CORPORATE GOVERNANCE AND STOCK PRICE CRASH RISK

Kyeongmin Jeon, Sungkyunkwan University

ABSTRACT

This study examines whether there is an association between corporate governance and stock price crash risk. A large body of literature reports that a prominent factor of stock crash risk is the managerial tendency of withholding bad news from investors due to compensation contracts and career concerns. This study aims to verify whether good governance structures (characteristics of the board of directors) help restrict these opportunistic managerial behaviors. To test the hypothesis, this study performs the logit and OLS regression model using 3,635 data of listed Korean firms from 2006 to 2015. This research provides a direct evidence for the relationship between stock crash risk and characteristics of governance, particularly the characteristics of the BODs. The findings suggest that irrespective of the size of the board, if there are independent and expert directors' present, corporate governance may have an impact on the reduction of stock price crash risk. This paper contributes by extending the literature on corporate governance. Despite the importance of board compositions, there is no prior research examining the relation between the characteristics of the BOD and stock price crash risk.

Keywords: Board of Directors, Independent Director, Stock Price Crash Risk.

INTRODUCTION

Stock price crash risk is an important consideration for investment decisions and risk management. The recent global financial crisis has incurred the interest of regulators, practitioners, and researchers to investigate stock price crash risk and a growing body of literature examines the determinants of stock crash risks. One factor that emerges from the literature as a prominent predictor of stock price crash risk is the managerial tendency of withholding bad news from investors due to compensation contract and career concerns. When bad news accumulate and reach a tipping point, all the negative information is revealed at once, leading to a stock price crash (Hutton et al., 2009; Kim et al., 2011). Conceptually, stock crash risk is premised on the notion that managers have a tendency to withhold bad news for an extended period, allowing it to stockpile.

Stock price crash risk is also defined as the conditional skewness of return distribution and it captures asymmetry in the risk associated with the stock (Kim et al, 2014). Managers have incentives to overstate financial performance by withholding bad news as long as possible because of their compensation contracts and career concerns (Graham et al., 2005; Kothari et al., 2009; Lafond & Watts, 2008). Particularly, when firm performance falls below investors' expectations, managers tend to hide the bad news to protect their wealth, reputation, and jobs (Benmelegh et al., 2010; Gormley & Matsa, 2011). Opportunistic management behaviors such as tax evasion, the project with negative present value, and lack of transparency of financial information are some of the frequently reported reasons for stock price crash. Many prior research documents that a stock price crash occurs when investors realize that stock prices have been inflated. Jin & Myers (2006) report that the information asymmetry between managers and

shareholders, and managers' self-interest, is related to stock price crash risk. Hutton et al. (2009) insist that the opacity of earnings is associated with stock price crash risk and in case of the higher opacity of reported earnings, it is easy for managers to conceal bad news, in turns, it leads to stock price crash. Similarly, Callen & Fang (2011) examine that stock price crash in the terms of lack of auditor monitoring.

According to prior research, corporate governance mechanisms can help prevent opportunistic managerial behaviors and reduce the stock price crash risk (Shleifer & Vishny, 1997; Healy et al., 1999; An & Zhang, 2013). Good corporate governance serves as an effective mechanism to alleviate the opportunistic behaviors of the management, improve accounting information quality, and enhance firm value (Chen et al., 2009; Bhagat & Bolton, 2008; Denis & McConnell, 2003; Alkurdi et al., 2019). Good governance mechanisms in terms of board of director should enhance fairness among the different stakeholders in the business (Collier & Esteban, 1999; Jensen, 2005; Matten & Crane, 2005).

Usually, the board of director is widely believed to play an important role in corporate governance, particularly in monitoring top management (Fama & Jensen, 1983). Furthermore, independent directors should ensure that financial decisions are made in the best interests of all shareholders, and do not result in earnings or cash flows that are biased toward the managers and controlling or minority shareholders (Donaldson & Preston, 1995). When large corporations are controlled by a small number of people, the issue of corporate governance becomes important, because earnings can easily be manipulated to their benefit at the expense of public interest. Therefore, the risk that these manipulations may damage stakeholders gives rise to a demand to monitor such managers' opportunistic behaviors. Nowadays, corporate governance has become an issue of enormous relevance in business and economics.

This study investigates whether there is an association between corporate governance and stock price crash risk, particularly focusing on the board of director. The answer to this question is interesting for several reasons. It can help us understand which board composition enhances effectiveness, and whether board composition is in a monitoring role. This study provides direct evidence for the relation between stock crash risk and the characteristics of governance; particularly the characteristics of the board of director. Overall, the results suggest that irrespective of the size of the board, the presence of expert directors, corporate governance may have an impact on the reduction of stock crash risk. This paper contributes by extending the literature on corporate governance. Despite the importance of board compositions, there is no prior research examining the relation between the characteristics of the board of director and stock price crash risk. This study has implications for regulators and particularly for investors who make investment decision. A good amount of investor wealth is tied to stocks. Thus, a more refined approach in analyzing stock price crash risk will better assist investor pricing and investment decisions that increase wealth and avoid unnecessary loss.

