, parent companies, subsidiaries.... facilitates the manipulation of financial statements in a subjective manner to enable transfer pricing or loss carried forward. The manipulation of financial statements is also often a part of the plan to create false, misleading information regarding corporate financial situation for readers, which contributes to the successful implementation of the internal transaction and manipulation. (Moyes et al. (2005), Ming & Wong (2003)).

- Issuing organizations have a complicated organizational structure, and one person is in charge of multiple positions. The complex organizational structure results in challenges for the process of internal control, especially when members in the management board underatke various positions and this can serve as an opportunity for for them to disclose information and establish financial statement in their subjective manner. Or when management board members are also board members, it can lead to operational independence, limited internal control as well as the inability to detect and promptly handle fraud (Loebbecke et al (1989), Farber (2005), Lou & Wang (2009), Miller (2006), Skousen & Twedt (2010), Wells & Gill (2007).

- Issuing organizations do not effectively control inside information. Companies are also required to haveeffective anti-fraud programs to prevent fraud committed by people with inside information (Loebbecke et al. (1989), Jeng (1998), Noe (1999)). The most common restriction is to allow insiders to transact for only a period of time immediately after the income announcement, usually 20 to 30 days after the income announcement (Jeng (1998), Noe (1999)). Many enterprises hold press conferences with analysts to discuss and expand the information in earning announcements in order to prevent misappropriation of insights for the interest of individuals and groups (Noe (1999)). In countries with developed stock markets, corporations have implemented specific policies and procedures, as well as set clear dates and time to effectively control insiders' transactions (Xu Sun (2015), Jeng (1998)).

Opportunity factors due to investors

- Investors do not thoroughly analyze issuing organizations' information. As the ratio of noise traders and uninformed traders increases, the difference between real and bubble value will rise and enrich market manipulators (Easley. and O'Hara (1987)).

- Investors tend to trade according to insiders' pattern. This form of trade creates a domino effect which provides an opportunity for price and volume fluctuations (Cornell and Sirri (1992). And so, innocent investors have accidentally abetted some groups of manipulators. Demsetz (1968) and Bagehot (1971) argued that there are three types of investors: traders have exclusive information (traders with undisclosed information); investors trade based on insiders (noise traders who are misled to believe that they have effective information), and ignorant traders. The author claimed that traders who rely on insiders or investors that believe they have insights will increase the abnormal trading volume, and it serves as an opportunity for manipulators to raise stock price as they want. Stoll (1989), George et al. (1991) suggested that people with inside information can more easily conceal their notified transactions in a network with many manipulators and traders based on insiders than usual.

- Investors have a tendency of trading based on foreign investors' pattern. In Vietnam, transactions of foreign investors are usually interested by domestic investors, as it is believed that foreign traders are usually professional investors so their transactions have the ability to orientate the market. Therefore, securities companies often take advantage of this to push information in manipulation groups which can affect investors' mentality (Le Nguyen Trung Thanh (2017), Nguyen Duc Hien (2012)).

- Investors trade based on recommendations by brokerage firms. Research by Rajesh (2013), Dorminey et al. (2010) suggested that brokers abet manipulators by offering investment recommendations for their subjective purposes.

- Investors trade based on advice on securities forums. In Vietnam, stock forums are considered as a place for investors to share information and evaluate the market. These websites have both accurate information and inaccurate rumors. They are also a tool for price manipulation teams to offer information, opinions and comments about securities or issuing organizations. If investors trade solely based on the above advice without filtering and analyzing, it may be an opportunity for behaviors of price manipulation, which can affect stock price according to manipulators' subjective opinions (Vinh and Truong (2011), Le Nguyen Trung Thanh (2017)).

Opportunity factors due to market management and supervision

- Many research on management emphasize the lack of supervision, ineffective monitoring measures and criteria as one of the risk factors that increase the chances of fraud (Bussmann & Werle (2006), Dorminey et al (2010)). A combination of studies by Kenyon & Tilton (2006), Ewa & Udoayang (2012) shows that surveillance systems must be able to detect timely and accurate fraudulent acts. If a monitoring system in which its criteria are not up to date, or do not have the ability to forecast new forms of fraud, it can facilitate fraud to take place and evade sanctions and punishments.

