



## Specialist CEOs versus Generalist CEOs: CEO Type and Firm Performance Following Initial Public Offerings on the Chinese Market

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### Abstract

This study focuses on the effect of Chief Executive Officer (CEO)-level characteristics on a firm's survival following initial public offerings (IPOs). Specifically, it looks at the impact of generalist CEOs between July 2009 and July 2021 on the likelihood of firm failure and IPO survival. This study uses principal component analysis to create a generalist skills index based on CEO work experience, including the number of roles that the CEO has held, the number of firms in which the CEO has worked, the number of industries in which the CEO has worked, whether the CEO has taken a CEO position in other firms, whether the CEO has worked in a conglomerate, and whether the CEO holds a professional title. The results of the Cox proportional hazards model reveal that companies with a generalist CEO have a higher probability of failing than companies with a specialist CEO, which suggests that generalist CEOs pursue higher salaries and higher reputations through switching between different industries and firms. Performance-related compensation and CEO turnover in companies with generalist CEOs explain the higher probability of firm failure. The main results still hold after controlling for CEO power, board and firm characteristics, and testing using the logit model. This research on the connection between generalist CEOs and a firm's failure risk also offers insight into a company's CEO hiring choice and job market activities.

**Keywords:** CEO compensation, CEO power, CEO turnover, Chinese IPO survival, Generalist CEO, Specialist CEO.

**JEL Classification:** G30, G40.

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### Contribution of this paper to the literature

This study is the first to examine how a CEO's managerial expertise affects a company's ability to survive following an initial public offering (IPO) on the Chinese stock market. A generalist CEO index is constructed based on six proxies, including whether a CEO holds a professional title. In addition, compensation and CEO turnover are investigated to establish the cause of a firm's higher risk of failure with a generalist CEO.

## 1. Introduction

Existing research demonstrates that, although an IPO can generate a significant initial return on the first trading day, it will ultimately perform poorly. International and mainland evidence reveals that firms' long-term performance is low (e.g., (Chi & Padgett, 2005; Loughran & Ritter, 1995; Ritter, 1991)). An international company that performs poorly will either be bought or delisted under the regulations and guidelines governing stock market delisting. However, due to ineffective delisting laws in China, underperforming Chinese companies are less likely to be removed from the market and are more likely to receive warnings from the China Securities Regulatory Commission (CSRC) (Cheng, Aerts, & Jorissen, 2010; Jiang & Wang, 2008; Zhou, Zhang, Yang, Su, & An, 2018). Since the stock market's inception, there have been only 167 delisted companies in the Chinese A-share and B-share markets. As a result, it is improper to define a failing firm as one that has been delisted. Firms that have experienced two consecutive years of negative profits will be alerted by CSRC, and "\*ST" will be added before the stock code. In this study, a firm is considered to have failed if it has had two consecutive years of negative profits and its stock code begins with "\*ST" before the code number, which is distinct from the worldwide definition of firm failure.

Previous research has demonstrated that certain corporate characteristics, such as the first return, underwriter reputation and insider directors, have an impact on firm performance after the initial offering (Carter, Dark, & Singh, 1998; Durukan, 2002; Jain & Kini, 1994). However, we don't know a lot about the CEO-level factors that influence how well a company performs after becoming public. In recent years, academics have begun to focus on how human traits, particularly those of the CEO, affect a firm's growth (Buyl, Boone, Hendriks, & Matthyssens, 2011; Huang, 2013; Nelson, 2005). The CEO of a company is typically hired due to his experience, reputation, and social circle. Although boards have the authority to hire or fire the CEO and control a majority of the company's shares, the CEO is in charge of running the business on a daily basis and making important decisions. As a result, a CEO's traits might determine how well a company performs. For instance, a senior CEO is often more conventional, risk-averse, and unlikely to implement dramatic changes (Amran, Yusof, Ishak, & Aripin, 2014; Chowdhury & Fink, 2017; Serfling, 2014). Female CEOs tend to be more cautious and risk-averse than male CEOs (Khan & Vieito, 2013; Lam, McGuinness, & Vieito, 2013).

Moreover, Hambrick and Mason (1984) postulate that the managerial ability of a CEO has a more critical effect on a firm's performance than other characteristics. A diverse environment seems to be a popular trend for CEO curriculum vitae (Crossland, Zyung, Hiller, & Hambrick, 2014). We can categorize CEO types based on their working environment. While some CEOs choose to remain in one area or company long term, others prefer to transition between several industries and companies. We refer to these as specialist and generalist CEOs, respectively (Datta & Iskandar - Datta, 2014; Gounopoulos & Pham, 2018).

Because CEOs play an essential part in decision-making, the question that this study aims to answer is whether a CEO's preference in a diverse employment environment is vital for a firm's survival. A generalist CEO actively seeks employment and is more likely to change companies and sectors. Also, a generalist CEO's pay and compensation are more likely to increase after leaving previous companies if they can establish a solid reputation through a few risky but successful undertakings. Prior studies show that CEOs with various career experiences make decisions that deviate from the firm's current strategy and shareholders' opinions (Hamori & Koyuncu, 2015; Louca, Petrou, & Procopiou, 2020) and are more likely to accept change and reform (Musteen, Barker III, & Baeten, 2006). Higher remuneration that is based on the CEO's success will promote risky investments that have a higher failure rate. In addition, diverse CEOs bring different strategies to the table which can bring instability to the company. Hence, companies with a generalist CEO have a higher CEO turnover rate and are more likely to fail.

A specialist CEO, on the other hand, is less active in the employment market. Due to their limited mobility, long-term employment is preferred. As a result, specialist CEOs make choices that may be in line with those of the board and with the existing business strategy. Therefore, this study contends that companies with a specialist CEO have a reduced failure probability and are less likely to receive CSRC warnings.

It can be claimed that certain aspects of a company could influence how the CEO's style affects the viability of the business. Consequently, this study first controls for three boards, namely the ChiNext (a NASDAQ-style subsidiary of the Shenzhen Stock Exchange), the SZSE (Shenzhen Stock Exchange), and the SSE (Shanghai Stock Exchange), which have established various company criteria and provide various regulatory guidelines. Then, it controls for high-tech firms, which are more likely to issue offerings in the ChiNext and SZSE, and experience rapid growth and involve more risk. Others may argue that a generalist CEO's impact on a company's longevity can be affected by other traits. For instance, a CEO with a larger percentage of shares may have greater influence over the company's decision-making and may drive a generalist CEO's effect on the company's survival (Barnhart & Rosenstein, 1998; Li, Moshirian, Nguyen, & Tan, 2007; Mehran, 1995). As a result, the study also controls for CEO power, which is created by employing principal component analysis (PCA) based on CEO tenure, ownership, founder/chairman status, and political connections.

This research is the first to examine how a CEO's managerial expertise affects a company's ability to survive on the Chinese stock market. Previous research has shown that a firm's decision-making is influenced by the CEO's age, tenure, remuneration, and gender (Amran et al., 2014; Chen & Zheng, 2014; Chowdhury & Fink, 2017). A generalist skills index based on five proxies plus a professional title variable, a peculiar situation in the Chinese market, is used in this paper to specifically describe the CEO type. Second, compensation and CEO turnover are investigated to establish the cause of a firm's failure with a generalist CEO. Third, robustness tests are conducted

to examine whether firm characteristics and other CEO characteristics can drive the effect of CEO type on a firm's survival. The final results can assist companies in choosing a CEO based on their long-term goals.

The rest of the paper is organized as follows: Section 2 discusses the related literature; Section 3 presents the data sample and data summary; Section 4 presents the primary empirical evidence of the Cox proportional hazards model and robustness check, and Section 5 concludes.

## 2. Literature Review

A previous study by Hambrick and Mason (1984) states that managerial background characteristics can predict a firm's strategic choices and performance levels. Many studies show that a CEO's personal traits, demographic background, and experience are important factors in explaining their decision-making and can affect a firm's performance. Buyl et al. (2011) showed that a CEO's characteristics affect their decision-making through their psychological traits, such as risk-loving or conservative. Specifically, Warfield, Wild, and Wild (1995) showed that CEO ownership is positively correlated with firm value. Barber and Odean (2001) stated that female CEOs are more risk-averse than male CEOs and are more likely to opt for less risky strategies and decisions. Chen and Zheng (2014) examined the relationship between CEO tenure and risk-taking behavior, and the results showed that such a relationship depends on the information asymmetry regarding the CEO's ability. Chowdhury and Fink (2017) found that older CEOs invest in less research and development (R&D), and CEO age is associated with reducing firm equity risk.