The rest of this paper is organized as follows: In Section II, I describe related research on stock crash risk and corporate governance and develop the hypotheses. In sections III and IV, I present the research design and sample selection. Section V offers the conclusion and discussion on this research.

LITERATURE REVIEW

Stock Crash Risk

A growing body literature examines the determinants of stock crash risk. One factor that emerges from the literature as a prominent predictor of stock price crash risk is the managerial tendency of withholding bad news from investors due to career and compensation concerns, and when bad news accumulates and reaches a tripping point, all the negative information is revealed at once, leading to a stock price crash (Hutton et al., 2009; Kim et al., 2011; Kim & Zhang, 2013). Jin & Myers (2006) report that increased opacity results in managers withholding firm-specific bad news from public disclosure. Hutton et al. (2009) argue that the managerial tendency to conceal bad news engenders stock price crashes. Kothari et al. (2009) report that career concerns motivate managers to withhold bad news and overstate financial performance. This tendency leads to this news being stockpiled within the firm. However, there is a certain point at which it becomes too costly or even impossible for managers to withhold bad news. Kim et al. (2011) examine the relationship between tax avoidance and crash risk. They find that corporate tax avoidance is positively associated with firm-specific stock price rash risk. Tax avoidance facilitates managerial rent extraction and bad news hoarding activities for extended periods. Xu et al. (2014) report a positive correlation between an excess of perks and crash risk.

In contrast, Song et al. (2014) find that firms that actively engage in corporate social responsibility (CSR) refrain from bad news hoarding behavior, thus reducing crash risk. Kim & Zhang (2014) report that accounting conservatism limits managerial incentive, and the ability to overstate performance and hide bad news from investors, which, in turn reduces stock price crash risk. An & Zhang (2013) investigate the relationship between institutional investors' ownership and stock price crash, and conclude that strong monitoring by dedicated investors attenuates managers' bad news hoarding, and thus prevents stock crash risk. However, Andreou et al. (2013) find that future stock price crashes are positively associated with institutional ownership, the percentage of directors holding company' shares, and the opacity of financial reports. They also find that auditors' industry experience is negatively related to stock price crash. Kim et al. (2011) show that the positive relationship between tax avoidance and stock crash risk is attenuated when firms have strong external monitoring mechanisms. Overall, it is widely perceived that stock price crash rick is positively related with opacity. Even so, that risk could be reduced through effective monitoring. There is little known about whether and why the characteristics of board of director affect stock price crash risk.

Corporate Governance and Earnings Management

Corporate governance mechanisms help to control agency costs either by improving the alignment of managers' interests with those of outside shareholders or by monitoring the managers, hence deterring them from engaging in opportunistic actions (Charreaux, 1998). Klein (2002) and Al Azeez et al. (2019) find that there is a negative relationship between board independence and abnormal accruals, and reductions in board independence are accompanied by large increases in abnormal accruals. A few studies document a negative relationship between outside directors and the incidence of financial fraud (Dechow et al., 1996; Beasley, 1996).

Prior research suggests that good corporate governance serves as an effective mechanism to alleviate the opportunistic behaviors of the management, improve accounting information quality, and enhance firm value (Chen et al., 2009; Bhagat & Bolton, 2008; Denis & McConnell,

2003; Al-Othman et al., 2019). Good governance mechanisms in terms of board of director should enhance fairness among different stakeholders in the business (Collier & Esteban, 1999; Jensen, 2005; Matten & Crane, 2005).

Furthermore, independent directors should ensure that financial decisions are made in the best interests of all shareholders, and do not result in earnings or cash flows that are biased toward the managers, controlling shareholders, or minority shareholders (Donaldson & Preston, 1995). Board members with corporate or financial backgrounds are associated with firms that have smaller discretionary current accruals, and board meeting frequency is also associated with reduced levels of discretionary current accruals (Xie et al., 2003).