- The legal system is still inadequate. Opportunity factors due to the legal system lacking insufficient sanctions to prove and punish fraud, or some laws being not up-to-date with market trends as well as the shortage of ineffective anti-fraud policies or policies protecting denunciators (Bhattacharya and Daouk (2009), Rajesh (2003)). Policies for denunciators play an important role in detection and limitations of fraud. A denunciator is an individual who identifies and reports a fraud or the possibility of fraud (Rosen (2007)).

- The sanctions and punishments are light, not deterrent enough. Bhattacharya and Daouk (2009), Choi (2004) argued that fraud is more likely to happen in countries with ineffective enforcement of securities laws. The stock market in underdeveloped countries shows that the sanctions are not commensurate with the degree of crimes. Law breakers have various ways to avoid penalties or are able to choose a lesser offense. People committing fraud may illegally trade at the time of profit optimization and accept to pay a fine afterwards. In some cases, insiders even use disclosure requirements to ambush the market by declaring an intention to buy securities as a way to hide their actual sale plan and vice versa (Du & Wei (2004)).

- Sanctions and punishments are not timely. Studies in Vietnam show that 100% of cases related to manipulated transactions and insider trading are detected and resolved only after its ending. This means that individuals and groups committing violations only after achieving their goals are punished by the monitoring system. The quantity of cases detected by the Exchanges is quite high but those were resolved are low (the number of SSC inspectors issuing sanctioning decisions accounts for only about 10% of that year's criteria). Supervisors have not been able to narrow the exact figure of accounts that influence the market's transactions as well as identify the cause of unusual fluctuations in stock price to come up with appropriate resolutions for these cases (Nguyen Thanh Tung (2016), Le Nguyen Trung Thanh (2017))

3. Methodology and research model

3.1 *Reseach methods*

The authors used the combination of qualitative and quantitative research methods.

The qualitative methods used in the research are: Case studies combining in-depth interviews with the goal of identifying forms of committing fraud (the dependent variable) and opportunity factors (the independent variable) leading to fraud in the Vietnam stock market. The survey questionnaires were conducted via in-depth interviews with 20 experts in securities companies, the State Securities Commission of Vietna, Stock Exchanges, andfund management companies ... (Table 1).

Table 1: List of in-depth interviewees

No	Interviewees	Number of people
1	Manager of SSI Securities Corporation	1
2	Manager of Mirae Asset Securities Company	1
3	Manager of Vietcombank Securities Company	1
4	Manager of VFM (VietFund Management Company)	1
5	Manager of Bao Viet Fund Management Company	1
6	Inspection Office of SSC	3
7	Supervision Department of SSC	2
8	Hanoi Stock Exchange	2
9	Investors at SSI Securities Corporation	1
10	SSI Investors at Vndirect Securities Company	1
11	Investors at Vietcombank SSI	1
12	Investors at Mirae Asset SSI	1
13	Investors at MB SSI	1
14	Lecturer of Stock Market Subject at National Economics University	1
15	Lecturer of Stock Market Subject at Vietnam University of Commerce	1
16	Lecturer of Stock Market Subject at Hanoi Industry University	1
	Total	**20**

Source: Authors

Case studies selected by authors include 14 case studies of typical fraud in Vietnam stock market from 2010 to 2019 (Table 2)

Table 2: Case studies were studied

No	Ticker Symbol involving with fraud	Year	Type of fraud
1	KSH	2010	Insider trading
2	SKG	2017	Insider trading
3	SHN	2012	Insider trading

No	Ticker Symbol involving with fraud	Year	Type of fraud
4	SBC	2015	Insider trading
5	D2D	2018	Insider trading
6	DVD	2011	Price manipulation
7	TNT	2018	Price manipulation
8	CDO	2016	Price manipulation
9	SPI	2017	Price manipulation
10	MTM	2019	Price manipulation
11	KDM	2018	Price manipulation
12	AAA	2011	Price manipulation
13	DVD	2011	Misinformation disclosure
14	FLC	2017	Misinformation disclosure

Source: Authors

Quantitative research method: The authors used the EFA (exploratory factor analysis) to explore the opportunities for fraud in Vietnam stock market. The regression model was then used to determine the influence of opportunity factors that lead to fraud in the stock market. A data set of 568 survey questionnaires was sent to experts at securities companies, SSC, Stock Exchanges and fund management companies.