The initial public offering (IPO) market demonstrates significant information asymmetry, and firms are required to disclose their financial information to the public. However, the agency problem arises between shareholders and managers in an IPO (Bebchuk & Fried, 2003; Nyberg, Fulmer, Gerhart, & Carpenter, 2010), which causes a moral hazard issue between principals and agents. While CEOs without ownership interests prioritize their immediate income and experience accumulation, shareholders' returns are mostly based on a company's long-term performance and survival. A generalist CEO's agency problem will worsen, since a CEO with a diverse work environment tends to switch between different companies or industries. Their pay is boosted by changing jobs rather than being directly correlated to the company's performance. According to Mishra (2014), a CEO with a more general managerial aptitude deviates from the shareholders' decision-making behavior and causes a serious agency problem. Generalist CEOs may undertake high-risk ventures to enhance their reputation, increase their pay in line with the additional value of the company, and gain easier access to the job market. Hambrick, Geletkanycz, and Fredrickson (1993) state that a generalist CEO may make decisions that are not in line with the present corporate strategy. Crossland et al. (2014) state that generalist CEOs are more likely to accept change and renovation with risk propensity.

Specialist CEOs, on the other hand, only focus on a specific industry, or work for a company for a long period. Because they are more devoted to a company and more concerned with its long-term survival, their reduced employment mobility alleviates agency issues (Datta & Iskandar-Datta, 2014; Gounopoulos & Pham, 2018). Their high level of stability necessitates that they focus on a long-term and sustainable approach rather than making adventurous or hazardous decisions. A specialist CEO comes to a conclusion that may be in line with that of the shareholders. A specialist CEO's pay also has a strong relationship with the success of the company.

## 3. Sample and Data

### 3.1. Sample Construction

The data for this study, including firms' financial information and CEO profiles, was collected from the China Stock Market & Accounting Research (CSMAR) database, which is a comprehensive research-oriented database focusing on China's finance and economy that is highly regarded by a number of top-tier journals. The data sample spans from July 2009 to July 2021 for the Chinese A-share market.

Contrary to earlier research (e.g., Ahmad & Jelic, 2014; Alhadab, Clacher, & Keasey, 2015; Gounopoulos & Pham, 2018), which typically defines failing enterprises as those delisted from the board, this study defines failed firms as ones that the CSRC has issued a warning to due to having two consecutive years of negative profits. Only 167 companies have been removed from the board during the history of the Chinese stock market, and between July 2009 and July 2021, only 100 companies were delisted. The main reason for this low number is because some underperforming corporations can evade punishment due to the subjective nature of the delisting regulations. As a result, according to the definition taken by this study, failed enterprises are those that the CSRC have issued warnings to and those with stock codes that begin with "\*ST", which denotes two consecutive years of negative profitability for the company. The IPO data was gathered for 1,217 listed enterprises from July 2009 to July 2015 to provide ample track time for survival analysis.

According to Custódio, Ferreira, and Matos (2013) and Gounopoulos and Pham (2018), the principal component analysis (PCA) was employed to construct the generalist skills index based on CEO work experience. The proxies of CEO work experience include the number of roles that the CEO has held, the number of firms the CEO has worked in, the number of industries the CEO has worked in, whether the CEO has held the same position in other firms, and whether the CEO has worked in a conglomerate. A dummy variable is also included that indicates if the CEO has a professional title, which is a slight departure from Custódio et al. (2013) and Gounopoulos and Pham (2018). The professional titles include engineer, accountant, lawyer, professor, among others. To earn respect within the industry in China, it is common practice to obtain a professional title. The dummy equals zero if the CEO holds a professional title, and one otherwise. Using six proxies, the first factor of the PCA is applied to determine the generalist skills index. The index is higher when the degree of general managerial ability is higher. In addition, a specialist is defined if the generalist index value is below the index median, and a generalist is defined if the generalist index value is above the index median.

Similarly, CEO power is constructed by PCA based on five variables, namely whether the CEO is a chairman, whether the CEO is a founder, CEO ownership, CEO tenure, and whether the CEO is politically connected. Different from Gounopoulos and Pham (2018), the dummy variable "if the CEO is politically connected" is also

included in this study because there appears to be a connection between the CEO's influence over the company and whether or not he or she is politically connected (e.g., (Wang, 2015; Wang & Wu, 2020)).

### 3.2. Data Summary

Table 1 shows the distribution of successful and unsuccessful enterprises after their initial public offering. An observation interval for a specific amount of time is necessary for survival analysis. As a result, the study sample includes businesses whose listing periods range from July 2009 to July 2015 as well as the entire period of time for which performance data was collected, from July 2009 to July 2021. Panel A demonstrates that, overall, 83.81% of enterprises were still operating as of July 2021, while 16.19% were labeled as failures.

Panel B provides the firm distribution by listing year. First, only 97 companies went public in 2009 as a result of the financial crisis, and of those, 22.68% received warnings for their sub-par performance. Then, in 2010, there was a surge of IPOs, bringing the total to 343. The release of previously authorized IPO applications was most likely to occur in 2010 as a result of the global financial recovery. The ratio of unsuccessful IPOs varied between 16% and 20% between 2010 and 2012. Only two companies went public in China in 2013 due to an IPO moratorium. In 2014, 124 companies went public, and 219 in 2015. Only half as many bankrupt businesses were present as in prior years.

Panel C presents the firm distribution by board. The lowest number of companies going public and the lowest percentage of unsuccessful companies are both a result of the SSE's strictest listing and initial public offering (IPO) regulations. The failure rate for small- and medium-sized businesses served by ChiNext is 20.93%, or about three times that of the SSE. The SZSE has a 15.97% failure rate, which is approximately twice as high as that of the SSE.

**Table 1. Firm distribution following IPO.**

Panel A. IPO distribution (07/2009 to 07/2021)					
Firm	Number	% of Total Observations			
Survived	1020	83.81%			
Failed	197	16.19%			
Total	1,217				
Panel B. IPO distribution by listing year					
IPO Year	Total	Survived		Failed	
2009	97	75	77.32%	22	22.68%
2010	343	273	79.59%	70	20.41%
2011	279	232	83.15%	47	16.85%
2012	153	125	81.70%	28	18.30%
2013	2	2	100%	0	0
2014	124	114	91.94%	10	8.06%
2015	219	199	90.87%	20	9.13%
Panel C. IPO distribution by board					
Board	Total	Survived	Failed		
ChiNext	492	389	79.07%	103	20.93%
SSE	224	210	93.75%	14	6.25%
SZSE	501	421	84.03%	80	15.97%

**Note:** This table shows the survived and failed firms' distribution on the Chinese A-share market from July 2009 to July 2021. Panel A breaks down the IPO distribution into two groups: survived and failed. Enterprises are classified as failed firms if they have two consecutive years of negative profits, otherwise they are classified as surviving firms. Panel B describes the IPO distribution by year. Panel C describes the IPO distribution by board, including the ChiNext Index, the Shanghai Stock Exchange (SSE), and the Shenzhen Stock Exchange (SZSE).

**Table 2. Specialist CEO vs. Generalist CEO distribution.**

Panel A. CEO type distribution by listing year						
Year	CEO Type	Number of IPOs	Survived		Failed	
2009	Specialist	47	45	95.74%	2	4.26%
	Generalist	50	30	60%	20	40%
2010	Specialist	161	136	84.47%	25	15.53%
	Generalist	182	137	75.27%	45	24.73%
2011	Specialist	145	124	85.52%	21	14.48%
	Generalist	134	108	80.60%	26	19.40%
2012	Specialist	84	70	83.33%	14	16.67%
	Generalist	69	55	79.71%	14	20.29%
2013	Specialist	1	1	100%	0	0
	Generalist	1	1	100%	0	0
2014	Specialist	76	72	94.74%	4	5.26%
	Generalist	48	42	87.50%	6	12.50%
2015	Specialist	98	93	94.90%	5	5.10%
	Generalist	121	106	87.60%	15	12.40%
Panel B. CEO type distribution by board						
Board	CEO Type	Number of IPOs	Survived		Failed	
ChiNext	Specialist	250	209	83.60%	41	16.40%
	Generalist	242	180	74.38%	62	25.62%
SSE	Specialist	128	120	93.75%	8	6.25%
	Generalist	96	90	93.75%	6	6.25%
SZSE	Specialist	234	212	90.60%	22	9.40%
	Generalist	267	209	78.28%	58	21.72%

**Notes:** This table shows the distribution of specialist CEOs and generalist CEOs. Panel A classifies the CEO type in each IPO in terms of survived firms and failed firms by year. Panel B shows the specialist and generalist CEO distribution in each IPO in terms of survived firms and failed firms by board.