HYPOTHESES DEVELOPMENT

Nowadays, a good amount of investor wealth is tied to stocks. Therefore, stock price crash risk is an important factor to consider for investors to make investment decisions and risk management. Nevertheless, after the recent financial crisis many policymaker, practitioners, and investors have started to pay attention to stock price crash risk. It is defined as the conditional skewness of return distribution and it captures asymmetry in the risk associated with the stock (Kim et. al., 2014). According to prior research, it is premised on the notion that managers have a tendency to withhold bad news for an extended period, allowing it to stockpile. When accumulation of bad news reaches a certain threshold, it is disclosed all at once, leading to stock price crashes (Jin & Myers, 2006; Hutton et al., 2009). Particularly, when firm performance falls below investors' expectations, managers tend to hide the bad news in order to protect their wealth, reputation, and jobs (Amihud & Lev, 1981; Holmstrom, 1979; Benmelegh et al., 2010; Gormley & Matsa, 2011). Selfish management behaviors such as tax evasion, investment to the project with negative present value, and opacity of financial information are mainly reported reasons for stock price crashes. In the absence of optimal contracts, managers can make opportunistic decisions at the expense of shareholders by exploiting their information superiority. In general, making decisions that aim to temporarily boost stock price, or engaging in earnings management to preserve an inflated stock price are unsustainable. When the true values and are uncovered, eventually it results in stock price crash. A considerable body of literature report that stock price crash occurs when investors realize that stock prices have been inflated. Jin & Myers (2006) report that the information asymmetry between managers and shareholders is related to stock price crash risk. Hutton et al. (2009) report that the opacity of earnings is associated with higher stock price crash risk. They insist that poor accruals quality in reported earnings allows managers to conceal bad news, which leads to stock price crashes. Therefore, this risk gives rise to a need to monitor such managers' opportunistic behaviors.

Corporate governance serves as an effective mechanism to alleviate the opportunistic behaviors of management, improve accounting information quality, and enhance firm value (Chen et al., 2009; Bhagat & Bolton, 2008; Denis & McConnell, 2003). Usually, board of directors is believed to play an important role in corporate governance, particularly in monitoring top management (Fama & Jesen, 1983). Furthermore, independent directors should ensure that financial decisions are made in the best interests of all shareholders (Donaldson & Preston, 1995).

When large corporations are controlled by a small number of people, the issue of corporate governance becomes important, because earnings can easily be manipulated to their benefit at the expense of public interest. Boards have the fiduciary responsibility to monitor the management to protect shareholders' interest (Park & Shin, 2004). Boards of directors are widely

believed to play an important role in corporate governance, particularly in monitoring top management (Fama & Jesen, 1983). The board's effectiveness as a monitor is enhanced by the inclusion of various directors. For instance, Dalton et al. (1999) find a positive relation between board size and firm performance. On the contrary, Lipton & Lorsch (1992); Jensen (1993) & Yemack (1996) report that smaller boards are considered to be more effective in attaining higher monitoring abilities, because there are fewer disagreements between board members, and they are thus more efficient in carrying out board functions than larger boards. However, recent research suggests that the effect of board size depends on the organizations form (Coles et al., 2008; Ni & Purda, 2012). Typically, independent directors should ensure that financial decisions are made in the best interests of all shareholders (Donaldson & Preston, 1995), and a board with more independent directors is considered to be more effective in monitoring the management, and protect shareholders from self-serving managerial behavior (Agrawal & Chadha, 2005). Xie et al. (2003) report that board members with corporate or financial backgrounds are associated with firms that have smaller discretionary current accruals. Lastly, Alkurdi et al. (2019) document that board size and independence have a significant positive impact on voluntary risk disclosure.

Consistent with prior research, good corporate governance improves oversight, and curbs the opportunistic tendency of managers to hide and accumulated bad news from outside investors, which in turn, it is likely to reduce the stock price crash risk. Therefore, this study investigates whether there is an association between stock price crash risk and corporate governance and particularly focuses on the characteristics of board of directors: size, independence, and expertise.

Hypothesis 1: The size of board of directors is negatively related to stock price crash risk.

Hypothesis 2: The independence of board of directors is negatively related to stock price crash risk.

Hypothesis 3: The expertise of board of directors is negatively related to stock price crash risk.

METHODOLOGY

Sample Selection

This study uses the sample of publicly listed Korean companies for the periods ending 2006 and 2015. The sample consists of all firms with available financial data from KIS-Value, data of stock returns from Fn-guide, and details of corporate governance from the website of Korea's Financial Supervisory Service (http:dart.fss.or.kr).

Table 1
SAMPLE SELECTION

Criteria	Firm-years
Total observations of firm-years between 2006 and 2015 that have distribution	6,936
(-) Firms-years without at least 10 observations for each industry-year	781
(-) Firms-years that do not have information from Kis-Value Database	1,536
(-) Firms-years have insufficient information to measure independent variables	984
Final firm-year observations	3,635

Firms in the financial industry have been excluded because they operate in highly regulated industries with accounting rules that differ from other industries. To ensure homogeneity, this paper also excludes firms whose year-end is not on Dec 31. After this selection process, the final sample included 3,635 firm-years. Table 1 shows the sample selection procedure.

