Essays on Corporate Governance

Yiqing Zhao

ICMA Centre, Henley Business School

University of Reading

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Declaration

I confirm this thesis is my own work. The use of all material from other sources has been properly and fully acknowledged.

Yiqing Zhao
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Abstract

This thesis revolves around the topic of corporate governance. Chapter 1 provides an overview of the research topics.

Chapter 2 examines the relationship between CEOs' generalist and specialist managerial skills and future stock price crash risk. Using nearly 20,000 firm-year observations across North American firms from 1995 to 2015, we find weak evidence that generalist CEOs are positively associated with future stock price crash risk. We conjecture that this may be the case because generalist CEOs frequently change jobs and are less engaged with their current position.

Chapter 3 studies the importance of effective board governance and presents some empirical evidence that board monitoring quality is negatively associated with future stock price crash risk. The empirical tests use more than 3,000 firm-year observations from North American firms from 2009 to 2020. The chapter includes some CEO characteristics that can potentially change the politics and dynamics of the board and thus affect the monitoring quality over time. The conclusion remains with the inclusion of these variables and finds that boards that offer high monitoring quality can help prevent extreme consequences. The research provides an alternative view of the motivation of directors and offers suggestions on how to improve board governance.

Chapter 4 summarizes the conclusions of the study.

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Chapter 1

Introduction

This chapter provides an overview of the structure of this thesis, which consists of two essays on corporate governance that focus specifically on stock price crash risk.

Over the past decade, an emerging body of research has examined stock price crash risk, with managerial bad news hoarding behaviour considered the primary cause. The negative role of CEOs in stock price crash stimulates the two studies in this thesis. Chapters 2 and 3 explore the two main perspectives of the determinants of stock price crash risk: the CEO himself or herself and the environment surrounding the CEO, respectively.

Chapter 2 is titled "Generalist CEO and Stock Price Crash Risk". This chapter examines the relationship between CEOs' generalist and specialist managerial skills and future stock price crash risk, using the General Ability Index introduced by Custodio et al. (2013) as the measure of CEO general ability for the empirical test. The sample contains over 17,000 firm-year observations across North America from 1995 to 2016. By examining the top 20th percentile of the General Ability Index (GAI) subgroup of CEOs, I find weak evidence that generalist CEOs contribute to stock price crash risk. This may be due to generalist CEOs' frequent job-hopping and short-termism, and their engagement in bad news hoarding for compensation and career track record concerns.

After examining the motivation for CEOs to hide bad news, I extend my investigation to external elements surrounding them. To be specific, I look at how the board environment surrounding CEOs may enable them to hoard bad news. Chapter 3, titled "Board Monitoring Quality and Stock Price Crash Risk", addresses the effect of board monitoring quality on stock price crash risk. Following Nguyen et al. (2016), I construct measures of board

monitoring quality. I hand collect more than 3,000 firm-year observations of board monitoring quality variables. The empirical evidence from North America from 2009 to 2020 shows that board monitoring quality is negatively associated with future stock price crash risk.

In the same chapter, I include CEO characteristics that can potentially influence the dynamics of the board and hence affect monitoring quality. My results remain robust with the inclusion of these factors, suggesting that a board structure offering high monitoring quality helps reduce stock price crash risk. However, when I conduct a robustness test using the Arellano-Bond GMM estimator for dynamic panels to address a potential bias in the regression analysis due to the short sample period, the results do not hold.

In summary, chapters 2 and 3 investigate two novel perspectives on stock price crash risk. The conclusion of my findings is detailed in chapter 4.

Chapter 2

Generalist CEO and Stock Price Crash Risk

2.1 Introduction

2.1.1 Background

In recent decades, the growing body of literature on the American business landscape has seen a dramatic increase in the attributions of CEO significance. Empirical evidence supports the notion that America's CEOs have become increasingly significant as a result of their increasing importance (Quigley and Hambrick, 2015).

A CEO's human capital can be categorized as general human capital, which includes the skills that are not specific to any organization and are transferrable across firms and industries, and firm-specific human capital, which includes the skills that are valuable only within the organization (Becker,1962). In an increasingly diversified and turbulent economic environment, CEOs with general managerial skills are highly recognized and demanded in order to improve organizational performance. CEOs with a high number of past roles are significantly more likely to be appointed to top

management positions (Ferderikson and Kato, 2017). The prevailing view of generalist CEOs is that managers with diverse working experience have solved a wide range of problems in the past and are thus expected to be better at handling complexity (Lazear, 2012). However, the theoretical impact of generalist CEOs is not clear. To be specific, generalist CEOs face ambiguity when there is bad news in the firm that may lead them to underperform. This study focuses on CEOs with general or special abilities and their potential for bad news hoarding behaviour, providing weak empirical evidence that firms under the leadership of generalist CEOs are more prone to crashes.

2.1.2 Findings and Contribution

This research examines nearly 20,000 firm-year observations from North America covering the years 1995 to 2015. The findings of the study reveal a tenuous link between generalist CEOs and future stock price crash risk. In this study we control for variables that are presented in prior studies, including past stock performance, operating performance, firm characteristics and CEO characteristics.

This study contributes to the existing literature on CEO characteristics in several ways. Firstly, it adds to the growing body of research on the consequences of recruiting generalist CEOs. The current literature on this topic focuses on compensation (Custodio et al. 2013), innovation (Custodio et al. 2019), shareholder value (Li and Patel, 2019), CSR (Chen and Liu, 2020), and compliance (Ma et al. 2021). By examining information hoarding, this study shows that generalist CEOs have a positive relation with future stock price crash risk. Secondly, this study uniquely focuses on the diverse professional experience of generalist CEOs, rather than their high managerial ability measured by organizational efficiency (Cui et al. 2019), and finds a weak positive association between these characteristics and stock price crash risk.

2.2 Literature Review

2.2.1 Literature review on generalist and specialist CEOs

Sixty years ago, Becker (1962) introduced two types of managerial capital: general human capital and firm-specific human capital. Becker's theory remains relevant today as firms tend to prefer recruiting CEOs externally, particularly those who already have CEO experience, and those who possess general managerial skills, as opposed to skills specific to a particular firm or industry (Murphy and Zabojnik, 2007). For instance, generalist managers are more likely to reach top management positions in complex business environments (Ferreira and Sah, 2012). Across the Standard and Poor's 1,500 firms, there is an annual pay premium of 19% for generalist CEOs relative to specialist CEOs, which represents nearly $1m per year (Custódio et al., 2013).

Despite the popularity of generalist CEOs in today's human capital market, their impact on firms can be controversial. Management operating styles vary depending on whether a CEO is a generalist or specialist (Custódio and Metzger, 2013). Firms managed by generalist CEOs are associated with higher risk (May, 1995). Pang et al. (2016) present evidence showing that generalist CEOs have worse performance during recessions. Chen and Liu (2018) provide evidence that CEOs with more general management skills are less likely to engage in CSR (corporate social responsibility). Ma et al. (2020) find that generalist CEOs are associated with lower credit ratings and higher audit fees. However, Custódio et al. (2019) provide evidence that firms with CEOs who have gained more general managerial skills over their work experience produce more patents and spur innovation. Betzer et al. (2020) examined generalist CEOs and stock returns around CEO turnover events and find positive a relation between generalist CEOs and shareholder value.

Previous studies have explained the mechanisms of generalist CEOs' impact on firms. Firstly, generalist CEOs are arguably better than specialist CEOs at addressing complex business problems and adapting to evolving economic conditions (Custódio et al. 2013). Secondly, generalist CEOs possess knowledge, characteristics, abilities, and skills of a general nature. Many of these skills are gained by moving through industries and are needed to succeed in acquisitions (Chen et al. 2017). Thirdly, generalist CEOs drive innovation by advantageously using knowledge from a field far

from their current firm's domain. Additionally, they possess abilities that may be applicable elsewhere in case of failure of innovative projects (Custódio et al. 2017). Fourthly, generalist CEOs are better at interacting with more people inside and outside the firm, have to solve more diverse problems under the trend of flatter organizational structures (Rajan and Wulf, 2006). Fifthly, generalist CEOs have better managerial skills for firms facing product market changes due to industry deregulation (Hubbard and Palia, 1995), foreign competition (Cunat and Guadalupe, 2009), and changes in technology and management practices (Garicano and Rossi-Hansberg, 2006) that are necessary to meet diverse demands in investor-relations efforts (Murphy and Zabojnik, 2007). Lastly, generalist CEOs have managerial ability to mitigate the risk of poor performance and unintentionally misstatement financial reports because they are better able to estimate accruals (Demerjian et al. 2012).

However, generalist CEOs bring more severe agency problems. Firstly, investors demand higher returns when operations are more complex and when more anti-takeover provisions are in place (Mishra, 2014). Generalist CEOs are engaged in more risk taking due to better outside options. They may have incentives to overestimate financial numbers to convince the shareholders to approve their high-risk projects (Biddle et al. 2001). Secondly, firms led by generalist CEOs face weaker financial conditions due to overinvestment in high-risk projects (Giannetti, 2011). Poor financial conditions may also give generalist CEOs stronger incentives to manipulate earnings to hide poor firm performance. Thirdly, generalist CEOs are often pursued by executive search firms and frequently engage in the external labour market for job-hopping, making them more likely to be recruited by other firms. Thus, they may have weaker incentives to stay engaged at work and a greater likelihood of job hopping (Dasgupta and Ding, 2010; Giannetti, 2011; Mishra, 2014). Lastly, generalist CEOs' long-term wealth is less related to the future reputation of the firm they lead. CEOs with more general skills may have more incentives to invest in short-term profit projects that do not benefit corporate's long-term financing but mainly boost current performances (Mishra, 2014).

2.2.2 Literature review on stock price crash risk

Stock price crash risk is rooted in the idea that managers tend to delay disclosure of bad news to investors due to career and short-term compensation concerns, while withholding good news less frequently (Graham et al., 2005). Jin and Meyers (2006) provide a theoretical analysis linking bad news hoarding to stock price crash risk. They found that managers control the disclosure of information about the firm to the public, and they choose to give up and stop withholding bad news at a threshold level and release all the negative firm-specific shocks to the public at once, leading to a large decrease in the stock price. There are theoretical models developed to explain the stock price crash risk: Managers have a natural tendency to withhold the bad news for a long term and allowing them to stockpile. When they are successful in blocking the bad news flow to the stock market, the distribution of the returns should be an asymmetric one (Hutton et al. 2009). Cao et al. (2009) develop an information blockage model as a framework to explain the stock price crash, finding that the information asymmetry and the less informed investors entering the market creates the negative return skewness.