The specialist versus generalist CEO data is displayed in Table 2. Panel A shows the distribution of specialist and generalist CEOs in each business IPO. The results show that the firms with a specialist CEO are less likely to be defined as failed than firms with a generalist CEO. Two businesses with a specialist CEO collapsed in 2009, but 45 businesses with a specialist CEO survived. Also, 30 out of 50 businesses with a generalist CEO survived, while 20 failed. In 2009, 4.26% of companies with a specialist CEO and 40% of companies with a generalist CEO failed. In 2010, 25 out of 161 businesses with a specialist CEO failed. Similar results are also seen for companies with a specialist CEO and a generalist CEO from 2011 to 2015. A company run by a generalist is typically more likely to be classified as a failing company.

The specialist versus generalist CEOs by board are depicted in Panel B. In the ChiNext, SSE and SZSE, the percentages of failing businesses with a specialist CEO are 16.40%, 6.25%, and 9.40%, respectively. Additionally, in the ChiNext, SSE and SZSE, the proportions of failing businesses with a generalist CEO are 25.62%, 6.25% and 21.72%, respectively. It is challenging to draw the conclusion that companies on the SSE with a specialist CEO have a higher chance of surviving due to the varying sample sizes in each board.

Panel B presents the summary statistics of five proxies constructing CEO power. The three dummy variables are given a value of one if the CEO is also the chairman, founder, and politically connected, and zero otherwise. Specialist CEOs had a lower average for three dummy variables, while generalist CEOs had a greater average. This indicates that generalist CEOs have a modest advantage over specialists in terms of power. The average CEO tenure and ownership, however, are marginally longer and higher for a specialist CEO and shorter and lower for a generalist CEO. For example, the average CEO ownership is 0.14 for generalist CEOs and 0.15 for specialist CEOs. Specialist CEOs had a 1.72 average tenure, compared to 1.67 for generalist CEOs. Between companies with specialist CEOs and those with generalist CEOs, there is typically little variation in the power of the CEO.

Panel C lists the CEO's other attributes, including age, gender, education level, and compensation. The average age of CEOs is 47.42; for specialist CEOs, it is 47.09; and for generalist CEOs, it is 47.76. The CEO gender dummy is one for men and zero for women. Gender is 0.94 on average. If a CEO has a bachelor's degree or higher, their education dummy is one, otherwise it is zero. Education is 0.39 on average. The typical CEO compensation is 604 million Renminbi (RMB) for generalists and 651 million RMB for experts. According to the T-test, there is no significant difference in CEO remuneration, education, or gender between companies for specialist and non-specialist CEOs.

Panel D presents the firm and IPO characteristics. The average natural logarithm age of a firm is 8.08 days. Companies that have a specialist CEO have a slightly longer history than those that employ a generalist. For companies with a specialist CEO and companies with a general CEO, respectively, the average natural logarithm of revenue is 20.36 million RMB and 20.37 million RMB. The average leverage is 0.24, while the average profitability is 0.10. In comparison to companies with a generalist CEO, those with a specialist CEO have less diversity and poorer initial returns. For companies with a specialist CEO, the average level of diversification is 6.96, and the initial return is 0.38. Companies with a generalist CEO have a 7.50 diversification and a 0.40 initial return. If a company employs a top-tier underwriter and a top-tier auditor, the top-tier underwriter and top-tier auditor dummy variables are one, otherwise they are zero. The average top underwriter is 0.20, and the typical top-tier auditor is 0.56. Market-to-book ratios for companies with a specialist CEO and a generalist CEO are 3.71 and 3.75, respectively. CEO succession is defined as the number of successions following the CEO at the time of the IPO. The number of successions is 1.33 on average, and there is a big disparity between businesses with specialist and generalist CEOs. However, the majority of characteristics do not significantly differ between businesses with specialist CEOs and those with generalist CEOs.

## 4. Empirical Analysis

### 4.1. Survival Analysis

Survival analysis is prevalent in estimating medical treatment based on patient survival statistics. Specifically, a function incorporates the information on patient survival and period to estimate medical treatment. In order to examine IPO survivability, time series data with various horizons is now often estimated (e.g., (Alhadab et al., 2015; Gerakos, Lang, & Maffett, 2013; Jain, & Kini, 2000; Shumway, 2001)). The sample in this study comprises businesses that went public at various times and survived for various lengths of time. The study examines businesses that collapsed between 2009 and 2021 (precisely, businesses that went public in 2009) and are tracked for 16 years, whereas businesses that went public in 2015 will only be tracked for six years. In light of this, survival analysis is appropriate for the sample. This study uses the semiparametric approach and employs the Cox proportional hazards model (Cox, 1972), which is a common tool for analyzing the survival time of patients and the associated multi-factors. In this study, we investigate how generalist CEOs affect a firm's survival time after the IPO. The model is specified as follows:

$$h(t) = h_0(t) \exp[\beta_1 \text{Generalist CEO}_{it} + \beta_2 \text{Diversification}_{it} + \beta_3 \log(\text{firm age})_{it} + \beta_4 \log(\text{sales})_{it} + \beta_5 \text{Top - tier underwriter}_{it} + \beta_6 \text{Top - tier auditor}_{it} + \beta_7 \text{Profitability}_{it} + \beta_8 \text{Leverage}_{it} + \beta_9 \text{M/B}_{it} + \beta_{10} \text{Initial return}_{it}] \quad (1)$$

where  $h_0(t)$  is the baseline hazard function, and  $t$  is the time to failure. A positive coefficient denotes a greater likelihood of failure. Each explanatory variable's hazard ratio shows the likelihood of failure per unit increase in the explanatory variable. A generalist CEO is one whose value exceeds the generalist skill mean. Other factors that are taken into account include firm diversity, firm age, firm sales, whether the company hires a top-tier underwriter and top-tier auditor, profitability, leverage, market-to-book ratio, and initial IPO return. Jain and Kini (2008) suggest that firm performance is positively associated with product diversification. Wang, Liu, and Wu (2003) suggest that an underwriter with a higher reputation can reduce the initial return and improve firm performance. Al Ani and Mohammed (2015) and Rahman, Meah, and Chaudhory (2019) found that auditor quality is positively associated with firm performance.

**Table 3.** CEO characteristics and firm characteristics.

Panel A. CEO work experience									
Variable	N	Mean	P25	P50	P75	S.D.	Mean		T-test
							Specialist	Generalist	
Number of roles	1217	4.13	3	4	5	1.89	3.25	5.03	-18.48***
Number of firms	1217	3.73	2	3	5	2.50	2.08	5.41	-31.11***
Number of industries	1217	1.47	1	1	2	1.00	1.15	1.80	-11.82***
CEO experience dummy	1217	0.40	0	0	1	0.58	0.222	0.59	-11.51***
Conglomerate dummy	1217	0.47	0	0	1	0.51	0.23	0.72	-18.90***
Professional title dummy	1217	0.50	0	1	1	0.50	0.5	0.51	-0.26
Panel B. CEO power									
Variable	N	Mean	P25	P50	P75	S.D.	Mean		T-test
							Specialist	Generalist	
CEO-chairman	1217	0.45	0	0	1	0.50	0.42	0.47	-1.85*
CEO-founder	1217	0.9	1	1	1	0.30	0.89	0.91	-1.46
CEO-ownership	1217	0.14	0	0.05	0.24	0.19	0.15	0.14	0.80
CEO-tenure	1217	1.69	1	1.58	2.33	0.98	1.72	1.67	0.92
CEO-political	1217	0.36	0	0	1	0.49	0.34	0.38	-1.39
Panel C. CEO other characteristics									
Variable	N	Mean	P25	P50	P75	S.D.	Mean		T-test
							Specialist	Generalist	
CEO age	1217	47.42	43	47	52	6.84	47.09	47.76	-1.70*
CEO gender	1217	0.94	1	1	1	0.23	0.95	0.94	-0.55
CEO education	1217	0.39	0	0	1	0.49	0.38	0.40	-0.45
CEO compensation	1217	628	0.78	147	736	1251	651	604	0.65
Panel D. Firm and IPO characteristics									
Variable	N	Mean	P25	P50	P75	S.D.	Mean		T-test
							Specialist	Generalist	
Log(Firm age)	1217	8.08	7.88	8.21	8.51	2012	8.12	8.04	1.87*
Log(Sales)(millions)	1217	20.36	19.55	20.16	20.99	1.15	20.36	20.37	-0.21
Profitability	1217	0.10	0.07	0.09	0.11	0.04	0.10	0.09	2.97***
Leverage	1217	0.24	0.11	0.20	0.33	0.16	0.23	0.25	-2.05
Diversification	1216	7.23	1	2	6	15.63	6.96	7.50	-0.61
Initial returns	1217	0.39	0.14	0.44	0.44	0.39	0.38	0.40	-0.76
Top-tier underwriter	1217	0.20	0	0	0	0.40	0.20	0.21	-0.17
Top-tier auditor	1217	0.56	0	1	1	0.496	0.60	0.52	2.73***
Market-to-book ratio	1217	3.73	2.00	3.07	4.55	2.76	3.71	3.75	-0.26
Succession	1217	1.33	0	1	2	1.33	1.22	1.44	-2.93***