Research Model

This study uses three proxies to measure stock price crash risk, this paper first estimates firm-specific weekly returns using the following the regression model by Hutton et al. (2009).

$$r_{i,t} = \alpha_i + \beta_{1,i}\gamma_{m,t-2} + \beta_{2,i}\gamma_{m,t-1} + \beta_{3,i}\gamma_{m,t} + \beta_{4,i}\gamma_{m,t+1} + \beta_{5,i}\gamma_{m,t+2} + \varepsilon_{i,t} \quad (1)$$

Where is the return on the stock j in week t and is the return on the market index (KOSPI index) in week, is residual by equation (1). The firm-specific weekly return for firm j in week t is as the natural logarithm of one plus the residual. This paper defines stock crash weeks in a given firm as those weeks during which the firm experiences firm-specific weekly returns 3.2 standard deviations below the mean firm-specific weekly returns over entire fiscal year, with 3.2 chosen to generate a frequency of 0.1% in the normal distribution (Hutton et al. 2009). The first measure of stock crash likelihood of each firm in each year, denoted by CRASH, is an indicator variable that equals one for a firm-year that experience one or more crash weeks during the fiscal year period, and zero otherwise.

Following Chen et al. (2001), the second measure of stock crash likelihood is the negative conditional return skewness (NCSKEW). Specially, this paper calculates NCSKEW for a given firm in a fiscal year by taking the negative of the third moment of firm-specific weekly returns during the same fiscal year, and dividing it by the standard deviation of firm-specific weekly returns raised to the third power. In particular, NCSKEW in year t for stock j is calculated as following equation (2).

$$NCSKEW_{i,t} = -\left[n(\mathrm{n}-1)^{\frac{3}{2}} \sum W_{i,t}^3 / \left[(\mathrm{n}-1)(\mathrm{n}-2)\left(\sum W_{i,t}^2\right)^{\frac{2}{3}} \right. \right. \quad (2)$$

Where the firm-specific weekly return, and n is the number of observations in the year t, higher value NCSKEW corresponds to a stock being more crash prone.

Lastly, the third measure of stock crash is DUVOL, which is the down-to up volatility measure of crash likelihood. It is calculated using the following equation (3).

$$DUVOL_{i,t} = \ln\left[(n_u - 1) \sum_{down} W_{i,t}^2 \right] / \left[(n_d - 1) \sum_{up} W_{i,t}^2 \right] \quad (3)$$

Where n_u and n_d are respectively the number of up and down weeks. For firm j in year t, all week was separated with firm-specific returns below and above the annual mean of firm-specific returns, and categorize them as down weeks and up weeks. The standard deviation was then calculated for each subsample. A higher value of DUVOL indicates greater crash risk.

Other Variables

This research considers the relationship between stock crash risk and corporate governance particularly focuses on the characteristics of board of directors such as board size, independence, and expertise. This study uses the following variables for corporate governance, Board Size which is measured by the number of board of directors (BOD), INDEPENDENCE which is measured by the proportion of outside directors in BOD, EXPERT which takes the value of 1 if there is an expert among directors in BOD. This paper defines as an expert if board of directors has a certified public accountant, a certified tax accountant, a professor in accounting and finance field or a retired bureaucrat from Financial Supervisor Service (FSS) and National tax service (NTS).

This study also includes several control variables identified in the prior literature of stock crash risk. Chen et al. (2001), Hutton et al. (2009) and Kim et al. (2011) show a positive relation between future stock crash and firm size. This research controls for firm size by including the natural log of total assets (SIZE). Hutton et al. (2009) suggest that leverage and performance are negatively related to stock crash risk. Therefore, this paper controls for leverage (LEV) which is the ratio of total debt to total assets and ROA. Chen et al. (2001) suggest that the firms' growth is related to future stock crash, so we control the firm's growth by using MTB which is measured as the market value of equity divided by the book value of equity. The research model also includes stock turnover ratio (TRADING) and absolute value of discretionary accruals by using modified Jones model. This paper calculates the residuals from the cross-sectional regression by year and industry for the individual firm's discretionary accruals.

Board of directors is charged with monitoring management to protect shareholders' interests and independent outside directors monitors management more effectively than inside directors. This study examines whether there is an association between corporate governance and stock price crash that occurred by managers opportunistic behavior through concealing bad news, particularly focuses on the characteristics of board of directors: board size, independence, expertise.

The regression model that this paper uses to test hypothesis is equation (4) as follows:

$$CRASH_t = \beta_0 + \sum_{m=1}^{m} \beta_m GOVERNANCE_{t-1} + \sum_{n=1}^{n} \beta_n CONTROL_{t-1} + \varepsilon_t \quad (4)$$

Where CRASH is stock crash measure (dummy for CRASH or NCSKEW, DUVOL), GOVERNANCE is the characteristics of board of directors, 1) board size: number of members in the board of directors, 2) independence: percentage of outside directors on the board, 3) expert: a dummy variable that equal 1 if the firm have an expert in the board of directors. CONTROL variables are SIZE, leverage (LEV), ROA, firm growth (MTB), stock turnover ratio (TRADING), and absolute value of discretionary accruals.