Data: The questionnaire consists of 2 parts. Part 1 is general information of the interviewees, part 2 includes questions about the relevance of opportunity factors leading to frauds in the stock market. Vietnam and the degree of relevance of fraud practices on a 5-level Likert scale. Survey forms are sent to survey subjects either in person, via phone or through securities companies, emails and surveys in Google forms on http://docs.google.com.

Subjects: The respondents are investors with more than 5 years of experience, stockbrokers with more than 5 years of experience and experts at the State Securities Commission, Stock Exchanges and fund management companies.

The questionnaire comprises of 7 groups of opportunity factors from insiders and issuing organizations (the independent variable), 6 groups of opportunity factors due to investors (the independent variable), 6 oups of opportunity factors due to governing bodies (the independent variable) and 5 methods of committing fraud (the dependent variable). The total number of questionnaires being able to be used was 568. The survey results were processed by the SPSS program through these following steps:

Firstly, the research assessed the scale's credibility with Cronback Alpha coefficient > = 0.7 and have the total correlation coefficient > = 0.3.

Secondly, authors verified the scale value by analyzing EFA in which factor loading being > 0.5. The Principle Component used in the research was Varimax rotation.

Thirdly, the study conducted testing of the scale's credibility with Cronback Alpha coefficient after eliminating inappropriate indicators.

Fourthly, researchers analyzed the correlation between variables.

Fifthly, authors analyzed the multi-linear regression model

3.2 *Research Model*

The authors developed a regression equation to evaluate the impact of opportunity variables on various types of fraud in Vietnam stock market.

$$\mathbf{FRD = \beta 0 + \beta 1*ISD + \beta 2*IVT + \beta 3*MNG}$$

In which:

FRD: Type of fraud

ISD: opportunity variable due to insiders and issuing organizations

IVT: opportunity variable due to investors

MNG: opportunity variable due to market management and supervision

Table 3: Summary of dependent and independent variables

Variable Code	Indicators	Sources
I	*Fraud opportunities due to insiders and issuing organizations (independent variables)*	
ISD1	People with undisclosed inside information	Bonaime & Ryngaert (2013), Vinh Nguyen et al (2017)
ISD2	Collusion of issuing organizations, insiders and securities companies	Rajesh (2003), Dorminey et al (2010)
ISD3	Abuse of power and status	Ewa & Udoayang (2012), Mackevicius & Bartaska (2003).
ISD4	When asked by friends or acquaintances, they can be the company's legal representative but do not contribute capital or run the firm	Amended from case studies and in-depth interviews.
ISD5	Issuing organizations have transactions of related parties, parent companies – subsidiaries	Moyes et al (2005), Ming & Wong (2003).
ISD6	Issuing organizations have a complicated organizational structure; one person is in charge of multiple positions.	Farber (2005), Lou & Wang (2009).
ISD7	Issuing organizations do not effectively control inside information	Loebbecke et al (1989), Jeng (1998), Noe (1999)
II	*Fraud opportunities due to investors' lack of knowledge and make investment decisions based on herd mentality (independent variables)*	