**Note:** Panel A shows the CEO work experience characteristics, including the number of roles the CEO took (number of roles), the number of firms in which the CEO was employed (number of firms), the number of industries the CEO worked in (number of industries), whether the CEO worked as a CEO in other firms (CEO experience dummy), whether the CEO worked in a conglomerate (conglomerate dummy), and whether the CEO holds a professional title (professional title dummy). Panel B displays the CEO power variables, including whether the CEO is a chairman (CEO-chairman), whether the CEO is a founder (CEO-founder), CEO ownership (CEO-ownership), the number of years since the CEO has worked in this firm up to the IPO (CEO-tenure), and whether the CEO is politically connected (CEO-political). Panel C shows other CEO characteristics, including CEO age, CEO gender, CEO education, and CEO compensation. Panel D shows the firm characteristics, including the natural logarithm of firm age, the natural logarithm of firm sales in millions, firm profitability, leverage, diversification, initial IPO return, whether the firms hired top-tier underwriters, whether the firms hired top-tier auditors, market-to-book ratio, and CEO succession. \*\*\* and \* indicate statistical significance at 1% and 10%, respectively.

#### 4.2. Estimation of the Cox Proportional Hazards Model

Table 4 presents the results of the Cox proportional hazards model of the probability of failure and how a generalist CEO affects IPO survival. The Schoenfeld Residuals Test also demonstrates that the Cox model satisfies the premise. The generalist CEO's coefficient is highly positive, as shown in Panel A, and the hazard ratio is 1.718. This implies that a company with a generalist CEO has a 71.8% higher failure probability than a company with a specialist CEO, which is in line with the previous hypothesis.

Specification (2) focuses on the general skills index. The coefficient is still significantly positive, and the hazard ratio is 1.155. This implies that a company with a generalist CEO has a 15.5% higher failure probability than a company with a specialist CEO.

Diversification, log(firm age), log(sales), and profitability all exhibit significantly negative coefficients when compared to other control variables, indicating that businesses are less likely to fail if they have higher levels of diversification, a longer history, more sales, and improved profitability. Both leverage and market-to-book ratio have a statistically significant positive coefficient, which suggests that increasing any of these variables will probably lead to a company's demise.

In contrast to earlier findings, it was also discovered that the failure risk is positively correlated with a top-tier auditor. Other variables, including top-tier underwriters and initial returns, had no significant effect on failure risk.

Panel B provides the estimation results of each proxy of the general skills index.

Six proxies, including the number of roles, the number of firms, the number of industries, CEO experience dummy, conglomerate dummy, and professional title dummy, are all significantly and positively related to the risk of failure.

It shows that a CEO who assumes more responsibilities, works for more companies and industries, holds positions in other companies, works for a conglomerate, and has a professional title is more likely to cause a corporation to collapse. Other variables produced similar results, as seen in Panel A.

**Table 4a.** Estimation of the Cox proportional hazards model.

Panel A. Regression of generalist CEO and generalist skills index				
Variable	(1)		(2)	
	Coefficient	Hazard ratio	Coefficient	Hazard ratio
Generalist CEO	0.541*** (0.15)	1.718		
Generalist skills index			0.144*** (0.03)	1.155
Diversification	-0.125** (0.01)	0.988	-0.012** (0.01)	0.988
Log(firm age)	-0.192* (0.11)	0.826	-0.206* (0.11)	0.814
Log(sales)	-0.332*** (0.11)	0.718	-0.358*** (0.11)	0.699
Top-tier underwriter	0.023 (0.20)	1.023	0.027 (0.20)	1.027
Top-tier auditor	0.313** (0.15)	1.368	0.281* (0.15)	1.325
Profitability	-10.026*** (3.22)	0.000	-9.919*** (3.14)	0.000
Leverage	1.678** (0.78)	5.355	1.734** (0.79)	5.661
Market-to-book ratio	0.119*** (0.03)	1.126	0.116*** (0.03)	1.123
Initial return	0.013 (0.17)	1.013	0.050 (0.17)	1.052
Year effect	Yes		Yes	
Industry effect	Yes		Yes	
Wald Chi-square	18544.86		205.53	
Wald Chi-square probability	0.0000		0.0000	
Number of observations	1,216		1,214	

Note: This table presents how generalist CEOs affect firm failure by employing the Cox proportional hazards model. The control variables include firm diversification, the natural logarithms of firm age and sales, the top-tier underwriter dummy and top-tier auditor dummy, firm profitability, leverage, market-to-book ratio, and initial IPO return. Panel A shows the regression of the generalist CEO and the generalist skills index. Regressions are controlled for year and industry fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%, respectively.

### 4.3. Robust Test

#### 4.3.1. The Reason for Failure

The key findings indicate that businesses with generalist CEOs have a higher failure rate. Greater remuneration, as opposed to base pay, will encourage the CEO to make more hazardous bets in order to increase the likelihood of success and the growth of company value. A generalist CEO will therefore be more likely to cause a company to fail if they are paid more. In Table 5, Panel A shows that a generalist CEO with a higher remuneration may be more inclined to make riskier investments, which may result in the failure of the company, according to the cross term between generalist CEO and compensation, which is significantly positive. The cross term between a generalist and pay is no longer important when the base salary is replaced by compensation. This demonstrates once more how the CEO's performance-related compensation is a larger motivator than base pay. In addition, a generalist CEO suggests a higher CEO turnover for the company. The succession dummy variable is given a value of one if there is succession after the CEO at the time of the IPO, and zero otherwise. The number of CEO successions following the initial CEO (N\_succession) is also tracked. In Panel B, the odds ratio of succession is 1.055, which indicates that companies with generalist CEOs may have 5.5% higher odds of failing than companies with specialist CEOs in specification (1). When the generalist skills index is substituted for the generalist CEO in specification (2), the odds ratio increased to 1.981, indicating a larger likelihood of firm failure with a generalist CEO. In specifications (3) and (4), the odds ratios of N\_succession are 1.322 and 1.313, respectively. This again indicates that the number of CEO successions will negatively affect a firm's performance.

Table 4b. Estimation of the Cox proportional hazards model.

