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Three Essays on Risks of Firms Led by Founder-CEOs

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THREE ESSAYS ON RISKS OF FIRMS LED BY FOUNDER-CEOS

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Yuka Nishikawa

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To: Dean Joanne Li
College of Business

This dissertation, written by Yuka Nishikawa, and entitled Three Essays on Risks of Firms Led by Founder-CEOs, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Florida International University, 2020

DEDICATION

I dedicate this dissertation to my parents. Without their unconditional love and continuous support, the completion of this work would not have been possible.

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ABSTRACT OF THE DISSERTATION

THREE ESSAYS ON RISKS OF FIRMS LED BY FOUNDER-CEOS

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Professor Edward Lawrence, Major Professor

This dissertation is comprised of three essays that focus on the topics related to risks of firms led by founder-CEOs. This research provides insights into how founder-led firms are different from nonfounder-led firms in terms of their operational and financial risk taking, litigation risk, and restructuring probabilities and outcomes. The empirical results are significant and robust.

The first essay examines the relationship between founder-CEO firms and firm risk. Using a sample of S&P 1500 firms, our empirical results show that founder-led firms are associated with higher overall risk and operational risk, and lower financial risk than nonfounder-led firms. We further investigate the underlying characteristics of CEOs through which they influence the firm risk. We find that in founder-led firms, CEO-chair duality plays a significant role in determining the levels of overall risk and financial risk.

The second essay investigates if firms led by founder-CEOs experience different litigation risk as compared to firms led by nonfounder-CEOs. Litigation risk is the risk of being involved in a lawsuit as a defendant, and being involved in litigation causes severe negative consequences both implicitly and explicitly. Using a sample of U.S. public firms,

we find that founder-CEO firms are associated with lower litigation risk than nonfounder-CEO firms.

The third essay studies the relationship between founder-CEOs and corporate restructuring. Our empirical analysis suggests that the likelihood of corporate restructuring is negatively related to having a founder as CEO, and that restructuring activities undertaken by founder-CEOs are more effective than restructuring activities by nonfounder-CEOs. These results highlight the importance of founder leadership in alleviating corporate restructuring concerns and in navigating a restructuring event in an effective way.

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CHAPTER 1: DO FIRMS LED BY FOUNDERS TAKE HIGHER RISK?

1.1 Introduction

Founder-led firms have been making significant contributions to the U.S. economy, especially in recent years. As of June 30, 2018, three of the five largest U.S. firms by market capitalization were led by founder-CEOs.[1] Prior studies report that 40 to 65 percent of firms were run by founder-CEOs at the time of the IPO (e.g., Certo et al., 2001; Nelson, 2003). Other studies on large public firms indicate that approximately 11 percent of CEOs in these firms are founders (e.g., Fahlenbrach, 2009; Lee et al., 2016; Villalonga and Amit, 2006). Several studies on founders and entrepreneurs argue that founders are different in characteristics from nonfounders. One of the unique features commonly seen in successful founder-CEOs is their extreme passion towards what they do. Prior literature (e.g., Begley, 1995; Gimeno et al., 1997) indicates that founders typically embrace certain characteristics that make them different from others: risk-taking propensity, achievement orientation, and commitment to their dreams and determination. Founder-CEOs are also found to have long-term goals whereas nonfounder-CEOs focus more on quarterly earnings (Gao and Jain, 2011). Another strand of literature argues that founder-CEOs have deep and long-lasting emotional ties to their firms (e.g., O'Reilly and Chatman, 1986).

One of the main characteristics of firms led by founders is their unique corporate structure. Decision-making on corporate policies and consequences of such decisions in

[1] As of June 30, 2018, the second largest firm was Amazon.com, Inc. led by Jeff Bezos with a market capitalization of $825 billion, the third largest was Alphabet, Inc. (a parent company of Google) led by Larry Page with a market cap of $775 billion, and Facebook led by Mark Zuckerburg was the fifth largest firm with a market cap of $562 billion. These three figures are the founder of each firm.

founder-CEO firms may not be fully explained by the traditional agency theory framework proposed by Jensen and Meckling (1979) because a typical principal-agent relation does not hold in founder-CEO firms. Unlike the classic owner-agent setting, founder-CEOs typically own a large portion of the firm (Wasserman, 2003), and this is considered a positive structural feature for the alignment of owner-management interest (Morck et al., 1988).

Some degree of risk taking is anticipated in operational decision making in order to enhance firm value. For example, highly profitable projects are often accompanied by higher risk than less profitable opportunities. It is the management's responsibility to achieve the optimal level of risk that maximizes the shareholders' wealth. Excessive managerial risk aversion may cost shareholders if managers forego risky yet valuable projects (Smith and Stulz, 1985). On the other hand, certain firm policies with too much focus on shareholders' wealth may distance the firm from its ideal balance of risk and return.

According to the upper echelons theory, organizational outcomes can be explained by managerial background characteristics (Hambrick and Mason, 1984). Dobrev and Barnett (2005) show that the identity of founders is tightly linked to that of the organizations they found. Cronqvist, Makhija, and Yonker (2012) find supporting evidence in the context of leverage choices. Similarly, Cain and McKeon (2016) provide evidence in the link between CEOs' preferences for personal risk-taking and corporate risk-taking using a novel proxy for personal risk-taking. If founders are linked to high risk-taking propensity, commitment to their determination, and long-term visions, it is reasonable to

expect that firms led by founders take higher operational risk today in order to achieve their future goals. On the other hand, if founder-CEOs have emotional attachment to the firms they establish, it is highly likely that firms led by founders would avoid decisions that cause them serious negative consequences that could be detrimental to the future of their firms. Hence, we hypothesize that the firms run by founders are associated with high operational risk and low financial risk as compared to the firms led by nonfounders. We further posit that the market reflects risk-taking in operations and financing by founder-CEOs, and therefore founder-led firms are associated with different overall risk from nonfounder-led firms.

We empirically test our hypothesis using a sample of S&P 1500 firms for the period of 2001 to 2014. Our univariate tests indicate that the risk perceived by the market is higher in founder-CEO firms than in nonfounder-CEO firms. While higher operational risk is associated with founder-CEO firms, lower financial risk is found in firms managed by founders. We then use multivariate regression models including CEO-level and firm-level controls used by Serfling (2014) as well as the founder dummy, which takes a value of one for founder-led firms and zero otherwise. Consistent with our hypothesis, we find that firms led by founders take higher operational risk but lower financial risk, and the overall risk is higher in such firms. As a robustness test, we match the founder-CEO firms (the treatment group) in our sample with nonfounder-CEO firms (the control group) based on the firm specifications included in our baseline model using propensity score matching methodology. We then compare different types of risk of the treatment group with those of the control group. Our baseline results hold even with the matched sample. Overall, our

empirical results suggest that firms managed by founders take higher overall risk and operational risk but not at the cost of financial risk. These findings support our hypothesis.

Finally, we attempt to uncover the underlying conditions through which founders in top management affect risk-taking behavior of firms. We focus on two managerial aspects that are commonly studied in corporate governance: CEO-chair duality and high ownership. For this purpose, we conduct univariate analyses comparing pairs of the following four groups: 1) founder-CEO firms with duality (or high ownership); 2) founder-CEO firms without duality (or high ownership); 3) nonfounder-CEO firms with duality (or high ownership); and 4) nonfounder-CEO firms without duality (or high ownership). We also utilize interaction terms of the founder-CEO dummy and duality, and the founder-CEO dummy and high ownership in regression models. As an additional test, we conduct a sub-sample analysis in which the whole sample is split into two sub-sample: a sub-sample consisting of firm observations with duality (or high ownership) and the other sub-sample consisting of firm observations without duality (or high ownership). These analyses show that CEO-chair duality plays an important role in determining the levels of overall risk and financial risk in liquidity taken by founder-CEOs, but high ownership does not contribute to the risk-taking patterns of founder-CEOs.

The primary purpose of this study is not to identify the personal characteristics specific to founders that have effects on risk-taking of firms, but rather to examine if firms led by founders, as one way of categorizing top managers, demonstrate different risk profiles compared to firms led by nonfounders. The identification of personal traits and characteristics that founders typically share and that cause them to behave in certain ways

is beyond the scope of this paper. Although it is not our interest to pin down what leads founder-CEOs to take certain levels of firm risk, we recognize the two main aspects that affect managers' utility caused by changes in firm risk: a wealth effect and a risk aversion effect (Guay, 1999; Pratt, 1978, Smith and Stulz, 1985). The wealth effect captures the positive relation between personal utility and firm risk, and this effect can be measured by vega, the compensation convexity. We control for this effect by adding the logarithm of vega as one of our control variables in all specifications. On the other hand, the risk aversion effect captures the negative relation between utility and firm risk, and it is not straightforward to proxy for this effect. Without controlling for this effect, our founder-CEO dummy variable captures some degree of personal risk preferences.

This paper contributes to the literature investigating managerial characteristics and firms' decision making. Most studies focus on managerial characteristics for which data is either readily available and/or easy to measure, such as age, gender, compensations, pervious experience, and educational background. We make a contribution to the literature by using founder-CEO status as a measurable CEO characteristic. Another significance of this paper is that we categorize and test different types of firm risk while previous work in the literature tends to consider firm risk as a whole (for example, higher equity volatility). In this paper, we disjointedly examine the link between founder-CEOs and operational risk, financial risk, and overall risk of firms. Due to the distinctive and contrasting aspects of founders, it makes sense to separate these risk aspects and provide findings unique to each of these firm risk types for our purposes.

The remainder of the paper is organized as follows. Section 1.2 briefly reviews the literature on founders, CEOs, and firm risk-taking as well as the hypothesis development based on the literature. Section 1.3 presents the sample selection and data description. Section 1.4 reviews methodology employed in this study. Section 1.5 discusses the main empirical results. Lastly, Section 1.6 concludes.

1.2 Literature Review and Hypothesis Development

One of the most essential concepts in corporate governance is the separation of ownership and control. Demsetz and Lehn (1985) argue that most of the publicly traded firms in the United States exhibit a separation of ownership and control where professional managers rather than shareholders have control over main business decisions. Generally, in the early life of a firm, both ownership and control coexist with the entrepreneurs. The idea of ownership and control separation is driven by the fact that firm owners may not possess the knowledge and skill sets to effectively manage the firm. Another reason could be that the founder might want to pursue other activities and therefore leave the management of the firm up to professionals, resulting in hiring of "agent" managers. However, this may cause some fundamental issues. The concept of agency costs discussed by Jensen and Meckling (1979) suggests that the fact that managers do not own a sizable portion of the firm lets their interests depart from the owners' interests, resulting in fundamentally different incentives for pursuing major projects. The separation of ownership and control is further studied as the separation of decision and risk-bearing functions by Fama and Jensen (1983). In case too much divergence between the interests of owners and those of managers is observed, owners must take extreme measures to

correct the direction that the firm is heading under such circumstances. Founder-CEO firms are unique from the agency theory perspective as a typical principal-agent relation does not hold in firms managed by founders. Founder-CEOs often own the majority of the equity until their firms go public for the first time, which usually happens at a later time, typically a few years after founding the company. Even in mature entrepreneurial firms, it is often observed that founder-CEOs still own a significant fraction of the company (Wasserman, 2003). This distinct owner-agent setting in which the agent is also the owner allows the firm to have a positive structural feature for the alignment of owner-management interest (Morck et al., 1988). Founders are also found to bring the knowledge, values, and attitudes different from agents' in managing the firm (Jayaraman et al., 2000; He, 2008).

Founders are prominently different from nonfounders in terms of their personal traits and characteristics. One of the unique features commonly seen in successful founders is their extreme passion towards what they do. Prior literature (e.g., Begley, 1995; Gimeno et al., 1997) indicates that founders typically embrace certain characteristics that make them different from others: risk-taking propensity, achievement orientation, commitment to their dreams and determination, and a certain degree of confidence. Another strand of literature argues founders' attachment to the company they create. Dobrev and Barnett (2005) argue that the identity of organizational founders is "tightly linked" to that of the organization they found. O'Reilly and Chatman (1986) point out that the same concept may apply to the "psychological bonds" that associate individuals with their organization. According to them, most founder-CEOs view their firm as their life's accomplishment. As a result, founder-CEOs tend to focus more on the optimal shareholder-value maximizing

strategy than short-term profitability or "enjoying the quiet life" as seen in the behavior of hired managers. Gao and Jain (2011) also find that founder-CEOs have long-term goals whereas nonfounder-CEOs focus more on quarterly earnings. In addition, founder-CEOs are different from professional CEOs in several other ways. According to Wasserman (2003), founder-CEOs usually hold a prominent position on the board of directors because of their larger stakes in equity than those of professional executives. The chairman of the board often has an important role in strategic decision-making (Adams, Almeida, and Ferreira, 2009). As a result, the “revered founders” of a company have a significant influence on the crucial decision making of the company (Zaleznik and Kets de Vries, 1975). Management and economics researchers often view entrepreneurs as drivers of innovation (Baumol, 1986; Miller and Friesen, 1982). Entrepreneurs and founders of firms consistently pursue new strategies and take their businesses in new directions. Many consider this the key driver of innovation (Chandler and Hanks, 1994). Other studies suggest that founders are more likely to pursue newer products, ventures and ideas than professional CEOs, which are inherently riskier (e.g., Camerer and Lovallo, 1999; Fahlenbrach, 2009; Kihlstrom and Laffont, 1979). While innovations may be profitable in the long term, investments in innovations result in risky products, technologies or businesses (Hirshleifer et al., 2012).

The upper echelons theory proposes that organizational outcomes can be explained by managerial background characteristics (Hambrick and Mason, 1984). Cronqvist, Makhija, and Yonker (2012) find supporting evidence in the context of leverage choices, suggesting that CEOs’ behavioral consistency can predict the corporate behavior. Cain and

McKeon (2016) provide evidence in the link between CEOs' preferences for personal risk-taking and corporate risk-taking using private pilot licenses as a novel proxy for personal risk-taking. Dobrev and Barnett (2005) find that the identity of founders is tightly linked to that of the organizations they found.

A branch of literature in corporate governance studies the link between managerial characteristics and firms' risk-taking behavior. Using private pilot licenses as a proxy for personal risk preferences, Cain and McKeon (2016) show that CEOs who are personally risk-takers are associated with risk-taking by the firms they manage. May (1995) examines the link between CEOs' personal risk aversion measured by the personal wealth vested in firm equity and firm risk reduction strategies, and find evidence that CEOs consider personal risk in making managerial decisions that affect firm risk. Faccio, Marchica, and Mura (2016) study the effect of CEO gender in corporate risk-taking, and find that firms run by female CEOs take lower risk than firms run by male CEOs. Martin, Nishikawa, and Williams (2009) also investigate the CEO gender effect on firm risk by observing changes in risk before and after CEO appointments and find the relation between female CEOs and lower risk. Ferris, Javakhadze, and Rajkovic (2017) provide evidence of a positive relation between levels of CEO social capital and aggregate corporate risk-taking. Hutton, Jiang, and Kumar (2014) show that personal political preferences of managers have an influence on corporate policies that affect firm risk. Graham, Harvey, and Puri (2013) investigate the link between CEOs' underlying psychological traits and attitudes such as risk-aversion and optimism on corporate policies associated with risk such as acquisitions and debt. Finally,

Coles, Daniel, and Naveen (2006) provide a detailed study on managerial compensation and firm risk.

In this paper, we investigate if the differences in personality traits between founder-CEOs and nonfounder-CEOs are reflected in differences in firm risk. We focus on three different types of firm risk: operational risk, financial risk, and overall risk. Our empirical analysis suggests that firms managed by founder-CEOs are likely to be associated with higher risk in operations, lower risk in financials, and higher risk perceived in the market.

It is evident from our discussion in the literature review that agency theory, entrepreneurship and management research all agree that founders differ in fundamental ways from agents. Founder-CEOs are different from nonfounder-CEOs in their values and attitudes (Jayaraman et al., 2000; He, 2008) their risk-taking propensity and achievement orientation (Begley, 1995; Gimeno et al., 1997), their long-term focus (Gao and Jain, 2011), and their tendency to invest in newer yet risky ideas and products (Camerer and Lovallo, 1999; Fahlenbrach, 2009; Kihlstrom and Laffont, 1979). If founders are characterized by their risk-taking propensity, preference to invest in riskier ventures and commitment to their determination, it is reasonable to expect that firms led by founders take higher operational risk than firms led by nonfounders. Also, founder-CEOs' long-term focus supports the argument that they are more likely to take higher imminent risk if it has the potential of being profitable in the long-rum. Based on these evidences, we argue that firms that are led by founders are associated with high operational risk compared to firms led by nonfounders. Therefore, our first hypothesis is stated as follows:

H1: Firms led by founder-CEOs take higher operational risk than firms led by nonfounder-CEOs.

Prior literature is in agreement that founder-CEOs have stronger emotional attachment to the company they found (O'Reilly and Chatman, 1986); founders are likely to have higher stake in the firms they founded than professional CEOs (Wasserman, 2003); leading to more control over corporate decision making (Zaleznik and Kets de Vries, 1975); and founder-CEOs' focus is on long-term optimal value objectives than short-term profitability maximizing (Gao and Jain, 2011). It is plausible that the psychological bonds that founders have with their firms and their concerns for longevity of the firm lead them to avoid any act that puts their firms in financial distress. Firms led by founders would avoid decisions that cause serious negative consequences to the firms that they founded and could be detrimental to the future of their firms. Hence, we hypothesize that firms that are led by a founder as CEO are associated with lower financial risk that can be critical in the time of distress than firms led by nonfounders. We write our second hypothesis as follows:

H2: Firms led by founder-CEOs take lower financial risk than firms led by nonfounder-CEOs.

We further posit that the market reflects risk-taking in operations and financing by founder-led management, and therefore founder-CEO firms are associated with different market risk than nonfounder-CEO firms. Our third hypothesis is, therefore, formed as follows:

H3: Firms led by founder-CEOs are associated with different levels of market risk compared to firms led by nonfounder-CEOs.

1.3 Sample Selection and Data Description

We use data from multiple sources to identify the status of founder-CEOs. GMI Ratings is used as the primary source to gather data on founder-CEO status of S&P 1500 firms from 2001 to 2014. The information obtained from GMI Ratings include names and ages of CEOs, names of companies, and CEO status (active or non-active), and founder status (yes or no). SEC filings and the firm's website are also used to confirm the founder status found in GMI Ratings. We merge the data from GMI Ratings with ExecuComp which provides CEO characteristics such as age and tenure. Data on CEO pay to performance sensitivity (*Delta*) and CEO wealth to stock volatility sensitivity (*Vega*) are obtained from the compensation datafile by Coles, Daniel, and Naveen (2006). They calculated the values of these two variables for the period of 1992 to 2014 based on the methodology by Core and Guay (2002). These two are superior measures to simple compensation measures such as the number or value of options held or granted, to capture the characteristics of compensation structures. Financial data of the sample firms are obtained from the Compustat annual files. Data on option implied volatility became available on Compustat starting 2004, and therefore, the observations only after 2004 are considered in the analysis for the variable. Market values and stock returns are gathered from the monthly Center for Research in Security Prices (CRSP) files. All variables are winsorized at the 1% level on both tails to treat large outliers.

We exclude firms in the industries of regulated utilities (SIC codes: 4900 - 4999) and financials (SIC codes: 6000 - 6999) from our sample since these industries are highly subject to regulation that allows managers to have limited discretion on firm policies that affect firm risk. We also exclude any observations for which any of the independent and dependent variables in the baseline model is missing. These narrow down our sample size to 11,428 firm-year observations.

We define founder-CEO as a person who founded the company or is a member of the group that founded the company. A CEO who was appointed as a CEO as a result of a spin-off, a CEO who took the position as a result of a merger, a CEO who was the first CEO of the firm but not a founder, or a CEO whose ancestor founded the company as a family business are not considered a founder-CEO in this study. For those firms that return two or more CEOs as founders in the GMI Ratings database, the executive names identified as founders are further examined using SEC filings and the firm's website to determine the true co-founders.[2] In the cases where one of the co-founders resigned as CEO and the other co-founder succeeded as a CEO without a gap, the firm-years under each of the founders are recorded as founder-CEO years. 1,106 firm-year observations are identified as the firm-years under founder-CEO management, and this accounts for approximately 10% of the whole sample. This is in line with the findings of other founder-CEO studies (e.g., Fahlenbrach, 2009; Lee et al., 2016; Villalonga and Amit, 2006).

[2] In most cases, they are the same individual listed with slightly different versions of their names (for example, "Paul" and "Paul F." as first names). In a couple of cases, individuals are erroneously tagged as founders in GMI Ratings.

In Table 1.1, we report the sector distribution of the number of founder-CEOs, nonfounder-CEOs and total observations counted as firm-years, and the frequency of founder-CEO firm-years as a percentage in each sector. Sectors are defined based on the first two digits of the SIC code. The sectors with a large number of founder-CEO firm-year observations include Industrial and Commercial Machinery and Computer Equipment (SIC 2-Digit Code: 35), Electronic and Other Electrical Equipment and Components, Except Computer Equipment (SIC 2-Digit Code: 36), Measuring, Analyzing and Controlling Instruments (SIC 2-Digit Code: 38), and Business Services (SIC 2-Digit Code: 73). Table 1.2 presents descriptive statistics for all variables, both dependent and independent, considered in our study.