Variable Code	Indicators	Sources
IVT1	Investors do not thoroughly analyze issuing organizations' information	Easley and O'Hara (1987), Vinh and Truong (2011).
IVT2	Investors lend securities accounts to friends and acquaintances	Amended from case studies and in-depth interviews.
IVT3	Investors buy or sell securities according to insiders or those are believed to have inside information	Cornell and Sirri (1992), Demsetz (1968) and Bagehot (1971)
IVT4	Investors tend to trade in foreign investors' pattern	Nguyen Duc Hien (2012)
IVT5	Investors trade based on brokers' recommendation	Rajesh (2013), Dorminey et al (2010)
IVT6	Investors trade based on advice on securities forums	Vinh and Truong (2011)
III	*Fraud opportunities due to ineffective market management and supervision (independent variables)*	
MNG1	"Leverage-creating credit" services by securities companies.	Amended from case studies and in-depth interviews.
MNG2	Inopportune detection of fraud by supervision system of government bodies	Ewa & Udoayang (2012), Dorminey et al (2010).
MNG3	Inadequate legal system misses or incorrectly evaluates criminals, lacks policies for denunciators...	Bhattacharya and Daouk (2009), Rajesh (2003)
MNG4	The sanctions are too light, and not deterrent	Bhattacharya and Daouk (2009), Choi (2004), Vinh Nguyen et al (2017)
MNG5	Inopportune and delayed sanctions and punishments	Nguyen Thanh Tung (2016)
MNG6	Limited authority of the SSC in investigation and sanctions	Amended from case studies and in-depth interviews.
IV	*Methods of committing fraud (dependent variables)*	
FRD1	Use one or many accounts to continuously buy and sell to create false supply and demand for securities.	Kyle (1984), Rajesh (2003)
FRD2	Continuously trade with the controlling volume at the time for determining the closing price or the new opening price of that security.	Back & Baruch (2004), Archisman & Bilge Yilmaz (2004)
FRD3	Give opinions through the mass media about a security to influence the stock price	Van (2003), Back & Baruch (2004), Archisman & Bilge Yilmaz (2004)
FRD4	Disclose false or misleading information to greatly affect stock price on the market	Kyle (1984), Rajesh (2003).
FRD5	Use inside information to trade	Carlton & Fischel (1983), Vo Thi Hoang Nhi (2008)

Soucre: Authors

4 Findings and discussion

4.1. *Research findings*

Evaluation of the scale's credibility

Analysis of Cronbach's Alpha testing proved the scale's credibility as Cronbach's Alpha coefficient of all variables was > 0.7. However, the ISD4 indicator with Cronbach's Alpha coefficient if the item delete was 0.809, which was greater than the Cronbach's Alpha coefficient of the ISD variable being 0.802. The MNG1 indicator with Cronbach's Alpha coefficient if the item delete was 0.858, which was higher than the Cronbach's Alpha coefficient of the MNG variable being 0.832. Therefore, in order to increase the suitability of the scale, the research removed the two indicators including ISD4 and MNG1.

Table 4: Credibility evaluation of the scale via Cronbach Alpha coefficient

No	Variables	Acronym	Cronbach Alpha coefficient
1	Methods of committing fraud	FRD	0.754
2	Fraud opportunity variable due to insiders and issuing organizations	ISD	0.809
3	Fraud opportunity variable due to investors	IVT	0.758
4	Fraud opportunity variable due to market management and supervision	MNG	0.858

Source: Aggregated from analysis

EFA (Exploratory factor analysis) of independent variables

After conducting testing of the scale's suitability, authors implemented EFA. The analysis was performed three times, in which factor loading in each analysis was > 0.5. This proved the appropriate correlation between observed variables (indicators) and factors selected in the model. However, due to the failure to ensure the "convergent validity" for the same factor, at the first analysis, indicators ISD5, IVT1, IVT2, MNG2, MNG3 were eliminated. Results of the third analysis showed that the remaining data were eligible for analysis as factor loading was > 0.5 and they satisfied the two conditions including "convergent validity" (observed variables converged to the same factor) and "discriminant validity" (observed variables that belong to one factor are different from other variables).

Table 5: Resutls of EFA

EFA	*KMO coefficient*	*P-value*	*Average Variance Extracted*	*Factor Loading*	*Conclusion*
First analysis	0.877	0.000	61.116	All >0.5	Elimination of 5 indicators
Second analysis	0.817	0.000	60.595	All >0.5	Eligible for analysis

Source: Aggregated from analysis EFA (Exploratory factor analysis) of dependent variables

EFA of dependent variables illustrated that the KMO coefficient was 0.756 (> 0.5). Sig value was 0.000 (<0.05), average variance extracted was 50.503, and indicators were combined into a single variable, which ensured the requirement of "convergent validity".