Panel B. Regression of proxy of generalist skills index												
Variable	(1)		(2)		(3)		(4)		(5)		(6)	
	Coefficient	Hazard ratio	Coefficient	Hazard ratio	Coefficient	Hazard ratio	Coefficient	Hazard ratio	Coefficient	Hazard ratio	Coefficient	Hazard ratio
Number of roles	0.211*** (0.03)	1.235										
Number of firms			0.068*** (0.03)	1.070								
Number of industries					0.106** (0.04)	1.112						
CEO experience dummy							0.183** (0.08)	1.201				
Conglomerate dummy									0.251* (0.14)	1.285		
Professional title dummy											0.447*** (0.16)	1.564
Diversification	-0.013** (0.01)	0.987	-0.012** (0.01)	0.988	-0.103** (0.01)	0.987	-0.012** (0.01)	0.988	-0.013** (0.01)	0.987	-0.012** (0.01)	0.988
Log(firm age)	-0.234** (0.11)	0.791	-0.209* (0.11)	0.811	-0.217* (0.11)	0.805	-0.204* (0.11)	0.815	-0.203* (0.11)	0.816	-0.222** (0.10)	0.801
Log(sales)	-0.376*** (0.11)	0.686	-0.362*** (0.11)	0.696	-0.357*** (0.10)	0.700	-0.357*** (0.11)	0.700	-0.342*** (0.11)	0.711	-0.355*** (0.11)	0.701
Top-tier underwriter	-0.006 (0.20)	0.994	0.029 (0.20)	1.029	0.026 (0.20)	1.026	0.008 (0.20)	1.008	0.016 (0.20)	1.016	0.045 (0.20)	1.046
Top-tier auditor	0.283* (0.15)	1.327	0.277* (0.15)	1.320	0.267* (0.15)	1.307	0.268* (0.15)	1.308	0.262* (0.15)	1.300	0.272* (0.15)	1.313
Profitability	-10.259*** (3.12)	0.000	-9.850*** (3.18)	0.000	-10.568*** (3.24)	0.000	-10.346*** (3.22)	0.000	-10.287*** (3.21)	0.000	-10.359*** (3.23)	0.000
Leverage	1.726** (0.76)	5.616	1.802** (0.78)	6.063	1.874** (0.77)	6.516	1.862** (0.78)	6.437	1.787** (0.77)	5.970	2.031*** (0.77)	7.625
Market-to-book ratio	0.130*** (0.03)	1.138	0.116*** (0.03)	1.123	0.116*** (0.03)	1.123	0.123*** (0.03)	1.131	0.120*** (0.03)	1.128	0.119*** (0.03)	1.126
Initial return	-0.043 (0.18)	0.957	0.043 (0.16)	1.044	0.029 (0.16)	1.029	0.025 (0.16)	1.025	0.009 (0.17)	1.009	0.014 (0.17)	1.014
Year effect	Yes		Yes		Yes		Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes		Yes		Yes		Yes	
Wald Chi-square	24011.97		25010.48		183.00		193.49		185.90		22630.57	
Wald Chi-square probability	0.0000		0.0000		0.0000		0.0000		0.0000		0.0000	
Number of observations	1,215		1,215		1,215		1,214		1,215		1,216	

Note: Panel B shows each proxy of the generalist skills index. Regressions are controlled for year and industry fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%.



**Table 5a.** Estimation of the Cox proportional hazards model.

Panel A. Regression of generalist CEO and compensation				
Variable	(1)		(2)	
	Coefficient	Hazard ratio	Coefficient	Hazard ratio
Generalist CEO	0.082 (0.29)	1.085	0.545*** (0.15)	1.725
Generalist CEO*Ln(compensation)	0.053* (0.03)	1.055		
Generalist CEO*base salary			-0.000 (0.00)	1.000
Diversification	-0.012** (0.01)	0.988	-0.012** (0.01)	0.988
Log(firm age)	-0.166 (0.11)	0.847	-0.193* (0.11)	0.825
Log(sales)	-0.347*** (0.11)	0.706	-0.328*** (0.11)	0.720
Top-tier underwriter	0.040 (0.20)	1.041	0.025 (0.20)	1.025
Top-tier auditor	0.290* (0.15)	1.337	0.314** (0.15)	1.369
Profitability	-9.670*** (3.24)	0.000	-10.032*** (3.22)	0.000
Leverage	1.769** (0.79)	5.863	1.659** (0.78)	5.254
Market-to-book ratio	0.122*** (0.03)	1.119	0.118*** (0.03)	1.126
Initial return	0.041 (0.16)	1.042	0.014 (0.17)	1.015
Year effect	Yes		Yes	
Industry effect	Yes		Yes	
Wald Chi-square	188.58		20950.91	
Wald Chi-square probability	0.0000		0.0000	
Number of observations	1,205		1213	

**Note:** Panel A presents the effect of performance-related compensation on a firm's failure by employing the Cox proportional hazards model. The control variables include firm diversification, the natural logarithms of firm age and sales, the top-tier underwriter dummy and top-tier auditor dummy, firm profitability, leverage, market-to-book ratio, and initial IPO return. All regressions are controlled for year and industry fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%, respectively.

Table 5b. Estimation of the Cox proportional hazards model.

Panel B. Regression of Generalist CEO and Succession								
Variable	(1)		(2)		(3)		(4)	
	Coefficient	Hazard ratio	Coefficient	Hazard ratio	Coefficient	Hazard ratio	Coefficient	Hazard ratio
Generalist CEO	0.504*** (0.15)	1.656			0.505*** (0.15)	1.657		
Generalist skill index			0.138*** (0.03)	1.148			0.132*** (0.03)	1.141
Succession	0.683*** (0.19)	1.055	0.683*** (0.19)	1.981				
N-succession					0.279*** (0.04)	1.322	0.272*** (0.04)	1.313
Diversification	-0.012** (0.01)	0.988	-0.012** (0.01)	0.988	-0.014** (0.01)	0.986	-0.013** (0.01)	0.987
Log(firm age)	-0.187* (0.11)	0.829	-0.201* (0.10)	0.818	-0.163 (0.10)	0.850	-0.185* (0.10)	0.831
Log(sales)	-0.308*** (0.11)	0.735	-0.329*** (0.11)	0.720	-0.316*** (0.11)	0.729	-0.341*** (0.11)	0.711
Top-tier underwriter	0.030 (0.20)	1.031	0.033 (0.20)	1.033	0.035 (0.20)	1.036	0.048 (0.20)	1.050
Top-tier auditor	0.319** (0.15)	1.376	0.290* (0.15)	1.337	0.340** (0.15)	1.405	0.311** (0.15)	1.364
Profitability	-10.129*** (3.23)	0.000	-10.032*** (3.13)	0.000	-8.981*** (3.30)	0.000	-8.806*** (3.22)	0.000
Leverage	1.474* (0.77)	4.367	1.522** (0.77)	4.582	1.420* (0.78)	4.137	1.494* (0.78)	4.453
Market-to-book ratio	0.129*** (0.03)	1.138	0.127*** (0.03)	1.136	0.116*** (0.03)	1.123	0.113*** (0.03)	1.120
Initial return	0.010 (0.17)	1.010	0.042 (0.17)	1.043	0.020 (0.17)	1.020	0.046 (0.17)	1.047
Year effect	Yes		Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes		Yes	
Wald Chi-square	221.91		229.55		563.56		657.28	
Wald Chi-square probability	0.0000		0.0000		0.0000		0.0000	
Number of observations	1,208		1,208		1203		1201	

**Note:** Panel B presents the effect of succession on firm failure. The succession dummy variable has a value of one if there is succession after the CEO at the time of the IPO, and zero otherwise. N\_succession indicates how many successions follow the initial CEO. The control variables include firm diversification, the natural logarithms of firm age and sales, the top-tier underwriter dummy and top-tier auditor dummy, firm profitability, leverage, market-to-book ratio, and initial IPO return. All regressions are controlled for year and industry fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%.

### 4.3.2. Estimation of Logit Model

The logit model is a useful tool for examining the impact of various variables on a binary variable that can take the value of one with probability  $p$ , or the value of 0 with probability  $1-p$ . In this study, the dependent variable is either zero or one depending on whether a firm failed during the observation period. Table 6 estimates the probability of failure by employing the logit model. In specification (1), the odds ratio for a generalist CEO is 1.978, which implies that, when all other factors are held constant, a company with a generalist CEO may have 97.8% higher odds of failing than a company with a specialist CEO. A generalist CEO increases a company's chance of failing by 20.9% compared to a specialist CEO, according to specification (2), where the odds of failure are 1.209. In addition, the odds ratios of the explanatory variables in specifications (3) to (8) are all higher than one, indicating a higher risk of failure for CEOs who take on more responsibilities, work in more companies and industries, hold CEO positions in additional companies, are employed by conglomerates, and have a professional title. These results are consistent with the findings in the survival analysis.