DATA ANALYSIS AND RESULTS

Descriptive Statistics and Univariate Analysis

Table 2 provides the descriptive statistics of the variables used in this study. It shows that 10.6% of firms in the sample have experienced one or more stock crash. It also shows that among the sample, 29.7% of the directors are independent directors. 42.9% of the sample firms have an expert among the BOD and an average of 5.65 members in the BOD.

Table 3 provides the Pearson correlation matrix for the variables used in regression analysis. As shown, stock crashes are significantly negatively correlated with board size, independence, and expertise of BOD. It can be interpreted that the crash likelihood of firms with good governance is less than that of firms with weak governance. Stock crash is also negatively correlated with Size, MTB, and ROA. However, crash is significantly positively correlated with abnormal accruals. This implies that firms that experience a stock crash are more likely to have a lower growth, and profitability, and manage earnings by using abnormal accruals. All the variance inflation factors are less than two, thus giving little cause for concern about the multicollinearity problem.

Table 2
DESCRIPTIVE STATISTICS

Variables	Mean	S.D.	Min	25%	Median	75%	Max
BOD_Size	5.654	3.576	1.000	4.000	6.000	8.000	31.000
INDEPENDENCE	0.297	0.224	0.000	0.167	0.286	0.444	0.900
EXPERT	0.429	0.495	0.000	0.000	0.000	1.000	1.000
CRASH	0.106	0.308	0.000	0.000	0.000	1.000	1.000
NCSKEW	-0.266	0.986	-6.970	-0.806	-0.223	0.335	4.797
SIZE	25.761	1.645	23.040	24.567	25.416	26.612	30.633
MTB	1.062	0.870	0.195	0.520	0.794	1.269	5.376
Leverage	0.480	0.227	0.057	0.306	0.473	0.625	1.186
ROA	0.031	0.080	-0.317	0.007	0.035	0.071	0.222
TRADING	0.013	0.031	0.000	-0.001	0.003	0.009	0.229
ACC	-0.001	0.082	-1.658	-0.037	-0.002	0.035	0.596

Table 3
CORRELATIONS MATRIX

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) BOD_Size	1.00	**0.595**	**0.058**	-0.011	0.020	**0.146**	-0.016	0.017	**-0.080**	0.008	-0.019
(2) INDEPENDENCE		1.000	**0.069**	-0.024	0.032	**0.177**	-0.004	0.033	**-0.067**	0.000	-0.019
(3) EXPERT			1.000	**-0.033**	**-0.052**	**0.244**	**0.109**	**-0.043**	**0.045**	**-0.032**	-0.020
(4) CRASH				1.000	**0.414**	**0.038**	-0.001	-0.000	**-0.036**	0.006	**0.033**
(5) NCSKEW					1.000	**0.207**	0.108	-0.014	**0.054**	-0.014	**0.040**
(6) SIZE						1.000	**0.323**	0.021	**0.243**	**0.076**	0.009
(7) MTB							1.000	**0.166**	**-0.035**	-0.001	**-0.091**
(8) Leverage								1.000	**-0.187**	-0.001	**0.052**
(9) ROA									1.000	**-0.042**	**0.378**
(10) TRADING										1.000	-0.015
(11) ACC											1.000

Two-tailed t-test, coefficients in **bolds** are significant at less than 5% levels

Table 4 reports the mean and median differences between firms who have and have not experienced a crash. The mean value of board size for firms who have and have not experienced a crash is 5.556 and 5.667, respectively. The mean value of independence for firms with a crash and without a crash is 0.278 and 0.300 respectively, their mean difference between firms who have and have not experienced a crash and without a crash is statistically significant at the 5% level. Further, the mean value in experts between the two groups is different. In addition, the mean values of Ab_ACC are significantly larger in firms who have experienced a crash than in those who have not. This means that firms who have experienced a stock crash are more likely to manage their earnings through accruals, consistent with prior research that accrual-based

earnings management is positively associated with the occurrences of a stock price crash (Hutton et al., 2009). Furthermore, firms who have not experienced a crash are more likely to have larger Size, MTB, and ROA. Overall, these two groups have statistically different firm characteristics.