Empirical research on stock price crash risk in recent years focuses on several directions, including managers' characteristics, management styles, monitoring effect, and business environment (eg. Kim et al, 2016; Kim and Li, 2014; Callen and Fang, 2013; Callen and Fang, 2015). For instance, Kim et al. (2016) find a positive relation between CEOs' overconfidence and future stock price crash risk. Overconfident CEOs overestimate the returns to their investment projects and misperceive negative net present value (NPV) projects as value creating. Andreou et al. (2016) shows that firms with younger CEOs are more likely to experience stock price crashes as these CEOs have incentives to hoard bad news earlier in their career. Cui et al. (2019) observes that high-ability managers are associated with higher future stock price crash risk, especially when they have larger career concerns, possess better operational information, and engage in more risk-taking behaviors. Finally, Al Mamun et al. (2020) finds the positive relation between powerful CEOs and future stock price crash risk. They argue that stock price crash risk requires both motivation and the ability to hide bad news. They also suggest that powerful CEOs hide bad news when they have poor general management abilities and have failed to deliver results to the firms.

2.2.3 Hypothesis development

The countervailing factors of generalist CEOs warrant an empirical analysis of their impact on future stock price crash risk. On the one hand, generalist CEOs may mitigate future stock price crash risk since they are more skilled at addressing complex business problems and adapting to changes in business conditions (Custódio et al. 2013). Moreover, they tend to possess general knowledge, characteristics, abilities, and skills of a general nature (Chen et al.2017) that allow them to interact more effectively with people in the firm (Rajan and Wulf, 2006), which could help them solve problems when bad news arises. Additionally, generalist CEOs have superior managerial abilities to estimate and assess the situation (Demerjian et al. 2012), which may lead to better firm performance and less bad news. Thus, the hypothesis regarding the relationship between generalist CEOs and future stock price crash risk is:

Hypothesis 1A. CEO general skill is negatively related to future stock crash risk.

On the other hand, there are theories suggesting that generalist CEOs may be positively associated with future stock price crash risk. Firstly, generalist CEOs may be engaged in more severe agency problems. Higher paid managers may have incentives to overestimate financial numbers to convince shareholders to approve their high-risk projects, leading to over-optimism and withholding of negative news (Biddle et al. 2001). In bad situations, generalist CEOs may have even stronger incentives to hide poor firm performance to maintain their reputation and career track. Secondly, generalist CEOs are often engaged in job-hopping, which may weaken their incentives to stay engaged at their current employer. Their long-term wealth may be less related to the future performance or crashes of the firm that they currently lead, which may motivate them to hide bad news (Dasgupta and Ding, 2010; Giannetti, 2011; Mishra, 2014). These theories lead to an alternative hypothesis:

Hypothesis 1B. CEO general skill is positively related to future stock crash risk.

2.3 Research Design

2.3.1 Main Regression Model

To observe the relationship between CEO generalist and specialist skills and future stock price crash risk, the following regression model is used:

$$= \quad (1)$$

where represents the stock price crash risk for firm i in year t+1. This study employs three commonly adopted measures of stock price crash risk: negative skewness (NSKEW), down-to-up volatility (DUVOL), and crash count (COUNT).
 represents the generalist or specialist skills of the CEOs. The general ability index (GAI), introduced by Custodio et al. (2013), is used to measure their skills. The GAI captures the transferable skills of CEOs across different industries and firms. A high GAI score indicates general management ability, while a low GAI score indicates specific management ability.

2.3.2 A measure of CEOs' general and specific managerial abilities -- GAI (General Ability Index)

Various measures of managerial skills and characteristics have been utilized in the literature to identify generalist CEOs, such as industry experience, general education background, etc. Some studies mark firm or industry expertise as specialists. Custodio et al. (2013) introduces an index, named General Ability Index(GAI), which considers five different proxies of a CEO's life-time working experience to identify their generalist and specialist skills. This index has become a significant contribution to the research on generalist and specialist CEOs in recent years.

The GAI captures the skills of CEOs that are transferable among different industries and firms, distinguishing between management skills that are specific to a firm and thus non-transferable and those that are general and transferrable. The five aspects of a CEO's professional career that are considered in the GAI index include:

i) The number of past positions: this refers to the number of different positions that the CEO has held during their previous career. CEOs with more positions are more likely to have experience in different organizational areas such as production, finance, human resources, sales, and marketing.

ii) The number of past firms: this refers to the number of firms where the CEO has worked. CEOs who worked in multiple firms are more likely to have acquired general skills that are transferable among different entities.

iii) Number of industries: this refers to the number of industries at the four digit SIC code level where the CEO has worked. CEOs who worked for more firms in different industries would have been exposed to different business environments.

iv) CEO experience dummy: this is a dummy variable that equals to 1 if the CEO has held a CEO position at another firm. Holding a CEO position requires a set of general skills to deal with different organizational areas and external entities such as capital market, stakeholders and the media.

v) Conglomerate experience dummy: this is a dummy variable that equals to 1 if the CEO has worked for a multi-division firm. CEOs who have worked for a conglomerate would have been exposed to more complex organizations.

To create an index of general managerial skill that combine the five variables, Custodio et al. (2013) use principal component analysis to extract the common components of each variable. Custodio et al. (2013) calculate the GAI of CEO_i in year t with the equation below:

$$GAI_{i,t} = 0.268X1_{i,t} + 0.312X2_{i,t} + 0.309X3_{i,t} + 0.218X4_{i,t} + 0.153X5_{i,t} \quad (2)$$

where X1 represents the number of different positions, X2 represents the number of different firms, X3 represents the number of different industries at the 4-digit Standard Industrial Classification (SIC) level, X4 is the CEO dummy variable equal to 1 (0 otherwise), and X5 is multi-division conglomerate dummy variable equal to 1

(0 otherwise). A high GAI score indicates general management ability, while a low GAI score indicates specific management ability.

2.3.3 Stock Price Crash Risk Measurement

In line with prior literature (Chen et al., 2001; Jin and Myers, 2006; Hutton et al., 2009; Callen and Fang, 2013), there are three commonly used firm-specific measures of stock price crash risk. These measures include the negative coefficient of skewness of firm-specific weekly returns (NSKEW), the down-to-up volatility of firm-specific weekly returns (DUVOL), and the difference between the number of weeks with negative extreme firm-specific weekly returns and those with positive extreme firm-specific weekly returns (COUNT).

To compute these measures, I first calculate the firm specific weekly returns from Wednesday to Wednesday, allowing for the day of the week effect. Then for each firm and year, return is estimated as the residual from an expanded market model (Chen et al., 2001):

(3)

where represents the return on stock *j* in week . represents the return on the CRSP value-weighted market index in week . To allow for non-synchronous trading, lead and lag terms for the value-weighted market indexes are included (Dimson, 1979). The returns are winsorized at the 1% level. The firm-specific weekly return for firm j in week t is calculated as the natural logarithm of one plus the residual return from the equation above.

i) Negative Skewness

The measure of stock price crash risk is negative skewness (NSKEW), which is defined as the negative of the third moment of firm-specific weekly returns for each year divided by the standard deviation of firm-specific weekly returns raised to the third power. The measure is calculated as follows:

(4)

where represents the weekly return, and n represents the number of weeks of firm j's weekly returns over the fiscal year . The denominator serves a normalization factor. A negative sign is added before the third moment to show that a higher value of NSKEW indicates a higher stock price crash risk.

ii) Down-to-Up Volatility

The second measure of stock price crash risk is the down-to-up volatility measure of crash likelihood. To calculate this measure for each firm j over fiscal-year t, firm-specific weekly returns are separated into two groups: ‘‘down’’ weeks when the returns are below the annual mean, and ‘‘up’’ weeks when returns are above their annual mean. For each of the two groups, the standard deviation of firm-specific weekly returns is calculated separately. The DUVOL is then defined as the natural logarithm of the standard deviation of the returns in the ‘‘down’’ weeks, divided by the standard deviation of the returns in the ‘‘up’’ weeks. The variable is calculated as follows:

(5)

where represents the weekly return, and and represent the number of up and down weeks over the fiscal year , respectively. A higher value of DUVOL corresponds to a stock being more crash prone. The DUVOL measure does not involve the third moment and, hence, is less likely to be excessively affected by a small number of extreme returns (Callen and Fang, 2013).

iii) Crash Count

The third measure of stock price crash risk is the crash count (COUNT). This is based on the number of weeks in which firm-specific weekly returns exceed 3.09 standard deviations above or below the firm-specific mean weekly return during the fiscal year. The multiplier 3.09 is chosen to generate frequencies of 0.1% for a normal distribution (Hutton et al., 2009). The crash count is calculated by subtracting the downside frequencies from the upside frequencies, with a higher value of COUNT indicating a higher frequency of crashes. Crash count directly reflects the extreme negative outcomes of stock prices, revealing the incremental likelihood of these crashes driven by certain explanatory variables.

2.3.4 Selection of Control Variables

In accordance with prior research, I include control variables that may affect future stock price crash risk (NSKEWt+1 /DUVOLt+1/COUNTt+1). Firstly, I include several measures of past returns and performance: Crash risk in the previous year t (NSKEWt /DUVOLt /COUNTt), and the mean value of firm specific weekly return and standard deviation of year t (RET_Mt and RET_SDt). Furthermore, I include a range of firm financials, such as market to book ratio (MBt), the log of the market value of equity (LMVEt), return on assets (ROAt), and long-term debt to total assets (LEVt). Since the focus of this research is on the impact of CEO on crash risk, I also include CEO tenure (TENUREt) and CEO ownership (CEOOWNt).

There are prior studies examining the relationship between these control variables and future stock price crash risk. Chen et al. (2001) demonstrate that firms with high return skewness in year t are likely to have high return skewness in year t+1. Chen et al. (2001) find that stocks that have experienced high returns in the past are more susceptible to stock price crash risk. Hutton et al. (2009) observe a positive correlation between stock price crash risk and firm size. Harvey and Siddique (2000) argue that firms with low book value to market value ratios are more prone to stock price crash risk. Hutton et al. (2009) demonstrate that financial leverage and operating performance are both negatively associated to stock price crash risk. Furthermore, Adams et al. (2005) contend that CEO tenure is positively related with stock price crash risk.