1.4 Methodology

In our study, we use Total Risk, Idiosyncratic Risk, and Option Implied Volatility as measures of firm overall (market) risk. Total Risk and Idiosyncratic Risk are repetitively used in prior studies (e.g., Cassell et al., 2012; Guay, 1999; Kini and Williams, 2012; Serfling, 2014). Total Risk is calculated as the standard deviation of daily stock returns, and Idiosyncratic Risk is calculated as the standard deviation of the residuals from the regression of daily stock returns on the Capital Asset Pricing Model (CAPM). To compute these values, we use daily returns for one year (the previous 252 daily returns), with a minimum of 60 daily returns. Option Implied Volatility is a volatility used in the fair value calculation for stock options. It is a forward-looking risk measure that estimates the expected stock return volatility over the term of the option and is a more efficient predictor

of future realized volatility than historical volatility (Poon and Granger, 2003; Christensen and Prabhala. 1998; Szakmary et al., 2003).

We use research and development intensity (R&D) and Operating Leverage as measures of firm operational risk. R&D expenditures have been frequently used as a proxy for firm risk in the literature due to high uncertainty regarding the future outcomes (e.g., Bhagat and Welch, 1995; Kothari et al., 2002; Serfling, 2014; Coles et al., 2006; Kini and Williams, 2012). R&D is obtained as R&D expenditures divided by book value of total assets. If the value for R&D expenditures in a given year is missing, the value is assumed to be zero. Following Mandelker and Rhee (1984), Chen et al. (2011), and Serfling (2014), we define Operating Leverage as the elasticity of a firm's operating income with respect to its sales computed as the percentage change in operating income for a percentage change in total sales.

To measure firm financial risk, we use Current Ratio as a measure of liquidity, and Long-Term Debt and Total Debt as measures of financial leverage following several previous studies (e.g., Coles et al., 2006; Serfling, 2014; Kini and Williams, 2012). Current Ratio is a measure of a firm’s investment in short-term assets, and a high current ratio indicates a sufficient liquidity position of a firm. It is computed as total current assets divided by total current liabilities. Following the literature, Long-Term Debt is computed as total long-term debt divided by total assets, and Total Debt is computed as the sum of total long-term debt and total current debt divided by total assets. All debt and total assets in these computations are book values.

This study employs the following OLS regression model as the baseline model following Serfling (2014):

$$Risk_{i,t} = \beta_0 + \beta_1 \cdot FounderCEO_{i,t} + \boldsymbol{\gamma_1} \cdot \boldsymbol{X_{i,t}}' + \boldsymbol{\gamma_2} \cdot \boldsymbol{Z_{i,t}}' + \zeta_i + \tau_t + \varepsilon_{i,t} \quad (1)$$

where $Risk_{i,t}$ is the risk measures in year t for firm i; $FounderCEO_{i,t}$ is the indicator variable taking the value of one if the CEO of firm i in year t is the founder and zero otherwise; $\boldsymbol{X_{i,t}}$ is the vector of firm-level controls for firm i in year t; $\boldsymbol{Z_{i,t}}$ is the vector of CEO-level controls for firm i in year t; ζ_i controls for time-invariant industry characteristics; τ_t controls for the time-varying factors common across all industries; and $\varepsilon_{i,t}$ is a random error term. The coefficient of interest is β_1 indicating the effect of founder-CEOs on firm risk. The regression model controls for other possible determining factors of overall firm risk following Serfling (2014): specifically, CEO age, CEO tenure, CEO delta, and CEO vega as CEO characteristics, and firm size measured as the natural logarithm of total assets, market-to-book ratio, leverage, return on assets, cash holdings, sales growth, stock return, and firm age as firm characteristics. All the variables used in our analyses are summarized in the Appendix. We excluded the blockholder dummy as it is the only control variable that constantly demonstrates a nonsignificant explanatory power in the specifications by Serfling (2014).

1.5 Empirical Results

We first examine the relation between founder-CEOs and different types of firm risk in a univariate setting. Overall firm risk is proxied by Total Risk, Idiosyncratic Risk, and Option Implied Volatility, operational firm risk is approximated by R&D and Operating Leverage, and financial firm risk is approximated by Current Ratio, Long-Term

Debt and Total Debt. Based on the hypothesis, we predict that founder-CEOs are associated with high overall risk and operational risk, and low financial risk compared to nonfounder-CEOs.

Table 1.3 reports the statistics of overall, operational, and financial risk measures conditional on the presence of founder-CEOs from our univariate analysis. Among all risk measures, higher risk in founder-CEO firms is observed in all of the overall risk measures and R&D, which is one of the operational risk measures, at a 1% significance level and in Operating Leverage, which is the other operational risk measure in this study, at a 5% significance level. Lower risk in founder-CEO firms is observed in all of the financial risk measures (higher liquidity and lower debts) at a 1% significance level. Overall, the results in Table 1.3 are consistent with the hypothesis that firms led by founder-CEOs take higher operational risk and lower financial risk, and such risk-taking behavior is reflected as higher overall risk in the market.

We next examine the relation between founder-CEOs and overall firm risk as approximated by Idiosyncratic Risk, Total Risk, and Option Implied Volatility in a regression framework. Table 1.4 presents results from OLS regressions estimated with heteroskedasticity robust standard errors clustered at the firm level. Columns (1) and (2) have Idiosyncratic Risk, columns (3) and (4) have Total Risk, and columns (5) and (6) have Option Implied Volatility.[3] Our independent variable of interest is the founder dummy that takes a value of one if the firm has a founder as CEO during the year, and zero if the firm

[3] Following Sefling (2014), we also have the natural logarithm of *Total Risk* and the natural logarithm of *Idiosyncratic Risk* as the main overall firm risk measures instead. The results are consistent with simply using *Total Risk* and *Idiosyncratic Risk* in our baseline models.

has a nonfounder as CEO during the year. Columns (1), (3), and (5) include year fixed effects to control for unobserved heterogeneity across time and 2-digit SIC industry fixed effects to control for unobserved time-invariant characteristics across industries. The results in these models indicate that founder-CEOs have a positive and statistically significant relation with overall firm risk. In terms of economic significance, the coefficient estimates in columns (1), (3), and (5) imply that having a founder as CEO increases total risk by 6.3% (= 0.159/2.530), idiosyncratic risk by 7.6% (= 0.157/2.077), and option implied volatility by 7.7% (= 3.142/41.064), other things being equal, compared to having a nonfounder as CEO. These results show that risk-taking behavior in founder-CEO firms are perceived as riskier than that in nonfounder-CEO firms, consistent with the hypothesis.

There is a possibility that the positive association between founder-CEOs and risk observed using year and industry fixed effects is driven by the effects experienced in particular industries during specific years. Following Gormley and Matsa (2014) and Serfling (2014), we include the interaction of year and industry fixed effects in columns (2), (4), and (6) to address this potential issue. By including this interaction, the status of being a founder-CEO firm and the measures of risk become comparable across industries in any given year, in the same way as demeaning all variables with reference to their industry averages. The results with the year-industry fixed effects still show a positive and statistically significant relation between founder-CEO and overall risk measures, implying that unobserved heterogeneity specific to certain industries in specific years is not driving the positive relation between founder-CEOs and overall firm risk.

Next, we investigate the relation between founder-CEOs and operational risk and the relation between founder-CEOs and financial risk. We posit that firms led by founder-CEOs take higher operational risk while taking lower financial risk than firms led by nonfounder-CEOs.

Table 1.5 presents findings from OLS regressions of operational risk on the presence of founder-CEOs. The reported standard errors are robust and clustered at the firm level. The dependent variable used in columns (1) through (3) is R&D and that in columns (4) through (6) is Operating Leverage. If founder-CEOs take more risk in operations than nonfounder-CEOs, we expect to see a positive relation between the founder-CEO dummy and R&D expenditures. Since firms with higher operating leverage are associated with higher risk, we expect a positive relation between the founder-CEO dummy and Operating Leverage. Our independent variable of interest continues to be the founder dummy. Following the specifications used for overall firm risk, columns (1) and (4) include year fixed effects and 2-digit SIC industry fixed effects, columns (2) and (5) include the interaction of year and industry fixed effects, and columns (3) and (6) include year fixed effects and firm fixed effects. These models show a positive and statistically significant relation between the founder-CEO dummy and firm operational risk. The coefficient estimates in columns (1) and (3) suggest that other things being equal, having a founder as CEO increases R&D expenditure by 25% (= 0.008/0.032) and Operating Leverage by 45% (= 0.107/0.238) compared to having a nonfounder-CEO. These results show that founder-CEOs are related to higher operational risk-taking than nonfounder-CEOs, as predicted.

Table 1.6 presents findings from OLS regressions of financial risk on the presence of founder-CEOs. The dependent variable in columns (1) through (3) is Current Ratio, that in columns (4) through (6) is Long-Term Debt, and that in columns (7) through (9) is Total Debt. Current Ratio is our measure of liquidity, and Long-Term Debt and Total Debt are the measures of financial leverage in our study. Greater liquidity and less leverage are generally associated with healthy firm financial policies. Therefore, if founder-CEOs take less risk in financing than nonfounder-CEOs, a positive relation between the founder-CEO dummy and liquidity and a negative relation between the founder-CEO dummy and financial leverage should be expected. Our independent variable of interest continues to be the founder dummy, and we keep the same specifications as the regressions of overall risk and operational risk. The models for Current Ratio show that the founder-CEO dummy is positively related to firm liquidity, indicating lower financial risk, and the models for Long-Term Debt and Total Debt show that the founder-CEO dummy is negatively related to firm leverage, indicating lower financial risk. As for economic significance, the coefficient estimate in columns (1), (3), and (5) indicate that other things being equal, having a founder as CEO increases Current Ratio, a measure of liquidity, by 11.7% (= 0.286/2.452), and decreases Long-Term Debt and Total Debt, measures of leverage, by 13.5% (= -0.024/0.178) and 11.7% (= -0.024/0.205), respectively, compared to having a nonfounder as CEO. These results show that founder-CEOs are associated with lower financial risk-taking than nonfounder-CEOs, as posited in the hypothesis.

It is crucial to address endogeneity concerns. The first concern is potential reverse causality. It is possible that founder-CEOs time their resignation based on the risk level of

the firm. They may decide to leave the firm when the firm risk is high. In this case, it is the firm risk that causes the founder-CEO's departure, and thus the change in the status of being a founder-CEO firm. To take into account this possibility, we replace all independent variables with the values lagged for one year. This treatment allows to capture the causality direction of the founder-CEO effect on firm risk by showing the relation between firm risk and the set of CEO and firm characteristics observed one year ago. The results are presented in Table 1.7. Consistent with the baseline results, founder-CEO firms are associated with higher operational risk (higher R&D and Operating Leverage) presented in columns (4) and (5), and lower financial risk (higher Current Ratio and lower Long-Term Debt and Total Debt) presented in columns (6) through (8). Overall risk is also found to be higher (higher Total Risk, Idiosyncratic Risk, and Option Implied Volatility) as presented in columns (1) through (3).

As an alternative way to address reverse causality concerns, we run the same analysis using the sample without observations from founder-CEO transition years. This treatment controls for the potential contamination of founder-/nonfounder-CEO influence on firm risk. It is highly plausible that the firm risk observed during the transition year is mainly influenced by the founder-CEO who managed until the transition rather than by the successor-CEO. In a similar argument, it is also plausible that the firm risk observed one or two years after the transition still reflect the effect of management done by the previous CEO. This is because it takes some time for firm operations, financing policies, performance, and all other aspects to reflect the effect of new management. It also takes time for the market to mirror the effectiveness of the new manager's potential and

management style. Because of these reasonings, we also drop observations one and two years after founder-CEO transitions. The results are still robust.

Another concern is inclusion of industries without any founder-CEO observation in our sample. As Table 1.1 illustrates, several industries in our sample have no founder-CEO firm-year observation. Examples of such industries include Agricultural Production (SIC 2-Digit Codes: 1 and 2), Mining (SIC 2-Digit Codes: 10 and 12), Heavy Construction (SIC 2-Digit Code: 16), Tobacco Products (SIC 2-Digit Code: 21), Paper and Allied Products (SIC 2-Digit Code: 26), and Railroad Transportation (SIC 2-Digit Code: 40). Inclusion of such sectors may bias the results of our analysis. To address this issue, we also run the same analysis without these industries in which no founder-CEO is found, and the results are similar to the findings of the baseline analysis.

To further address endogeneity concerns, we run the same analysis using a propensity score matched sample. The propensity score matching (PSM) methodology proposed by Rosenbaum and Rubin (1983, 1985) allows us to further examine the validity of our results. This methodology is used to control for heterogeneity caused by potential selection bias in the presence of founder-CEOs. After the propensity scores are estimated from the logit selection model with firm-level covariates from our baseline model, a propensity score matched control sample group is constructed with matched nonfounder-CEO firms.[4] We utilize the nearest-neighbor matching approach as well as radius and kernel approaches for propensity score matching. The nearest-neighbor approach selects

[4] We use the PSMATCH2 Stata module provided by Leuven and Sianesi (2003) to execute the PSM procedure.

one control firm for each treated firm based on the closest propensity score. The radius matching finds matches with propensity scores within a preset radius of the treated firms' propensity scores. We use the caliper of 0.01 to set the radius. The kernel matching technique assigns a weight to every single control firm in the entire sample according its closeness to the treated observation.

Panel A of Table 1.8 exhibits the univariate analysis on our risk measures based on the CEO status of founders/nonfounders for the propensity matched sample. The results presented in the table is for the sample matched based on the nearest-neighbor matching approach. The other two matching techniques (radius and kernel) return similar results, but they are not presented in the paper for brevity. The differences in means of all risk measures between the treatment (founder-CEOs) and control (nonfounder-CEOs) groups are significant and in the same direction as the baseline results presented in Table 1.3, implying that the baseline results are robust to the propensity score matching in univariate analysis. Panel B of Table 1.8 reports the multivariate analysis using the propensity matched sample. The coefficients for the founder-CEO dummy in columns (1) through (3) for overall risk are all positive and significant, the coefficients for the founder-CEO dummy in columns (4) and (5) for operational risk are positive and significant, the coefficient for the founder-CEO dummy in column (6) for financial risk in liquidity is positive and significant, and the coefficients for the founder-CEO dummy in columns (7) and (8) for financial risk in leverage are negative and significant. These results indicate that founder-CEOs are associated with higher overall risk, higher operational risk, and lower financial risk than nonfounder-CEOs who are selected to form the control group. In summary, the propensity

score matching results suggest that firms under founder-CEO management are associated with higher firm overall risk, higher operational risk, and lower financial risk than firms under nonfounder-CEO management, and therefore, our main results are robust to the propensity score matching methodology.

It is evident from our baseline analysis as well as robustness tests that firms led by founder-CEOs take different approaches when it comes to firm risk-taking. In this section, we attempt to uncover the underlying conditions through which founder-CEOs affect risk-taking behavior of firms. We focus on two managerial aspects that are commonly studied in corporate governance and that are easily measurable: CEO-chair duality and high ownership. CEO-chair duality has been used as a proxy for CEO power in several studies (e.g., Nelson, 2003). Approximately 35% of the whole sample is identified as firms with duality, of which about 50% of founder-CEO firms are acknowledged as firms with duality. Previous work indicates the benefits of combining ownership and control (e.g., Morck et al., 1988), and founder-CEOs are found to own a significant portion of the company (Wasserman, 2003). In this study, we define high ownership as ownership by a CEO containing at least 0.5% of the firm. Approximately 40% of the whole sample is identified as high ownership firms, of which about 85% of founder-CEO firms are categorized as high ownership firms. It is reasonable to expect that if founder-CEOs hold CEO-chair duality or high ownership, the founder-CEO effect on firm risk-taking is magnified by these conditions that could give the CEOs more power as a top manager.

To investigate these possibilities, we first conduct univariate analyses comparing the means of each risk measures in groups assembled based on the founder-CEO status and

duality status. First, we compare the group consisting of founder-CEO firms (Founder-CEO = 1) where founder-CEOs also serve as the chairman of the board (Duality = 1) and the group consisting of nonfounder-CEO firms (Founder-CEO = 0) where nonfounder-CEOs are also the chairman of the board (Duality = 1). This is equivalent to a univariate analysis on the sub-sample including only CEOs with duality. Panel A of Table 1.9 reports the result. Consistent with the baseline results, founder-CEO firms are associated with higher market risk and operational risk, and lower financial risk than nonfounder-CEO firms with a statistically significant difference in means. Next, we compare the group consisting of founder-CEO firms (Founder-CEO = 1) where founder-CEOs are not the chairman of the board (Duality = 0) and the group consisting of nonfounder-CEO firms (Founder-CEO = 0) where nonfounder-CEOs do not serve as the chairman of the board (Duality = 0). This is equivalent to a univariate analysis on the sub-sample including only CEOs without duality. Again, consistent with the baseline results, founder-CEO firms exhibit higher market risk and operational risk, and lower financial risk than nonfounder-CEO firms with a statistically significant difference in means except for Operating Leverage, one of the two operational risk measures, which loses the significance in this comparison. As a next step, we compare the group consisting of founder-CEO firms (Founder-CEO = 1) where founder-CEOs serve as the chairman of the board (Duality = 1) and the group consisting of founder-CEO firms (Founder-CEO = 1) where founder-CEOs do not serve as the chairman of the board (Duality = 0). This is equivalent to a univariate analysis on the sub-sample including only founder-CEOs, and this is the comparison of our main interest. We find that firms managed by founder-CEOs with duality are associated with higher market risk than firms managed by founder-CEOs without duality. As for

operational risk, we have mixed results. Firms managed by founder-CEOs with duality are associated with lower R&D but higher Operating Leverage than firms managed by founder-CEOs without duality. As for financial risk, we find that firms managed by founder-CEOs with duality are associated with higher Current Ratio indicating lower financial risk than firms managed by founder-CEOs without duality. No significance difference in Long-Term and Total Debts are observed in this comparison. Lastly, we compare the group consisting of nonfounder-CEO firms (Founder-CEO = 0) where nonfounder-CEOs serve as the chairman of the board (Duality = 1) and the group consisting of nonfounder-CEO firms (Founder-CEO = 0) where nonfounder-CEOs do not serve as the chairman of the board (Duality = 0). This is equivalent to a univariate analysis on the sub-sample including only nonfounder-CEOs. We find that firms managed by nonfounder-CEOs with duality are associated with higher total and idiosyncratic risk but with lower option implied volatility than firms managed by nonfounder-CEOs without duality. As for operational risk, we find that firms managed by nonfounder-CEOs with duality are associated with lower R&D than firms managed by nonfounder-CEOs without duality. As for financial risk, it is observed that firms managed by nonfounder-CEOs with duality are associated with lower Current Ratio indicating higher financial risk than firms managed by nonfounder-CEOs without duality. No significance difference in Long-Term and Total Debts are observed in this comparison. Based on these univariate analyses, CEO-chair duality appears to contribute to the higher level of market risk and the lower level of financial risk in terms of liquidity in founder-CEO firms but not to the higher level of operational risk or lower level of financial risk in leverage.

We repeat the same univariate analyses but with ownership status instead of duality to see if high ownership by founder-CEOs have any effect on founder-CEOs' higher market and operational risk-taking and lower financial risk-taking. Panel B of Table 1.9 presents the result. The first comparison between founder-CEOs with high ownership (Founder-CEO = 1 & High Own = 1) and nonfounder-CEO with high ownership (Founder-CEO = 0 & High Own = 1) shows the same risk-taking patterns found in the baseline analysis. The second comparison between founder-CEOs with low ownership (Founder-CEO = 1 & High Own = 0) and nonfounder-CEO with low ownership (Founder-CEO = 0 & High Own = 0) also shows the same results found in the baseline analysis. In the comparison between founder-CEOs with high ownership (Founder-CEO = 1 & High Own = 1) and founder-CEO with low ownership (Founder-CEO = 1 & High Own = 0), which is the comparison of our main interest, we find higher Option Implied Volatility associated with founder-CEO firms whose CEOs have high ownership but not in Total or Idiosyncratic Risk. No significant difference is observed in the operational risk measures and the liquidity measure, but both of the leverage measures show lower financial risk associated with founder-CEO firms with CEOs having high ownership. Lastly, in the comparison between nonfounder-CEOs with high ownership (Founder-CEO = 0 & High Own = 1) and nonfounder-CEO with low ownership (Founder-CEO = 0 & High Own = 0), we find higher market risk and lower operational and liquidity risk associated with nonfounder-CEO firms whose CEOs have high ownership. No significant difference is observed in leverage risk. In summary, these univariate analyses indicate that high ownership by founder-CEOs appear to have an effect on the high level of market risk reflected in option implied

volatility and the low level of financial risk measured in leverage in founder-CEO firms but not on the higher level of operational risk or the lower level of financial risk in liquidity.