Table 6: KMO coefficient of dependent variables

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.756
Bartlett's Test of Sphericity	Approx. Chi-Square	616.244
	df	10
	Sig.	.000

Source: Aggregated from analysis

Table 7: Average Variance Extracted of dependent variables

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.525	50.503	50.503	2.525	50.503	50.503
2	.844	16.883	67.386			
3	.671	13.413	80.799			
4	.514	10.273	91.072			
5	.446	8.928	100.000			

Extraction Method: Principal Component Analysis.

Source: Aggregated from analysis Testing of the new scale's credibility

After performing EFA, eliminating inappropriate indicators and grouping them into new variables, authors conducted testing of the scale's credibility. Cronbach's Alpha testing of new variables prove the credibility of the scale used in the analysis when the Cronbach's Alpha coefficient of all variables was > 0.7.

Table 8: Testing of the new scale's credibility

No	Variables	Acronym	Cronback Alpha coefficient
1	Fraud opportunity variable due to insiders and issuing organizations	ISD	0.781
2	Fraud opportunity variable due to investors	IVT	0.756
3	Fraud opportunity variable due to market management and supervision	MNG	0.806

Source: Aggregated from analysis EARSON correlation analysis among variables

Table 9: Correlation coefficient among variables in the model

Variables	ISD	IVT	MNG
FRD	.543**	.289**	.443**
ISD		.324**	.493**
IVT			.361**
MNG			

Source: Aggregated from analysis

Correlation analysis demonstrated that all variables have independent influence on fraud in the stock market, and they have a close correlation with each other. Therefore, in order to ensure the accuracy, it is necessary to review the role of independent variables in the multivariate regression model by reviewing the degree of impact of each independent variable on dependent variables.

Analysis of regression model

Table 10: Regression analysis of independent variables' factors

No	Independent variables	B	Standardized Coefficients Beta	Sig.	Variance Inflation Factor VIF
	(Constant)	1.470		0.000	
1	ISD	0.377	0.413	0.000	1.366
2	IVT	0.072	0.079	0.035	1.188
3	MNG	0.164	0.211	0.000	1.406

Source: Aggregated from analysis

Regression analysis illustrated that with all Sig values were <0.05 and positive standardized coefficients Beta, all independent variables included in the model had a positive correlation with dependent variables.

The order of influence was ISD ranking first with standardized coefficients Beta being 0.413, MNG (0.211), IVT (0.079). The regression equation is illustrated as follows:

FRD = 1.470 + 0.377*ISD + 0.072*IVT + 0.164*MNG

The R2 adjusted value was 0.337, which meant that independent variables included in the model could explain 33.7% of the variation of dependent variable (FRD).

Analysis showed that there was no multicollinearity as Variance Inflation Factors (VIF) was all below 2. This proved the accuracy of the testing model and collected data.

Table 11: Value of statistical mean

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ISD1	568	1	5	3.60	1.141
ISD2	568	1	5	3.48	1.009
ISD3	568	1	5	3.36	1.036
ISD6	568	1	5	3.30	1.045
ISD7	568	1	5	3.27	1.095

IVT3	568	1	5	3.42	1.007
IVT4	568	1	5	3.36	1.004
IVT5	568	1	5	3.32	1.001
IVT6	568	1	5	3.36	1.076
MNG4	568	1	5	3.57	1.110
MNG5	568	1	5	3.53	1.039
MNG6	568	1	5	3.30	1.084
Valid N (listwise)	568				

4.2. Discussion of research findings

In summary, fraud opportunity factors include: fraud opportunities due to insiders and issuing organizations; fraud opportunities due to investors' lack of knowledge or herd mentality, opportunities due to ineffective market management and supervision. These all had impacts on fraud in Vietnam stock market.