2.4 Sample and Descriptive Statistics

I estimate the baseline regression model using data from the following sources: The GAI index is provided by Dr. C Custodio whose help is hereby gratefully acknowledged. This dataset extends the GAIndex sample with the five proxies in Custodio et al. (2013) to more recent years. The data is manually collected from the

CEOs' life work experience profile and data in BoardEx and Execucomp. I collect the stock price data from CRSP and financial accounting data from Compustat. I also include CEO characteristics and compensation data obtained from Execucomp. Consistent with previous research, I exclude financial firms and firms with missing data for variables for the OLS model from my sample. The final sample consists of 18,177 firm-year observations spanning from January 1995 to December 2015.

2.4.1 Summary Statistics and Correlation Matrix

Table 2.1 presents the summary statistics of the variables for my main regression model. The mean values for the stock price crash risk measures NSKEW, DUVOL and COUNT are -0.064, 0.03 and 0.015, respectively. Comparing these with those presented in prior research, my values for stock price crash risk are higher. This difference may be due to the inclusion of more recent years in my sample. Prior research suggests that stock price crash risk measures have an upward trend over the years (Callen and Fang, 2013).

The mean values for NSKEW, DUVOL and COUNT across the years of 1996 to 2016 show a slow and upward trend. During the 2007-2008 financial crisis, the mean values of stock price crash risk displayed a dramatic increase. An and Zhang (2013) test stock price crash risk during the 2007-2008 financial crisis and show that the crisis affected firm-level stock price crash risk. Their baseline regression model for the crisis and non-crisis periods shows that firm stock price crash risk alone significantly increased during the period 2007-2008, suggesting that firms were still hiding bad news under the market-wide turmoil.

The GAIndex sample is standardized to 0 mean and 1 standard deviation. Figure 2.1 shows the means of GAI across the sample years 1996 to 2015. This figure illustrates an overall upward trend of GAI, which suggests the increasing popularity of generalist CEOs over time, consistent with Custodio et al. (2013). However, during the 2008 financial crisis, the mean GAI fell. There are two possible explanations related to generalist managers being less successful during the global financial crisis. Firstly, generalist CEOs may engage in more risk taking than specialist CEOs because

their diversified and transferable human capital reduces their career concerns (Becker; 1962). On average, more risk-taking can lead to better performance in good times but is likely to result in lower returns in bad times. Secondly, the high compensation required by CEOs with general managerial skills makes them less likely to be hired when firms are under stress. Additionally, their job-hopping tendency also makes them less suitable for the firms that are looking for leadership and stability during a recession. Pang et al. (2016) analyze the performance of CEOs with different backgrounds during the 2007-2008 global financial crisis, and find that generalist CEOs underperformed.

The mean values for RET_Mt and RET_SDt are -0.001 and 0.05, respectively, which are roughly comparable to previous research. The mean value for the log of market value of equity is 7.33. The mean value for ROA is 0.12 which is comparable to prior studies.

The correlation matrix for the variables in the main test regression is presented in Appendix 2A-Table 2A.1. It is noted that the stock price crash risk measures, NSKEWt+1, DUVOLt+1 and COUNTt+1, are highly correlated with each other, suggesting that these three measures indicate similar information. The correlation between NSKEWt+1 and DUVOLt+1 is 0.92, which is comparable to that reported by Chen et al. (2001). The correlations between GAIt and the next year's stock price crash measures are shown to be positive.

Several columns in the correlation matrix show consistent results with prior studies. First, the positive correlation between firm size (LVMEt) and future stock price crash risk is noted. Second, the positive correlation between market-to-book ratio (MBt) and future stock price crash risk. Third, the correlation between CEO tenure (TENUREt) and future stock price crash risk is positive.

2.5 Empirical Results

2.5.1 Baseline results

Table 2.2 presents the estimated coefficients for the main regression model. Columns (1), (2) and (3) show the regression results for the effect of generalist and specialist CEOs on one-year-ahead NSKEW, one-year-ahead DUVOL and one-year-ahead COUNT, respectively.

The coefficients for GAIt on NSKEWt+1, DUVOLt+1 and COUNTt+1 are positive. However, the coefficients are not statistically significant, with t statistics equal to 1.19, 1.01 and 1.57, respectively.

The control variables produce consistent results with prior research. Firstly, the coefficient of return skewness (NSKEWt) on future stock price crash risk (NSKEWt+1) is significantly positive, suggesting that the past discretionary-disclosure increases the future stock price crash risk (Chen et al. 2001). Secondly, firm size (LVME) is positively associated with future stock price crash risk. One explanation for this is that smaller firms face less scrutiny from equity analysts thus have more room for discretionary disclosure (Chen et al. 2001). Thirdly, consistent with Hutton et al. (2009), ROA is negatively associated with future stock price crash risk, indicating that firms with high operating performance are less likely to crash. Fourthly, growth firms are positively associated with future stock price crash risk, implying that past glamour stocks are more crash-prone in the future. Lastly, CEO tenure has a significantly positive impact on future stock price crash risk. This is consistent with the argument that CEOs who serve for a long time have the ability to hide bad news (Al Mamun et al. 2020).

2.5.2 CEOs with Highly General Skills and Stock Price Crash Risk

In this section, I investigate the difference between CEOs who possess general or specific managerial skills and how they are associated with stock price crash risk.

I estimate the OLS regression with categorical variables that represent the quantiles of the GAIndex. The sample of GAIndex is split at 20^{th}, 40^{th}, 60^{th} and 80^{th} percentile,

creating five equal subgroups of observations. The highest GAI subgroup (GAI_5) is composed of the top 20% generalist CEOs, while the lowest GAI subgroup (GAI_1) is composed of the top 20% specialist CEOs. Table 2.3 presents the results for these two groups, with the most prominent CEO characteristics.

Among the specialist CEOs and generalist CEOs, those generalists are positively associated with future stock price crash risk. The coefficients of GAI_5t on one-year ahead COUNT is significantly positive at the 5% significance level (t-statistics equals to 2.13). The coefficient of GAI_5t on one-year-ahead NSKEW and one-year-ahead DUVOL are also positive, but they are not statistically significant. Regarding the economic significance, for a one-standard deviation increase in the GAI score for a generalist CEO, the likelihood of an extreme negative crash to the stock price to happen over a positive move in the next year will be increased by 6%. The more prominent positive relationship between generalist CEOs and future stock price crash risk is consistent with the previous result, suggesting that the agency problem engaged by generalist CEOs. CEOs possessing more general managerial skills are engaged in more severe agency problems. They have incentives to overestimate financial numbers and/or to hide poor firm performance to convince shareholders to approve their managerial outcome (Biddle et al. 2001). Generalist CEOs are also more active in the recruitment market and, thus, often engaged in job-hopping. So they may have weaker incentives to stay engaged at their position (Dasgupta and Ding, 2010; Giannetti, 2011; Mishra, 2014). Their long-term wealth is less related to the future performance or crashes of the firm that they currently lead. Thus, they may be motivated to hoard bad news to keep a good track record for their future careers.

The specialist CEOs possess countervailing effects of their GAI score on future stock price crash risk across different models. The coefficients of GAI_1t on NSKEWt+1 and COUNTt+1 are positive with no statistical significance (t statistics equal to 0.31 and 0.77, respectively).

The results show consistent findings with prior research on several control variables. For instance, firm size (LVME) is positively associated with future stock price crash risk, while return standard deviation (RET_SD) and operating performance (ROA) are negatively associated with future stock price crash risk.

For firms with generalist CEOs, CEO ownership is negatively associated with future stock price crash risk. The coefficients of CEOOWNt on one-year-ahead NSKEW, one-year-ahead DUVOL, and one-year-ahead COUNT are significantly negative at the 1%, 5%, and 1% significance level, respectively (t-statistics equal to -2.71, -1.95, and -2.59, respectively). These findings suggest that generalist CEOs who hold a higher percentage of company shares are better able to mitigate future stock price crash risk. This is potentially due to their stronger incentives to engage in their position and their wealth are more tied with their current firms (Dasgupta and Ding, 2010; Giannetti, 2011; Mishra, 2014). Alternatively, it could be that they possess better managerial skills, resulting in better firm performance and less bad news to be hidden (Chen et al., 2017).

In contrast, the positive relationship between CEO tenure and future stock price crash risk is more prominent with specialist CEOs. The coefficients of TENUREt on one-year-ahead NSKEW and DUVOL are significantly positive at less than 1% and 5% significance level, respectively (t-statistics equal to 2.62 and 2.15, respectively). One possible explanation for these long-serving specialist CEOs may be more sensitive to the risk of being sacked due to poor performances, as their career path and personal wealth are less diversified or secured. Hence, they may be motivated to hoard the bad news (Custodio et al. 2019).

2.5.3 Addressing Endogeneity Concerns

In this section, I address potential endogeneity concerns regarding the relationship between CEO general skills and stock price crash risk.

Firstly, the observed relationship between CEO generalist skills and stock price crash risk could be driven by the presence of time-invariant, firm-specific omitted variables. To address this endogenous concern, I control for the year and firm fixed effect in the regressions. The results show that the positive relationship between GAI and stock price crash risk remains.

Secondly, there is a two-sided sorting situation that exists between the firms and CEOs. Firms recruiting generalist CEOs attempt to boost firm performance, and on the other hand, generalist CEOs come to the position with an understanding of the pressure and high expectations from the firm. The relationship between GAI and stock price crash risk is not immune to this systematic sorting and selecting effect. This selection bias could potentially undercut the findings of this research. One way of addressing this concern is using instrumental variables to isolate the effect of GAI on stock price crash risk. The limitation of this work points out a direction for future research and opens up opportunities for further development.

2.6 Summary

In this study, I investigate the role of CEOs' managerial skill sets in future stock price crash risk. I provide weak evidence showing that generalist CEOs are positively associated with future stock price crash risk. Using GAI to measure the CEOs' generalist skills, the study finds that a 1 standard deviation increase in the CEO's GAI score leads to 6% increase in the probability of at least one negative stock price crash over a positive crash occurring in the coming year. This result holds when controlling for previously identified factors such as past stock performance, operating performance, firm characteristics and CEO characteristics.

Additionally, the study investigates the determinants of generalist and specialist CEOs' bad news hoarding behaviour. The findings reveal that the percentage of the firm's shares held by generalist CEOs is negatively associated with future stock price crash. Overall, the findings suggest that negative consequences are more likely to arise in the future when the CEOs are generalists and have less engagement with their current firm positions.