Next, we conduct multivariate analyses in which we utilize interaction terms of the founder-CEO dummy and duality, and the founder-CEO dummy and high ownership separately in regression models. Panel A of Table 1.10 reports the findings of this analysis for overall (market) risk, and Panel B of Table 1.10 reports the findings of this analysis for operational and financial risk. In Panel A, columns (1), (3), and (5) report the results for regressions with the interaction term of the founder-CEO dummy and duality, and columns (2), (4), and (6) report the results for regressions with the interaction term of the founder-CEO dummy and high ownership. The coefficients for the interaction term in (1), (3), and (5) are all positive and statistically significant, indicating that in case a firm has a founder-CEO, the marker risk is higher if the founder-CEO also serves as the chair of the board. The coefficients for the interaction term in (2), (4), and (6) are all positive but not significant, indicating that high ownership by founder-CEOs does not have a significant effect on the higher level of market risk. In Panel B, columns (1) and (3) report the results for regressions with the interaction term of the founder-CEO dummy and duality for the operational risk measures, and columns (2) and (4) report results for regressions with the interaction term of the founder-CEO dummy and high ownership for the operational risk measures. The coefficients for the interaction term in (1) through (4) are all statistically insignificant, implying that duality or high ownership by founder-CEOs does not have a significant effect on the higher level of operational risk. However, it may be worth noting that the coefficient for the founder-CEO dummy in columns (1) and (2) are statistically

significant, and this suggests that some unobserved founder characteristic(s) captured in the indicator variable have an effect on the higher level of R&D seen in founder-CEO firms. Columns (5), (7), and (9) of Panel B report the results for regressions with the interaction term of the founder-CEO dummy and duality for the financial risk measures, and columns (6), (8), and (10) report results for regressions with the interaction term of the founder-CEO dummy and high ownership for the financial risk measures. The coefficient for the interaction term in (5) is positive and statistically significant, implying that duality seen in founder-CEOs has a positive effect on the lower level of financial risk in terms of liquidity. Columns (6) through (10) exhibit a statistically insignificant coefficient for the interaction term, suggesting that neither duality nor high ownership by founder-CEOs has a significant effect on the lower level of financial risk in leverage in founder-CEO firms. We also find that the coefficients for the founder-CEO dummy in columns (7) and (9) are negative and significant, meaning that some unobserved founder characteristic(s) captured in the dummy variable have an effect on the lower level of long-term and total debt seen in founder-CEO firms. Search for such characteristic(s) is beyond the scope of this paper.

As an additional test, we conduct a sub-sample analysis in which the whole sample is split into two sub-samples for each of duality and high ownership: a sub-sample consisting of observations with duality (high ownership) and the other sub-sample consisting of observations without duality (with low ownership), respectively. We report the findings of the sub-sample analysis using duality and high ownership in Table 1.11 as the results are similar to the previous analysis with the interaction terms presented in Table 1.10.

In summary, we show that CEO-chair duality plays a significant role in the high level of overall risk and the low level of financial risk measured by liquidity in founder-CEO firms. This suggests that founder-CEOs may use the CEO power gained through CEO-chair duality to control firm risk-taking patterns reflected in overall risk and liquidity risk. In terms of high ownership, founder-CEOs do not appear to take advantage of owning large portions of the firms to manage risk-taking behavior of the firms.

1.6 Conclusion

In this paper, we examine if risk-taking behavior of firms led by founder-CEOs are significantly different from risk-taking of firms led by nonfounder-CEOs. On one hand, founders are characterized by their risk-taking propensity, preference to invest in riskier ventures and commitment to their determination. On the other hand, they are characterized by their deep, long-lasting psychological bonds to their own firms and long-term optimal value objectives than short-term profitability maximizing. Based on these arguments, we posit that founder-CEO firms take different risk-taking approaches in different functions. Therefore, we measure firm risk in three categories: overall (market) risk, operational risk, and financial risk. We find that founder-CEO firms are associated with higher operational but lower financial risk than nonfounder-CEO firms, and the market perceives higher overall risk associated with founder-led firms than nonfounder-led firms.

We further investigate what underlying conditions of CEOs may magnify the effect of founder-CEOs on different risk-taking patterns compared to nonfounder-CEOs. Two commonly studied managerial aspects are tested: CEO-chair duality and high ownership defined as at least 0.5% of the firm ownership. We find that CEO-chair duality plays a

significant role in determining the levels of overall risk and liquidity risk taken by founder-CEOs, but high ownership does not contribute to the risk-taking patterns of founder-CEOs.

Table 1.1. Sample Distribution of Founder-CEO and Nonfounder-CEO Firms

This table presents the sector distribution of the number of founder-CEO firm-years, the number of nonfounder-CEO firm-years, the total number of firm-years, and the frequency of founder-CEO firm-years in each sector. The sample consists of firm-year observations of S&P 1500 firms excluding financial and utilities firms for the sample period of 2001 to 2014.

2-Digit SIC Code	Sector Description	No. of Founder-CEO Firm-Years	No. of Nonfounder-CEO Firm-Years	No. of Total Firm-Years	% of Founder-CEO Firm-Years
1	Agricultural Production - Crops	0	9	9	0.0
2	Agricultural Production - Livestock	0	4	4	0.0
7	Agricultural Services	10	0	10	100.0
10	Metal Mining	0	28	28	0.0
12	Coal Mining	0	41	41	0.0
13	Oil and Gas Extraction	43	462	505	8.5
14	Mining and Quarrying of Nonmetallic Minerals, Except Fuels	0	27	27	0.0
15	Building Construction General Contractors and Operative Builders	28	100	128	21.9
16	Heavy Construction Other than Building Construction Contractors	0	56	56	0.0
17	Construction Special Trade Contractors	0	27	27	0.0
20	Food and Kindred Products	36	383	419	8.6
21	Tobacco Products	0	34	34	0.0
22	Textile Mill Products	0	46	46	0.0
23	Apparel and Other Finished Products Made from Fabrics and Similar Materials	33	138	171	19.3
24	Lumber and Wood Products, Except Furniture	0	70	70	0.0
25	Furniture and Fixtures	6	89	95	6.3
26	Paper and Allied Products	0	200	200	0.0
27	Printing, Publishing, and Allied Industries	11	140	151	7.3
28	Chemical and Allied Products	59	895	954	6.2
29	Petroleum Refining and Related Industries	0	105	105	0.0
30	Rubber and Miscellaneous Plastics Products	4	126	130	3.1
31	Leather & Leather Products	3	71	74	4.1
32	Stone, Clay, & Glass Products	7	68	75	9.3
33	Primary Metal Industries	12	192	204	5.9
34	Fabricated Metal Products, Except Machinery and Transportation Equipment	1	216	217	0.5
35	Industrial and Commercial Machinery and Computer Equipment	85	828	913	9.3
36	Electronic and Other Electrical Equipment and Components, Except Computer Equipment	161	952	1,113	14.5
37	Transportation Equipment	20	352	372	5.4
38	Measuring, Analyzing and Controlling Instruments	68	804	872	7.8
39	Miscellaneous Manufacturing Industries	19	119	138	13.8
40	Railroad Transportation	0	57	57	0.0
42	Motor Freight Transportation and Warehousing	2	123	125	1.6

44	Water Transportation	8	54	62	12.9
45	Transportation by Air	23	77	100	23.0
47	Transportation Services	6	44	50	12.0
48	Communications	26	258	284	9.2
50	Wholesale Trade, Durable Goods	43	269	312	13.8
51	Wholesale Trade, Nondurable Goods	14	168	182	7.7
52	Building Materials, Hardware, Garden Supply, and Mobile Home Dealers	0	38	38	0.0
53	General Merchandise Stores	12	152	164	7.3
54	Food Stores	0	58	58	0.0
55	Automotive Dealers and Gasoline Service Stations	11	79	90	12.2
56	Apparel and Accessory Stores	22	202	224	9.8
57	Home Furniture, Furnishings, and Equipment Stores	0	70	70	0.0
58	Eating and Drinking Places	36	194	230	15.7
59	Miscellaneous Retail	8	194	202	4.0
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	1	26	27	3.7
72	Personal Services	0	36	36	0.0
73	Business Services	170	1,109	1,279	13.3
75	Automotive Repair, Services, and Parking	0	36	36	0.0
78	Motion Pictures	12	8	20	60.0
79	Amusement and Recreation Services	15	61	76	19.7
80	Health Services	50	165	215	23.3
82	Educational services	3	67	70	4.3
83	Social Services	6	1	7	85.7
87	Engineering, Accounting, Research, Management, and Related Services	31	170	201	15.4
99	Nonclassifiable Establishments	1	24	25	4.0
Total		**1,106**	**10,322**	**11,428**	**9.7**

Table 1.2. Descriptive Statistics

This table reports the descriptive statistics of the entire sample of founder- and nonfounder- CEO firm-year observations. The sample period is 2001 to 2014. Data on market values are collected from CRSP monthly data, data on CEO pay to performance sensitivity (*Delta*) and CEO wealth to stock volatility sensitivity (*Vega*) are obtained from the compensation datafile by Coles et al. (2006), data on other executive (CEO) characteristics are obtained from Execucomp, and all other firm specific characteristics are collected from Compustat. *N* is the number of observations. *Mean* is the average of the firm-year observations. *St Dev* is the standard deviation of firm-year observations. 25% is the twenty-fifth percentile, *Median* is the median value, and 75% is the seventy-fifth percentile of the firm-year observations. Variable definitions are provided in Appendix.

Variables	N	Mean	St Dev	25%	Median	75%
Overall Risk Measures						
Total Risk	11,407	2.530	1.182	1.704	2.257	3.032
Idiosyncratic Risk	11,407	2.077	1.013	1.378	1.854	2.487
Option Implied Volatility	7,359	41.064	15.350	30.700	39.000	48.500
Operational Risk Measures						
R&D	11,428	0.032	0.051	0.000	0.005	0.045
Operating Leverage	11,428	0.238	1.387	0.017	0.169	0.400
Financial Risk Measures						
Liquidity						
Current Ratio	11,141	2.452	1.715	1.381	1.969	2.897
Leverage						
Long-Term Debt	11,428	0.178	0.159	0.018	0.161	0.277
Total Debt	11,428	0.205	0.171	0.049	0.191	0.311
CEO Characteristics						
Founder-CEO	11,428	0.097	0.296	0.000	0.000	0.000
log(CEO Age)	11,428	4.031	0.122	3.951	4.043	4.111
log(CEO Tenure)	11,428	1.299	1.743	0.698	1.611	2.304
log(Delta)	11,428	5.542	1.427	4.617	5.541	6.477
log(Vega)	11,428	4.030	1.799	3.141	4.300	5.321
Ownership	11,423	0.016	0.041	0.001	0.003	0.010
Duality	11,428	0.344	0.475	0.000	0.000	1.000
Firm Characteristics						
log(Assets)	11,428	7.624	1.513	6.538	7.485	8.579
Market-to-Book Ratio	11,428	1.442	1.161	0.690	1.117	1.788
Leverage	11,428	0.205	0.171	0.049	0.191	0.311
ROA	11,428	0.046	0.098	0.023	0.056	0.093
Sales Growth	11,428	0.082	0.200	-0.008	0.069	0.154
Return	11,428	0.095	0.434	-0.166	0.063	0.292
log(Firm Age)	11,428	3.043	0.731	2.565	3.045	3.611
PPE	11,419	0.662	0.881	0.166	0.376	0.846

Table 1.3. Univariate Analysis of Risk Measures

This table presents the univariate analysis of risk measures for two groups: firms led by founder-CEOs (Founder-CEO Firms) and firms led by nonfounder-CEOs (Nonfounder-CEO Firms). *N* is the number of firm-year observations. *Mean* is the average of the firm-year observations. *St Dev* is the standard deviation of firm-year observations. *Diff. in Means* is the difference in mean values for the two groups of firms. *T-value* is the t-statistics of the differences in means reported. The significance levels at 1%, 5%, and 10% are denoted by ***, **. And *, respectively. Variable definitions are provided in Appendix.

	Founder-CEO Firms			**Nonfounder-CEO Firms**			**Diff. in Means**	**t-value**
	Obs.	**Mean**	**St Dev**	**Obs.**	**Mean**	**St Dev**		
Overall Risk Measures								
Total Risk	1,106	2.871	1.193	10,301	2.493	1.175	0.378	10.16***
Idiosyncratic Risk	1,106	2.423	1.033	10,301	2.040	1.003	0.383	12.02***
Option Volatility	666	47.249	14.488	6,693	40.448	15.298	6.801	11.00***
Operational Risk Measures								
R&D	1,106	0.047	0.065	10,322	0.030	0.049	0.016	10.18***
Operating Leverage	1,106	0.321	1.441	10,322	0.229	1.381	0.092	2.10**
Financial Risk Measures								
Liquidity								
Current Ratio	1,071	3.137	2.357	10,070	2.380	1.614	0.757	13.86***
Leverage								
Long-Term Debt	1,106	0.135	0.164	10,322	0.183	0.157	-0.048	-9.68***
Total Debt	1,106	0.156	0.176	10,322	0.210	0.169	-0.054	-10.02***

Table 1.4. Regression Results for Overall Firm Risk

This table presents the results from regressions relating firms led by founder-CEOs to the overall firm risk. The sample consists of firm-year observations of S&P 1500 firms excluding financial and utilities firms for the period of 2001 to 2014. We use *Total Risk*, *Idiosyncratic Risk*, and *Option Implied Volatility* as measures of overall firm risk. The variable of interest, *Founder Dummy*, takes a value of one if the firm is managed by a founder-CEO during the firm year, and zero otherwise. Standard errors are corrected for serial correlation and heteroskedasticity by clustering at the firm level and are indicated in parentheses. The significance levels at 1%, 5%, and 10% are denoted by ***, **. And *, respectively. Variable definitions are provided in Appendix.

VARIABLES	(1) Total Risk	(2) Total Risk	(3) Idio. Risk	(4) Idio. Risk	(5) Opt. Vol.	(6) Opt. Vol.
Founder-CEO	0.159***	0.157***	0.157***	0.153***	3.142***	3.134***
	(3.657)	(3.665)	(3.950)	(3.867)	(3.613)	(3.554)
log(CEO Age)	-0.197**	-0.221**	-0.186**	-0.197**	-3.086*	-3.320*
	(-2.119)	(-2.421)	(-2.124)	(-2.252)	(-1.713)	(-1.804)
log(CEO Tenure)	0.020***	0.022***	0.019***	0.021***	0.372***	0.431***
	(3.605)	(3.891)	(3.711)	(3.926)	(3.254)	(3.677)
log(Delta)	-0.074***	-0.086***	-0.084***	-0.091***	-1.141***	-1.281***
	(-6.151)	(-7.156)	(-7.572)	(-8.064)	(-3.357)	(-3.916)
log(Vega)	-0.039***	-0.032***	-0.029***	-0.026***	-1.025***	-1.049***
	(-5.258)	(-4.314)	(-4.470)	(-3.892)	(-4.095)	(-4.066)
log(Assets)	-0.133***	-0.141***	-0.145***	-0.149***	-2.405***	-2.355***
	(-11.667)	(-12.027)	(-13.184)	(-13.086)	(-9.026)	(-8.734)
Market-to-Book	0.008	-0.003	0.008	0.003	-0.699**	-0.738***
	(0.588)	(-0.198)	(0.652)	(0.286)	(-2.579)	(-2.595)
Leverage	0.293***	0.291***	0.287***	0.283***	1.842	1.200
	(3.555)	(3.521)	(3.816)	(3.701)	(1.044)	(0.648)
ROA	-3.430***	-3.156***	-3.184***	-3.016***	-27.983***	-27.250***
	(-23.339)	(-22.045)	(-23.698)	(-22.600)	(-9.671)	(-9.596)
Cash Holdings	0.641***	0.622***	0.656***	0.632***	13.431***	13.653***
	(5.462)	(5.276)	(5.934)	(5.583)	(5.635)	(5.506)
Sales Growth	0.271***	0.307***	0.282***	0.293***	4.794***	5.450***
	(5.500)	(5.977)	(6.123)	(5.939)	(4.753)	(4.820)
Return	0.100***	0.134***	0.086***	0.109***	3.692***	3.643***
	(3.855)	(5.087)	(3.491)	(4.249)	(7.969)	(7.157)
log(Firm Age)	-0.141***	-0.123***	-0.150***	-0.135***	-1.708***	-1.550***
	(-7.768)	(-6.708)	(-8.917)	(-7.843)	(-4.961)	(-4.251)
Constant	6.136***	5.392***	5.817***	5.266***	85.559***	82.637***
	(16.575)	(14.372)	(16.677)	(14.498)	(11.607)	(10.689)
Observations	11,407	11,407	11,407	11,407	7,359	7,359
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Year FE * Industry FE	NO	YES	NO	YES	NO	YES
Adj. R-squared	0.626	0.668	0.573	0.603	0.380	0.399

Table 1.5. Regression Results for Operational Firm Risk

This table presents the results from regressions relating firms led by founder-CEOs to the operational firm risk. The sample consists of firm-year observations of S&P 1500 firms excluding financial and utilities firms for the period of 2001 to 2014. We use *R&D* and *Operating Leverage* as measures of operational firm risk. The variable of interest, *Founder Dummy*, takes a value of one if the firm is managed by a founder-CEO during the firm year, and zero otherwise. Standard errors are corrected for serial correlation and heteroskedasticity by clustering at the firm level and are indicated in parentheses. The significance levels at 1%, 5%, and 10% are denoted by ***, **. And *, respectively. Variable definitions are provided in Appendix.

	(1)	(2)	(3)	(4)
VARIABLES	**R&D**	**R&D**	**Opr. Lev.**	**Opr. Lev.**
Founder-CEO	0.008**	0.008**	0.107**	0.098*
	(2.163)	(2.099)	(2.159)	(1.957)
log(CEO Age)	-0.012*	-0.011	0.002	-0.015
	(-1.686)	(-1.510)	(0.020)	(-0.119)
log(CEO Tenure)	0.001*	0.001	0.006	0.004
	(1.687)	(1.456)	(0.649)	(0.440)
log(Delta)	-0.002***	-0.002**	-0.023	-0.011
	(-2.808)	(-2.547)	(-1.348)	(-0.636)
log(Vega)	0.003***	0.003***	0.008	0.006
	(7.118)	(6.568)	(0.833)	(0.653)
log(Assets)	-0.001	-0.001	0.019	0.012
	(-1.027)	(-0.806)	(1.189)	(0.765)
Market-to-Book	0.011***	0.012***	0.041***	0.041**
	(9.122)	(9.152)	(2.680)	(2.524)
Leverage	-0.021***	-0.020***	-0.019	0.003
	(-3.583)	(-3.289)	(-0.184)	(0.031)
ROA	-0.148***	-0.158***	0.035	0.030
	(-11.379)	(-11.445)	(0.159)	(0.130)
Cash Holdings	0.072***	0.073***	0.145	0.130
	(7.463)	(7.215)	(0.924)	(0.801)
Sales Growth	0.007**	0.005	-0.198***	-0.265***
	(2.112)	(1.400)	(-3.398)	(-3.921)
Return	-0.003***	-0.003***	0.077**	0.083**
	(-3.248)	(-3.099)	(2.109)	(2.097)
log(Firm Age)	-0.001	-0.002	-0.016	-0.005
	(-1.183)	(-1.236)	(-0.763)	(-0.218)
Constant	0.070**	0.085***	0.221	0.237
	(2.493)	(2.723)	(0.452)	(0.462)
Observations	11,428	11,428	11,428	11,428
Year FE	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES
Year FE * Industry FE	NO	YES	NO	YES
Adj. R-squared	0.488	0.468	0.0426	0.0147

Table 1.6. Regression Results for Financial Firm Risk

This table presents the results from regressions relating firms led by founder-CEOs to the financial firm risk. The sample consists of firm-year observations of S&P 1500 firms excluding financial and utilities firms for the period of 2001 to 2014. We use *Current Ratio*, *Long-Term Debt*, and *Total Debt* as measures of financial firm risk. The variable of interest, *Founder Dummy*, takes a value of one if the firm is managed by a founder-CEO during the firm year, and zero otherwise. Standard errors are corrected for serial correlation and heteroskedasticity by clustering at the firm level and are indicated in parentheses. The significance levels at 1%, 5%, and 10% are denoted by ***, **. And *, respectively. Variable definitions are provided in Appendix.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	**Current Ratio**	**Current Ratio**	**Long Debt**	**Long Debt**	**Total Debt**	**Total Debt**
Founder-CEO	0.286**	0.299**	-0.024**	-0.026***	-0.024**	-0.025**
	(2.032)	(2.036)	(-2.544)	(-2.595)	(-2.263)	(-2.288)
log(CEO Age)	0.211	0.211	-0.001	-0.000	0.007	0.006
	(0.890)	(0.853)	(-0.038)	(-0.007)	(0.318)	(0.283)
log(CEO Tenure)	0.039***	0.041***	0.002*	0.002	0.002**	0.002*
	(3.354)	(3.249)	(1.886)	(1.547)	(2.035)	(1.662)
log(Delta)	-0.027	-0.031	-0.006**	-0.005*	-0.008***	-0.007**
	(-0.970)	(-1.070)	(-2.331)	(-1.910)	(-2.764)	(-2.346)
log(Vega)	-0.009	-0.011	0.003*	0.003*	0.002	0.003
	(-0.522)	(-0.599)	(1.710)	(1.663)	(1.456)	(1.520)
log(Assets)	-0.253***	-0.255***	0.018***	0.017***	0.023***	0.022***
	(-9.106)	(-8.798)	(6.555)	(6.203)	(7.425)	(7.012)
Market-to-Book	0.119***	0.123***	-0.019***	-0.021***	-0.019***	-0.020***
	(3.182)	(3.091)	(-6.297)	(-6.343)	(-5.466)	(-5.450)
Leverage	-1.171***	-1.167***				
	(-6.476)	(-6.148)				
ROA	0.483*	0.560*	-0.184***	-0.172***	-0.223***	-0.211***
	(1.739)	(1.888)	(-5.799)	(-5.092)	(-6.623)	(-5.908)
Cash Holdings	4.597***	4.587***	-0.140***	-0.143***	-0.154***	-0.157***
	(11.806)	(11.332)	(-5.631)	(-5.516)	(-5.622)	(-5.479)
Sales Growth	-0.134	-0.096	0.052***	0.058***	0.051***	0.057***
	(-1.377)	(-0.888)	(5.261)	(5.310)	(4.833)	(4.791)
Return	-0.209***	-0.202***	0.017***	0.017***	0.017***	0.016***
	(-6.059)	(-5.374)	(5.285)	(4.860)	(4.912)	(4.425)
log(Firm Age)	-0.103**	-0.098**	-0.011***	-0.011**	-0.007	-0.007
	(-2.569)	(-2.329)	(-2.613)	(-2.565)	(-1.582)	(-1.552)
R&D			-0.193***	-0.179**	-0.248***	-0.235***
			(-2.630)	(-2.366)	(-3.134)	(-2.887)
PPE			0.052***	0.052***	0.054***	0.054***
			(10.608)	(10.529)	(10.275)	(10.185)
Constant	3.519***	5.213***	0.132	0.225**	0.100	0.180*
	(3.642)	(4.554)	(1.625)	(2.437)	(1.137)	(1.814)
Observations	11,141	11,141	11,419	11,419	11,419	11,419
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Year FE * Industry FE	NO	YES	NO	YES	NO	YES
Adj. R-squared	0.420	0.398	0.384	0.373	0.400	0.388

Table 1.7. Regression Results for Different Types of Risk with Lagged Controls

This table presents the results from regressions relating firms led by founder-CEOs to the three types of firm risk: overall, operational, and financial risk. The sample consists of firm-year observations of S&P 1500 firms excluding financial and utilities firms for the period of 2001 to 2014. We use *Total Risk*, *Idiosyncratic Risk*, and *Option Implied Volatility* as measures of firm overall risk, *R&D* and *Operating Leverage* as measures of operational risk, and *Current Ratio*, *Long-Term Debt*, and *Total Debt* as measures of financial risk. The variable of interest, *Founder Dummy*, takes a value of one if the firm is managed by a founder-CEO during the firm year, and zero otherwise. Standard errors are corrected for serial correlation and heteroskedasticity by clustering at the firm level and are indicated in parentheses. The significance levels at 1%, 5%, and 10% are denoted by ***, **. And *, respectively. Variable definitions are provided in Appendix.