Table 6. Estimation of the logit model.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Generalist CEO	1.978*** (0.34)							
Generalist skills index		1.209*** (0.05)						
Number of roles			1.095*** (0.05)					
Number of firms				1.091*** (0.04)				
Number of industries					1.160 (0.11)			
CEO experience dummy						1.284** (0.16)		
Conglomerate dummy							1.374** (0.22)	
Professional title dummy								1.597*** (0.28)
Diversification	0.987** (0.01)	0.987** (0.01)	0.986** (0.01)	0.987** (0.01)	0.987** (0.01)	0.987* (0.01)	0.986** (0.01)	0.988* (0.01)
Log(firm age)	0.806 (0.11)	0.797* (0.11)	0.766** (0.10)	0.793* (0.11)	0.785* (0.11)	0.802* (0.11)	0.801* (0.11)	0.783* (0.10)
Log(sales)	0.682*** (0.08)	0.664*** (0.08)	0.648*** (0.08)	0.662*** (0.08)	0.666*** (0.08)	0.668*** (0.08)	0.680*** (0.08)	0.669*** (0.08)
Top-tier underwriter	1.023 (0.24)	1.014 (0.24)	0.967 (0.23)	1.022 (0.24)	1.017 (0.23)	0.995 (0.23)	1.009 (0.23)	1.038 (0.24)
Top-tier auditor	1.480** (0.26)	1.442** (0.26)	1.414** (0.25)	1.423** (0.25)	1.387* (0.24)	1.394* (0.24)	1.386* (0.24)	1.397* (0.24)
Profitability	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)	0.000*** (0.00)
Leverage	6.056** (5.20)	6.295** (5.48)	5.912** (4.98)	6.803** (5.84)	7.397** (6.26)	7.320** (6.23)	6.584** (5.62)	8.167** (6.86)
Market-to-book ratio	1.158*** (0.05)	1.161*** (0.06)	1.177*** (0.05)	1.161*** (0.05)	1.155*** (0.05)	1.166*** (0.05)	1.161*** (0.05)	1.158*** (0.05)
Initial return	1.036 (0.20)	1.082 (0.21)	0.985 (0.20)	1.073 (0.20)	1.051 (0.20)	1.049 (0.20)	1.031 (0.20)	1.048 (0.20)
Pseudo R-square	0.1097	0.1149	0.1306	0.1017	0.0984	0.0978	0.0981	0.1018
Number of observations	1,189	1,187	1,188	1,188	1,188	1,187	1,188	1,189

**Note:** This table estimates the probability of failure depending on CEO type by employing a logit model. The independent variable takes a value of one if a firm failed during 2009–2021, and zero otherwise. Generalist CEO, generalist skills index, and each proxy of constructing the generalist CEO skills index are used. The control variables include firm diversification, the natural logarithms of firm age and sales, the top-tier underwriter dummy and top-tier auditor dummy, firm profitability, leverage, market-to-book ratio, and initial IPO return. Robust standard errors are shown in parentheses below the odds ratio estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%, respectively.

### 4.3.3. Control for Other CEO Characteristics

Now, the other CEO characteristics variables are incorporated, including CEO gender, CEO age, CEO tenure, CEO education, and CEO ownership. These factors are found to affect CEO behavior. For example, Faccio, McConnell, and Stolin (2006) state that a firm with a female CEO will have lower leverage and a higher chance of survival. Men are more overconfident than women and prefer to take more risks (e.g., Barber & Odean, 2001; Charness & Gneezy, 2012; Huang, & Kisgen, 2013). Barker and Mueller (2002) found that a younger CEO prefers more to spend more on R&D. Serfling (2014) found that older CEOs reduce firm risk. A CEO with a longer tenure has a low incentive to build a reputation and tends to be risk-averse (Graham, Harvey, & Puri, 2013). Wu, Levitas, and Priem (2005) state that during the early stage of their career, CEOs are willing to take risks, and in their later stage, CEOs myopically commit to obsolete paradigms and become more risk averse. Early studies show a non-linear relationship between managerial ownership and firm value (McConnell & Servaes, 1990; Morck, Shleifer, & Vishny, 1988; Warfield et al., 1995). In terms of ROA and Tobin's Q, CEO education is positively related to firm value (e.g., Darmadi, 2013; Jalbert, Rao, & Jalbert, 2002). In Table 7, when controlling for other CEO characteristics, the coefficient of a generalist CEO in the specification (1) is positive, indicating that the performance of a company will suffer under a generalist CEO. The hazard ratio is 1.730, meaning that a company with a generalist CEO has a 73.0% higher failure risk than a company with a specialist CEO. The generalist skills index coefficient in specification (2) is also positive, and the hazard ratio is 1.166. This predicts that for every

additional unit of the generalist CEO index, the failure risk will rise by 16.6%. In addition, it was discovered that other CEO traits, such as CEO gender, age, tenure, ownership, and education, have no discernible impact on the likelihood of the firm failing.

**Table 7. Control for other CEO characteristics.**

Variable	(1)	Hazard Ratio	(2)	Hazard Ratio
	Coefficient		Coefficient	
Generalist CEO	0.548*** (0.16)	1.730		
Generalist skills index			0.154*** (0.03)	1.166
Diversification	-0.015** (0.01)	0.985	-0.015** (0.01)	0.985
Log(firm age)	-0.167 (0.12)	0.846	-0.184 (0.12)	0.832
Log(sales)	-0.330*** (0.11)	0.719	-0.363*** (0.11)	0.696
Top-tier underwriter	0.074 (0.20)	1.077	0.085 (0.20)	1.089
Top-tier auditor	0.312** (0.16)	1.366	0.282* (0.16)	1.326
Profitability	-9.389*** (3.25)	0.000	-9.230*** (3.14)	0.000
Leverage	2.067*** (0.79)	7.903	2.151*** (0.80)	8.592
Market-to-book ratio	0.118*** (0.03)	1.125	0.117*** (0.03)	1.124
Initial return	0.008 (0.18)	1.007	0.055 (0.18)	1.056
CEO gender	-0.182 (0.29)	0.833	-0.172 (0.29)	0.842
CEO age	-0.013 (0.01)	0.987	-0.014 (0.01)	0.986
CEO tenure	0.004 (0.10)	1.004	0.011 (0.10)	1.011
CEO education	-0.128 (0.16)	0.880	-0.139 (0.16)	0.870
CEO ownership	0.550 (0.40)	1.734	0.482 (0.39)	1.619
Year effect	Yes		Yes	
Industry effect	Yes		Yes	
Wald Chi-square	16905.30		130.23	
Wald Chi-square probability	0.0000		0.0000	
Number of observations	1,167		1,167	

**Note:** This table illustrates the effect of a generalist CEO on the probability of firm failure by controlling for other CEO characteristics, including CEO age, gender, tenure, ownership, and education. The models are controlled for industry and year fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%.

Although the aforementioned data demonstrates that CEO type can influence a firm's success, an inherent issue may arise when a corporation selects a CEO solely based on the nature of the firm's business. Here, the propensity score matching procedure is applied. First, the failure risk with a specialist CEO is compared with that of the same firm with a generalist CEO. The same firm is defined by scores based on firm diversification, firm age, firm sales, top-tier underwriters, firm profitability, and initial return. Based on the propensity score, each observation in the treated group is matched with the control group, and the average effect on the treated (TREATED) is estimated. The results for TREATED are shown in Table 8. The TREATED is positive and significant at 1%, showing once more that firms with a generalist CEO have a higher likelihood of failing, which is consistent with the earlier findings.

**Table 8. Propensity score matching.**

	Failed
TREATED (Generalist CEO vs. Specialist CEO)	0.088*** (3.93)
Number of observations	1216

**Note:** This table illustrates the effect of the generalist CEO on the probability of firm failure by employing the propensity score matching procedure. The variables used for matching in the treated group (TREATED) include firm diversification, firm age, firm sales, top-tier underwriters, firm profitability, and initial return. Bootstrap standard errors are shown in parentheses below the coefficient estimates. \*\*\* indicates significance at 10%.

#### 4.3.4. Control for Board and High-Tech Firms

The effect of CEO type on firm failure risk in the three boards is also investigated. The summary figures in Table 2 demonstrate that companies listed on the SSE that have a specialist CEO have a lower failure rate. Therefore, this raises the question of whether the boards could strengthen the effect of CEO type on firm failure. In Table 9, the coefficients for generalist CEO in the ChiNext, SZSE, and SSE are positive and significant, suggesting that firms with a generalist CEO are more likely to fail. The hazard ratios are 2.134 for ChiNext, 1.481 for the SZSE, and 1.752 for the SSE, indicating that the failure risk of a firm with a generalist CEO is 113.4% higher than

a firm with a specialist CEO in ChiNext, 48.1% higher in the SZSE, and 75.2 % higher in the SSE, respectively. More importantly, the interactions between the three boards and generalist CEOs are taken into account to control for the board effect. The coefficients are all insignificant, indicating that there is no significant difference among the three boards regarding the impact of generalist CEOs on IPO survival. It also suggests that boards cannot drive the effect of CEO type on firm failure risk.

Table 9. Control for boards.