2.7 Tables and Figures

Table 2.1
sample summary statistics
This table presents the summary statistics of the key variables of interest for the sample of firms in my study. The sample covers firm-year observations for the period 1995 to 2015, except for NSKEW, DUVOL and COUNT, which are extended to 2016.

variables	n	mean	Std.dev	5th pctl.	25th pctl.	median	75th pctl.	95th pctl.
NSKEW	24,805	-.064	.726	-1.913	-.525	-.053	.571	1.240
DUVOL	24,725	.030	.327	-.483	-.230	.026	.291	.552
COUNT	24,789	.015	.693	-1	0	0	0	1
GAI	29,036	0	1	-1.302	-.757	-.151	.560	1.847
RET_M	25,263	-.001	.011	-.015	-.005	-.001	.002	.011
RET_SD	25,208	.051	.033	.019	.030	.043	.063	.111
LVME	21,272	7.331	1.760	4.530	6.238	7.260	8.422	10.295
ROA	21,338	.120	.154	-.015	.045	.117	.184	.321
MB	21,639	2.697	3.309	.114	1.197	1.826	3.180	8.366
LEV	21,391	.539	.227	.139	.342	.506	.691	.875
CEOOWN	19,834	2.948	7.234	.05	.274	.955	2.41	13.7
TENURE	19,826	8.925	3.788	3.041	6.696	8.805	10.795	13.319

Figure 2.1

GAI across Sample Years

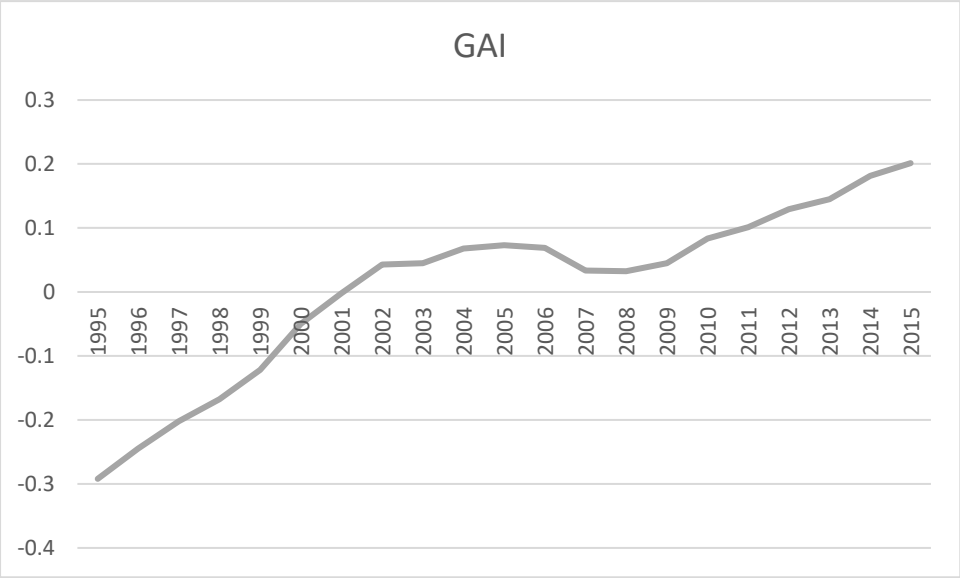

Figure 2.1 Mean values of GAI index across sample years 1996 to 2016

Table 2.2
CEO general managerial skills on stock price crash risk
This table estimates the relation between CEO general / specialist skills (measured by GAI index) and future stock price crash risk. All independent and control variables are defined in section 2.3.2 and 2.3.4, respectively. Standard errors are clustered by firm. T-statistics are reported in the parentheses. The overall R squared is reported in the last row of the table.

		(1)	(2)	(3)
	Exp. Sign	**NSKEWt+1**	**DUVOLt+1**	**COUNTt+1**
GAIt	+/-	.067	.050	.006
		(1.19)	(1.01)	(1.57)
NSKEWt	**+/-**	**.481*** **		
		(5.45)		
DUVOLt	**+/-**		**.496*** **	
			(5.69)	
COUNTt	**+/-**			**.136** **
				(7.86)
RET_Mt	+/-	-5.490	-3.356	-3.058
		(-.97)	(-1.05)	(-1.37)
RET_SDt	+/-	-.051	**-.155***	-.208
		(-1.26)	**(-1.79)**	(-.22)
LMVE	**+**	**.698*** **	**.079*** **	**.274*** **
		(3.06)	**(4.01)**	**(7.12)**
ROAt	**+/-**	**-.079***	**-.137** **	-.396
		(-1.69)	**(-1.94)**	(-.15)
MBt	+	.095	**.102***	.013
		(1.47)	**(1.78)**	(.39)
LEVt	+/-	.001	.002	-.001
		(.76)	(.84)	(-.13)
CEOOWNt	**-**	-.009	-.010	-.006
		(-1.56)	(-1.62)	(-.81)
TENUREt	**+**	**.007***	**.006***	.003
		(1.94)	**(1.85)**	(.62)
Constant		**-4.091*** **	**-1.806*** **	**-1.925*** **
		(-10.33)	**(-11.12)**	**(-4.88)**
Year Fixed Effects		Yes	Yes	Yes
Firm Fixed Effects		Yes	Yes	Yes
N of Observations		17,921	17,845	17,878
N of Groups (Firm)		956	954	956
Overall R Squared		.009	.011	.009

** statistical significance at the 10% level*
*** statistical significance at the 5% level*
**** statistical significance at the 1% level*

Table 2.3
CEO high and low general skills on stock price crash risk
This table estimates the relation between generalist CEOs and future stock price crash risk. All independent and control variables are defined in section 2.3.2 and 2.3.4, respectively. Standard errors are clustered by firm. T-statistics are reported in the parentheses. Overall R squared is reported in the last row of the table.

	Exp. Sign	GAI_5			GAI_1		
		(1)	(2)	(3)	(4)	(5)	(6)
		NSKEWt+1	DUVOLt+1	COUNTt+1	NSKEWt+1	DUVOLt+1	COUNTt+1
GAI_5t	+/-	.017	.048	**.060****			
		(1.57)	(1.41)	**(2.13)**			
GAI_1t	+/-				.202	.105	.062
					(.31)	(-.09)	(.77)
NSKEWt	+/-	**.106*****			**.095*****		
		(4.87)			**(6.09)**		
DUVOLt	+/-		**.274*****			**.129*****	
			(6.79)			**(7.15)**	
COUNTt	+/-			**.062*****			**.136*****
				(6.33)			**(7.86)**
RET_Mt	+/-	-3.019	-7.851	**-1.577***	-6.005	-4.427	-2.05
		(-1.62)	(-1.04)	**(-2.66)**	(-1.02)	(-.91)	(-1.47)
RET_SDt	-	-1.547	**-.311****	**-4.578*****	-.967	**-.0143***	**-1.816****
		(-.52)	**(-2.09)**	**(-3.58)**	(-.94)	**(-2.56)**	**(-2.12)**
LVMEt	+	**.269*****	**.600*****	**.274*****	**.036*****	**.188*****	**.065*****
		(4.45)	**(2.97)**	**(4.12)**	**(4.88)**	**(3.57)**	**(5.29)**
ROAt	+/-	**-.012****	**-.851***	-.890	**-.105***	-.028	-.108
		(-2.32)	**(-1.93)**	(-1.07)	**(-1.77)**	(-.45)	(-.91)
MBt	+	**.008***	**.047*****	.013	**.162*****	**.008*****	**.007***
		(1.95)	**(2.56)**	(1.39)	**(4.02)**	**(5.06)**	**(2.02)**
LEVt	+/-	.001	.002	-.001	.001	.001	-.001
		(.17)	(1.25)	(-.12)	(1.07)	(1.04)	(-.05)
CEOOWNt	-	**-.002*****	**-.001****	**-.006*****	.001	.002	.007
		(-2.71)	**(-1.95)**	**(-2.59)**	(.17)	(-.57)	(-1.66)
TENUREt	+	.001	.004	.003	**.002*****	**.001****	.003
		(.49)	(1.53)	(1.05)	**(2.62)**	**(2.15)**	(1.34)
Constant		**-3.968*****	**-1.780*****	**-1.925*****	**-4.663*****	**-3.378*****	**-3.454*****
		(-10.29)	**(-11.27)**	**(-4.88)**	**(-7.57)**	**(-6.25)**	**(-3.18)**
Year Fixed Effects		Yes	Yes	Yes	Yes	Yes	Yes
Firm Fixed Effects		Yes	Yes	Yes	Yes	Yes	Yes
N of Observations		3,557	3,542	3,544	3,559	3,543	3,539
N of Groups		187	185	187	187	186	187
Overall R Squared		.013	.015	.011	.013	.012	.010

** statistical significance at the 10% level*
*** statistical significance at the 5% level*
**** statistical significance at the 1% level*

Appendix 2A

Table 2A.1
Correlation Matrix

	NSKEWt+1	DUVOLt+1	COUNTt+1	GAIt	RET_Mt	RET_SDt	LMVEt	ROAt	MBt	LEVt	CEOOWNt	TENUREt
NSKEWt+1	1											
DUVOLt+1	.921	1										
COUNTt+1	.691	.701	1									
GAIt	.021	.012	.040	1								
RET_Mt	-.001	-.006	-.270	.004	1							
RET_SDt	-.047	-.021	-.150	-.095	-.202	1						
LMVEt	.045	.041	.033	.248	.191	-.543	1					
ROAt	-.026	-.007	-.051	.044	.243	-.294	.360	1				
MBt	.078	.095	.023	-.045	-.328	.381	.326	.315	1			
LEVt	.004	.002	-.011	.067	-.033	-.009	-.02	-.054	.023	1		
CEOOWNt	-.006	-.011	-.017	-.196	-.010	.075	-.151	.001	.001	-.021	1	
TENUREt	.026	.010	.002	-.233	.010	-.149	.161	.071	.001	-.035	.277	1

This table presents the correlation matrix of the key variables of interest for the sample of firms in this study. The sample covers firm-year observations for the period 1995 to 2016.

Table 2A.2
Variable Definition
This table presents the definition of the variables used in section 2.3 to 2.5.