	---------- Overall Risk ----------			--- Operational Risk ---		---------- Financial Risk ----------		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	**Total Risk**	**Idio. Risk**	**Opt. Vol.**	**R&D**	**Opr. Lev.**	**Current Ratio**	**Long Debt**	**Total Debt**
Founder-CEO$_{t-1}$	0.107**	0.117***	3.092***	0.010**	0.112**	0.324**	-0.026**	-0.024**
	(2.287)	(2.684)	(3.509)	(2.416)	(2.180)	(2.142)	(-2.413)	(-2.069)
log(CEO Age)$_{t-1}$	-0.184*	-0.192**	-2.987	-0.012	-0.111	0.238	-0.012	-0.006
	(-1.942)	(-2.121)	(-1.633)	(-1.502)	(-0.880)	(0.901)	(-0.556)	(-0.245)
log(CEO Tenure)$_{t-1}$	0.027***	0.022***	0.435***	0.000	-0.008	0.042***	0.002**	0.003**
	(4.682)	(4.117)	(4.135)	(0.253)	(-0.838)	(3.369)	(2.158)	(2.046)
log(Delta) $_{t-1}$	-0.083***	-0.086***	-1.326***	-0.002***	-0.011	-0.047	-0.005*	-0.006**
	(-6.328)	(-7.037)	(-4.276)	(-2.704)	(-0.578)	(-1.632)	(-1.667)	(-2.066)
log(Vega) $_{t-1}$	-0.044***	-0.031***	-1.094***	0.004***	0.023**	-0.002	0.003	0.003
	(-5.548)	(-4.351)	(-4.936)	(6.791)	(2.219)	(-0.119)	(1.619)	(1.519)
log(Assets) $_{t-1}$	-0.130***	-0.142***	-1.969***	-0.001	0.003	-0.252***	0.016***	0.021***
	(-11.022)	(-12.324)	(-7.557)	(-1.326)	(0.201)	(-8.542)	(5.517)	(6.282)
Market-to-Book $_{t-1}$	0.027**	0.028**	-0.296	0.011***	0.013	0.143***	-0.017***	-0.017***
	(2.020)	(2.211)	(-1.197)	(8.141)	(0.857)	(3.609)	(-5.812)	(-5.274)
Leverage $_{t-1}$	0.303***	0.279***	2.727	-0.017**	-0.126	-1.306***		
	(3.533)	(3.541)	(1.581)	(-2.560)	(-1.146)	(-6.731)		
ROA $_{t-1}$	-3.416***	-3.149***	-35.820***	-0.120***	-0.040	0.057	-0.164***	-0.175***
	(-20.578)	(-20.710)	(-12.319)	(-8.024)	(-0.151)	(0.174)	(-4.772)	(-4.747)
Cash Holdings $_{t-1}$	0.346***	0.358***	12.926***	0.078***	0.001	3.699***	-0.133***	-0.152***
	(2.934)	(3.172)	(5.509)	(7.251)	(0.004)	(9.142)	(-5.058)	(-5.212)
Sales Growth $_{t-1}$	0.267***	0.292***	5.319***	0.008*	-0.019	0.045	0.034***	0.030***
	(5.363)	(6.064)	(5.346)	(1.934)	(-0.215)	(0.408)	(3.315)	(2.696)
Return $_{t-1}$	-0.020	-0.043**	3.239***	-0.004***	-0.029	-0.153***	0.005	0.004

	(-0.997)	(-2.136)	(7.563)	(-3.786)	(-0.712)	(-4.424)	(1.360)	(1.103)
log(Firm Age) $_{t-1}$	-0.117***	-0.129***	-1.813***	-0.002	-0.003	-0.089**	-0.012***	-0.010*
	(-6.306)	(-7.470)	(-5.202)	(-1.568)	(-0.133)	(-2.120)	(-2.744)	(-1.960)
R&D $_{t-1}$							-0.189**	-0.227***
							(-2.488)	(-2.786)
PPE $_{t-1}$							0.050***	0.051***
							(9.809)	(9.330)
Constant	5.997***	5.569***	86.535***	0.072**	0.691	3.495***	0.184**	0.155
	(15.819)	(15.378)	(10.421)	(2.319)	(1.330)	(3.274)	(2.055)	(1.613)
Observations	9,299	9,299	6,484	9,311	9,311	9,070	9,304	9,304
Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.640	0.558	0.429	0.471	0.0128	0.409	0.369	0.382

Table 1.8. Founder-CEO Firms and Risk-Taking – Propensity Score Matching

This table presents the results using the propensity score matching methodology. Variables are defined in the Appendix. The average treatment effects of the PSM on firm risk measures are presented in Panel A, and results for the multivariate analysis using the PSM sample are presented in Panel B. In Panel B, standard errors are corrected for serial correlation and heteroskedasticity by clustering at the firm level and are indicated in parentheses. The significance levels at 1%, 5%, and 10% are denoted by ***, **. and *, respectively. Variable definitions are provided in Appendix.

Panel A. Average Treatment Effect: Risk Measures of Treatment (Founder-CEO) and Control (Nonfounder-CEO) Groups

	Treatment Group (Founder-CEO Firms)			**Control Group (Nonfounder-CEO Firms)**			**Diff. in**	**t-value**
	Obs.	**Mean**	**St Dev**	**Obs.**	**Mean**	**St Dev**	**Means**	
Overall Risk Measures								
Total Risk	1,104	2.870	1.194	1,104	2.781	1.246	0.089	1.72**
Idiosyncratic Risk	1,104	2.421	1.033	1,104	2.352	1.097	0.069	1.53*
Option Volatility	662	47.238	14.508	662	44.725	13.998	2.513	3.21***
Operational Risk Measures								
R&D	1,104	0.045	0.064	1,104	0.035	0.057	0.010	3.90***
Operating Leverage	1,104	0.305	1.413	1,104	0.232	1.444	0.074	1.16
Financial Risk Measures								
Liquidity								
Current Ratio	990	3.104	2.383	990	2.858	2.078	0.246	2.45***
Leverage								
Long-Term Debt	1,106	0.135	0.164	1,106	0.145	0.161	-0.011	-1.58*
Total Debt	1,106	0.156	0.176	1,106	0.166	0.171	-0.010	-1.35*

Panel B. Regression Results: Risk Measures of Treatment (Founder-CEO) and Control (Nonfounder-CEO) Groups

	---------- Overall Risk ----------			--- Operational Risk ---		---------- Financial Risk ----------		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	**Total Risk**	**Idio. Risk**	**Opt. Vol.**	**R&D**	**Opr. Lev.**	**Current Ratio**	**Long Debt**	**Total Debt**
Founder-CEO	0.131***	0.119***	2.741***	0.007*	0.135*	0.357**	-0.028***	-0.026**
	(2.637)	(2.663)	(2.602)	(1.804)	(1.848)	(2.364)	(-2.750)	(-2.325)
log(CEO Age)	-0.406**	-0.394**	-6.491	-0.014	0.259	1.075**	-0.003	-0.001
	(-1.994)	(-2.108)	(-1.335)	(-0.902)	(1.126)	(2.421)	(-0.075)	(-0.019)
log(CEO Tenure)	0.007	0.005	0.381	0.002*	-0.054*	0.014	0.011***	0.011***
	(0.328)	(0.220)	(0.909)	(1.899)	(-1.947)	(0.455)	(3.080)	(2.746)
log(Delta)	-0.048**	-0.048**	-0.427	-0.000	0.017	-0.081	-0.014***	-0.017***
	(-2.086)	(-2.329)	(-0.922)	(-0.009)	(0.495)	(-1.242)	(-3.320)	(-3.636)
log(Vega)	-0.025**	-0.015	-0.354	0.004***	0.024	0.032	0.000	-0.000
	(-1.973)	(-1.365)	(-1.080)	(4.648)	(1.318)	(0.840)	(0.093)	(-0.112)
log(Assets)	-0.156***	-0.189***	-3.459***	-0.004**	-0.059	-0.334***	0.041***	0.048***
	(-5.701)	(-7.405)	(-5.806)	(-2.202)	(-1.392)	(-4.750)	(7.686)	(8.243)
Market-to-Book	0.033	0.018	-0.592	0.013***	0.073**	0.215***	-0.021***	-0.022***
	(1.284)	(0.780)	(-1.089)	(7.789)	(2.317)	(2.885)	(-5.331)	(-5.283)
Leverage	0.403**	0.392**	9.004***	-0.009	0.310	-0.771**		
	(2.235)	(2.378)	(2.733)	(-0.870)	(1.335)	(-2.010)		
ROA	-3.219***	-2.945***	-25.924***	-0.197***	-0.260	1.285**	-0.206***	-0.247***
	(-12.151)	(-12.084)	(-5.580)	(-10.589)	(-0.628)	(2.314)	(-4.093)	(-4.643)
Cash Holdings	0.132	0.122	15.323***	0.046***	-0.028	5.045***	-0.047	-0.061
	(0.698)	(0.716)	(3.171)	(3.561)	(-0.090)	(7.087)	(-1.267)	(-1.490)
Sales Growth	0.331***	0.370***	5.140**	0.014*	-0.343***	-0.137	0.053**	0.058**
	(3.052)	(3.714)	(2.498)	(1.845)	(-3.205)	(-0.666)	(2.459)	(2.543)
Return	0.042	0.037	1.669*	-0.001	0.088	-0.243***	0.039***	0.044***
	(0.778)	(0.729)	(1.784)	(-0.335)	(1.212)	(-2.847)	(5.495)	(5.841)
log(Firm Age)	-0.181***	-0.188***	-1.031	-0.001	0.049	0.002	-0.011	-0.007
	(-4.457)	(-5.135)	(-1.115)	(-0.241)	(0.826)	(0.018)	(-1.259)	(-0.818)
R&D							-0.027	-0.076
							(-0.255)	(-0.702)
PPE							0.077***	0.079***
							(6.730)	(6.712)
Constant	7.521***	7.196***	117.112***	0.072	-0.762	0.306	-0.004	-0.020
	(9.447)	(9.770)	(5.663)	(1.209)	(-0.787)	(0.173)	(-0.024)	(-0.121)
Observations	2,028	2,028	1,164	2,206	2,206	2,138	2,048	2,048

Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.630	0.579	0.391	0.551	0.0132	0.438	0.450	0.481

Table 1.9. Underlying Conditions of CEOs for Risk-Taking – CEO-Chair Duality and High Ownership: Univariate Analysis

This table presents the univariate analysis results comparing different combinations of founder-/nonfounder-CEOs and duality/non-duality, and those of founder-/nonfounder-CEOs and high/low ownership by the CEO. Panel A reports the results for CEO-chair duality, and Panel B reports the results for high ownership. *Diff. in Means* is the difference in mean values for the two groups of firms. *T-value* is the t-statistics of the differences in means reported. The significance levels at 1%, 5%, and 10% are denoted by ***, **. and *, respectively. Variable definitions are provided in Appendix.

Panel A. CEO-Chair Duality

	(a) Founder = 1 & Duality = 1	(b) Founder = 0 & Duality = 1	(c) Founder = 1 & Duality = 0	(d) Founder = 0 & Duality = 0	Duality = 1		Duality = 0		Founder = 1		Founder = 0	
					Diff. in Means (a-b)	t-value	Diff. in Means (c-d)	t-value	Diff. in Means (a-c)	t-value	Diff. in Means (b-d)	t-value
Overall Risk Measures												
Total Risk	3.067	2.518	2.683	2.481	0.549	9.532***	0.202	4.071***	0.384	5.417***	0.037	1.516*
Idiosyncratic Risk	2.641	2.120	2.214	2.001	0.520	10.714***	0.213	4.983***	0.427	7.019***	0.120	5.701***
Option Volatility	48.121	36.661	46.568	41.909	11.461	13.279***	4.658	5.569***	1.554	1.374*	-5.248	-12.730***
Operational Risk Measures												
R&D	0.042	0.028	0.051	0.031	0.015	6.669***	0.019	8.364***	-0.008	-2.124**	-0.004	-3.509***
Operating Leverage	0.378	0.240	0.267	0.224	0.138	2.153**	0.043	0.7095	0.112	1.288*	0.017	0.574
Financial Risk Measures												
Liquidity												
Current Ratio	3.285	2.179	2.993	2.477	1.107	13.731***	0.516	6.891***	0.292	2.028**	-0.299	-8.739***
Leverage												
Long-Term Debt	0.136	0.190	0.133	0.179	-0.054	-7.567***	-0.046	-6.628***	0.003	0.300	0.011	3.232
Total Debt	0.160	0.222	0.153	0.204	-0.062	-8.046***	-0.052	-6.885***	0.007	0.6836	0.018	5.031

Panel B. CEO High Ownership

	(a) Founder = 1 & High Own = 1	(b) Founder = 0 & High Own = 1	(c) Founder = 1 & High Own = 0	(d) Founder = 0 & High Own = 0	High Own = 1		High Own = 0		Founder = 1		Founder = 0	
					Diff. in Means (a-b)	t-value	Diff. in Means (c-d)	t-value	Diff. in Means (a-c)	t-value	Diff. in Means (b-d)	t-value
Overall Risk Measures												
Total Risk	2.863	2.702	2.923	2.386	0.161	3.686***	0.537	5.685***	-0.060	-0.576	0.316	13.005***
Idiosyncratic Risk	2.419	2.240	2.447	1.937	0.179	4.771***	0.510	6.329***	-0.029	-0.317	0.303	14.633***
Option Volatility	47.739	43.522	43.943	39.099	4.217	6.099***	4.845	2.905***	3.796	2.274**	4.424	10.976***
Operational Risk Measures												
R&D	0.046	0.022	0.051	0.035	0.024	14.026***	0.017	3.849***	-0.005	-0.938	-0.013	-12.856***
Operating Leverage	0.310	0.191	0.394	0.247	0.118	2.294**	0.147	1.307*	-0.084	-0.668	-0.056	-1.935**
Financial Risk Measures												
Liquidity												
Current Ratio	3.171	2.556	2.925	2.291	0.615	8.747***	0.634	4.895***	0.246	1.180	0.265	7.801***
Leverage												
Long-Term Debt	0.131	0.182	0.156	0.183	-0.051	-8.357***	-0.027	-2.163**	-0.025	-1.764**	-0.001	-0.446
Total Debt	0.150	0.209	0.196	0.211	-0.059	-9.074***	-0.015	-1.096	-0.046	-3.002***	-0.002	-0.705

Table 1.10. Underlying Conditions of CEOs for Risk-Taking – CEO-Chair Duality and High Ownership: Multivariate Analysis with Interaction Terms

This table presents the multivariate analysis results with interaction terms of the founder-CEO dummy and duality, and the founder-CEO dummy and high ownership in regression models. Panel A reports the results for overall (market) risk, and Panel B reports the results for operational and financial risk. Standard errors are corrected for serial correlation and heteroskedasticity by clustering at the firm level and are indicated in parentheses. The significance levels at 1%, 5%, and 10% are denoted by ***, **. and *, respectively. Variable definitions are provided in Appendix.

Panel A. Overall (Market) Risk

VARIABLES	(1) Total Risk	(2) Total Risk	(3) Idio. Risk	(4) Idio. Risk	(5) Opt. Vol.	(6) Opt. Vol.
Founder-CEO * Duality	0.193***		0.243***		5.634***	
	(3.144)		(3.570)		(3.777)	
Founder-CEO * Ownership		0.050		0.021		2.256
		(0.554)		(0.202)		(1.229)
Duality	-0.000		-0.006		-1.037*	
	(-0.008)		(-0.226)		(-1.668)	
Ownership		0.139***		0.145***		1.089*
		(5.411)		(5.122)		(1.800)
Founder-CEO	0.062	0.098	0.041	0.123	0.768	1.071
	(1.238)	(1.149)	(0.749)	(1.244)	(0.722)	(0.689)
Constant	5.805***	5.822***	6.114***	6.136***	83.582***	85.877***
	(16.612)	(16.794)	(16.511)	(16.676)	(11.391)	(11.687)
CEO-Level Controls	YES	YES	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES	YES	YES
Observations	11,407	11,402	11,407	11,402	7,359	7,356
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.574	0.576	0.627	0.627	0.382	0.380

Panel B. Operational Risk (R&D and Operating Leverage) and Financial Risk (Current Ratio, Long-Term Debt and Total Debt)

VARIABLES	(1) RD	(2) RD	(3) Opr. Lev.	(4) Opr. Lev.	(5) Current Ratio	(6) Current Ratio	(7) Long Debt	(8) Long Debt	(9) Total Debt	(10) Total Debt
Founder-CEO * Duality	-0.009		0.099		0.484***		0.019		0.015	
	(-1.620)		(1.102)		(2.759)		(1.346)		(1.047)	
Founder-CEO * Ownership		-0.001		-0.051		-0.029		-0.012		-0.031
		(-0.231)		(-0.467)		(-0.102)		(-0.629)		(-1.257)
Duality	-0.003		0.024		-0.146**		0.004		0.007	
	(-1.606)		(0.579)		(-2.270)		(0.682)		(1.211)	
Ownership		-0.011***		-0.025		0.024		0.025***		0.031***
		(-5.388)		(-0.664)		(0.364)		(4.249)		(4.911)
Founder-CEO	0.013**	0.011*	0.056	0.154	0.061	0.307	-0.034***	-0.017	-0.032**	-0.002
	(2.336)	(1.820)	(0.906)	(1.634)	(0.380)	(1.174)	(-2.718)	(-0.926)	(-2.462)	(-0.075)
Constant	0.068**	0.070**	0.238	0.211	3.346***	3.531***	0.134*	0.131	0.106	0.097
	(2.428)	(2.511)	(0.484)	(0.433)	(3.452)	(3.660)	(1.650)	(1.618)	(1.204)	(1.114)
CEO-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	11,428	11,423	11,428	11,423	11,141	11,136	11,419	11,414	11,419	11,414
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.489	0.493	0.0426	0.0419	0.422	0.420	0.384	0.386	0.401	0.404

Table 1.11. Underlying Conditions of CEOs for Risk-Taking – CEO-Chair Duality and High Ownership: Sub-Sample Analysis

This table presents the multivariate analysis results with sub-samples based on the status of CEO-chair duality and CEO high ownership in regression models. Panel A reports the results for overall (market) risk with sub-samples based on duality, and Panel B reports the results for operational and financial risk with sub-samples based on duality. Panel C reports the results for overall (market) risk with sub-samples based on high ownership, and Panel B reports the results for operational and financial risk with sub-samples based on high ownership. Standard errors are corrected for serial correlation and heteroskedasticity by clustering at the firm level and are indicated in parentheses. The significance levels at 1%, 5%, and 10% are denoted by ***, **. and *, respectively. Variable definitions are provided in Appendix.