Table 4
T-TEST AND WILCOXON TEST BETWEEN CRASH FIRMS AND NON- CRASH FIRMS

	Crash=0		Crash=1		Difference	
	Mean	Median	Mean	Median		
Variables	N=3,248		N=387			
BOD_Size	55.667	6.000	5.556	6.000	0.111	0.000
INDEPENDENCE	0.300	0.286	0.278	0.250	0.022*	0.036**
EXPERT	0.434	0.000	0.385	0.000	0.049*	0.000*
SIZE	25.809	25.463	25.355	25.081	0.454***	0.382***
MTB	1.083	0.808	0.887	0.650	0.196***	0.158***
Leverage	0.480	0.474	0.477	0.471	0.003	0.002
ROA	0.033	0.037	0.008	0.023	0.025***	0.014***
TRADING	0.013	0.003	0.013	0.004	-0.001	-0.001
ACC	-0.000	-0.001	-0.011	-0.007	-0.011*	0.006*

Relation between the BOD and Stock Price Crash Risk

Table 5 reports the regression results of equation (4), where the dependent variable is stock crash; firms that experience one or more crash weeks during the fiscal year period were assigned a value of 1, and 0 otherwise. The coefficients of Independence and Expert are negative, and statistically significant. The negative value of the coefficient implies that firms which have more outside directors and expertise are associated with a lower likelihood of stock crash. This study provides evidence that the independence and expertise of BOD is associated with a lower stock crash risk. The results suggest that the BOD plays a monitoring role in mitigating managers' opportunistic behaviors, which could affect stock crash risk.

Table 5
RESULT OF REGRESSION MODEL (4)

Dependent: CRASH	Coefficient	Coefficient	Coefficient
Intercept	0.325***	0.250**	0.272**
	(1.115)	(0.068)	(3.03)
BOD_Size	0.012		
	(0.018)		
INDEPENDENCE		-0.132**	
		(3.988)	
EXPERT			-0.019*
			(1.72)
SIZE	-0.023*	-0.004	-0.005
	(1.78)	(1.30)	(1.55)
MTB	0.003	0.002	0.004
	(0.63)	(0.40)	(0.75)
Leverage	-0.013	-0.016	-0.016
	(0.69)	(0.08)	(-0.78)
ROA	-0.144**	-0.127**	-0.141**
	(2.55)	(2.17)	(-2.51)
TRADING	0.001	0.009	0.008
	(0.26)	(0.24)	(0.22)

ACC	0.197***	0.192***	0.194***
	(2.94)	(2.87)	(2.91)
Year/Industry Indicator	Yes	Yes	Yes
Pseudo R^2	0.052	0.054	0.053
N	3,635	3,635	3,635

This paper investigates the relationship between corporate governance mechanism and stock crash risk, using NCSKEW and DUVOL as a dependent variable. Table 6 and Table 7 present the results of regression. There is a significantly association between the independence and expertise of directors and a stock price crash risk. Collectively, the results show that the BOD directly influences the level of stock crash risk. When firms have more independent and expert directors in their board, this paper finds evidence that corporate governance might have a marginal impact on the reduction of stock crash risk.

Table 6
RESULT OF REGRESSION MODEL (4)

Dependent: NCSKEW	**Coefficient**	**Coefficient**	**Coefficient**
Intercept	-3.285***	-3.261***	-3.284***
	(-11.29)	(-11.14)	(-11.23)
BOD_Size	0.019		
	(0.06)		
INDEPENDENCE		-0.041*	
		(1.720)	
EXPERT			-0.053**
			(2.02)
SIZE	0.119***	0.117***	0.119***
	(10.55)	(10.34)	(10.48)
MTB	0.021	0.021	0.022
	(1.26)	(1.29)	(1.29)
Leverage	-0.100	-0.100	-0.101
	(-1.60)	(-1.60)	(-1.61)
ROA	-0.187	-0.172	-0.178
	(-1.02)	(-0.95)	(-0.98)
TRADING	0.009	0.007	0.007
	(0.117)	(0.05)	(0.06)
ACC	0.576***	0.572***	0.573***
	(2.78)	(2.76)	(2.75)
Year/Industry Indicator	Yes	Yes	Yes
Adj. R^2	0.077	0.078	0.078
N	3,635	3,635	3,635

Table 7
RESULT OF REGRESSION MODEL (4)

Dependent: DUVOL	**Coefficient**	**Coefficient**	**Coefficient**
Intercept	-3.285***	-3.261***	-3.284***
	(11.29)	(11.14)	(11.23)
BOD_Size	-0.002		
	(0.46)		
INDEPENDENCE		-0.020*	
		(1.83)	
EXPERT			-0.027**
			(2.27)

SIZE	0.119***	0.117***	0.119***
	(10.55)	(10.34)	(10.48)
MTB	0.021	0.021	0.022
	(1.26)	(1.29)	(1.29)
Leverage	-0.100	-0.100	-0.101
	(1.60)	(1.60)	(1.61)
ROA	-0.187	-0.172	-0.178
	(1.02)	(0.95)	(0.98)
TRADING	0.009	0.007	0.007
	(0.117)	(0.05)	(0.06)
ACC	0.576***	0.572***	0.573***
	(2.78)	(2.76)	(2.75)
Year/Industry Indicator	Yes	Yes	Yes
Adj. R^2	0.081	0.082	0.082
N	3,635	3,635	3,635