In particular, the factor with greatest influence on fraud in Vietnam stock market was insider and issuing organizations. The table of statistical mean showed that, among opportunity factors, "People with undisclosed inside information" was the most common cause leading to fraud in the stock market (Mean of ISD1 = 3.60). This result was similar to findings from case studies and in-depth interviews as well as corresponded with research by Carlton & Fischel (1983), Bonaime & Ryngaert (2013). The factor was followed by collusion among major shareholders, issuers and securities companies (Mean of ISD2 = 3.48). This outcome was similar tofindings from case studies and in-depth interviews as well as corresponded with research by Rajesh (2003), Free and Murphy (2015) as they discovered that 58.7% of financial fraud were conducted with accomplices. In addition, collusion was also a key element in many complicated and expensive frauds (Dorminey et al. (2010); Klein & Maxson (2006)). "Abuse of power and status to entice others into committing fraud"; "Issuing organizations have a complicated organizational structure, one is in charger of multiple positions."; "Issuing organizations do not effectively control inside information" are the remaining factors affecting fraud in Vietnam stock market respectively. These results did not completely correspond with studies by Mackevicius & Bartaska (2003), Lou & Wang (2009), Jeng (1998), Noe (1999) as these research only focused on financial statements fraud without considering insider trading and stock price manipulation. These following factors do not affect fraudulent behaviors in Vietnam stock market: "When asked by friends or acquaintances, they can be the company's legal representative but do not contribute capital or run the firm", " Issuing organizations have transactions of related parties, parent companies - subsidiaries ”.

The factor group named "Ineffective market management and supervision" ranked second in terms of influence on fraud in the stock market. In which "The sanctions are too light, and not deterrent" (Mean = 3.57), "Inopportune and late sanctions and punishments" (Mean = 3.53), "Limited authority of the SSC in investigation and sanctions ”(Mean = 3.30) are those factors in this group which had impacts on fraud in Vietnam stock market. The results corresponded with findings of in-depth interviews and case studies.Similar to the study by Le Nguyen Trung Thanh (2017), this research proved that 100% of cases related to manipulated transactions and insider trading are detected and resolved only after its ending. This means that individuals and groups committing violations only after achieving their goals are punished by the monitoring system. Vinh Nguyen et al. (2017) argued that securities fraud in the context of sanctions being too loght could be an explanation for the current situation. The following factors had absolutely no impact on fraud in the Vietnam stock market: " 'Leverage-creating credit' services by securities companies.", "Inopportune detection of fraud by supervision system of government bodies"," Inadequate legal system misses or incorrectly evaluates criminals, lacks policies for denunciators ". The outsome was similar to results of research by Bhattacharya and Daouk (2009), Rajesh (2003, Kenyon & Tilton (2006), Ewa & Udoayang (2012), Dorminey et al (2010). This can be explained by Vinh and Truong (2011), Vinh Nguyen et al. (2017) as they stated that Vietnam stock market is the place where securities laws do exist but their enforcement is ineffective. Factor named 'Leverage-creating credit' services by securities companies was identified in case studies but quantitative results did not support it. During the in-depth interviews, experts also said that the margin rate allowed by securities companies was at a suitable degree and securities bills also acknowledged these activities, therefore, securities enterprises were not motivated to exceed the permitted rate like they did before.

The last factor group affecting fraud is "investors' lack of knowledge and herd mentality". This result was similar to outcomes from studies by Nguyen Duc Hien (2012). Factors named "Investors do not thoroughly analyze issuing organizations' information" and "Investors lend securities accounts to friends and acquaintances" respectively did not have absolutely any influence on fraudulent behaviors in Vietnam stock market. This finding did not correspond with results from research by Easley and O'Hara (1987), Vinh and Truong (2011).

5. Conclusion and recommendations

The influence order of each factor group leading to fraud in Vietnam stock market from greatest to lowest was identified respectively as follows: opportunity factors due to insiders and issuing organizations, factors due to the ineffective market management and supervision, and factors due to investors' lack of knowledge or herd mentality. Specifically, "People with undisclosed inside information" and "Collusion of issuing organizations, insiders and securities companies" are the most common factors in the factor group due to insiders and issuing organizations. This result corresponded with research findings by many domestic and foreign authors. In addition, some outcomes are unique as Vietnam stock market has been newly formed and developed for 20 years with an inadequate legal system and management model. Particularly, "Inopportune and delayed sanctions and punishments" and "Limited authority of the SSC in investigation and sanctions" are the most popular factors in the factor group due to ineffective market management and supervision. The factor group with lowest impacts on fraud was "investors' lack of knowledge and herd mentality".

Based on the above research findings, the authors proposed some recommendations as follows:

Improvement of legal documents related to securities trading activities

Legal documents on state management of securities and stock market are required to be to amended and improved in terms of the following contents:

- Securities companies have responsibilities and obligations with fraudulent acts by investment accounts registered at such securities companies. It is also essential to establish supervisory responsibilities at the third level for securities companies in the monitoring system of trading.