Panel A. Overall (Market) Risk of Sub-Samples Based on Duality

VARIABLES	(1) Duality = 1 Total Risk	(2) Duality = 0 Total Risk	(3) Duality = 1 Idio. Risk	(4) Duality = 0 Idio. Risk	(5) Duality = 1 Opt. Vol.	(6) Duality = 0 Opt. Vol.
Founder-CEO	0.232***	0.057	0.217***	0.075	6.225***	0.931
	(4.069)	(1.053)	(4.235)	(1.491)	(4.842)	(0.832)
Constant	5.997***	6.199***	5.692***	5.883***	75.922***	84.793***
	(9.821)	(14.324)	(9.902)	(14.556)	(5.448)	(9.694)
CEO-Level Controls	YES	YES	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES	YES	YES
Observations	3,929	7,478	3,929	7,478	2,155	5,204
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.653	0.626	0.595	0.571	0.444	0.369

Panel B. Operational and Financial Risk of Sub-Samples Based on Duality

VARIABLES	(7) Duality = 1 R&D	(8) Duality = 0 R&D	(9) Duality = 1 Opr. Lev.	(10) Duality = 0 Opr. Lev.	(11) Duality = 1 Current Ratio	(12) Duality = 0 Current Ratio	(13) Duality = 1 Long Debt	(14) Duality = 0 Long Debt	(15) Duality = 1 Total Debt	(16) Duality = 0 Total Debt
Founder-CEO	0.004	0.013**	0.156**	0.051	0.490***	0.127	-0.017	-0.031**	-0.016	-0.031**
	(1.049)	(2.393)	(2.068)	(0.796)	(2.789)	(0.785)	(-1.369)	(-2.471)	(-1.104)	(-2.382)
Constant	0.027	0.084**	0.439	0.163	2.498*	3.689***	0.109	0.157*	0.118	0.113
	(0.694)	(2.431)	(0.513)	(0.265)	(1.782)	(3.229)	(0.867)	(1.654)	(0.885)	(1.094)
CEO-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	3,936	7,492	3,936	7,492	3,819	7,322	3,931	7,488	3,931	7,488
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.508	0.480	0.0139	0.0229	0.446	0.411	0.371	0.400	0.391	0.412

Panel C. Overall (Market) Risk of Sub-Samples Based on High Ownership

VARIABLES	(1) High Own = 1 Total Risk	(2) High Own = 0 Total Risk	(3) High Own = 1 Idio. Risk	(4) High Own = 0 Idio. Risk	(5) High Own = 1 Opt. Vol.	(6) High Own = 0 Opt. Vol.
Founder-CEO	0.167***	0.130	0.158***	0.103	3.736***	0.623
	(3.308)	(1.326)	(3.474)	(1.220)	(3.443)	(0.359)
Constant	6.371***	6.057***	6.149***	5.778***	85.921***	89.636***
	(11.056)	(13.131)	(11.405)	(13.491)	(7.135)	(10.032)
CEO-Level Controls	YES	YES	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES	YES	YES
Observations	4,437	6,965	4,437	6,965	2,614	4,742
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.618	0.628	0.560	0.576	0.391	0.369

Panel D. Operational and Financial Risk of Sub-Samples Based on High Ownership

VARIABLES	(7) High Own = 1 R&D	(8) High Own = 0 R&D	(9) High Own = 1 Opr. Lev.	(10) High Own = 0 Opr. Lev.	(11) High Own = 1 Current Ratio	(12) High Own = 0 Current Ratio	(13) High Own = 1 Long Debt	(14) High Own = 0 Long Debt	(15) High Own = 1 Total Debt	(16) High Own = 0 Total Debt
Founder-CEO	0.010**	0.010*	0.069	0.161*	0.232	0.352	-0.028***	-0.016	-0.030***	0.000
	(2.555)	(1.798)	(1.138)	(1.663)	(1.496)	(1.297)	(-2.672)	(-0.856)	(-2.720)	(0.008)
Constant	0.063	0.072*	-0.462	0.669	2.057	5.530***	0.042	0.128	0.065	0.083
	(1.642)	(1.942)	(-0.639)	(0.970)	(1.413)	(4.560)	(0.370)	(1.261)	(0.535)	(0.751)
CEO-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm-Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	4,442	6,981	4,442	6,981	4,304	6,832	4,437	6,977	4,437	6,977
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Adj. R-squared	0.489	0.502	0.0375	0.0281	0.440	0.408	0.459	0.361	0.483	0.374

CHAPTER 2: FOUNDER-LED FIRMS AND LITIGATION RISK

2.1 Introduction

Corporate litigation and its economic as well as financial outcomes have been of great interest to researchers and practitioners in the field of finance and accounting. Autore, Hutton, Peterson, and Smith (2014) point out that the costs associated with litigation are not only expenses consisting of monetary penalties charged by the judge and the legal fees but also other negative consequences such as reduction in sales, return on assets, and institutional ownership. A negative effect on firm reputation is another significant outcome of litigation.

Litigation can be classified as securities litigation and nonsecurities litigation. Securities class-action lawsuits are filed on behalf of a group of shareholders who suffer monetary loss due to the firm's violations of securities law, and such violations are generally resulted from poor disclosure decisions made by company board. On the other hand, nonsecurities litigation includes any types of lawsuits other than securities, such as patent, antitrust, environmental, and injury, and are primarily linked to operational decisions made by the top management.[5] As our focus is on the decision making of CEOs and not on the company board, this study considers only nonsecurities litigation in our analysis. Our approach is similar to Adhikari, Agrawal, and Malm (2019) who use nonsecurities litigation to study the effect of female managers on corporate lawsuits.

[5] For this reason, Adhikari, Agrawal, and Malm (2019) refer to nonsecurities lawsuits as 'operating lawsuits.'

Litigation risk is a likelihood of being sued, and it should be actively managed as the litigation costs are not trivial in most cases.[6] In addition to legal expenses (Romano, 1991; Haslem, 2005), other negative consequences can be detrimental to firms. The indirect costs associated with litigation include loss of share value (Wier, 1983; Feroz et al., 1991; Bhagat et al., 1998; Gande and Lewis, 2009), reduction in sales, return on assets, and institutional ownership (Autore et al., 2014), potentially sustaining financial liabilities (Cutler and Summers, 1987; Hertzel and Smith, 1993), and reputational damage (Karpoff et al., 2008). It is the management's responsibility to achieve the optimal level of risk that maximizes the shareholders' wealth. However, certain firm policies with too much focus on shareholders' wealth may offend other parties that also have the right to enjoy value creation, resulting in litigation cases.

Founder-CEO firms play a significant role in the U.S. economy.[7] There is an agreement over the positive effect that founder-CEOs have on firm performance (e.g., Adams, Almeida, and Ferreira, 2009; Palia and Ravid, 2008; Fahlenbrach, 2009; Anderson and Reeb, 2003; Villalonga and Amit, 2006). Researchers argue that founders are different from non-founders in their characteristics and managerial capabilities. Begley (1995) and Gimeno et al. (1997) show certain characteristics that founder-CEOs have and that

[6] According to "*Litigation Cost Survey of Major Companies*" prepared by Lawyers for Civil Justice, Civil Justice Reform Group, U.S. Chamber Institute for Legal Reform, the survey conducted among Fortune 200 companies reveals that the average transaction cost of litigation excluding the amounts of judgments and settlements was about $115 million in 2008, and the total aggregate spending on litigation among the 36 survey participants was $4.1 billion in 2008.

[7] As of June 30, 2018, three of the five largest U.S. firms by market capitalization were led by founder-CEOs. The second largest firm was Amazon.com, Inc. led by Jeff Bezos with a market capitalization of $825 billion, the third largest was Alphabet, Inc. (a parent company of Google) led by Larry Page with a market cap of $775 billion, and Facebook led by Mark Zuckerburg was the fifth largest firm with a market cap of $562 billion.

differentiate them from others such as risk-taking capabilities, commitment to their determination and a certain degree of confidence. Founder-CEOs are also found to focus more on long-term goals rather than quarterly earnings (Gao and Jain, 2011). Furthermore, founder-CEOs have deep and long-lasting emotional ties to their firms (e.g., O'Reilly and Chatman, 1986; Nelson, 2003; Lange et al., 2015) as well as their identity is "tightly linked" to that of the organization they found (Dobrev and Barnett, 2005). In addition to founder-CEO characteristics that separate them from nonfounder-CEOs, founder-CEO firms are unique in the sense that firms led by founders do not have the traditional principal-agent framework that creates the agency problem proposed by Jensen and Meckling (1979). This positive firm structure allows founder-CEO firms to achieve the alignment of owner-management interest (Morck et al., 1988) more simply than nonfounder-CEO firms.

This study focuses on the intersection of these two motivating areas. Namely, we examine whether having a founder as CEO has any impact on the litigation risk that the firm faces. The majority of prior studies on corporate litigation primarily focuses on securities class-action litigation cases (e.g., Gande and Lewis, 2009; Arena and Julio, 2015; Pukthuanthong et al., 2017). In addition, securities class-action lawsuits represent only 15% of all material civil lawsuits filed against corporations. In this study, we analyze nonsecurities litigation cases as we attempt to establish the relation between litigation risk and founder-CEOs, who are the top management of the firm. Our main contribution is, therefore, to enrich the scarce literature on nonsecurities litigation and deepen the understanding of managerial effects on litigation risk.

If founder-CEOs have emotional attachment to the firms they establish (O'Reilly and Chatman, 1986; Nelson, 2003; Lange et al., 2015) as well as more focus on long-term objectives (Gao and Jain, 2011), and if founder-CEO firms have a positive structural feature for the alignment of owner-management interest (Morck et al., 1988), it is highly likely that firms with a founder-CEO would avoid operational decisions that potentially lead to a lawsuit, which causes serious negative consequences to the firm that they founded. Hence, we hypothesize that the firms that are led by a founder as CEO are exposed to lower litigation risk as compared to the firms led by a non-founder as CEO.

We empirically test our hypothesis using a sample of publicly traded firms in the U.S. included in GMI Ratings Database for the period of 2002 to 2015. Our univariate tests indicate that the probability of being sued is lower in founder-CEO firms than in nonfounder-CEO firms. We then use the logistic regression model for litigation risk with control variables suggested by Kim and Skinner (2012) as well as the founder-CEO dummy, which takes a value of one for the firm led by a founder-CEO and zero otherwise.[8] Consistent with the univariate analysis, our regression results show that the likelihood of founder-CEO firms being sued is significantly lower than the likelihood of nonfounder-CEO firms being sued.

As a robustness test, we compare nonsecurities litigation risk of firms before and after a CEO transition from a founder to a nonfounder. This assessment is motivated by the

[8] Kim and Skinner (2012) find that among numerous specifications, the logistic regression model with the industry (FPS) dummy, lagged assets, lagged sales growth, and lagged stock return variables (market-adjusted return, return standard deviation, return skewness, and turnover) best estimates the probability of litigation risk.

literature showing evidence that founder-CEO succession maybe the most critical succession event in the life of a firm (e.g., Carroll, 1984; Hofer and Charan, 1984). In this comparison, we again find that firms led by a founder-CEO are associated with a lower probability of being sued as compared to firms led by nonfounder-CEOs. As an additional robustness check, we compare litigation risk of the founder-CEO firms with that of the nonfounder-CEO firms using propensity score matching (PSM) methodology. Our results remain the same for the PSM matched sample. Overall, our empirical results indicate that the firms managed by founder-CEOs have lower litigation risk than the firms led by nonfounder-CEOs.

The rest of the paper is organized as follows. Section 2.2 briefly reviews the literature on corporate litigation risk and founder-CEOs and the hypothesis development based on the literature. Section 2.3 presents the sample selection and data description. Section 2.4 discusses the methodology employed in this study. Section 2.5 presents the empirical results. Lastly, Section 2.6 offers concluding remarks.

2.2 Literature Review and Hypothesis Development

Corporate litigation causes severe damages to the firm involved as a defendant. The direct litigation costs can sum up to be a significant fraction of profits that the firm generates. The monetary costs associated with being targeted by the SEC are documented to be $23.5 million on average between 1978 and 2002 (Karpoff, Lee, and Martin, 2008). Arena and Julio (2015) report an average settlement amount of $56 million for companies in their sample from 1996 to 2006 with $3.2 billion being the largest settlement awarded.

While these explicit monetary penalties are substantial in magnitude, the implicit penalties can be also significant in different forms (Karpoff and Lott, 1993 and 1999; Bhagat, Brickley, and Coles, 1994; Bhagat, Bizjak, and Coles, 1998). Karpoff et al. (2008) estimate that the reputational costs are over 7.5 times the total amount of all penalties that are legally imposed. Autore et al. (2014) argue that the indirect costs associated with litigation include reduction in sales, return on assets, and institutional ownership. Loss in the market value is also a common indirect cost caused by a litigation case.[9] In addition to legal expenses (Romano, 1991; Haslem, 2005), other negative consequences can be detrimental to firms (see for example, Wier, 1983; Feroz et al., 1991; Bhagat et al., 1998; Gande and Lewis, 2009; Autore et al., 2014). Both implicit and explicit damages to the firm can be detrimental whether the formal verdict on the case turns out to be guilty or the firm decides to take the path of settlement.

Most of the papers studying litigation risk, that is, the risk of being filed as a defendant in a litigation case, measure litigation risk using predicted probabilities from models with firm characteristics and the industry-based proxy introduced by Francis, Philbrick and Schipper (1994a, 1994b; hereafter FPS). Johnson et al. (2000) use a probit model that estimates litigation cases on market capitalization, stock return variables, CEO power, management monitoring, external financings, and insider trading. The market capitalization and stock return variables are commonly used in earlier studies (for example, Alexander, 1990; Jones and Weingram, 1996; and Skinner, 1997). The inclusion of the

[9] Cutler and Summers (1987), Engelmann and Cornell (1988), and Hertzel and Smith (1993) all mention the 1985 Texaco-Pennzoil case where the market value of Texaco (defendant) fell by $1.8 billion and the market value of Pennzoil (plaintiff) rose by $600 million, resulting in the combined market value loss of $1.2 billion in 7 days after the verdict.

CEO power and monitoring variables is suggested by Dechow et al., (1996) who present evidence that CEOs who have more power and/or are less closely monitored tend to engage in aggressive financial reporting and other types of opportunistic behavior that expose firms to securities litigation. Brown et al. (2005) and Rogers and Stocken (2005) add FPS industry dummy variables to the variables used in Johnson et al. (2000) in their models to estimate litigation risk. Kim and Skinner (2012) thoroughly investigate the predictive ability of alternative models of litigation risk and find that the models with the FPS industry dummy and measures of firm characteristics (such as size, growth, and stock volatility) introduce the highest predictive ability. They also find that additional variables proxying for corporate governance quality and managerial opportunism do not add much predictive power to the models.

Founder-CEOs are prominently different from successor-CEOs in terms of their attachment to the company they create. Dobrev and Barnett (2005) point out that founders have a "tightly linked" relationship with the organizations they found. O'Reilly and Chatman (1986) argue that most founder-CEOs consider their firms their life's accomplishment, and therefore, they are inclined to put more focus on the optimal shareholder-value maximizing strategy than short-term profitability, which tends to be the primary focus of hired managers. Gao and Jain (2011) find evidence that founder-CEOs aim to achieve long-term objectives whereas nonfounder-CEOs focus more on quarterly earnings. In addition, Wasserman (2001) argues that professional CEOs are different from founder-CEOs own possessions that allow them to have more control than professional CEOs. Zaleznik and Kets de Vries (1975) find evidence supporting this argument, that is,

the “revered founders” of a company have a crucial influence on the crucial decision making of the company. There is evidence in earlier studies that founder-CEO succession maybe the most critical succession event in the life of most firms. Carroll (1984) suggests that the leaving of a founder negatively affects the likelihood that the organization will survive after his/her departure. Hofer and Charan (1984) also find that the most likely causes of business failure are the problems encountered in the transition from a one-person, entrepreneurial style of management to a functionally organized, professional management team.

Our study contributes to the literature exploring the relation between management characteristics to litigation risk. Most of the articles in the existing literature on litigation risk focus on board characteristics to explain the risk. Among a limited number of studies that link management characteristics to the risk of being sued, Adhikari, Agrawal, and Malm (2019) study specifically the effect of the presence of female executives and find that having female executives in the top management team decreases the probability of being involved in operations-related lawsuits. We make a contribution to the literature by using founder-CEO status as a measurable top management characteristic.

Overall, there is an agreement in literature that there are high financial and reputational implications of litigation. There is also agreement in literature that firms led by founder-CEOs have different characteristics from firms led by non-founders or professional CEOs since founder-CEOs have emotional attachment to the firms that they establish and they strive for longevity of their firms.

It is evident from our discussion in the literature review that lawsuits are costly for the sued firm in terms of financial as well as indirect losses. Moreover, reputational damage of being sued could hurt the firm for several years. Prior literature agrees that founder-CEOs have stronger emotional attachment to the company they found; founders are likely to have high ownership compared to outside CEOs, leading to more control over corporate decision making; and founder-CEOs' focus is on long-term optimal value objectives rather than short-term profitability maximization. The psychological bond that founders have with their own firms and their concern for profitability and longevity of the firm would make them avoid any act that could put their firm in financial distress as well as cost them reputational and indirect losses that could linger for a long time. Hence, it is reasonable to posit that founder-CEOs are more likely to avoid wrongdoing that could cause the firms to be involved in a lawsuit than nonfounder-CEOs. We write our hypothesis formally as follows:

Hypothesis: Firms led by a founder-CEO have lower nonsecurities litigation risk than firms led by a nonfounder-CEO.

2.3 Sample Selection and Data Description

Our primary sample consists of data on all publicly traded firms in the U.S included in GMI Ratings Database for the period of 2002 to 2015. Our coverage starts in 2002 rather than 2001, which is the beginning of GMI Ratings coverage, in order to identify CEO transition years. We define a founder-CEO firm as the firm that has a founder-CEO during a fiscal year. The information obtained from GMI Ratings include names and ages of CEOs, names of companies, and CEO status (active or non-active) and founder status (yes

or no) of those CEOs who reigned the firms since the initial public offering (IPO). We define founder-CEO as a person who founded the company or is a member of the group that founded the company, and who became the first CEO of the company. A CEO who was appointed as a result of a spin-off, a CEO who took the position as a result of a merger, a CEO who was the first CEO of the firm but not a founder, or a CEO whose ancestor founded the company as a family business are not considered a founder-CEO in this study. A founder-CEO transition year is defined as the year when the founder-CEO became non-active as CEO. For those firms that return two or more CEOs as founders in GMI Ratings, the executive names identified as founders are further examined using SEC filings and the firm's website to determine the appropriate co-founders. In the cases where one of the co-founders resigned as CEO and the other co-founder succeeded as CEO without a gap, the founder-CEO succession event was taken at the end of the second co-founder's reign as CEO.

Litigation data for all types of corporate lawsuits are collected from the Audit Analytics Litigation database. The database contains information on lawsuits for U.S. publicly traded firms and the coverage starts in 2000. Audit Analytics reports details related to the specific litigation, including the type of lawsuits, the case start and end dates, and, if available, the settlement amount. The litigation risk, a commonly used indicator dependent variable used in this study takes the value of one for the firm year if the firm is involved in one or more nonsecurities-related lawsuits as a defendant during the fiscal year, and zero otherwise. We remove observations in which a firm is involved in a securities-related lawsuit. An indicator variable called FPS is set to 1 if the firm operates in a "high-litigation"

industry, as defined by Francis, Philbrick and Schipper (1994) and as employed by Kim and Skinner (2012). Specifically, "high-litigation" industries include biotechnology (SIC codes: 2833-2836), computers (3570-3577 and 7370-7374), electronics (3600-3674), and retailing (5200-5961).

Financial data of the sample firms are obtained from the Compustat annual files for the period of 2001 to 2015. We use the values starting in 2001 because most of our independent variables in our analysis are lagged by one year. Financial values for the year of founder-CEO succession are excluded from analyses. Market values, stock returns and volumes are obtained from the monthly Center for Research in Security Prices (CRSP) files. Annual returns and volumes are computed from monthly data. All variables are winsorized at the 1% level on both tails to treat large outliers. Definitions for the variables used in this paper are presented in the Appendix. Our final sample consists of 20,687 firm-year observations after excluding observations with at least one missing data for the independent variables used in the analysis.

Figure 2.1 illustrates the distribution of the proportions of litigated firms in the founder-CEO firm sample as well as the proportions of litigated firms in the nonfounder-CEO firm sample for each year during the sample period of 2002 to 2015. The figure indicates that more nonfounder-CEO firms are sued than founder-CEO firms in every year in the sample.

Table 2.1 presents the distribution of the number of firms being litigated, the total number of firms in the sample, and the percentage of litigated firms in the sample each year. It appears that the number of litigated firms as well as the proportion of litigated firms

has declined towards the end of the sample period (from 2012 to 2015). For the sample period of 2002 to 2015, 19.5% of the total firms in the sample are involved in lawsuits as a defendant, on average.