Variable	Definition
NSKEW	The negative skewness of the firm's weekly returns distribution of year t
DUVOL	The down-to-up volatility measure of crash likelihood of the firm in year t
COUNT	The number of stock price crash on year t
GAI	A score index that captures the skills of CEOs that are of general nature
RET_M	The mean of firm specific weekly return of year t
RET_SD	The standard deviation of firm specific weekly return of year t
LVME	the log of the market value of equity of the firm on year t
ROA	The return on assets of the firm on year t
MB	The market to book ratio of the firm on year t
LEV	The long-term debt to total assets of the firm on year t
TENURE	CEO tenure
CEOOWN	The percentage of shared owned by CEO
CRASH	The dummy variable takes value of 1 if COUNT takes a positive value (negative extreme return) and 0 otherwise

Chapter 3

Board Monitoring Quality and Crash Risk

3.1 Introduction

3.1.1 Background

In the past decade, extensive research has been conducted on the determinants of firms' stock price crash risk. Managerial bad news hoarding behaviour is commonly considered to be the primary cause of stock price crash risk (Jin and Myers, 2016). Previous literature shows that managers with bad news tend to delay disclosure more than those with good news (Graham et al. 2005). The motivation for the managers' tendency to withhold bad news as long as possible is their concern over their future career and short-term compensation (Kim et al. 2011). However, a threshold level exists at which managers stop withholding bad news (Jin and Myers, 2016). When a sufficiently long run of bad news accumulates to a critical level, managers give up, and all the negative news pours out to the public at once, leading to a stock price crash. Both a motive and a certain environment in the firms are required for managers to hoard bad news.

Previous research suggests that tight monitoring by the board of directors can help maximize shareholder value (Fama and Jensen, 1983). Hence, the board of directors is expected to prevent the CEO from hiding bad news. However, not all board members

can objectively and independently monitor the CEOs. The challenge comes from directors who receive benefits from the CEO and may have the tendency to take the CEO's side. For this reason, the effectiveness of the board monitoring on CEOs' information hoarding can be undermined. To examine how these politics play out and how they affect shareholder wealth, empirical research is conducted on the effect of board monitoring quality on stock price crash risk.

3.1.2 Findings and Contribution

The approach I use for constructing measures of board monitoring quality follows Nguyen et al.(2016). They propose that board members appointed after the CEOs took office have a tendency to be more loyal to the CEOs, as CEOs are involved in the nomination and appointment process. As a result, these board members may not be able to independently and objectively monitor the CEOs' behaviour. To address this, I identify board members that were appointed before the current CEO for each firm in each year, as they are expected to be more motivated to effectively monitor and discipline the CEOs' behaviour. My sample shows that on average, more than half of the board members for each firm-year are "psychologically captured" by their current CEOs, highlighting the potential challenges of effective board monitoring.

I examine more than 3,000 firm-year observations, across the years from 2009 to 2020 for North American firms. The results show that board monitoring quality is negatively associated with future stock price crash risk. This finding holds after controlling for variables that are previously documented to have an impact on stock price crash risk, such as past stock performance, operating performance, firm characteristics, and board characteristics. Moreover, it remains robust to the inclusion of several CEO characteristics. However, the results do not hold when using Arellano-Bond GMM estimations, which suggests the result could be biased due to the short sample period.

This study contributes to the existing corporate governance literature in several ways. Firstly, it adds to the growing body of research on board effectiveness by offering a

unique perspective of board structure and finds negative relations between board monitoring quality and future stock price crash risk. This is distinct from prior research of the board monitoring roles in stock price crash risk. For example, Kim et al. (2014) analyse board effectiveness by measuring CEO performance as the chair of the board. In contrast, this research uses a novel measure of the board monitoring quality that highlights a systematic and structural issue of the board. As such, it supports arguments regarding the mechanisms of board governance.

Secondly, this study expands our current understanding of stock price crash risk by examining it from a new social and psychology perspective. It argues that the individuals involved in the appointment of directors can influence their state of mind, which, in turn, affects their ability to perform board monitoring effectively.

Third, this research contributes to the literature on the economic consequences of board monitoring. It also offers potential solutions for improving board independence level and monitoring quality, which should reduce stock price crash risk.

3.2 Literature Review

3.2.1 Literature Review on Board Monitoring Role

Fama and Jensen (1983) propose that directors monitor the CEO to help maximize shareholder value. Without strong monitoring by the board, CEOs may prioritize personal benefits over the interest of the shareholders (Jensen and Meckling, 1976; Stein, 1989; Dechow et al., 2010). Therefore, the board of directors is crucial to monitor and discipline the CEO and prevent managerial misbehaviour (Beasley, 1997).

Previous literature shows that internal and external monitoring play a significant role in improving financial disclosure and reporting quality (Bedard et al., 2004; Larcker et al., 2007), and hence, reducing stock price crash risk. Institutional investors stability can mitigates stock price crash risk by performing their monitoring role (An and Zhang, 2013; Callen and Fang, 2013). Kim et al. (2014) find that effective board

monitoring strengthens the negative relationship between corporate social responsibility and stock price crash risk. Andreou et al. (2016) present evidence showing that firms with a higher proportion of independent directors on the board have a reduced probability of stock price crash risk. Jebran et al. (2020) argue that board diversity enhances both the board independence and monitoring efficiency, ultimately reducing stock price crash risk.

The board's monitoring effect can be compromised as achieving board independence is challenging (Coles et al., 2014; Lee et al., 2014). Grinstein and Hribar (2004) show that CEOs with the power to influence board decisions receive significantly higher bonuses. Khanna et al. (2015) report that the CEOs' appointment-based connection with directors is positively associated with the likelihood of corporate fraud.

CEOs are typically involved in appointing directors, creating an incentive for directors appointed during the CEOs' tenure to reciprocate the favour (Coles et al., 2014; Khanna et al., 2013). Directors appointed before the current CEO took office are not subject to this influence, making them capable of independently and objectively monitoring the CEO (Nguyen et al., 2016).

3.2.2 Hypothesis Development

According to Nyugen et al.(2016), board members can become psychologically captured by CEOs, creating a conflict of interest that may undermine their monitoring effectiveness. This is rooted in the principle of reciprocity, where people show psychological aversion to over-benefiting or under-benefiting others in their social relationships (Goulder, 1960; Fehr and Schmidt, 1999). When board members believe their appointment was influenced by the CEO, they may have a motivation to return the favour, hence, avoid the possible psychological stress of under-benefiting others. As a result, these board members may have potentially reduced objectivity in monitoring the CEO. This can lead to an environment where CEOs can comfortably hide bad news. It can also reduce the cost of committing wrongdoings for CEOs, even if things go south and the hoarded bad news pour out all at once. Therefore, I propose

the following hypothesis regarding the relation between the non-captured board (monitoring quality) and future stock price crash risk:

Hypothesis 1A. *Board monitoring quality is negatively related to future stock crash risk.*

Alternatively, a board with a high independence level from the CEOs may create a high-pressure atmosphere for CEOs. Managers working under the stress of high level of monitoring may have the incentives to hide bad news, which can increase the future stock price crash risk (Hutton et al., 2009). I propose the alternative hypothesis:

Hypothesis 1B: *Board monitoring quality is positively related to future stock crash risk.*

3.3 Research Design

3.3.1 Main Regression Model

To observe the relationship between CEO generalist and specialist skills and stock price crash risk, I use the following regression model:

$$= \qquad (1)$$

Where represents the three commonly adopted stock price crash risk measures for firm i in year t+1. They are negative skewness (NSKEW), down-to-up volatility (DUVOL), and crash count (COUNT).

 represents the variable for board monitoring quality of firm i in year t, while include a set of control variables.

3.3.2 Measuring monitoring quality

In Nguyen et al., (2016), the board monitoring quality for each firm is captured by using the number of board members that were appointed before the current CEO took office, also referred as “non-captured board members”. The monitoring quality variable is defined as:

(2)

Here, the denominator is the total number of directors on the board minus one (CEO). The range of this variable is from 0 to 1, with higher value indicating that the board is less influenced by the CEO, and therefore more willing to monitor them independently and objectively.

3.3.3 Measuring stock price crash risk

Following previous literature (Chen et al., 2001; Jin and Myers, 2006; Hutton et al., 2009; Callen and Fang, 2013), I adopt the most commonly used measures for firm-specific stock price crash risk. For each firm-year, the stock price crash risk variables are: i) the negative coefficient of skewness of firm-specific weekly returns (NSKEW); ii) the down-to-up volatility of firm-specific weekly returns (DUVOL); and iii) the difference between the number of weeks with negative extreme firm-specific weekly returns and those with positive extreme firm-specific weekly returns (COUNT).

The calculation of these three variables follows the same method outlined in section 2.3.3. The data source for the calculation is reported in section 3.4. The summary statistics of the three variables are reported in Table 3.1.

3.3.4 Selection of Control Variables

In equation 1, contains a set of control variables that have been previously found to affect stock price crash risk. First, I include several measures of past returns and performance: NSKEWt, DUVOLt, and COUNTt are the stock price crash risk measures in year t; RET_Mt is the mean value of firm-specific weekly returns in year

t; RET_SDt is the mean value of the standard deviation of firm specific weekly returns in year t. Second, I include firm characteristics and financial ratios: MBt is market-to-book ratio, which is calculated as the total value of equity divided by the book value; LMVEt is the firm size variable, which takes the log value of the market value of the firm's equity; ROAt is the return on assets. LEVt represents financial leverage, which is the value of total debt divided by total assets. Since the topic of this research is on board governance, I also include board characteristics: board size (B_SIZEt), which is the number of board members in year t; and the percentage of women on the board (%WOMENt).

The control variables that I introduce in this study have been found to impact future stock price crash risk in the following literature. Chen et al. (2001) conclude that firms with high returns in the past are likely to experience high return skewness in the future. Hutton et al. (2009) record that crash risk is more pronounced for large firms. Harvey and Siddique (2000) argue that glamourous stocks, which are the firms with low ratios of book value to market value, are more prone to stock price crash risk. Hutton et al. (2009) show that financial leverage is negatively related to stock price crash risk. Jebran et al. (2020) and Qayyum et al. (2021) find that board gender diversity can lower future stock price crash risk.

3.4 Sample and Summary Statistics

I estimate my baseline regression using data from the following sources. Firstly, I obtain CEOs' and directors' role starting date information from BoardEx. For each firm-year observation I manually collect the number of directors appointed before the CEO's starting date. I then match the firms with Bloomberg ESG dataset to obtain board information. The stock price data is sourced from CRSP, and the financial accounting data is obtained from Compustat. Following previous research, financial firms and firms with missing data for variables used in the primary OLS model are excluded from my sample. The final sample contains 3,044 firm-year observations ranging from January 2009 to December 2021.

3.4.1 Summary Statistics and Correlation Matrix

Table 3.1 presents summary statistics of the variables in the main regression model. The mean values for the stock price crash risk measures NSKEW, DUVOL, and COUNT are -0.005, 0.02, and 0.01, respectively. These mean values are higher compared to prior research, consistent with the slow, upward trend discussed in chapter 2.

The mean value for monitoring quality is 0.29, indicating that less than a third of the directors joined the board before the CEO's appointment, and over two-thirds were captured directors. The 25th percentile of monitoring quality is 0%, primarily due to the sample's high proportion of founder CEOs.