Variable	(1)		(2)		(3)	
	ChiNext Coefficient	Hazard ratio	SZSE Coefficient	Hazard ratio	SSE Coefficient	Hazard ratio
Generalist CEO	0.758*** (0.23)	2.134	0.393** (0.19)	1.481	0.561*** (0.16)	1.752
ChiNext	0.423 (0.26)	1.526				
Generalist CEO*ChiNext	-0.415 (0.29)	0.661				
SZSE			-0.251 (0.27)	0.778		
Generalist CEO*SZSE			0.396 (0.31)	1.486		
SSE					-0.299 (0.41)	0.741
Generalist CEO*SSE					-0.440 (0.59)	0.644
Diversification	-0.012** (0.01)	0.988	-0.013** (0.01)	0.988	-0.013** (0.01)	0.987
Log(firm age)	-0.202* (0.11)	0.817	-0.195* (0.11)	0.823	-0.199* (0.11)	0.819
Log(sales)	-0.290** (0.12)	0.748	-0.331*** (0.11)	0.718	-0.264** (0.12)	0.768
Top-tier underwriter	0.015 (0.20)	1.015	0.037 (0.20)	1.038	0.045 (0.20)	1.046
Top-tier auditor	0.295* (0.16)	1.343	0.322** (0.16)	1.380	0.340** (0.15)	1.405
Profitability	-9.753*** (3.21)	0.000	-9.894*** (3.21)	0.000	-10.317*** (3.27)	0.000
Leverage	1.677** (0.78)	5.347	1.666** (0.79)	5.291	1.588** (0.78)	4.892
Market-to-book ratio	0.114*** (0.03)	1.120	0.117*** (0.03)	1.124	0.110*** (0.03)	1.116
Initial return	0.038 (0.17)	1.039	0.014 (0.17)	1.014	0.044 (0.16)	1.045
Year effect	Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes	
Wald Chi-square	17818.25		23136.19		25343.31	
Wald Chi-square probability	0.0000		0.0000		0.0000	
Number of observations	1,216		1,216		1,216	

Note: This table illustrates the effect of generalist CEOs on the probability of firm failure by controlling for boards, including the ChiNext, SZSE, and SSE. The models are controlled for industry and year fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%.

Another way to differentiate the three boards is to control for high-tech firms because these companies make up the majority of those listed on the ChiNext and the SZSE. A CEO with a higher level of managerial aptitude may be particularly in demand by high-tech companies. In order to determine whether high-tech could be the driving factor behind the effect of CEO type on business failure, the effect of generalist CEOs on IPO survival between high-tech firms and non-high-tech firms is investigated. Table 10 shows that the coefficients of generalist CEOs are all statistically positive, regardless of whether the observation is taken as a whole, only high-tech enterprises, or not at all, indicating that generalist CEOs may increase the likelihood of firm failure. For high-tech and non-high-tech enterprises, the hazard ratios are 3.724 and 1.571, respectively. According to this, the failure risk of a company with a generalist CEO is 272.4% higher than the failure risk of a high-tech company with a specialist CEO, and the failure risk of non-high-tech companies is 57.1%. The coefficient of the interaction between high-tech and a generalist CEO is insignificant, which means that the influence of a generalist CEO on IPO survival is not significantly different between high-tech and non-high-tech firms.

#### 4.3.5. Control for CEO power

A powerful CEO can have a more significant effect on firm performance. Following Han, Nanda, and Silveri (2016) and Gounopoulos and Pham (2018), CEO power was constructed by applying PCA based on CEO tenure, ownership, founder status, and chairmanship status. A CEO with a longer tenure tends to be risk-averse (e.g., (Graham et al., 2013; Wu et al., 2005)). Studies show that managerial ownership and firm value are related (McConnell & Servaes, 1990; Morck et al., 1988; Warfield et al., 1995). Duru, Iyengar, and Zampelli (2016) state that CEO duality might reduce firm performance, but it can benefit the firm in the presence of board vigilance. Fan, Wong, and Zhang (2007) show that a politically connected CEO can result in a lower first-day return in the Chinese market. Wu, Li, Ying, and Chen (2018) show that the political connections of CEOs have a positive impact on firm performance. Therefore, a dummy variable that indicates if the CEO has political ties is also incorporated.

Based on the CEO power index, the CEO is defined as powerful if the score is higher than the overall median. The dummy variable equals one if the CEO is powerful, and zero otherwise.

**Table 10.** Control for high-tech firms.

Variable	(1)		(2)		(3)	
	Total Coefficient	Hazard ratio	Including Coefficient	Hazard ratio	Excluding Coefficient	Hazard ratio
Generalist CEO	0.525*** (0.16)	1.690	1.315*** (0.50)	3.724	0.452*** (0.16)	1.571
High technology	0.363 (0.46)	1.438				
Generalist CEO*High technology	0.353 (0.50)	1.424				
Diversification	-0.013** (0.01)	0.987	-0.002 (0.02)	0.998	-0.015** (0.01)	0.985
Log(firm age)	-0.204* (0.11)	0.815	0.028 (0.47)	1.028	-0.247** (0.12)	0.781
Log(sales)	-0.324*** (0.11)	0.723	0.103 (0.50)	1.109	-0.370*** (0.12)	0.691
Top-tier underwriter	0.042 (0.20)	1.043	0.264 (0.67)	1.302	-0.029 (0.21)	0.972
Top-tier auditor	0.327** (0.15)	1.386	0.566 (0.52)	1.761	0.274* (0.16)	1.315
Profitability	-10.210*** (3.29)	0.000	-26.461* (14.73)	0.000	-8.807*** (3.23)	0.000
Leverage	1.666** (0.79)	5.292	-0.111 (2.65)	0.895	1.887** (0.82)	6.601
Market-to-book ratio	0.113*** (0.03)	1.120	-0.045 (0.11)	0.956	0.129*** (0.03)	1.138
Initial return	0.028 (0.17)	1.028	-0.080 (0.95)	0.923	-0.045 (0.18)	0.956
Year effect	Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes	
Wald Chi-square	192.84		34.16		17192.59	
Wald Chi-square probability	0.0000		0.0080		0.0000	
Number of observations	1,216		102		1,114	

Note: This table illustrates the effect of generalist CEOs on the probability of firm failure by controlling for high-tech firms. The models are controlled for industry and year fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%.

Table 11 presents the Cox proportional hazards model controlling for CEO power. In Panel A, the coefficients of generalist CEOs in the overall sample, and a group of firms with powerful CEOs, are positive and significant, suggesting that a firm with a generalist CEO is more likely to fail. Additionally, for the whole sample and the group with only powerful CEOs in specifications (1) and (2), the hazard ratios are 1.663 and 1.828, respectively. According to the data, the failure risk of a company with a generalist CEO is 66.3% greater than the failure risk of a company with a specialist CEO across the overall sample and is 82.8% higher across the sample with only powerful CEOs. A variable is also constructed for the interaction of generalist CEOs and a dummy variable (power), indicating whether the CEO is powerful. The coefficient is positive but insignificant, suggesting that CEO power cannot drive the influence of a generalist CEO on firm failure risk.

In Panel B, the generalist skills index is substituted for generalist CEOs. Now all of the coefficients of the generalist skills index through specifications (1) to (3) are significantly positive. The hazard ratios are 1.146, 1.150, and 1.153, respectively.

This indicates that a one-unit increase in the generalist skills index can increase the failure risk by 14.6% for the entire sample, 15% for the sample with only powerful CEOs, and 15.3% for the sample without powerful CEOs. But again, the interaction between the generalist skills index and power is still insignificant. Overall, the results reaffirm that CEO power cannot drive the effect of a generalist CEO on firm failure risk.

## 5. Implication and Conclusion

This paper provides interesting findings on the relationship between CEO type and the probability of firm failure and IPO survival. Using principal component analysis (PCA), the generalist skills index is created based on six proxies: the number of roles held by the CEO, the number of firms for which the CEO has worked, the number of industries for which the CEO has worked, whether the CEO has held a CEO position in other companies, whether the CEO has worked for a conglomerate, and whether the CEO has a professional title. According to the survival tests, generalist CEOs are more likely to see their companies fail than specialist CEOs. This suggests that specialist CEOs are concerned about their long-term positions in a firm and that their salary is closely correlated with the firm's performance.

They are more inclined to take actions that support the business's existing strategy and the desires of the shareholders. Generalist CEOs with higher performance-related compensation are more likely to cause a company to fail because they are inclined to invest in high-risk projects to earn higher compensation and a better reputation. Succession after the initial CEO is negatively related to firm performance. This, once again, affirms that a firm with a generalist CEO is more likely to fail.