Table 2.2 shows the distribution of the litigation years based on the Fama-French 10 industry categorization as well as the FPS industry categorization. Panel A summarizes the distribution among all industries under the Fama-French 10 industry categorization, and Panel B summarizes the distribution among the FPS industries defined in Francis, Philbrick and Schipper (1994a, 1994b) as well as the non-FPS industries. Panel A shows high percentages of litigation cases in the following industries: high-tech (Fama-French 10 industry category 5), telecom (category 6), shops (category 7), and health (category 8). Panel B shows high percentages of litigation cases in three out of four FPS industries: biotechnology (SIC codes: 2833-2836), electronics (3600-3674), and retailing (5200-5961), but not computers (3570-3577, 7370-7374). As a total of FPS industries, the average of litigated firms is 17.8%, less than the average of litigated firms in non-FPS industries. While FPS industries are defined as high litigation industries in Francis, Philbrick and Schipper (1994), we clearly see that this is not the case in our sample. In order to keep consistency with prior litigation studies, we include the FPS dummy as a control variable that indicates high litigation risk industries. In addition, we employ a new industry dummy indicating high litigation risk industries that apply exclusively to our sample. Our industry dummy, FF10, takes a value of one if a firm is in one of the following Fama-French 10 industries that exhibit a high litigation frequency: high-tech (Fama-French 10 industry

category 5), telecom (category 6), shops (category 7), and health (category 8), and zero otherwise.

Table 2.3 presents the summary statistics of all variables included in this study. The descriptive statistics include mean, standard deviations, twenty-fifth percentile, median, and seventy-fifth percentile of the firm-year observations. Variable definitions are provided in Appendix.

2.4 Methodology

In order to test our hypothesis, first we perform univariate analysis of litigation risk for 3 sets of groups: 1) all founder-CEO firms in the sample (*FounderCEO* = 1) and all nonfounder-CEO firms in the sample (*FounderCEO* = 0); 2) firms before the founder-CEO transition (*FounderCEO* = 1) and firms after the founder-CEO transition (*FounderCEO* = 0); and 3) all founder-CEO firms in the sample (*FounderCEO* = 1) as a treatment group and nonfounder-CEO firms that are matched with founder-CEO firms based on propensity scores as a control group (*FounderCEO* = 0). The first set of univariate analysis is the primary analysis of this study, and the second and third sets of univariate analysis serve as robustness tests.

Next, we perform regression analysis using logistic regression models where the variable of interest is a founder-CEO dummy which takes a value of 1 for founder-CEOs and zero otherwise and control factors from the literature that may be able to explain the litigation risk. Following Kim and Skinner (2012), the following logistic regression models are used as the primary specifications of this study:

$$\Pr(Litigation_{i,t} = 1) = \alpha_i + \beta_1 \times FounderCEO_{i,t} + \beta_2 \times FPS_{i,t} + \beta_3 \times lnassets_{i,t-1} + \beta_4 \times salesgrowth_{i,t-1} + \beta_5 \times return_{i,t-1} + \beta_6 \times sd12_{i,t-1} + \beta_7 \times skew12_{i,t-1} + \beta_8 \times turnover_{i,t-1} + \tau_t + \varepsilon_i \quad (1)$$

$$\Pr(Litigation_{i,t} = 1) = \alpha_i + \beta_1 \times FounderCEO_{i,t} + \beta_2 \times FF10_{i,t} + \beta_3 \times lnassets_{i,t-1} + \beta_4 \times salesgrowth_{i,t-1} + \beta_5 \times return_{i,t-1} + \beta_6 \times sd12_{i,t-1} + \beta_7 \times skew12_{i,t-1} + \beta_8 \times turnover_{i,t-1} + \tau_t + \varepsilon_i \quad (2)$$

$$\Pr(Litigation_{i,t} = 1) = \alpha_i + \beta_1 \times FounderCEO_{i,t} + \beta_2 \times lnassets_{i,t-1} + \beta_3 \times salesgrowth_{i,t-1} + \beta_4 \times return_{i,t-1} + \beta_5 \times sd12_{i,t-1} + \beta_6 \times skew12_{i,t-1} + \beta_7 \times turnover_{i,t-1} + \zeta_i + \tau_t + \varepsilon_i \quad (3)$$

The difference between models (1) and (2) is that model (1) employs the FPS industry dummy while model (2) employs the FF10 industry dummy, which better represents high litigation risk industries specifically for the sample in this study than the FPS dummy. In model (3), we use industry fixed effects, ζ_i, instead of an industry dummy. All specifications include time fixed effects, τ_t, to control for differences in unobservable variables across time. The dependent variable, *Litigation*, takes the value of 1 if one or more nonsecurities lawsuit filings are made against the firm during the year, and 0 otherwise. The variable of interest, *FounderCEO*, is set to be 1 if a firm is under founder-CEO management, and 0 otherwise. Following the specification used by Kim and Skinner (2012), we control for industries, assets, sales growth, stock return variables including market-adjusted return, return standard deviation, return skewness, and turnover (see Appendix for variable definitions). Following Kim and Skinner (2012), we use lagged values for all control variables to reduce endogeneity concerns and to avoid the unrealistic situation of measuring litigation risk ex ante. The only exception to the use of lagged values is for the FPS dummy, which is constant for each firm. We justify the use of the

contemporaneous founder-CEO dummy by the fact that in most cases, if the firm has a founder-CEO in one year, the same founder-CEO was also the CEO of the firm in the previous year.

2.5 Empirical Results

Table 2.4 shows the results from univariate analysis comparing the litigation risk of firms under founder-CEO management (*FounderCEO* = 1) with that of firms under nonfounder-CEO management (*FounderCEO* = 0). The result of this univariate analysis indicates that the firms under founder-CEO management have a significantly lower probability of being involved in lawsuits as a defendant compared to the firms under nonfounder-CEO management with a t-statistic of -13.62. This implies that litigation risk under founder-CEO management is generally lower than the risk under nonfounder-CEO management.

Table 2.5 exhibits the results from logistic regression models of litigation risk on the founder-CEO dummy, the FPS dummy (or FF10 dummy), lagged assets, lagged sales growth, and lagged stock return variables (market-adjusted return, return standard deviation, return skewness, and turnover) following Kim and Skinner (2012). The variable of interest in these models is *FounderCEO* that takes a value of 1 for those firms where CEO is a founder and 0 for those where CEO is a nonfounder. Column 1 estimates the model with the FPS industry dummy, Column 3 with the FF10 industry dummy, and Column 5 with industry fixed effects. All models include year fixed effects. Columns 2, 4, and 6 reflect marginal effects of each independent variable in columns 1, 3, and 5, respectively. As documented in Kim and Skinner (2012), *FPS*, size (*lnassets*), sales growth,

standard deviation of past 12 month returns (*sd12*), and *turnover* are positively related to litigation-likelihood. The coefficient of the founder-CEO dummy in model (1) is negative and statistically significant at a 1% level with a t-statistic of -3.78. With the Fama-French industry dummy in model (2), the coefficient of the founder-CEO dummy is still negative and significant with a significance level of 1% and a t-statistic of -3.34. With industry fixed effects in model (3), the significance of the founder-CEO dummy slightly declines but the coefficient is still significant at a 5% level with a t-statistic of -2.46. These results suggest that the firms with founder-CEOs have a lower probability of being sued than the firms led by nonfounder-CEOs. As for economic significance, the marginal effect estimates in Columns 2, 4, and 6 imply that having a founder-CEO decreases the probability of nonsecurities litigation by 4.10%, 3.60%, and 2.69%, respectively, compared to having a nonfounder-CEO. These findings are in line with the findings of the univariate analysis and suggest that the litigation risk for firms led by founder-CEOs is lower than the firms led by nonfounder-CEOs.

Table 2.6 shows the results from univariate analysis comparing the litigation risk of firms before the founder-CEO transition under founder-CEO management (*FounderCEO* = 1) and that of firms after the founder-CEO transition under nonfounder-CEO management (*FounderCEO* = 0). The result of this univariate analysis indicates that within the sample consisting of only the firms that experienced the founder-CEO transition during the period of 2002-2015, the firms under founder-CEO management has a lower probability of being involved in lawsuits as a defendant compared to the firms under nonfounder-CEO (successor) management with a t-statistic of -6.41. This implies that the

litigation risk under founder-CEO management is lower than the risk under nonfounder-CEO management.

In Table 2.7, we report the results from logistic regression models of litigation risk on the founder-CEO dummy, the FPS dummy, lagged assets, lagged sales growth, and lagged stock return variables (market-adjusted return, return standard deviation, return skewness, and turnover) following Kim and Skinner (2012). The variable of interest in these models is *FounderCEO* that takes a value of 1 for those firms in which CEO is a founder before the founder-CEO transition and 0 when CEO is a successor of the founder-CEO after the founder-CEO transition. Column 1 estimates the model with the FPS industry dummy, Column 3 with the Fama-French industry dummy, and Column 5 with industry fixed effects. All models include year fixed effects. Similar to the baseline table, Columns 2, 4, and 6 present marginal effects. The coefficients of the founder-CEO dummy in all models are negative and statistically significant at a 1% level. These imply that the firms that experience a founder-CEO transition have a lower probability of being sued with the founder-CEO before the transition than after the founder-CEO leaves. As for economic significance, the marginal effect estimates in Columns 2, 4, and 6 show that firms before a founder-CEO transition have a lower probability of nonsecurities litigation by 5.95%, 5.32%, and 4.59%, respectively, than after the founder-CEO departure. These findings are consistent with the baseline analysis and indicate that the litigation risk increases after a founder-CEO leaves the firm.

In Table 2.8, we show the robustness test results from univariate analysis comparing the litigation risk of founder-CEO firms and the litigation risk of nonfounder-

CEO firms that are matched with the observations in the treatment group (founder-CEO firms) using propensity score matching. The result of this analysis indicates that when comparing a PSM matched sample consisting of the firms led by founder-CEO with the firms under nonfounder-CEO management, the firms under founder-CEO management have a significantly lower risk of being sued compared to the firms under nonfounder-CEO management.

Table 2.9 presents the results from logistic regression models of litigation risk on the founder-CEO dummy and the other control variables used in Kim and Skinner (2012) for the PSM sample. The variable of interest in these models is *FounderCEO*, the same founder-CEO dummy as in the baseline model. The specifications in this table are the same as in Table 2.5. The coefficients of the founder-CEO dummy in all models are negative and statistically significant. As for economic significance, the marginal effect estimates in Columns 2, 4, and 6 imply that having a founder-CEO decreases the probability of nonsecurities litigation by 3.94%, 3.55%, and 2.83%, respectively, compared to having a nonfounder-CEO. These results show a consistently negative and significant relation between founder-CEOs and litigation risk, which is in line with the baseline analysis.

2.6 Conclusion

In this study, we examine whether having a founder as CEO affects corporate litigation risk. We investigate if firms led by a founder as CEO are associated with a lower probability of being sued in a given year than firms led by a nonfounder-CEO. Founder-CEOs are linked to their focus on long-term objectives and strong emotional attachment to the firms that they establish. We hypothesize, therefore, that they avoid management

decisions that may lead to a lawsuit and cause serious financial and reputational losses to their firms. As we focus on the operation decisions by CEOs, we use nonsecurities lawsuits for our analysis. Our univariate as well as multivariate analysis shows that the probability of a founder-CEO firm being sued is consistently less than the probability of a nonfounder-CEO firm being litigated. The result is robust in the analyses comparing litigation risk before and after a founder-CEO transition as well as in the analyses using propensity score matched sample.

The findings of our study have a significant contribution to the literature studying the relation between firm characteristics and litigation risk. Most of prior studies on litigation risk have focused on characteristics of boards such as board independence and gender diversity in board. This study attempts to establish a relation between top management and litigation risk, as top management plays a significant role in decision making that could lead to a lawsuit. We specifically look at one of the CEO characteristics, CEOs being the founders of the firms. The findings of this study lend support to the argument that founder-CEOs are better managers than nonfounder-CEOs in some respects.

Figure 2.1. Percentage of Litigated Firms in Founder- vs. Nonfounder-CEO Samples

This figure illustrates the distribution of the proportions of litigated firms in the founder-CEO firm sample as well as the nonfounder-CEO firm sample for each year during the sample period of 2002 to 2015. The sample consists of publicly traded firms covered in the GMI Ratings Database. A litigated firm is defined as a firm that is involved in one or more nonsecurities litigation cases as a defendant in a given year.

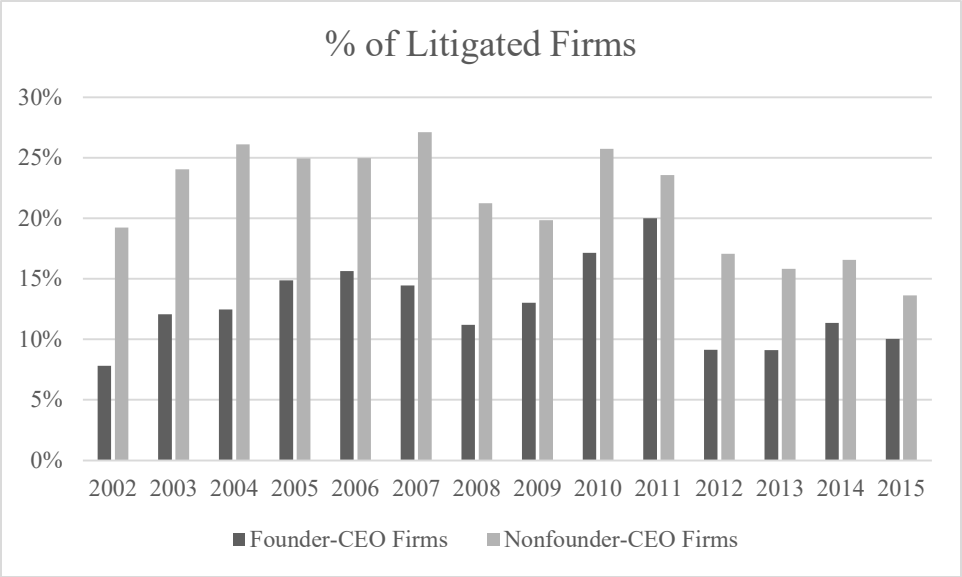

Table 2.1. Time Distribution of Litigated Firms

In this table, we present the distribution of the number of litigated firms, the total number of firms in the sample, and the percentage of litigated firms in the sample each year for the period of 2002 to 2015. The sample consists of publicly traded firms covered in the GMI Ratings Database. A litigated firm is defined as a firm that is involved in one or more nonsecurities litigation cases as a defendant in a given year.

Year	No. of Litigated Firms	No. of Firms	% Litigated Firms
2002	259	1,560	16.6%
2003	334	1,571	21.3%
2004	360	1,568	23.0%
2005	347	1,533	22.6%
2006	349	1,537	22.7%
2007	360	1,503	24.0%
2008	277	1,482	18.7%
2009	272	1,504	18.1%
2010	347	1,468	23.6%
2011	329	1,449	22.7%
2012	216	1,429	15.1%
2013	200	1,409	14.2%
2014	211	1,377	15.3%
2015	167	1,297	12.9%
Total	**4,028**	**20,687**	**19.5%**

Table 2.2. Sector Distribution of Litigation Cases

In this table, we present the distribution of the litigated firms based on the Fama-French 10 (FF10) and FPS Industry Categorization. Panel A summarizes the distribution of nonsecurities litigation cases among industries under the FF10 Categorization, and Panel B summarizes the distribution among the FPS industries defined in Francis, Philbrick and Schipper (1994a, 1994b) as well as the non-FPS industries.

PANEL A. FAMA-FRENCH 10 INDUSTRIES

Fama-French 10 Industry Categorization	SIC Code	No. of Litigated Firms	No. of Firms	% Litigated Firms
1 NoDur Consumer NonDurables -- Food, Tobacco, Textiles, Apparel, Leather, Toys	0100-0999, 2000-2399, 2700-2749, 2770-2799, 3100-3199, 3940-3989	259	1,405	18.4%
2 Durbl Consumer Durables -- Cars, TV's, Furniture, Household Appliances	2500-2519, 2590-2599, 3630-3659, 3710-3711, 3714, 3716, 3750-3751, 3792, 3900-3939, 3990-3999	112	648	17.3%
3 Manuf Manufacturing -- Machinery, Trucks, Planes, Chemicals, Off Furn, Paper, Com Printing	2520-2589, 2600-2699, 2750-2769, 2800-2829, 2840-2899, 3000-3099, 3200-3569, 3580-3621, 3623-3629, 3700-3709, 3712-3713, 3715, 3717-3749, 3752-3791, 3793-3799, 3860-3899	591	3,402	17.4%
4 Enrgy Oil, Gas, and Coal Extraction and Products	1200-1399, 2900-2999	166	1,106	15.0%
5 HiTec Business Equipment -- Computers, Software, and Electronic Equipment	3570-3579, 3622, 3660-3692, 3694-3699, 3810-3839, 7370-7379, 7391, 8730-8734	1,132	4,974	22.8%
6 Telcm Telephone and Television Transmission	4800-4899	139	540	25.7%
7 Shops Wholesale, Retail, and Some Services (Laundries, Repair Shops)	5000-5999, 7200-7299, 7600-7699	675	2,686	25.1%
8 Hlth Healthcare, Medical Equipment, and Drugs	2830-2839, 3693, 3840-3859, 8000-8099	478	2,291	20.9%
9 Utils Utilities	4900-4949	1	25	4.0%
10 Other Other -- Mines, Constr, BldMt, Trans, Hotels, Bus Serv, Entertainment, Finance		475	3,610	13.2%
Total		**4,028**	**20,687**	**19.5%**

PANEL B. FPS INDUSTRIES

FPS Industry	SIC Code	No. of Litigated Firms	No. of Firms	% Litigated Firms
Biotechnology	2833-2836	266	1,204	22.1%
Computers	3570-3577, 7370-7374	172	2,543	6.8%
Electronics	3600-3674	455	1,676	27.1%
Retailing	5200-5961	397	1,804	22.0%
FPS Total		**1,290**	**7,227**	**17.8%**
Other Industries		2,738	13,460	20.3%
Total		**4,028**	**20,687**	**19.5%**

Table 2.3. Descriptive Statistics

This table presents the descriptive statistics of the entire sample of firm-year observations. The sample consists of 20,687 firm-years for the time period of 2002 – 2015. Data on litigation cases are collected from AuditAnalytics Litigation Database, data on founder-CEO status are gathered from GMI Ratings Database, data on market values are collected from CRSP monthly data, and all other firm specific characteristics are collected from Compustat. *Mean* is the average of the firm-year observations. *St Dev* is the standard deviation of firm-year observations. 25% is the twenty-fifth percentile, *Median* is the median value, and 75% is the seventy-fifth percentile of the firm-year observations. Variable definitions are provided in Appendix.

Variables	**Mean**	**St Dev**	**25%**	**Median**	**75%**
Litigation					
Litigation	0.195	0.396	0	0	0
Founder-CEO					
Founder-CEO	0.238	0.426	0	0	0
Firm Characteristics					
FPS	0.354	0.478	0	0	1
FF10	0.507	0.500	0	1	1
log(Assets)	7.101	1.686	5.915	6.986	8.180
salesgrowth	0.063	0.191	-0.005	0.058	0.144
return	0.011	0.036	-0.008	0.008	0.027
sd12	0.109	0.066	0.064	0.091	0.133
skew12	0.156	0.680	-0.285	0.135	0.574
turnover	26.514	21.318	12.539	20.569	33.306

Table 2.4. Univariate Analysis of Litigation Risk

This table shows the results from univariate analysis comparing the litigation risk of founder-CEO firms with that of nonfounder-CEO firms in overall sample during the period of 2002 to 2015. *N* is the number of total firm-year observations. *Obs. Litigation* is the number of firm-year observations of nonsecurities litigation. *Mean* is the average of the firm-year observations. *Std. Dev. i*s the standard deviation of firm-year observations. *Difference* is the difference in mean values and *t-stat* is the t-statistic of the difference of the two groups of firms. Variable definitions are provided in Appendix. *** indicates p-values of 1%.

Litigation			
Variable	**N**	**Mean**	**Std. Dev.**
FounderCEO = 1	4,925	0.1279	0.3340
FounderCEO = 0	15,762	0.2156	0.4112
difference		-0.0877***	
t-stat		-13.6214	

Table 2.5. Logistic Regressions of Litigation Risk

In this table, we report the results from logistic regression models of litigation risk on the founder-CEO dummy, the FPS dummy, lagged assets, lagged sales growth, and lagged stock return variables (market-adjusted return, return standard deviation, return skewness, and turnover) following Kim and Skinner (2012) using overall sample. The variable of interest in these models is *FounderCEO* that takes a value of 1 when a firm has a founder as CEO and 0 when a firm has a non-founder as CEO. The sample period is 2002-2015. The robust z-statistics are indicated in parenthesis in columns (1), (3), and (5), and the delta-method standard errors are indicated in parenthesis in columns (2), (4), and (6). Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

VARIABLES	(1) Litigation	(2) Marginal Effects	(3) Litigation	(4) Marginal Effects	(5) Litigation	(6) Marginal Effects
$FounderCEO_t$	-0.2997***	-0.0410***	-0.2621***	-0.0360***	-0.1973**	-0.0269**
	(-3.7790)	(0.0108)	(-3.3448)	(0.0107)	(-2.4634)	(0.0109)
FPS_t	0.8409***	0.115***				
	(14.6514)	(0.00754)				
$FF10_t$			0.7820***	0.107***		
			(13.7968)	(0.00764)		
$lnassets_{t-1}$	0.4976***	0.0681***	0.4961***	0.0681***	0.5233***	0.0714***
	(25.3650)	(0.00245)	(25.3084)	(0.00246)	(26.2411)	(0.00246)
$salesgrowth_{t-1}$	0.0964	0.0132	0.0120	0.00165	0.0380	0.00519
	(0.7602)	(0.0174)	(0.0968)	(0.0171)	(0.3095)	(0.0168)
$return_{t-1}$	-0.4919	-0.0674	-0.3598	-0.0494	-0.4877	-0.0666
	(-0.8132)	(0.0828)	(-0.5928)	(0.0833)	(-0.7975)	(0.0835)
$sd12_{t-1}$	0.5742	0.0786	0.5663	0.0777	0.8194*	0.112*
	(1.1616)	(0.0677)	(1.1425)	(0.0680)	(1.6508)	(0.0678)
$skew12_{t-1}$	0.0159	0.00217	0.0193	0.00265	0.0170	0.00231
	(0.5237)	(0.00415)	(0.6407)	(0.00414)	(0.5628)	(0.00411)
$turnover_{t-1}$	0.0035***	0.000475***	0.0051***	0.000699***	0.0051***	0.000699***
	(2.8899)	(0.000165)	(4.2489)	(0.000165)	(4.3025)	(0.000163)
Constant	-5.5692***		-5.6985***		-5.7217***	
	(-29.3486)		(-29.6763)		(-27.1721)	
Observations	20,687	20,687	20,687	20,687	20,687	20,687
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	YES	YES
Industry Dummy	YES	YES	YES	YES	NO	NO
Pseudo R-squared	0.1206		0.1191		0.1236	

Table 2.6. Univariate Analysis of Litigation Risk: before vs. after Founder-CEO Transition

This table shows the results from univariate analysis comparing the litigation risk of the firms before the founder-CEO transition and litigation risk of the firms after the founder-CEO transition in the sample consisting of only those firms that experienced the CEO transition from a founder to a nonfounder during the period of 2002 to 2015. *N* is the number of firm-year observations. *Mean* is the average of the firm-year observations. *Std. Dev. i*s the standard deviation of firm-year observations. *Difference* is the difference in mean values and *t-stat* is the t-statistic of the difference of the two groups of firms. Variable definitions are provided in Appendix. *** indicates p-values of 1%.