The mean percentage of women sitting on the board is 14.48%, which has been trending upwards in past decades.

The correlation matrix for the variables in the main regression is shown in Table 3A.1 in Appendix 3A. The future stock price crash risk measures (NSKEW, DUVOL, and COUNT) are highly correlated with each other, suggesting that the three measures capture similar information. The correlation between NSKEW and DUVOL is 0.94, which is comparable to previous research. Monitoring quality and future stock price crash risk measures are negatively correlated.

The values in the correlation matrix are comparable with those in prior research. Firstly, past stock and operating performance (RET_M, ROA) present positive correlations with future stock price crash risk. Secondly, firm size (LVME) and future stock price crash risk are positively correlated. Thirdly, the percentage of women on the board has a negative correlation with future stock price crash risk.

3.5 Empirical Results

Table 3.2 presents the estimated coefficients for the OLS regression model. Columns (1), (2) and (3) show the regression results for the effect of board monitoring quality on one-year-ahead NSKEW, one-year-ahead DUVOL, and one-year-ahead COUNT, respectively.

The coefficients for board monitoring quality on NSKEWt+1 and DUVOLt+1 are significantly negative at less than 1% significance level (t-statistics equal to -2.76 and -3.89, respectively). The coefficient for board monitoring quality on COUNTt+1 is negative but with no economic significance (t statistic equals to -1.57). This result has small economic significance: for example, a 1 standard deviation increase (0.312) in non-captured board members will decrease the negative coefficient of the skewness in the next year's return distribution by 0.00312 (i.e. the return distribution will become less negatively skewed, or more positively skewed, and hence less risky by a small amount). This implies that future stock price crash risk is slightly mitigated with effective board monitoring, which comes from the condition that more directors sitting on the board are appointed before the CEO takes the offices. This result supports the view that directors appointed before the CEO's succession are free from the intangible influence of the CEO and can be more objective in monitoring the managers (Nguyen et al., 2016). On the other hand, those CEOs who have more directors on the board that they consider to be on their side may think these directors will support or even engage in their misbehaviours and concealing bad information. This is also consistent with the view that CEOs gain power through the interaction with the directors and, thus, have ability to hide bad news (Finkelstein, 1992; Al Mamun et al., 2020).

The control variables in this study present consistent results with prior research. First, the standard deviation of the weekly returns has significant negative relation with one-year ahead stock price crash risk, as found by Chen et al. (2001). Second, firm size (LVME) is positively associated with future stock price crash risk. One explanation for this relation is that larger firms are usually trailed by many equity analysts and therefore have less room for discretionary disclosure compared to smaller firms (Chen et al. 2001). Third, the significantly positive relationship between financial leverage (LEVt) and future stock price crash risk indicates that

firms with high level of debt holding are under the stress of increasing level of monitoring and have an incentive to hide bad news (Hutton et al. 2009).

To further examine the effect of board monitoring quality on firms' future stock price crash risk, I split the sample of monitoring quality by the percentiles, creating a sub group with monitoring quality higher than the 50th percentile, which contains the top half of monitoring quality observations. Table 3.3 presents the results for this subgroup (variable name QUALITY_H), which presents stronger evidence to support that effective board monitoring mitigates future stock price crash risk. The coefficients of monitoring quality on all three crash risk measures are significantly negative (t-statistics equal to -3.35, -4.03 and -2.09, respectively).

The endogeneity concerns regarding the relation between the board monitoring quality and stock price crash risk are partially addressed by performing year and firm fixed effects regression. This helps address the omitted variable bias of time-invariant and firm-variant sources that both affect the board monitoring quality and stock price crash risk.

As discussed in section 2.5.3, the two-sided sorting and selecting effect exists in the relation between board and CEOs. Boards that closely pursue high performance may appoint and sack managers more often, hence increasing the monitoring quality. On the other hand, CEOs who hoard bad news may seek positions in firms where the board is less effective to avoid a high pressure environment. One way to address this issue is to introduce instrumental variables. However, this remains one of the limitations of this research.

3.6 Board Monitoring and CEO characteristics

There are arguments that CEOs with certain characteristics, such as broad working experience and strong social skills, may be better able to connect with the board of directors, potentially affecting the effectiveness of board monitoring quality. The

effect of these generalist CEOs can be countervailing: On one hand, their diverse experience may suggest that they are relatively new to the firm, which could lead to increased monitoring quality. On the other hand, the strong social skills of generalist CEOs can mean that there are more connections between CEOs and directors, which can be subtle but play a part. To examine whether the effect of monitoring quality on future stock price crash risk holds when generalist CEOs are in positions of power, I introduce GAIndex to this study. GAIndex is a commonly adopted measure of CEO general abilities. CEOs with higher GAI score will indicate their general skills. I obtain data for GAIndex from Custodio et al, which includes CEO generalist scores from 2009 to 2016. I also include CEO characteristics of tenure, CEO ownership to test the model, in line with chapter 2.

The results, listed in Table 3.4 with the inclusion of CEO general abilities, CEO tenure and CEO ownership, show that the negative relation between monitoring quality and future stock price crash risk remains with the inclusion of these CEO characteristics. The coefficients of QUALITY_Ht on NSKEWt+1 and DUVOLt+1 are significantly negative at less than 10% significance level (t-statistics equal to -2.48 and -2.44, respectively).

GAIndex is positively associated with one year ahead stock price crash risk, which is consistent with the results in chapter 2. However, the coefficients are not statistically significant (t statistics equal to 1.4, 0.93 and 1.53, respectively). The small sample may be a contributing factor for this result. CEO ownership is significantly negatively associated with all three stock price crash risk measures with t statistics equal to -2.09, -1.95 and -2.32, respectively.

3.7 Robustness Test with GMM Estimator

In Section 3.5, the observations are from 146 firms over a period of no more than 12 years. As this sample contains a relatively short period, I use Arellano-Bond GMM estimator to address the potential bias due to the dynamic nature of the panel used in the regressions. Table 3.5 presents the relationship between high monitoring quality and stock price crash risk using the Arellano-Bond GMM estimator. The coefficients

of Quality_Ht on one-year-ahead stock price crash risk measures are negative, but not significant. This suggests that the results presented in table 3.2 to 3.4 may not be robust due to the short sample period, which is a limitation of this research. Future studies are encouraged to increase the sample period and size.

3.8 Summary

In this study, I investigate the effectiveness of board monitoring on CEOs in relation to the structure of the board. I provide evidence that firms with higher proportion of directors appointed before CEO succession are negatively associated with future stock price crash risk. This result holds when controlling for previously documented factors such as past stock performance, operating performance, firm characteristics and board characteristics.

Furthermore, I examine some CEO characteristics that may potentially affect the dynamics of the board. I find that non-captured directors can still objectively monitor CEOs and develop connections with them over time.

The results are not robust to the GMM estimator, suggesting that the conclusion may be biased due to the short sample period.

Overall, these findings suggest that board governance may be important for firms, and a board structure that is less likely to side with the CEOs could effectively prevent future extreme consequences.

3.9 Tables

Table 3.1
Sample Summary Statistics
This table presents the summary statistics of the key variables of interest for the sample of firms in my study. The sample covers firm-year observations for the period 2009 to 2020, except for NSKEW, DUVOL and COUNT, which have sample year extended to 2021.

variables	n	mean	Std.dev	5th pctl.	25th pctl.	median	75th pctl.	95th pctl.
NSKEW	2,856	-.005	.851	-1.657	-.642	-.026	.534	1.306
DUVOL	2,856	.020	.338	-.483	-.257	.018	.294	.552
COUNT	2,856	.001	.760	-1	-1	0	0	1
QUALITY	3,130	.288	.312	0	0	.166	.5	.857
RET_M	2,856	-.001	.007	-.012	-.004	-.001	.002	.008
RET_SD	2,856	.044	.022	.020	.029	.039	.053	.086
LVME	2,795	7.687	1.580	5.205	6.592	7.59	8.756	10.339
ROA	2,857	.122	.112	.007	.044	.108	.173	.327
MB	2,767	2.651	3.032	.408	1.250	1.945	3.76	7.503
LEV	2,796	.602	.320	.163	.387	.587	.816	.950
B_SIZE	3,130	9.225	2.518	6	8	9	11	13
%WOMEN	3,130	14.479	11.065	0	7.692	12.5	22.222	33.333
GAI	1,711	.150	.891	-1.002	-.459	.101	.709	1.884
TENURE	3,097	8.081	3.265	2.723	5.756	7.893	9.135	13.011

Table 3.2
Board Monitoring Quality and Stock Price Crash Risk
This table reports the estimated correlations from OLS regressions, where future stock price crash risk variables (measured by NSKEWt+1, DUVOLt+1 and COUNTt+1) are regressed on a set of independent and control variables defined in section 3.3.2 and 3.3.4, respectively. Standard errors are clustered by firm. T-statistics are reported in the parentheses. Overall R squared is reported in the last row of the table.

	Exp. Sign	(1) NSKEWt+1	(2) DUVOLt+1	(3) COUNTt+1
QUALITYt	+/-	**-.010*** **	**-.002*** **	-.054
		(-2.76)	**(-3.89)**	(-1.57)
NSKEWt	+	**.096*** **		
		(6.45)		
DUVOLt	+		**.105*** **	
			(6.79)	
COUNTt	+			**.075*** **
				(4.76)
RET_Mt	+/-	-1.973	-3.366	-1.057
		(-.34)	(-.75)	(-.33)
RET_SDt	-	**-.303***	**-.110***	**-.701***
		(-1.94)	**(-1.77)**	**(-1.68)**
MBt	+	.009	.052	.020
		(.92)	(1.59)	(.45)
ROAt	+/-	-.574	**-.098***	-.370
		(-.79)	**(-1.81)**	(-1.09)
LEVt	+/-	**.001** **	**.002*** **	.001
		(2.13)	**(3.35)**	(1.52)
LMVEt	+	**.126*** **	**.097*** **	**.011***
		(3.23)	**(2.59)**	**(1.84)**
B_SIZEt	+/-	-.031	**-.010***	-.020
		(-1.37)	**(-1.68)**	(-.84)
%WOMENt	+/-	.001	-.001	.002
		(-.16)	(-.04)	(.53)
Constant		**-1.945*** **	**-2.237*** **	**-1.056*** **
		(-9.95)	**(-12.00)**	**(-8.31)**
Year Fixed Effects		Yes	Yes	Yes
Firm Fixed Effects		Yes	Yes	Yes
N of Observation		2,745	2,745	2,745
N of Groups		294	294	294
Overall R squared		.010	.013	.008

** statistical significance at the 10% level*
*** statistical significance at the 5% level*
**** statistical significance at the 1% level*

Table 3.3
High Board Monitoring Quality and Stock Price Crash Risk
This table estimates the relations between high board monitoring quality and future stock price crash risk. High monitoring quality regards to the top 50th percentile in monitoring quality of the sample. Standard errors are clustered by firm. T-statistics are reported in the parentheses. Overall R squared is reported in the last row of the table.