- Laws and regulations should clearly stipulate issuing organizations' responsibilities for fraud. It is neccessary to require issuing organizations to have regulations to monitor fraud and protect shareholders' rights. Issuing organizations should develop internal regulations on the management and processing of inside information to protect the legitimate interests of shareholders in the company. In the process of internal control, it is essential to establish regulations to easily identify people who receive inside information. Concurrently, it is also important to develop laws to restrict insiders' transactions at the time of information disclosure. Specifically:

(i) Except for public offers, executives in issuing organizations should not be permitted to conduct transactions related to securities issued by their own companies from the date of publication of the annual balance sheet until the annual report is approved. This regulations also applies to the issuing organizations' staff and those who are legally involved in drafting the balance sheet. Parties receiving the report or liquidating, authorized people and those ultimately being responsible for the report will not be allowed to trade or disclose to others to conduct transactions related to securities of their own issuing organizations.

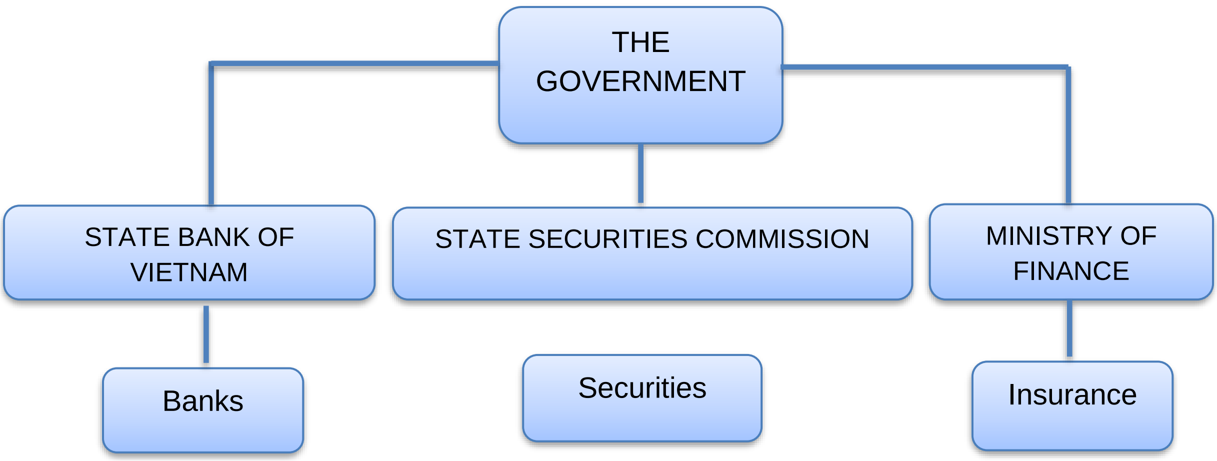
(ii) Essential insiders (insiders who are legally required to disclose information) and others related to essential insider are not allowed to conduct transactions with securities issued by their own company at the time before the publication of the company's interim and financial statements. This period lasts at least 14 days or if the company publishes information on results of production and business activities every six months, the time period lasts at least 21 days.

(iii) If a market situation indicates that someone is conducting transactions based on inside information, issuing organizations "may, if it deems necessary" to disclose such inside information officiially, thereby allow all investors to make investment decisions based on the same information, and in this way insider trading can be eliminated. It should also be noted that in a similar situation, when market activities indicate that someone may be conducting transactions based on inside information but in reality, there is no inside information, issuing organizations are required to issue a notice that there is no such type of inside information to help prevent stock price manipulation.

Enhancement of the authority for the Securities Commission

- It is necessary to separate the State Securities Commission into an independent agency from the Ministry of Finance. This is due to the fact that the State Securities Commission is currently under the Ministry of Finance, and it results in limited independence and authority of the SSC in investigating and sanctioning. The State Securities Commission should be given more authority to ensure its ability to supervise and enforce its rights to promptly resolve violations as well as request access to account information, information of those individuals or organizations showing signs of fraud...