Litigation (Before vs. After Transition)			
Variable	**N**	**Mean**	**Std. Dev.**
Before Transition (FounderCEO = 1)	2,498	0.1169	0.3214
After Transition (FounderCEO = 0)	1,487	0.1903	0.3927
difference		-0.0734***	
t-stat		-6.4107	

Table 2.7. Logistic Regressions of Litigation Risk: before vs. after Founder-CEO Transition

In this table, we report the results from logistic regression models of litigation risk on the founder-CEO dummy, the FPS dummy, lagged assets, lagged sales growth, and lagged stock return variables (market-adjusted return, return standard deviation, return skewness, and turnover) following Kim and Skinner (2012) using observations from those founder-CEO firms that experienced a CEO transition from a founder to a nonfounder during 2002 to 2015. The variable of interest in these models is *FounderCEO* that takes a value of 1 when a firm has a founder as CEO before his/her transition and 0 when a firm has a succeeding non-founder as CEO after the founder-CEO transition. The sample period is 2002-2015. The robust z-statistics are indicated in parenthesis in columns (1), (3), and (5), and the delta-method standard errors are indicated in parenthesis in columns (2), (4), and (6). Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

VARIABLES	(1) Litigation	(2) Marginal Effects	(3) Litigation	(4) Marginal Effects	(5) Litigation	(6) Marginal Effects
$FounderCEO_t$	-0.5444***	-0.0595***	-0.4921***	-0.0532***	-0.4288***	-0.0459***
	(-3.8049)	(0.0156)	(-3.4207)	(0.0156)	(-2.9836)	(0.0154)
FPS_t	1.0537***	0.115***				
	(6.6804)	(0.0167)				
$FF10_t$			1.2707***	0.137***		
			(7.4998)	(0.0176)		
$lnassets_{t-1}$	0.4277***	0.0468***	0.4526***	0.0489***	0.4763***	0.0510***
	(9.1623)	(0.00500)	(9.2413)	(0.00506)	(9.6345)	(0.00500)
$salesgrowth_{t-1}$	0.4740	0.0518	0.3297	0.0357	0.2687	0.0288
	(1.5827)	(0.0329)	(1.1234)	(0.0319)	(0.9775)	(0.0295)
$return_{t-1}$	-1.4367	-0.157	-1.2834	-0.139	-1.6540	-0.177
	(-1.0172)	(0.154)	(-0.8767)	(0.158)	(-1.1140)	(0.159)
$sd12_{t-1}$	2.2803**	0.249**	2.3860**	0.258**	2.8830***	0.309***
	(2.1392)	(0.116)	(2.2159)	(0.116)	(2.6487)	(0.116)
$skew12_{t-1}$	0.0541	0.00592	0.0484	0.00524	0.0515	0.00551
	(0.7286)	(0.00812)	(0.6491)	(0.00806)	(0.6852)	(0.00804)
$turnover_{t-1}$	0.0058**	0.000639**	0.0068***	0.000738***	0.0061**	0.000655**
	(2.3074)	(0.000279)	(2.7340)	(0.000271)	(2.3857)	(0.000276)
Constant	-6.0245***		-6.5937***		-6.3450***	
	(-12.1117)		(-12.2262)		(-10.2129)	
Observations	3,985	3,985	3,985	3,985	3,985	3,985
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	YES	YES
Industry Dummy	YES	YES	YES	YES	NO	NO
Pseudo R-squared	0.1218		0.1327		0.1412	

Table 2.8. Univariate Analysis of Litigation Risk: Propensity Score Matching

In this table, we show the results from univariate analysis comparing the litigation risk of founder-CEO firms and that of nonfounder-CEO firms in propensity score matched sample during the period of 2002 to 2015. *N* is the number of firm-year observations. *Mean* is the average of the firm-year observations. *Std. Dev. i*s the standard deviation of firm-year observations. *Difference* is the difference in mean values and *t-stat* is the t-statistic of the difference of the two groups of firms. Variable definitions are provided in Appendix. *** indicates p-values of 1%.

Litigation (PSM)			
Variable	**N**	**Mean**	**Std. Dev.**
FounderCEO = 1	4,925	0.1279	0.3340
FounderCEO = 0	4,925	0.1671	0.3731
difference		-0.0392***	
t-stat		-5.4916	

Table 2.9. Logistic Regressions of Litigation Risk: Propensity Score Matching

This table presents the results from logistic regression models of litigation risk on the founder-CEO dummy, the FPS dummy, lagged assets, lagged sales growth, and lagged stock return variables (market-adjusted return, return standard deviation, return skewness, and turnover) following Kim and Skinner (2012) using propensity score matched sample. The variable of interest in these models is *FounderCEO* that takes a value of 1 when a firm has a founder as CEO before his/her transition and 0 when a firm has a succeeding non-founder as CEO after the founder-CEO transition. The sample period is 2002-2015. The robust z-statistics are indicated in parenthesis in columns (1), (3), and (5), and the delta-method standard errors are indicated in parenthesis in columns (2), (4), and (6). Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

VARIABLES	(1) Litigation	(2) Marginal Effects	(3) Litigation	(4) Marginal Effects	(5) Litigation	(6) Marginal Effects
$FounderCEO_t$	-0.3418***	-0.0394***	-0.3091***	-0.0355***	-0.2478***	-0.0283***
	(-4.0464)	(-4.1583)	(-3.6762)	(-3.7525)	(-2.8566)	(-2.8955)
FPS_t	0.7671***	0.0885***				
	(8.5254)	(8.6628)				
$FF10_t$			0.8849***	0.1016***		
			(9.6418)	(9.6761)		
$lnassets_{t-1}$	0.4237***	0.0489***	0.4378***	0.0502***	0.4555***	0.0521***
	(13.2661)	(13.6726)	(13.9002)	(14.2940)	(14.2357)	(14.7357)
$salesgrowth_{t-1}$	0.0990	0.0114	0.0124	0.0014	0.0065	0.0007
	(0.4822)	(0.4815)	(0.0600)	(0.0600)	(0.0331)	(0.0331)
$return_{t-1}$	-1.3078	-0.1509	-1.1236	-0.1289	-1.2810	-0.1465
	(-1.5685)	(-1.5715)	(-1.3221)	(-1.3239)	(-1.4908)	(-1.4928)
$sd12_{t-1}$	0.1977	0.0228	0.1905	0.0219	0.3881	0.0444
	(0.2977)	(0.2975)	(0.2854)	(0.2852)	(0.5764)	(0.5756)
$skew12_{t-1}$	0.1091**	0.0126**	0.1045**	0.0120**	0.1026**	0.0117**
	(2.3717)	(2.3779)	(2.2630)	(2.2688)	(2.2339)	(2.2407)
$turnover_{t-1}$	0.0054***	0.0006***	0.0063***	0.0007***	0.0060***	0.0007***
	(3.4812)	(3.4699)	(4.0176)	(4.0023)	(3.8618)	(3.8535)
Constant	-5.1429***		-5.4566***		-5.1701***	
	(-17.2237)		(-17.8832)		(-15.1445)	
Observations	9,850	9,850	9,850	9,850	9,850	9,850
Year FE	YES	YES	YES	YES	YES	YES
Industry FE	NO	NO	NO	NO	YES	YES
Pseudo R-squared	0.08876		0.09362		0.09746	

CHAPTER 3: CORPORATE RESTRUCTURING IN FOUNDER-LED FIRMS

3.1 Introduction

Corporate restructuring drastically modifies the operations or structures of a firm and comprises a wide variety of actions such as change in the internal organization of the firm, sale of lines of business, or change in capital structure (Bowman and Singh, 1990, 1993). While several different motives exist for corporate restructuring, most common drivers of restructuring include response to a crisis, pursuit of better profitability, and alleviation of financial troubles. The specific focus of each transition can be cost controls, productivity advancements, or improvements in other measures, eventually resulting in the maximization of shareholder wealth. However, the consequences of restructuring are heavily dependent on how the firm's restructuring program is carried out by management. Successful execution of corporate restructuring plans can improve firm's profitability, but poorly managed restructuring can lead to substantial negative consequences. While corporate restructuring is a multidimensional activity and there is no one-size-fits-all approach, it is a vital method for a firm to overcome financial difficulties and improve firm performance if implemented effectively.

In this essay, we examine the corporate restructuring of founder-led firms and nonfounder-led firms using a sample of S&P1500 firms for the period of 2001 to 2015. We investigate if there are differences in the likelihood of undergoing corporate restructuring as well as restructuring effectiveness for the firms led by founder-CEOs and those that are led by nonfounder-CEOs. Prior literature shows that restructuring actions can be risky, expensive, and visible (e.g., Bergh, 1997; Gaughan, 1999; Hoskisson et al., 1994). Agency

theory by Jensen and Meckling (1979) argues that agent managers have fundamentally different incentives from shareholders for pursuing initiatives that may not necessarily increase shareholders' wealth. Excessive expansion and diversification that target firm growth and risk reduction but not shareholders' wealth by agent managers can result in corporate restructuring. In founder-led firms, managers' incentives are not clearly separated from owners' interests as founder-CEOs typically own a significant portion of the firm (Wasserman, 2003) hence they would avoid actions that lead to corporate restructuring. Prior literature also suggests that founders are associated with strong emotional attachment to the company they found (O'Reilly and Chatman, 1986), risk-taking propensity and achievement orientation (Begley, 1995; Gimeno et al., 1997), and long-term focus (Gao and Jain, 2011). If founder-CEOs have emotional attachment to the firms they establish, then firms led by founders would avoid decisions that cause corporate restricting and hence could be detrimental to the future of their firms.

From our empirical analysis we find that founder-CEO firms have a lower likelihood of undertaking corporate restructuring as compared to firms led by nonfounder-CEOs. We also find that for the firms that undergo restructuring, activities undertaken by founder-CEOs are more effective than by nonfounder-CEOs. These results are robust to propensity score matching. Furthermore, firms are less likely to experience restructuring within five years of a founder-CEO departure than firms following a nonfounder-CEO departure. We also find that the restructuring activities under an incoming nonfounder-CEO that replaces founder-CEO are not as effective as the restructuring activities under an incoming nonfounder-CEO that replaces a nonfounder-CEO. Our results indicate that

under founder-CEO management, firms face a lower probability of undergoing corporate restructuring, and in case a restructuring activity takes place, the outcome of such activity under a founder-CEO is better than under a nonfounder-CEO. Together, these findings suggest that founder-CEOs have a positive effect on maintaining a corporate environment that does not require a critical turnaround of the firm prompted by a corporate restructuring activity. And, even if restructuring is initiated by a founder-CEO, the outcome of such restructuring is better than the outcome of restructuring led by a nonfounder-CEO.

For our empirical tests we use both univariate and multivariate analyses. In our univariate analysis, we find that firms led by founder-CEOs are 3.7% less likely to undergo restructuring than firms led by nonfounder-CEOs. The multivariate analysis using a logistic regression shows that firms led by founder-CEOs are 3.5% less likely to undergo restructuring than firms led by nonfounder-CEOs. As a robustness test, we compare the likelihood of corporate restructuring in the firms led by founder-CEO with the firms led by nonfounder-CEO firms for a propensity score matched (PSM) sample. We match the samples based on several firm characteristics included in our baseline model. Our baseline results hold even for the matched sample. In terms of restructuring effectiveness measured by the change in ROE, restructuring activities under founder-CEOs are found to be more effective than restructuring under nonfounder-CEOs. Motivated by the fact that a nontrivial number of restructuring activities happen during CEO transition years, we test restructuring activities within five years of a CEO departure. It is reasonable to believe that these activities are to turn around the firm from a difficult situation created by poor performance of the former CEO rather than the incoming CEO. Both univariate and multivariate

analyses show that firms previously led by a founder-CEO are less likely to experience corporate restructuring than firms previously led by a nonfounder-CEO. However, restructuring activities following a founder-CEO departure and during an incoming nonfounder-CEO tenure are found to be less effective than restructuring following a nonfounder-CEO departure. Our results are robust to propensity score matching.

This study contributes to the literature by exploring the effect of whether the CEO is a founder or not, on corporate restructuring and effectiveness of corporate restructuring. Our empirical findings highlight the importance of founder leadership in top management of the firm in alleviating the corporate restructuring and delivering successful outcomes of restructuring. The study is unique in that it focuses on founder-CEOs' influence on decision making and performance of corporate restructuring, which can be detrimental to the life of the firm.

The rest of this paper proceeds as follows. Section 3.2 reviews the relevant literature and presents our hypotheses. Section 3.3 describes the data and sample. Section 3.4 describes our methodology. Section 3.5 discusses the results of our empirical study. And finally, Section 3.6 concludes.

3.2 Literature Review and Hypothesis Development

Bowman and Singh (1993) categorizes corporate restructuring in three groups: portfolio restructuring, financial restructuring, and organizational restructuring. Portfolio restructuring is a type of restructuring that involves changes in configuration of lines of business. According to Bowman and Singh (1990), nearly one-third of the largest 1,000

firms in the U.S. went through restructuring by making changes to the size and/or assortment of their businesses during the 1980s. Financial restructuring typically involves changes in capital structure or dividend policies of a firm and is often explained by the environment created by high interest rates and high costs of debt. Organizational restructuring refers to strategical shifts in a firm's business model. Firms conduct organizational restructuring in order to improve management efficiency. Restructuring firms make substantial changes in organizational structure that frequently involve downsizing. The category of organizational restructuring also includes staff replacement, layoffs, and strategic modifications to business operations.

A firm may elect to take restructuring actions as it experiences performance weakening. Prior literature generally agrees that firms opt for corporate restructuring more frequently following a performance decline (e.g., John et al., 1992; Ofek, 1993; Denis and Kruse, 2000). Agency theory by Jensen and Meckling (1979) argues that agent managers' objectives and shareholders' interests are not always aligned with each other, and therefore, agents may take actions that do not necessarily increase shareholders' wealth but potentially lead to growth and risk reduction (Marris, 1964; Amihud and Lev, 1981). Grant, Jammine, and Thomas (1988) empirically provide evidence of this argument in their findings that accounting returns of firms diminish following extensive diversification. Several studies suggest that frequent restructuring activities observed in the 1980s are the outcomes of excess expansion and diversification in the previous decades that did not fundamentally increase firm value (Jensen, 1986, 1991).

One unique feature of founder-CEO firms is that there is no clear separation of ownership and control regularly argued in the literature on agency theory. Founder-CEOs commonly own the majority of the firm. Even in mature founder-led firms, it is often the case that founder-CEOs still own a significant fraction of the company (Wasserman, 2003). This contributes to a better alignment in incentives of managers and interests of stakeholders. In this unique setting, given that agency theory explains occurring of corporate restructuring as commonly argued in the literature examining frequent restructuring during the 1980s, we expect less restructuring happening in firms led by founder-CEOs. Founder-CEOs are not incentivized by overexpansion or overdiversification that does not result in an increase in firm value but leads to restructuring. Hence, it is reasonable to posit that firms led by founder-CEOs do not experience as much corporate restructuring as firms led by agent-CEOs (nonfounder-CEOs). We write our first hypothesis formally as follows:

H1: The probability of undertaking corporate restructuring is lower in firms led by founder-CEO than in firms led by nonfounder-CEO.

Despite a reasonable number of studies on aspects of restructuring, the literature has not been able to establish the conclusive relation between corporate restructuring and its consequences. This could be due to the fact that restructuring is a highly complex process. Several factors are suggested in the literature that affect the outcomes of restructuring strategies. Tushman and Romanelli (1985) as well as Amburgey et al. (1990) suggest that effectiveness is related to how coherent the management team is to the intended restructuring program. Barker and Duhaime (1997) show that the success of

restructuring is up to the firm's ability to adjust to changes that can affect the firm for a long time such as its strategy and structure rather than short-term changes such as operating efficiency and cost cutting. Denis and Kruse (2000) find that employee layoffs and cost-cutting programs are inefficient but improving operating performance is highly effective in asset restructuring. Moulton and Thomas (1993) find that firm size is strongly associated with the success of reorganization, and it is the most dominant factor determining the success of outcomes.

While some find improvements in post-restructuring operating performance (e.g., Moulton and Thomas, 1993; Denis and Kruse, 2000), others argue the ineffectiveness of restructuring. Hannan and Freeman (1977, 1984) propose structural inertia theory that explains changes could lead to corporate failure because it is typically harmful. Amburgey, Kelly and Barnett (1990) suggest that organizational changes can be both disruptive and adaptive, but changes could result in organizational failure.

In addition to founder-CEO characteristics, performance of founder-CEO firms is another research topic that has been studied several times and yields somewhat consistent results. Palia and Ravid (2008), Adams, Almeida, and Ferreira (2009), and Fahlenbrach (2009) all study the effect of founder-CEOs on firm performance and find that there is a positive relation between founder-CEOs and firm performance. In their studies of family firm performance, Anderson and Reeb (2003) and Villalonga and Amit (2006) also find that having founder-CEOs has a positive effect on firm performance. Overall, there is an agreement in literature that firms led by founder-CEOs have different characteristics from

firms led by non-founder, professional CEOs, which is likely to have an impact on a firm's operating environment and on corporate restructuring that firms undertake.

If founder-CEOs outperform nonfounder-CEOs in managing the firm as the literature suggests, we expect founder-CEOs to implement a corporate restructuring plan in a better manner than nonfounder-CEOs, resulting in better effectiveness of restructuring. We officially state our second hypothesis as follows:

H2: The effectiveness of a corporate restructuring program executed under founder-CEOs is higher than the effectiveness under nonfounder-CEOs.

3.3 Sample Selection and Data Description

We use annual data on S&P 1500 companies to examine our hypotheses. We collect the CEO status (founder or nonfounder) primarily from the GMI Ratings database. The GMI Ratings data contains the founder status from 2001 to 2015 with reduced coverage in 2001. GMI Ratings also provides limited data on CEO characteristics including names and ages of CEOs, names of companies, CEO status (active or non-active), and founder status (yes or no). SEC filings and the firm's website are also used to confirm the founder status found in GMI Ratings. We merge the data from GMI Ratings with ExecuComp which provides other CEO characteristics such as age and ownership. We collect data on firm characteristics from the Compustat annual files.

In this study, we identify a founder-CEO as follows: a person who founded the company or is a member of the group that founded the company, and a person who became the first CEO of the company. An individual who was appointed as a CEO as a result of a

spin-off, who took the position as a result of a merger, who was the first CEO of the firm but not a founder, or whose ancestor founded the company as a family business is not identified as a founder-CEO in our study. A founder-CEO transition year is obtained as the year when the founder-CEO became non-active as CEO. For those firms that return two or more CEOs as founders in GMI Ratings, the executive names identified as founders are further examined using SEC filings and the firm's website to determine the right co-founders. In the cases where one of the co-founders resigned as CEO and the other co-founder succeeded as CEO without a gap, the founder-CEO succession event was taken at the end of the second co-founder's reign as CEO.

Corporate restructuring data is obtained from the Capital IQ S&P Key Developments Feed. Key development data consist of news announcements from prominent newspapers and disclosure wires that cover corporate key events such as bankruptcy, mergers and acquisitions, layoffs, and earning announcements. While the database offers an identifier variable that classifies different types of events, we collect restructuring events from news headlines and contents instead of using the identifier. This is due to the fact that the primary focus of our study is to understand restructuring as a whole, and therefore, the sample must cover different types of restructuring. For this purpose, we define a restructuring event as an input in the Key Development Feed that contains the word "restructure", "restructuring", or "restructured" in the headline and/or content (named "situation" in the database). In several cases, more than one input is observed in a given firm in a given year as the database contains firm-event observations, not firm-year observations. Nonetheless, this study employs a dummy variable to indicate

a firm that goes through corporate restructuring in a given year rather than how many restructuring announcements are made during a given year. This is because corporate restructuring is a rare event in a firm's lifetime, and it is highly unlikely that a firm goes through more than one round of restructuring in a year. It is reasonable to assume that in case there are two or more restructuring inputs in the database, they report the same restructuring event.