	Exp. Signs	(1) NSKEWt+1	(2) DUVOLt+1	(3) COUNTt+1
QUALITY_Ht	+/-	**-.204*** **	**-.156*** **	**-.064** **
		(-3.35)	**(-4.03)**	**(-2.09)**
NSKEWt	+/-	**.205*** **		
		(6.82)		
DUVOLt	+/-		**.184*** **	
			(8.06)	
COUNTt	+/-			**.120*** **
				(5.10)
RET_Mt	+/-	-3.064	-3.743	-2.046
		(-.53)	(-.49)	(-.95)
RET_SDt	-	**-1.273***	**-.278***	**-.915***
		(-1.91)	**(-1.79)**	**(-1.68)**
MBt	+	.019	**.067***	.407
		(.72)	**(1.93)**	(1.54)
ROAt	+/-	-.229	**-.375***	-.454
		(-.78)	**(-1.78)**	(-1.32)
LEVt	+/-	**.001** **	**.002*** **	.001
		(2.07)	**(3.94)**	(1.25)
LMVEt	+	**.030*** **	**.022*** **	**.204** **
		(3.10)	**(3.08)**	**(1.92)**
B_SIZEt	+/-	-.014	**-.011***	.304
		(-1.53)	**(-1.85)**	(-.11)
%WOMENt	+/-	-.002	.001	.001
		(-.54)	(-.07)	(.30)
Constant		**-2.157*** **	**-2.284*** **	**-1.019*** **
		(-8.25)	**(13.44)**	**(5.71)**
Year Fixed Effects		Yes	Yes	Yes
Firm Fixed Effects		Yes	Yes	Yes
N of Observations		1,367	1,367	1,367
N of Groups		146	146	146
Overall R squared		.034	.022	.016

** statistical significance at the 10% level*
*** statistical significance at the 5% level*
**** statistical significance at the 1% level*

Table 3.4
Board Monitoring Quality with CEO Characteristics
This table estimates the relations between board monitoring quality and future stock price crash risk. Standard errors are clustered by firm. T-statistics are reported in the parentheses. Overall R squared is reported in the last row of the table.

	Exp. Sign	(1) NSKEWt+1	(2) DUVOLt+1	(3) COUNTt+1
QUALITY_Ht	+/-	**-.319****	**-.217****	-.074
		(-2.48)	**(-2.44)**	(-.50)
NSKEWt	+/-	**.054*****		
		(4.97)		
DUVOLt	+/-		**.001*****	
			(7.17)	
COUNTt	+/-			**.024*****
				(3.57)
GAIt	+/-	.017	.004	.006
		(1.40)	(.93)	(1.53)
TENUREt	+	-.002	.001	.003
		(-.42)	(.91)	(.62)
CEOOWNt	-	**-.003****	**-.001***	**-.003****
		(-2.09)	**(-1.95)**	**(-2.32)**
RET_Mt	+/-	-4.477	-8.466	-3.011
		(-.86)	(-.98)	(-1.45)
RET_SDt	-	**-.364*****	**-.141***	-3.817
		(-3.58)	**(-1.92)**	(-1.43)
MBt	+	**.047*****	**.008****	.089
		(2.56)	**(1.40)**	(.44)
ROAt	+/-	**-.010****	-.103	-.118
		(-2.11)	(-1.57)	(-.12)
LEVt	+/-	**.001****	**.001*****	**.001****
		(2.40)	**(2.06)**	**(2.17)**
LMVEt	+	**.008*****	**.062*****	**.357*****
		(4.55)	**(3.68)**	**(2.59)**
B_SIZEt	+/-	.002	-.021	.003
		(.60)	(-.91)	(-.92)
%WOMENt	+/-	-.002	.004	.001
		(-.80)	(-.83)	(-.08)
Constant		**-4.667*****	**-3.371*****	**-3.454*****
		(-2.85)	**(-6.25)**	**(-3.17)**
Year Fixed Effects		Yes	Yes	Yes
Firm Fixed Effects		Yes	Yes	Yes
N of Observations		744	744	744
N of Groups		146	146	146
Overall R Squared		.040	.031	.017

** statistical significance at the 10% level*
*** statistical significance at the 5% level*
**** statistical significance at the 1% level*

Table 3.5
High Board Monitoring Quality and Stock Price Crash Risk Using Arellano-Bond GMM Estimation
This table estimates the relations between high board monitoring quality and future stock price crash risk using GMM estimation. High monitoring quality regards to the top 25th percentile in monitoring quality of the sample. Standard errors are reported using Arellano-Bond robust estimator. T-statistics are reported in the parentheses.

	(1) NSKEWt+1	(2) DUVOLt+1	(3) COUNTt+1
QUALITY_Ht	-.056	-.027	-.051
	(-.34)	(-.36)	(-.33)
L1.	.20	.145	.001
	(.16)	(.81)	(.01)
L2.	**-.067***	-.070	-.044
	(-1.77)	(-1.35)	(-.83)
RET_Mt	-7.732	-4.465	-3.730
	(-.25)	(-.31)	(-.17)
RET_SDt	-9.17	1.448	-12.097
	(-.64)	(.18)	(-.80)
MBt	.213	.020	.128
	(.33)	(.06)	(.29)
ROAt	-.486	-.286	-.202
	(-.43)	(-.64)	(-.19)
LEVt	.001	.001	.001
	(1.15)	(1.46)	(.76)
LMVEt	.233	.125	.119
	(1.02)	(1.41)	(1.46)
B_SIZEt	-.015	-.007	-.002
	(-.48)	(-.43)	(-.87)
%WOMENt	-.002	-.001	-.001
	(-.08)	(-.87)	(-.12)
Year Dummies	Yes	Yes	Yes
Hansen Test	.553	.576	.562
Arellano-Bond Test (AR2)	.511	.260	.740
N of Observations	1,231	1,231	1,231

** statistical significance at the 10% level*
*** statistical significance at the 5% level*
**** statistical significance at the 1% level*

Appendix 3A

Table 3A.1 Correlation Matrix

This table presents the correlation matrix of the key variables of interest for the sample of firms in my study. The sample covers firm-year observations for the period 2009 to 2020.

variables	NSKEW	DUVOL	COUNT	QUALITY	RET_M	RET_SD	LVME	ROA	MB	LEV	B_SIZE	%WOMEN
NSKEW	1											
DUVOL	0.9441	1										
COUNT	0.7691	0.6392	1									
QUALITY	-0.0259	-0.0283	-0.0153	1								
RET_M	0.0053	0.0195	0.0192	0.0105	1							
RET_SD	-0.0147	-0.0281	-0.0022	0.0147	-0.2501	1						
LVME	0.0683	0.0952	0.0358	-0.0476	0.2085	-0.4206	1					
ROA	0.0304	0.0259	0.0507	0.0422	0.1874	-0.0940	0.1814	1				
MB	0.0326	0.0285	0.0022	0.0458	-0.3198	0.2966	-0.2747	-0.2794	1			
LEV	-0.0320	-0.0214	-0.0350	-0.0085	0.0383	-0.1104	0.0420	-0.2258	0.0133	1		
B_SIZE	0.0013	0.0124	-0.0006	0.0327	-0.0047	-0.1989	0.4158	-0.1069	0.0237	0.0824	1	
%WOMEN	0.0211	0.0298	0.0182	-0.0270	-0.0105	-0.0803	0.2620	0.0348	-0.0623	-0.0421	0.1503	1

Table 3A.3
Variable Definition

Variable	Definition
NSKEW	The negative skewness of the firm's weekly returns distribution of year t
DUVOL	The down-to-up volatility measure of crash likelihood of the firm in year t
COUNT	The number of stock price crash on year t
RET_M	The mean of firm specific weekly return of year t
RET_SD	The standard deviation of firm specific weekly return of year t
LVME	The log of the market value of equity of the firm on year t
ROA	The return on assets of the firm on year t
MB	The market to book ratio of the firm on year t
LEV	The long-term debt to total assets of the firm on year t
B_SIZE	Board size
%WOMEN	The percentage of women on board
TENURE	CEO tenure
CEOOWN	The percentage of shared owned by CEO
GAI	A score index that captures the skills of CEOs that are of general nature
CRASH	The dummy variable takes value of 1 if COUNT takes a positive value (negative extreme return) and 0 otherwise

Chapter 4

Conclusion

This thesis comprises two essays on corporate governance, with Chapter 2 and Chapter 3 exploring different determinants of stock price crash risk.

Chapter 2 ("Generalist CEO and stock price crash risk") examines the association between CEOs' generalist and specialist managerial skills and future stock price crash risk. I use Custodio et al. (2013)'s measure of CEO general ability (GAI Index) and a sample of over 17,000 firm-year observations from 1995 to 2016 North American firms. The empirical results show that generalist CEOs are weakly positively associated with future stock price crash risk. I also investigate the motivation of bad news hoarding behaviour of high GAI CEOs by examining the top percentile GAI subgroup. I find that generalist CEOs' ownership (percentage of shares owned by CEO) is negatively associated with future stock price risk. This suggests that generalist CEOs are less likely to engage in bad news hoarding when they have greater engagement with their current employer.

This study contributes to the existing CEO characteristics literature in several ways. First, it extends the current understanding of the economic consequences of recruiting generalist CEOs by focusing on information hiding. Second, it strengthens the view of CEOs' motivation for bad new hoarding behaviour, which is related to their short-term career and compensation concerns.

Chapter 3 ("Board Monitoring Quality and Stock Price Crash Risk") examines the impact of board monitoring quality on stock price crash risk. I use Nguyen et al. (2016)'s method of

measuring board monitoring quality by hand collecting the number of non-captured members of the board. I present empirical evidence with a sample consists of over 3,000 observations from 2009 to 2020 in North America. It shows that board monitoring quality is negatively associated with future stock price crash risk. I include CEO general ability and CEO tenure as factors that may strengthen the connections between CEO and board members and mitigate monitoring quality. The results remain robust with the inclusion of these factors, suggesting that a board structure with a high proportion of non-captured CEOs holds its effectiveness of monitoring over time. However, this result is not robust to the Arellano-Bond GMM estimator, indicating the conclusion may be biased due to the short sample period.