Map 1: Recommendations fo Legal position of the State Securities Commission



- The State Securities Commission should coordinate with agencies and organizations, especially through securities companies, to intensify training and education to raise awareness and prevent fraudulent acts for investors. Specifically:

Developing and implementing programs to improve financial knowledge for investors. The programs include training of basic financial knowledge and more sophisticated investment products, the ability to assess the suitability of investment products for personal needs. Additionally, it is essential to minimize trading by investors with herd mentality such as trading in foreign investors' pattern, trading based on advice by brokers or securities forums, and trading based on information believed to be insiders'.

Establishing and conducting programs to enhance knowledge in recognizing and preventing frauds. Investors should be trained to be aware of fraud signs, irregularities, and how to recognize warnings such as breaches in disclosure of inside information by insiders and issuing organizations, the nature of figures in the financial statements, auditors' note, abnormal price changes without information support, and enticing market reviews regarding manipulation of stock price...

Disseminating knowledge about rights and obligations of investors. It is neccessary that investors be aware of their basic rights when investing in securities of issuing organizations, and what obligations they have when participating in securities transactions. For example, investors have the right to notify fraudulent behaviors as well as to denounce those committing fraud. And concurrently investors must not lend securities accounts or be the company's legal representative but do not contribute capital or run the firm.

6. Limitations

Due to limited resources, the research has several following limitations: The author only studied stock fraud in the general stock market, excluded fraud in derivatives market or other fraud involved in both the stock market and the derivatives market.

The study concentrated on insider trading; price manipulation; creation or disclosure of false information without including other acts such as adjusting or falsifying securities documents and records; using accounts and property of others without their authoruy or appropriating other people's property.

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APPENDIX

Appendix 1: Questionnaire structure and symbols of variables in the research model

Part 1: includes four questions regarding personal information of respondents

Part 2: consists of 19 questions according to a 5-level Likert scale to study the influence of opportunity factors leading to fraud in Vietnam stock market. 1. Absolutely no influence; 2. No influence; 3. Medium influence; 4. Really influence; 5. Absolutely influence.

The first group of questions revolves opportunity factors due to insiders and issuing organizations (independent variables) which include:

+ ISD1: People with undisclosed inside information

+ ISD2: Colludition among issuing organizations, insiders and security companies

+ ISD3: Abuse of power and status

+ ISD4: When asked by friends or acquaintances, they can be the company's legal representative but do not contribute capital or run the firm

+ ISD5: Issuing organizations have transactions by related parties, parent companies - subsidiaries

+ ISD6: Issuing organizations have a complicated organizational structure, one person is in charge of multiple positions.

+ ISD7: Issuing organizations do not effectively control inside information

The second group of questions revolves opportunity factors due to investors (independent variables) which include

+ IVT1: Investors do not thoroughly analyze issuing organizations' information

+ IVT2: Investors lend securities accounts to friends and acquaintances

+ IVT3: Investors buy or sell securities according to insiders or those are believed to have inside information

+ IVT4: Investors tend to trade in foreign investors' pattern

+ IVT5: Investors trade based on brokers' recommendations

+ IVT6: Investors trade based on advice on securities forums

The second group of questions revolves opportunity factors due market management and supervision (independent variables) which include

+ MNG1: "Leverage-creating credit" services by securities companies.

+ MNG2: Inopportune detection of fraud by supervision system of government bodies

+ MNG3: Inadequate legal system misses or incorrectly evaluates criminals, lacks policies for denunciators...

+ MNG4: The sanctions are too light, and not deterrent

+ MNG5: Inopportune and delayed sanctions and punishments

+ MNG6: Limited authority of the SSC in investigation and sanctions

Part 3: composes of 5 questions revolving ways to commit fraud (measurement of dependent variables):

+ FRD1: Use one or many accounts to continuously buy and sell to create false supply and demand for securities.

+ FRD2: Continuously trade with the controlling volume at the time for determining the closing price or the new opening price of that security.

+ FRD3: Give opinions through the mass media about a security to influence the stock price.

+ FRD4: Disclose false or misleading information to greatly affect stock price on the market

+ FRD5: Use inside information to trade.