CONCLUSIONS AND RECOMMENDATIONS

Managers have incentives to overstate financial performance by withholding bad news as long as possible because of their compensation contracts and career concerns (Ball, 2009; Graham et al., 2005; Kothari et al., 2009; Lafond & Watts, 2008). According to previous literature, a prominent factor of stock price crash risk is the managerial tendency of withholding bad news from. Particularly, when firm performance falls below investors' expectations, managers tend to hide the bad news to protect their wealth, reputation, and jobs (Amihud & Lev, 1981; Holmstrom, 1979; Benmelegh et al., 2010; Gormley & Matsa, 2011). Corporate governance mechanisms can help prevent managerial opportunistic behaviors, and reduce stock price crash risk (Shleifer & Vishny, 1997; Healy et al. 1999; An & Zhang, 2013). Usually, a board of director is widely believed to play an important role in corporate governance, particularly in the monitoring of the top management (Fama & Jesen, 1983). Furthermore, independent directors should ensure that financial decisions are made in the best interests of all shareholders (Donaldson & Preston, 1995).

When large corporations are controlled by a small number of people, the issue of corporate governance becomes important because earnings can easily be manipulated to their benefit at the expense of public interest. Therefore, the risk that these manipulations may damage stakeholders gives rise to a need to monitor such managers' opportunistic behaviors.

This study investigates whether there is an association between corporate governance and stock crash risk, and particularly focuses on the characteristics of board of director. This paper provides a direct evidence for the relationship between stock crash risk and characteristics of governance, particularly the characteristics of board of director. As a result, the board of director can influence the level of stock crash risk.

Overall, the results suggest that irrespective of the size of the board, if there are independent and expert director present, corporate governance might have an impact on the reduction of stock crash risk. It suggests that effective corporate governance mechanisms help to reduce opportunistic managerial behavior; they are also able to effect on the probability of stock price crash. Therefore, the likelihood of stock price crash can be used as an indicator of corporate governance effectiveness. In other words, lower ratio of stock price crash implies higher effectiveness of corporate governance mechanism. This study could be useful for investors and regulators to understand the stock price crash risk as well as the characteristics of board of

director. Also, this evidence is very important implications for investors to make investment decisions and risk management.

REFERENCES

Agrawal, A., & Chadha, S. (2005). Corporate governance and accounting scandals. *Journal of law and economics*, *48*(2), 371-406.

Al Azeez, H.A.R., Sukoharsono, E.G., Roekhudin., & Andayani, W. (2019). The impact of board characteristics on earnings management in the international oil and gas corporations. *Academy of Accounting and Financial Studies* Journal, *23*(1), 1-26.

Alkurdi, A., Hussainey, K., Tahat, Y., & Aladwan, M. (2019). The impact of corporate governance on risk disclosure: Jordanian evidence. *Academy of Accounting and Financial Studies Journal*, *23*(1), 1-16.

Al-Othman, L. N., & Al-Zoubi, M. N. (2019). The impact of the board of director's characteristics on earnings quality of listed industrial companies on the Amman stock exchange. *Academy of Accounting and Financial Studies Journal*, *23*(1), 1-16.

An, H., & Zhang, T. (2013). Stock price synchronicity, crash risk, and institutional investors. *Journal of Corporate Finance*, *21*, 1-15.

Andreou, P.C., Antoniou, C., Horton, J., & Louca, C. (2013). Corporate governance and firm-specific stock price crashes. *European Financial Management*, *22*(5), 916-956.

Amihud, Y., & Lev, B. (1981). Risk reduction as a managerial motive for conglomerate mergers. *The bell journal of economics*, *12*(2), 605-617.

Ball, R. (2009). Market and political/regulatory perspectives on the recent accounting scandals. *Journal of Accounting Research*, *47*(2), 277-323.

Beasley, M.S. (1996). An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review*, *71*(4), 443-465.

Benmelegh, E., Kandel, E., & Veronesi, P. (2010). Stock-based compensation and CEO (dis) incentives. Quarterly *Journal of Economics*, 125, 1769-1820.

Bhagat, S., & Bolton, B. (2008). Corporate governance and firm performance. *Journal of Corporate Finance*, 14, 257-273.

Charreaux, G., & Desbrières, P. (1998). Corporate governance: Partnership value versus shareholder value. *Finance Control Strategy*, *1*(2), 57-88.