This study contributes to the existing corporate governance literature in several ways. First, it sheds light on the economic consequences of board monitoring quality from a unique perspective of board structure. Second, it expands the current understanding of stock price crash risk by exploring a social and psychology perspective, which is that directors who believe they are over-benefited from the CEO may be influenced in their role. Third, it offers potential solutions for improving board independence and monitoring quality, which should help avoid extreme economic consequences.

References

Al Mamun, M., Balachandran, B. and Duong, H., 2020. Powerful CEOs and stock price crash risk. *Journal of Corporate Finance*, 62, p.101582.

Ali, A. and Zhang, W., 2012. CEO Tenure and Earnings Management. *SSRN Electronic Journal*,.

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

Andreou, P., Antoniou, C., Horton, J. and Louca, C., 2016. Corporate Governance and Firm-specific Stock Price Crashes. *European Financial Management*, 22(5), pp.916-956.

Be´dard, J., Chtourou, S. and Courteau, L., 2004. The Effect of Audit Committee Expertise, Independence, and Activity on Aggressive Earnings Management. *AUDITING: A Journal of Practice & Theory*, 23(2), pp.13-35.

Becker, G., 1962. Investment in Human Capital: A Theoretical Analysis. *Journal of Political Economy*, 70(5, Part 2), pp.9-49.

Benmelech, E., Kandel, E. and Veronesi, P., 2008. Stock-Based Compensation and CEO (Dis)Incentives. *SSRN Electronic Journal*,.

Betzer, A., Ibel, M., Lee, H., Limbach, P. and Salas, J., 2017. Are Generalists Beneficial to Corporate Shareholders? Evidence from Sudden Deaths. *SSRN Electronic Journal*,.

Biddle, G., Chen, P. and Zhang, G., 2001. When Capital Follows Profitability: Non-linear Residual Income Dynamics. *SSRN Electronic Journal*,.

Bleck, A. and Liu, X., 2007. Market Transparency and the Accounting Regime. *Journal of Accounting Research*, 45(2), pp.229-256.

Brockman, P., Lee, H. and Salas, J., 2016. Determinants of CEO compensation: Generalist–specialist versus insider–outsider attributes. *Journal of Corporate Finance*, 39, pp.53-77.

Callen, J. and Fang, X., 2013. Institutional investor stability and crash risk: Monitoring versus short-termism?. *Journal of Banking & Finance*, 37(8), pp.3047-3063.

Callen, J. and Fang, X., 2015. Religion and Stock Price Crash Risk. *Journal of Financial and Quantitative Analysis*, 50(1-2), pp.169-195.

Cao, H.H., Coval, J.D. and Hirshleifer, D.A. (2001) "Sidelined investors, trading-generated news, and security returns," *SSRN Electronic Journal* [Preprint]. Available at: https://doi.org/10.2139/ssrn.269950.

CFA Digest, 1997. An Empirical Analysis of the Relation between the Board of Director Composition and Financial Statement Fraud. 27(2), pp.69-69.

Chen, G., Huang, S. and Meyer-Doyle, P., 2017. Generalist vs. Specialist CEOs: How CEO Human Capital Shapes Firm Acquisition Behavior and Success. *Academy of Management Proceedings*, 2017(1), p.11433.

Chen, J., Chan, K., Dong, W. and Zhang, F., 2015. Internal Control and Stock Price Crash Risk: Evidence from China. *SSRN Electronic Journal*,.

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

Chen, J., Liu, X., Song, W. and Zhou, S., 2020. General managerial skills and corporate social responsibility. *Journal of Empirical Finance*, 55, pp.43-59.

Coles, J., Daniel, N. and Naveen, L., 2014. Co-opted Boards. *Review of Financial Studies*, 27(6), pp.1751-1796.

Cui, H. and Zhang, Y., 2019. Does investor sentiment affect stock price crash risk?. *Applied Economics Letters*, 27(7), pp.564-568.

Cunat, V. and Guadalupe, M., 2009. Globalization and the Provision of Incentives Inside the Firm: The Effect of Foreign Competition. *SSRN Electronic Journal*,.

Custodio, C. and Metzger, D., 2012. How do CEOs Matter? The Effect of Industry Expertise on Acquisition Returns. *SSRN Electronic Journal*,.

Custódio, C., Ferreira, M. and Matos, P., 2013. Generalists versus specialists: Lifetime work experience and chief executive officer pay. *Journal of Financial Economics*, 108(2), pp.471-492.

Custódio, C., Ferreira, M. and Matos, P., 2019. Do General Managerial Skills Spur Innovation?. *Management Science*, 65(2), pp.459-476.

Dasgupta, S. and Ding, F., 2010. Search Intermediaries, Internal Labor Markets, and CEO Pay. *SSRN Electronic Journal*,.

Dechow, P., Ge, W. and Schrand, C., 2010. Understanding Earnings Quality: A Review of the Proxies, Their Determinants and Their Consequences. *SSRN Electronic Journal*,.

Demerjian, P., Lewis, M., Lev, B. and McVay, S., 2012. Managerial Ability and Earnings Quality. *SSRN Electronic Journal*,.

Dimson, E., 1979. Risk measurement when shares are subject to infrequent trading. *Journal of Financial Economics*, 7(2), pp.197-226.

Fama, E. and Jensen, M., 1998. Separation of Ownership and Control. *SSRN Electronic Journal*,.

Fehr, E. and Schmidt, K., 1999. A Theory of Fairness, Competition, and Cooperation. *The Quarterly Journal of Economics*, 114(3), pp.817-868.

Ferreira, D. and Sah, R., 2012. Who Gets to the Top? Generalists Versus Specialists in Managerial Organizations. *SSRN Electronic Journal*,.

Frederiksen, A. and Kato, T., 2011. Human Capital and Career Success: Evidence from Linked Employer-Employee Data. *SSRN Electronic Journal*,.

Garicano, L. and Rossi-Hansberg, E., 2006. Organization and Inequality in a Knowledge Economy. *The Quarterly Journal of Economics*, 121(4), pp.1383-1435.

Giannetti, M., 2011. Serial CEO incentives and the structure of managerial contracts. *Journal of Financial Intermediation*, 20(4), pp.633-662.

Gouldner, A., 1960. The Norm of Reciprocity: A Preliminary Statement. *American Sociological Review*, 25(2), p.161.

Graham, J., Harvey, C. and Rajgopal, S., 2005. The Economic Implications of Corporate Financial Reporting. *Journal of Accounting and Economics*,.

Grinstein, Y. and Hribar, P., 2004. CEO compensation and incentives: Evidence from M&A bonuses. *Journal of Financial Economics*, 73(1), pp.119-143.

Hubbard, R. and Palia, D., 1995. Benefits of Control, Managerial Ownership, and the Stock Returns of Acquiring Firms. *The RAND Journal of Economics*, 26(4), p.782.

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

Jebran, K., Chen, S. and Zhang, R., 2020. Board diversity and stock price crash risk. *Research in International Business and Finance*, 51, p.101122.

Jensen, M. and Meckling, W., 1998. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *SSRN Electronic Journal*,.

JIN, L. and MYERS, S., 2006. R2 around the world: New theory and new tests☆. *Journal of Financial Economics*, 79(2), pp.257-292.

Khanna, V., Kim, E. and Lu, Y., 2013. CEO Connectedness and Corporate Frauds. *SSRN Electronic Journal*,.

Kim, J. and Zhang, L., 2014. Financial Reporting Opacity and Expected Crash Risk: Evidence from Implied Volatility Smirks. *Contemporary Accounting Research*, 31(3), pp.851-875.

Kim, J., Wang, Z. and Zhang, L., 2016. CEO Overconfidence and Stock Price Crash Risk. *Contemporary Accounting Research*, 33(4), pp.1720-1749.

Kim, Y., Li, H. and Li, S., 2014. Corporate social responsibility and stock price crash risk. *Journal of Banking & Finance*, 43, pp.1-13.

Larcker, D., Richardson, S. and Tuna, I., 2007. Corporate Governance, Accounting Outcomes, and Organizational Performance. *The Accounting Review*, 82(4), pp.963-1008.

Lazear, E., 2012. Leadership: A personnel economics approach. *Labour Economics*, 19(1), pp.92-101.

Lee, J., Lee, K. and Nagarajan, N., 2014. Birds of a feather: Value implications of political alignment between top management and directors. *Journal of Financial Economics*, 112(2), pp.232-250.

Li, M. and Patel, P., 2019. Jack of all, master of all? CEO generalist experience and firm performance. *The Leadership Quarterly*, 30(3), pp.320-334.

Ma, Z., Ruan, L., Wang, D. and Zhang, H., 2020. Generalist CEOs and Credit Ratings. *Contemporary Accounting Research*,.

Ma, Z., Wang, R. and Zhou, K., 2021. Generalist CEOs and Audit Pricing. *SSRN Electronic Journal*,.

Mishra, D., 2014. Dark Side of CEO Ability: CEO General Managerial Skills and Cost of Equity Capital. *SSRN Electronic Journal*,.

Murphy, K. and Zabojnik, J., 2007. Managerial Capital and the Market for CEOs. *SSRN Electronic Journal*,.

Nguyen, D., Hagendorff, J. and Eshraghi, A., 2015. Can Bank Boards Prevent Misconduct? *. *Review of Finance*, 20(1), pp.1-36.

Pang, J., Tice, S. and Wang, L., 2016. CEO Backgrounds and Stock Performance: Evidence from the Great Recession. *SSRN Electronic Journal*,.

Qayyum, A., Rehman, I., Shahzad, F., Khan, N., Nawaz, F., Kokkalis, P. and Sergi, B., 2021. Board gender diversity and stock price crash risk: Going beyond tokenism. *Borsa Istanbul Review*, 21(3), pp.269-280.

Quigley, T. and Hambrick, D., 2014. Has the “CEO effect” increased in recent decades? A new explanation for the great rise in America's attention to corporate leaders. *Strategic Management Journal*, 36(6), pp.821-830.

Rajan, R. and Wulf, J., 2006. Are perks purely managerial excess?. *Journal of Financial Economics*, 79(1), pp.1-33.

Stein, J., 1989. Efficient Capital Markets, Inefficient Firms: A Model of Myopic Corporate Behavior. *The Quarterly Journal of Economics*, 104(4), p.655.

Xiang, C., Chen, F. and Wang, Q., 2020. Institutional investor inattention and stock price crash risk. *Finance Research Letters*, 33, p.101184.