Table 11. Control for CEO power.

Panel A. Regression with generalist CEO						
Variable	(1)		(2)		(3)	
	Total Coefficient	Hazard ratio	Including Coefficient	Hazard ratio	Excluding Coefficient	Hazard ratio
Generalist CEO	0.509** (0.22)	1.663	0.603*** (0.20)	1.828	0.414 (0.25)	1.513
Power	0.194 (0.19)	1.214				
Generalist CEO*power	0.051 (0.24)	1.053				
Diversification	-0.013** (0.01)	0.987	-0.010 (0.01)	0.990	-0.015 (0.01)	0.985
Log(firm age)	-0.191* (0.11)	0.826	-0.272** (0.14)	0.762	0.056 (0.21)	1.057
Log(sales)	-0.316*** (0.11)	0.729	-0.419** (0.17)	0.658	-0.342* (0.18)	0.710
Top-tier underwriter	0.003 (0.20)	1.003	0.128 (0.26)	1.137	-0.152 (0.35)	0.859
Top-tier auditor	0.326** (0.15)	1.385	0.287 (0.20)	1.332	0.468* (0.26)	1.597
Profitability	-9.925*** (3.26)	0.000	-6.750 (4.55)	0.001	-10.609* (5.52)	0.000
Leverage	1.688** (0.79)	5.408	2.500** (1.08)	12.183	1.019 (1.20)	2.771
Market-to-book ratio	0.115*** (0.03)	1.122	0.107*** (0.04)	1.113	-0.033 (0.09)	0.967
Initial return	0.015 (0.16)	1.015	-0.162 (0.24)	0.851	0.377 (0.31)	1.458
Year effect	Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes	
Wald Chi-square	7018.54		26250.03		28158.41	
Wald Chi-square probability	0.0000		0.0000		0.0000	
Number of observations	1,216		632		584	
Panel B. Regression with generalist skills index						
Variable	(1)		(2)		(3)	
	Total Coefficient	Hazard ratio	Including Coefficient	Hazard ratio	Excluding Coefficient	Hazard ratio
Generalist skills index	0.136*** (0.05)	1.146	0.140*** (0.04)	1.150	0.143** (0.06)	1.153
Power	0.145 (0.35)	1.156				
Generalist skills index*power	0.007 (0.06)	1.007				
Diversification	-0.012** (0.01)	0.988	-0.009 (0.01)	0.991	-0.014 (0.01)	0.986
Log(firm age)	-0.208* (0.11)	0.812	-0.289** (0.13)	0.749	0.080 (0.22)	1.083
Log(sales)	-0.346*** (0.11)	0.708	-0.458*** (0.17)	0.633	-0.371** (0.18)	0.690
Top-tier underwriter	0.018 (0.20)	1.018	0.182 (0.26)	1.200	-0.224 (0.35)	0.799
Top-tier auditor	0.290* (0.15)	1.337	0.237 (0.20)	1.268	0.445* (0.26)	1.560
Profitability	-9.811*** (3.17)	0.000	-6.656 (4.43)	0.001	-10.301** (5.26)	0.000
Leverage	1.734** (0.79)	5.666	2.457** (1.10)	11.669	1.254 (1.19)	3.505
Market-to-book ratio	0.113*** (0.03)	1.119	0.099*** (0.03)	1.104	-0.016 (0.09)	0.984
Initial return	0.051 (0.16)	1.052	-0.127 (0.24)	0.881	0.374 (0.31)	1.454
Year effect	Yes		Yes		Yes	
Industry effect	Yes		Yes		Yes	
Wald Chi-square	18914.52		390.21		30249.12	
Wald Chi-square probability	0.0000		0.0000		0.0000	
Number of observations	1,214		630		584	

Note: This table illustrates the effect of generalist CEOs on the probability of firm failure by controlling for powerful CEOs. The models are controlled for industry and year fixed effects. Robust standard errors are shown in parentheses below the coefficient estimates. \*\*\*, \*\* and \* indicate statistical significance at 1%, 5% and 10%.

In addition, the study controls for other CEO characteristics, including CEO gender, CEO age, CEO tenure, CEO education, and CEO ownership, which are found to affect firm performance. After controlling for other CEO characteristics, firms with a generalist CEO still have a greater failure rate. The issue of generalist CEOs being

preferred by businesses with a higher likelihood of failure is addressed through propensity scoring matching, and the results are still valid.

The study also controls for firm characteristics. Businesses listed on the three boards (ChiNext, SZSE, and SSE) set various regulatory and threshold requirements. Firms on the ChiNext and SZSE are characterized by their small and medium sizes. Robustness tests show that, after controlling for the boards, generalist CEOs continue to increase the likelihood of firm failure, and boards cannot explain the effect of generalist CEOs on firm survival. Firms on the ChiNext and SZSE are also characterized by high-tech firms with rapid growth and high risk. After controlling for high-tech firms, generalist CEOs still increase the probability of firm failure.

Powerful CEOs can have a more significant effect on firm performance. To control for powerful CEOs, CEO power was constructed based on CEO tenure, ownership, whether the CEO is the founder, whether the CEO is the chairman, and whether the CEO is politically connected. The results confirm that firms with a generalist CEO have a higher probability of failure.

This research on the connection between a generalist CEO and failure risk contributes to the advancement of corporate finance theory. Additionally, it offers insights regarding CEO hiring decisions and the job market activity of organizations.

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Appendix 1 presents the definitions of the variables used in this paper.

#### Appendix 1. Variable definitions.

Variable	Definition
Panel A. Generalist skills index	
Number of roles	The number of roles a CEO has taken.
Number of firms	The number of firms in which a CEO was employed.
Number of industries	The number of industries a CEO has worked in.
CEO experience dummy	A dummy variable that equals one if a CEO took a CEO position in other firms.
Conglomerate dummy	A dummy variable that equals one if a CEO has worked in a conglomerate.
Professional title dummy	A dummy variable that equals zero if a CEO has earned a professional title.
Generalist skills index	Principal component analysis (PCA) was used to construct a generalist skills index based on the number of roles, firms, industries, CEO experience, conglomerate, and professional title dummy. The first factor of PCA is taken as the generalist skills index.
Specialist CEO	A dummy variable that equals one if he or she is a specialist CEO. If the generalist index value is less than the index median, the CEO is defined as specialist.
Generalist CEO	A dummy variable that equals one if he or she is a generalist CEO. A CEO is defined as generalist if the generalist index value is greater than the index median.

<b>Variable</b>	<b>Definition</b>
Panel B. CEO power	
CEO-chairman	A dummy variable that equals one if the CEO is also a chairman.
CEO-founder	A dummy variable that equals one if the CEO is also a founder.
CEO-ownership	The ratio of CEO-owned ownership over the total number of shares.
CEO-tenure	Measured as the number of years since a CEO has worked in a firm up to the IPO date.
CEO-political	A dummy variable that equals one if a CEO is politically connected.
Panel C. Other CEO characteristics	
CEO age	The age of a CEO.
CEO gender	A dummy variable that equals one if the CEO is male, zero otherwise.
CEO education	A dummy variable that equals one if the CEO has earned a bachelor's or higher degree.
CEO compensation	A CEO's performance-related compensation.
Panel D. Firm and IPO characteristics	
Log(Firm age)	Measured as the natural logarithm of the difference between the IPO and founding dates. The unit is days.
Log(Sales)	The natural logarithm of total sales in the issue year. The unit is million yuan.
Profitability	Measured as the earnings before interest, tax, depreciation, and amortization over total assets in the issue year.
Leverage	Measured as the liability over total assets in the issue year.
Diversification	Measured as the number of business segments.
Initial return	Measured as the first-day return following the IPO.
Top-tier underwriter	A dummy variable that equals one if a firm hires a top-tier underwriter, zero otherwise. A top-tier underwriter is in the top 10% ranking of the average underwritten amount and the number of IPOs underwritten.
Top-tier auditor	A dummy variable that equals one if a firm hires a top-tier auditor, zero otherwise. A top-tier auditor is defined as being in the top 10% ranking of the volume of business.
Market-to-book ratio	The ratio of the market value to the book value.
Succession	A dummy variable that equals one if there is at least one succession for the firm, zero otherwise.
N <sub>succession</sub>	The number of CEOs following the CEO at the time of the IPO.

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