Chen, J., Hong, H., & Stein, J.C. (2001). Forecasting crashes: Trading volume, past returns, and conditional skewness in stock prices. *Journal of Financial Economics*, *61*(3), 345-381.

Coles, J.L., Daniel, N.D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of Financial Economics*, *87*(2), 329-356.

Collier, J., & Esteban, R. (1999). Governance in the participative organization: Freedom, creativity and ethics. *Journal of Business Ethics*, *21*(2/3), 173-188.

Dalton, D.R., Daily, C.M., Johnson, J.L., & Ellstrand, A.E. (1999). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal*, *42*(6), 674-686.

Dechow, P.M., Sloan, R.D., & Sweeney, A. (1996). Detecting earnings management. *The Accounting Review*, *70*(2), 193-225.

Denis, D., & McConnell, J.J. (2003). International corporate governance. *Journal of Financial and Quantitative Analysis*, *38*, 1-36.

Donaldson, T., & Preston, L.E. (1995). The Stakeholder theory of the corporation: Concepts, evidence, and implication. *Academy of management Review*, *20*(1), 65-91.

Fama, E.F., & Jensen, M.C. (1983). Separation of ownership and control. *Journal of law and economics*, *30*(2) 301-325.

Gormley, T.A., Matsa, D.A., & Milbourn, T. (2013). CEO compensation and corporate risk: Evidence from a natural experiment. *Journal of Accounting and Economics*, *56*(2), 79-101.

Graham, J.R., Harvey, C.R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. *Journal of accounting and economics*, *40*(1), 3-73.

Healy, P.M., Hutton, A.P., & Palepu, K.G. (1999). Stock performance and intermediation changes surrounding sustained increases in disclosure. *Contemporary accounting research*, *16*(3), 485-520.

Hölmstrom, B. (1979). Moral hazard and observability. *The Bell journal of economics*, *10*(1), 74-91.

Hutton, A.P., Marcus, A.J., & Tehranian, H. (2009). Opaque financial reports, R2, and crash risk. *Journal of Financial Economics*, *94*(1), 67-86.

Jensen, M.C. (2005). Value maximization, stakeholder theory, and corporate objective function. *Journal of Applied Corporate Finance*, *14*(3), 8-21.

Jensen, M.C., & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305-360.

Jin, L., & Myers, S.C. (2006). R 2 around the world: New theory and new tests. *Journal of Financial Economics*, *79*(2), 257-292.

Jones, J. J. (1991). Earnings management during import relief investigations. *Journal of accounting research*, 193-228.

Kim, J.B., Li, Y., & Zhang, L. (2011). Corporate tax avoidance and stock price crash risk: Firm-level analysis. *Journal of Financial Economics*, *100*(3), 639-662.

Kim, J.B., & Zhang, L. (2014). Financial reporting opacity and expected crash risk: Evidence from implied volatility smirks. *Contemporary Accounting Research*, *31*(3), 851-875.

Klein, A. (2002). Economics determinants behind variations in audit committee independence. *The Accounting Review*, *77*, 435-452.

Kothari, S.P., Shu, S., & Wysocki, P.D. (2009). Do managers withhold bad news? *Journal of Accounting Research*, *47*(1), 241-276.

LaFond, R., & Watts, R.L. (2008). The information role of conservatism. *The Accounting Review*, *83*(2), 447-478.

Lipton, M., & Lorsch, J.W. (1992). A modest proposal for improved corporate governance. *The business lawyer*, *48*(1), 59-77.

Matten. D., & Crane, A. (2005). Corporate citizenship: Toward an extended theoretical conceptualization. *Academy of Management Review*, *30*(1), 166-179.

Ni, Y., & Purda, L.D. (2012). Does monitoring by independent directors reduce firm risk? Retrieved from http://dx.doi.org/10.2139/ssrn.1986289

Shin, H., & Park, Y.S. (1999). Financing constraints and internal capital markets: Evidence from Korean Chaebols. *Journal of Corporate Finance, 5*(2), 169-194.

Shleifer, A., & Vishny, R.W. (1997). A survey of corporate governance. *The Journal of Finance*, *52*(2), 737-783.

Song, L. (2015). Accounting disclosure, stock price synchronicity and stock crash risk: An emerging-market perspective. *International Journal of Accounting & Information Management*, *23*(4), 349-363.

Song B., Davidson III, W., & DaDalt, P. (2003). Earnings management and corporate governance: The role of the board and the audit committee. *Journal of Corporate Finance, 9*(3), 195-316.

Xu, N., Li, X., Yuan, Q., & Chan, K.C. (2014). Excess perks and stock price crash risk: Evidence from China. *Journal of Corporate Finance*, *25*, 419-434.

Yemack, D. (1996). Higher market valuation of companies with a small board of directors. *Journal of financial economics*, *40*(2), 185-211.