All variables are winsorized at the 1% level on both tails to treat large outliers. Firms in the industries of regulated utilities (SIC codes: 4900 - 4999) and financials (SIC codes: 6000 - 6999) are excluded from our sample since these industries are highly subject to regulation that allows managers to have limited discretion on firm policies that affect firm risk. Observations with a missing value in any of independent and dependent variables in the baseline model are also excluded from our sample. The exclusion of utility and financial firms as well as missing data reduce our available sample size to an unbalanced panel of 1,797 firms and 14,822 firm-year observations. Appendix contains a more detailed description of the variables in our study.

Table 3.1 presents the distribution of the number of firms that undergo restructuring, the total number of firms in the sample, and the percentage of restructured firms in the sample each year. For the sample period of 2001 to 2015, 7.7% of the total firms in the sample are involved in restructuring.

Table 3.2 summarizes the descriptive statistics of variables included in this study. The descriptive statistics include mean, standard deviations, twenty-fifth percentile, median, and seventy-fifth percentile of the firm-year observations.

3.4 Methodology

In order to test our hypotheses, first we perform univariate analysis of corporate restructuring events. In our univariate analysis, we divide the sample into two groups, firms led by founder-CEOs (*founder-CEO* = 1) and firms led by nonfounder-CEOs (*founder-CEO* = 0), to compare the differences in corporate restructuring activities. To further understand the relation between founder-CEOs and corporate restructuring, we implement multivariate analysis.

For the probability of restructuring of a firm, we utilize the following logistic regression model that serves as our baseline model:

$$\begin{aligned}\Pr\,(restructure_{i,t} = 1) &= \beta_0 + \beta_1 \times founderCEO_{i,t} + \beta_2 \times \log(CEOage)_{i,t} \\ &+ \beta_3 \times (equity\_comp)_{i,t} + \beta_4 \times ownership_{i,t} + \beta_5 \times duality_{i,t} \\ &+ \beta_6 \times leverage_{i,t} + \beta_7 \times \log(mktval)_{i,t} + \beta_8 \times Tobin'sQ_{i,t} \\ &+ \beta_9 \times cashflow_{i,t} + \beta_{10} \times liquidassets_{i,t} \\ &+ \beta_{11} \times \log(firmage)_{i,t} + \zeta_i + \tau_t + \varepsilon_{i,t} \qquad (1)\end{aligned}$$

Our variable of interest is *founderCEO*, which takes a value of one if the firm is managed by a founder-CEO in a given year, and zero otherwise. The dependent variable, *restructure*, takes the value of one if one or more restructuring actions are observed in a given year, and zero otherwise. Inclusion of CEO-level controls is motivated by Bethel and Liebeskind, (1993). Following the specification used by Kang et al. (2010), we control for firm specific characteristics such as the size (*log(mktval)*), Tobin's Q (*Tobin'sQ*), cash flow (*cashflow*), and liquid assets (*liquidassets*) (see Appendix for variable definitions). Additionally, we control for firm age (*log(firmage)*) following Koh et al. (2015) and leverage (*leverage*) following Ofek (1993). We include industry fixed effects, ζ_i, to control for time-invariant

industry characteristics, year fixed effects, τ_t, to control for the time-varying factors common across all industries, or the combination of these fixed effects. $\varepsilon_{i,t}$ is a random error term.

For restructuring effectiveness, we use the following OLS regression model:

$$\begin{aligned}\Delta ROE = {} & \beta_0 + \beta_1 \times founderCEO_{\mathrm{i,t}} + \beta_2 \times \log(CEOage)_{\mathrm{i,t}} + \beta_3 \times (equity\_comp)_{\mathrm{i,t}} \\ & + \beta_4 \times ownership_{\mathrm{i,t}} + \beta_5 \times duality_{\mathrm{i,t}} + \beta_6 \times leverage_{\mathrm{i,t}} \\ & + \beta_7 \times \log(mktval)_{\mathrm{i,t}} + \beta_8 \times Tobin'sQ_{\mathrm{i,t}} + \beta_9 \times cashflow_{\mathrm{i,t}} \\ & + \beta_{10} \times liquidassets_{\mathrm{i,t}} + \beta_{11} \times \log(firmage)_{\mathrm{i,t}} + \zeta_i + \tau_t + \varepsilon_{\mathrm{i,t}} \end{aligned} \quad (2)$$

where:

$$\Delta ROE = ROE_{\mathrm{t+1}} - ROE_{\mathrm{t-1}} \quad (3)$$

In this specification, our variable of interest is still the founder-CEO indicator, *founderCEO*. The consequences, or effectiveness, of restructuring is frequently analyzed in terms of performance (e.g., Forcadell et al., 2020). Firm performance is recurrently studied in prior studies on founder-CEOs as well (e.g., Fahlenbrach, 2009; Adams et al., 2009; Palia and Ravid, 2008). We continue to use the CEO-level controls as well as firm-level controls from our model (1). In addition to these control variables, industry and/or year fixed effects are included in each regression.

To address endogeneity concerns and potential selection bias, we employ a propensity score matching methodology to construct a balanced sample consisting of the same numbers of founder- and nonfounder-CEO firms. Among several approaches available to compute propensity scores, we utilize the nearest-neighbor, one-to-one matching approach. The nearest-neighbor approach chooses one control observation for

each treated observation based on the closest propensity score. We use a non-replacement option in order to avoid accidentally selecting the same matched control observations for different treated observations.[10] Propensity scores are computed based on the firm characteristics included in our baseline model. After constructing a balanced sample based on the assigned propensity scores, we perform univariate analysis as well as multivariate analysis using models (1) and (2) presented above with the newly constructed sample.

Next, as another robustness test, we analyze restructuring events that take place within five years of a CEO transition. This analysis is motivated by a nontrivial number of restructuring events observed in CEO transition years and also higher frequency of restructuring detected within five years of a CEO departure. It is reasonable to presume that a restructuring plan undertaken right after the previous CEO departure is for the purpose of dealing with undesired performance by the previous CEO. In this section, we limit our sample only to the five-year period of a CEO departure and attempt to further explore the relation between founder-CEOs and corporate restructuring. The following logistic regression model and OLS regression model are used:

$$\begin{aligned}\Pr\,(restructure_{i,t} = 1) \\ &= \beta_0 + \beta_1 \times founderCEOfirm_{i,t} + \beta_2 \times \log(CEOage)_{i,t} \\ &+ \beta_3 \times (equity\_comp)_{i,t} + \beta_4 \times ownership_{i,t} + \beta_5 \times duality_{i,t} \\ &+ \beta_6 \times leverage_{i,t} + \beta_7 \times \log(mktval)_{i,t} + \beta_8 \times Tobin'sQ_{i,t} \\ &+ \beta_9 \times cashflow_{i,t} + \beta_{10} \times liquidassets_{i,t} \\ &+ \beta_{11} \times \log(firmage)_{i,t} + \zeta_i + \tau_t + \varepsilon_{i,t} \end{aligned} \quad (4)$$

[10] We use the PSMATCH2 Stata module provided by Leuven and Sianesi (2003) to execute the propensity score matching procedure.

$$\Delta ROE = \beta_0 + \beta_1 \times founderCEOfirm_{i,t} + \beta_2 \times \log(CEOage)_{i,t} + \beta_3 \times (equity\_comp)_{i,t} + \beta_4 \times ownership_{i,t} + \beta_5 \times duality_{i,t} + \beta_6 \times leverage_{i,t} + \beta_7 \times \log(mktval)_{i,t} + \beta_8 \times Tobin'sQ_{i,t} + \beta_9 \times cashflow_{i,t} + \beta_{10} \times liquidassets_{i,t} + \beta_{11} \times \log(firmage)_{i,t} + \zeta_i + \tau_t + \varepsilon_{i,t} \quad (5)$$

We introduce a new variable of interest, *founderCEOfirm*, which takes a value of one if the observation is within five years of a founder-CEO transition, and zero if the observation is within five years of a nonfounder-CEO transition. This dummy that replaces *founderCEO* in our main analysis serves a similar, but not exactly the same purpose. It is set up in the way that the indicator takes a value of one in the period when the corporate restructuring is likely a result of the previous founder-CEO's performance. However, in this case, the effectiveness of a corporate restructuring program depends on how the successor-CEO, who in almost all cases is a nonfounder, carries out the program. Therefore, if the results from the main analysis still hold in this robustness check, then we should expect less restructuring when *founderCEOfirm* equals one than when it equals zero. In terms of effectiveness, evaluating effectiveness of restructuring events in the period of *founderCEOfirm = 1* and the period of *founderCEOfirm = 0* simply compares how the next nonfounder-CEOs execute such events in both groups. However, this gives us a hint on how the effectiveness of restructuring plans after founder-CEO departures is different from the effectiveness of plans after nonfounder-CEO departures.

3.5 Empirical Results

In this section, we empirically examine the relation between founder-CEOs and corporate restructuring. Table 3.3 presents the results from univariate analysis comparing the probability of restructuring under founder-CEOs (*founderCEO* = 1) and that of firms

under nonfounder-CEOs (*founderCEO* = 0). The univariate analysis shows that the firms managed by founder-CEOs have a significantly lower probability of being involved in restructuring compared to the firms managed by nonfounder-CEOs with a t-statistic of -6.7908 and a p-value of 0.0000. Result from our univariate analysis indicate that the probability of experiencing corporate restructuring under founder-CEO management is in general lower than the probability of restricting under nonfounder-CEO.

Table 3.4 shows the baseline results from our main logistic regression model of corporate restructuring on the founder-CEO dummy, CEO-level controls and firm-level controls as defined in model (1). The variable of interest in the model is *founderCEO* that takes a value of 1 for the firms with founder-CEOs and 0 for the firms with nonfounder-CEOs. Columns (1) and (3) estimate the model with year fixed effects and with industry fixed effects, respectively. Column (5) estimates the model with both year and industry fixed effects. Columns (2), (4), and (6) present marginal effects of variables included in columns (1), (3), and (5), respectively. The coefficient of the founder-CEO dummy in model (1) with time fixed effects presented in column (1) is negative and significant at a 1% level. With industry fixed effects in column (3), the coefficient is still negative and significant at a 1% level. After both time and industry fixed effects are introduced in column (5), the significance of the founder dummy slightly declines but the coefficient is still negative and significant at a 1% level. The marginal effects reported in columns (2), (4) and (6) indicate that in terms of economic significance, the coefficient estimates in columns (1), (3), and (5) imply that having a founder-CEO decreases the probability of corporate restructuring by 3.71%, 3.98%, and 3.53%, respectively, compared to having a

nonfounder-CEO. These results suggest that firms with founder-CEOs generally have a lower probability of taking the action of corporate restructuring than those firms with nonfounder-CEOs. These findings are consistent with the findings of the univariate analysis presented in Table 3 and confirm our first hypothesis.

Next, we analyze the effectiveness of restructuring. As described in the methodology section, restructuring effectiveness is measured as the change in ROE from one year after the restructuring program to one year before the program ($ROE_{t+1} - ROE_{t-1}$). Table 3.5 presents the results from the OLS regression model of restructuring effectiveness on the founder-CEO dummy as well as CEO characteristics and firm characteristics as defined in model (2). The variable of interest in this model is still *founderCEO.* Columns (1) and (2) estimate the model with year fixed effects and with industry fixed effects, respectively, and column (3) estimates the model with both year and industry fixed effects. The coefficient of the founder-CEO dummy in model (2) with year fixed effects presented in column (1) is positive and significant at a 10% level. With industry fixed effects in column (2), the coefficient loses its significance but is still positive. With both year and industry fixed effects in column (3), the coefficient is positive and significant at a 10% level. These results indicate that the effectiveness of restructuring programs undertaken by founder-CEOs is better than by nonfounder-CEOs. In other words, the outcomes of corporate restructuring programs are better if they are managed by founder-CEOs than nonfounder-CEOs. These findings support our second hypothesis on restructuring effectiveness.

As a robustness test, we employ a propensity score matching to address endogeneity concerns and potential selection bias. Propensity scores are computed based on the firm characteristics included in our baseline model. Table 3.6 presents the results from our univariate analysis comparing corporate restructuring in treated firms (*founderCEO* = 1) with restructuring in control firms (*founderCEO* = 1). The result indicates that the probability of restructuring in founder-CEO firms is significantly lower (at less than 1% level) than the probability of restricting in firms led by nonfounder-CEO. In Table 3.7, we report the results from the logistic regression model defined in model (1) for the propensity score matched sample. Columns (1), (3), and (5) estimate the model with year fixed effects, with industry fixed effects, and with both year and industry fixed effects, respectively. Columns (2), (4), and (6) present marginal effects of variables included in columns 1, 3, and 5, respectively. The coefficient in column (1) is negative and significant at a 1% level. With industry fixed effects in column (3), the coefficient is still significant at a 1% level. After both time and industry fixed effects are introduced in column (5), the coefficient remains negative and significant at a 1% level. In terms of economic significance, the marginal effect of coefficient estimates on *founderCEO* in columns (1), (3), and (5) as reported in columns (2), (4), and (6) indicate that the probability of corporate restructuring in founder-CEO is lower than nonfounder-CEO firms by 3.73%, 4.55%, and 4.13%, respectively. These results confirm our baseline results and suggest that firms with founder-CEOs generally have a lower probability of taking the action of corporate restructuring than firms with nonfounder-CEOs.

Next, we perform robustness test for the effectiveness of restructuring using model (2) for the propensity score matched sample and report our results in Table 3.8. Columns (1), (2), and (3) estimate the model with year fixed effects, with industry fixed effects, and with both year and industry fixed effects, respectively. The coefficient of the founder-CEO dummy in column (1) with year fixed effects is positive and significant at a 5% level. With industry fixed effects in column (2), the coefficient is significant at a 10% level. With both year and industry fixed effects in column (3), the coefficient is significant at a 10% level. These results confirm our full sample findings and suggest that restructuring programs managed by founder-CEOs are more effective than those managed by nonfounder-CEOs.

Finally, as further robustness, we analyze restructuring events that happen within five years of a CEO transition. For this test, we use a new dummy variable, *founderCEOfirm*, as defined earlier in the methodology section. This dummy plays a similar role to *founderCEO* in this analysis. If the results from the main analysis still hold in this robustness check, then we should see less restructuring for the firms with *founderCEOfirm = 1* than for firms with *founderCEOfirm = 0*. Panel A of Table 3.9 presents the results from univariate analysis. The results show that the firms within five years of founder-CEO transitions have a significantly lower probability (at less than 1% level) of going through restructuring activities compared to the firms within five years of nonfounder-CEO transitions. Panel B of Table 3.9 presents the results from multivariate analysis using Model (4). Similar to Table 3.4 and 3.7, columns (1), (3), and (5) estimate the model with year fixed effects, with industry fixed effects, and with both year and industry fixed effects, respectively, and columns (2), (4), and (6) present marginal effects

of variables included in columns (1), (3), and (5), respectively. The coefficient in column (1) is negative and significant at a 1% level. With industry fixed effects in column (2), the coefficient is still significant at a 1% level. After both time and industry fixed effects are introduced in column (3), the coefficient is still significant at a 1% level. These results indicate that there is about 6% lower probability of corporate restructuring within five years of founder-CEO departures as compared to the firms with nonfounder-CEO departures. In terms of effectiveness, Table 3.10 presents the results from the OLS regression model of restructuring effectiveness as defined earlier in Model (5). The coefficient of the founder-CEO dummy with year fixed effect in column (1) is negative and significant at a 10% level. With industry fixed effects in column (2), the coefficient loses its statistical significance but remains negative, and with both year and industry fixed effects in column (3), the coefficient is negative and significant at a 10% level. These results indicate that restructuring programs undertaken after founder-CEO transitions and managed by nonfounder-CEOs are less effective than those undertaken after nonfounder-CEO transitions and managed by nonfounder-CEOs. These findings suggest that after a founder-CEO leaves, restructuring activities managed by the incoming nonfounder-CEO are not as effective as restructuring events following nonfounder-CEO transitions.

3.6 Conclusion

This essay examines the relationship between founder-CEOs and corporate restructuring. In the unique environment in founder-CEO firms where managers' incentives are more in line with shareholders' interests in the agency theory framework, founder-CEOs are expected to be less motivated to initiate expansion and/or diversification

programs that result in corporate restructuring. Using a sample of S&P 1500 firms from 2001 to 2015, we find that founder-led firms have lower likelihood of experiencing corporate restructuring as compared to firms led by nonfounder-CEOs, and in case firms go through restructuring, the activities undertaken by founder-CEOs are more effective than restructuring activities by nonfounder-CEOs. As a robustness we confirm these findings for propensity scored matched sample.

Next, we find a lower probability of restructuring within five years of a founder-CEO departure as compared to the probability of restructuring following a nonfounder-CEO departure. We also find that the restructuring activities under an incoming nonfounder-CEO after a founder-CEO departure are not as effective as those after a nonfounder-CEO departure. Overall, we provide evidence that founder-CEOs are better at avoiding corporate turmoil that lead to restructuring and in case such turmoil cannot be avoided and firm has to go through restructuring founder-CEOs are more effective in implementation.

Table 3.1. Sample of Firms that Undergo Restructuring

In this table, we present the distribution of the number of firms that go through restructuring, the total number of firms in the sample, and the percentage of restructuring firms in the sample each year for the period of 2001 to 2015. The sample consists of S&P 1500 firms. A restructuring firm is defined as a firm for which restructuring announcement is identified at least once during a given year as a key development covered in the Capital IQ Key Development Database.

Year	No. of Restructuring Firms	No. of Firms	% Restructuring
2001	26	299	8.7%
2002	110	852	12.9%
2003	91	907	10.0%
2004	70	931	7.5%
2005	81	950	8.5%
2006	83	1,023	8.1%
2007	117	1,198	9.8%
2008	123	1,131	10.9%
2009	118	1,098	10.7%
2010	64	1,108	5.8%
2011	54	1,098	4.9%
2012	46	909	5.1%
2013	55	1,093	5.0%
2014	44	1,128	3.9%
2015	58	1,097	5.3%
Total	1,140	14,822	7.7%

Table 3.2. Descriptive Statistics

Table 3.2 presents the descriptive statistics of the entire sample of firm-year observations. The sample consists of 14,822 firm-years for the time period from 2001 to 2015. *N* is the number of the firm-year observations. *Mean* is the average of the firm-year observations. *St Dev* is the standard deviation of firm-year observations. 25% is the twenty-fifth percentile, *Median* is the median value, and 75% is the seventy-fifth percentile of the firm-year observations. Variable definitions are provided in Appendix.

Variables	**N**	**Mean**	**St Dev**	**25%**	**Median**	**75%**
Dependent Variable						
restructure	14,822	0.067	0.250	0	0	0
ΔROE	14,822	20.313	142.767	-16.715	6.105	46.270
Independent Variable						
CEO Characteristics						
founderCEO	14,822	0.100	0.300	0	0	0
founderCEOfirm	4,645	0.073	0.260	0	0	0
log(CEOage)	14,822	4.023	0.130	3.932	4.025	4.111
equity_comp	14,822	0.656	0.259	0.537	0.744	0.852
ownership	14,822	21.186	50.529	1.137	3.710	12.670
duality	14,822	0.306	0.461	0	0	0
Firm Characteristics						
leverage	14,822	0.210	0.187	0.035	0.190	0.317
log(mktval)	14,822	7.561	1.595	6.453	7.402	8.550
Tobin'sQ	14,822	1.997	1.182	1.251	1.644	2.315
cashflow	14,822	0.081	0.118	0.056	0.093	0.134
liquidassets	14,822	0.123	0.120	0.034	0.088	0.174
log(firmage)	14,822	2.864	0.759	2.398	2.944	3.497

Table 3.3. Univariate Analysis of Corporate Restructuring

Table 3.3 shows the results from univariate analysis comparing corporate restructuring in founder-CEO firms and in nonfounder-CEO firms in the overall sample during the period of 2001 to 2015. *N* is the number of total firm-year observations in each group. *Mean* is the average of the firm-year observations. *Std. Err.* and *Std. Dev.* are the standard error and standard deviation of firm-year observations, respectively. *Difference* is the difference in mean values and *t-stat* is the t-statistic of the difference of the two groups of firms. Variable definitions are provided in Appendix. *** indicates p-values of 1% or less.

	Restructure			
Variable	**N**	**Mean**	**Std. Err.**	**Std. Dev.**
Founder-CEO Firms (*founderCEO* = 1)	1,482	0.0324	0.0046	0.1771
Nonfounder-CEO Firms (*founderCEO* = 0)	13,340	0.0819	0.0024	0.2742
Difference		-0.0495***		
t-stat		-6.7908		

Table 3.4. Logistic Regressions of Corporate Restructuring

Table 3.4 presents the results from logistic regression models of corporate restructuring on the founder-CEO dummy and other controls. The variable of interest in these models is *founderCEO* that takes a value of 1 when a firm has a founder as CEO and 0 when a firm has a non-founder as CEO. Column 1 estimates corporate restructuring with year fixed effects, column 3 estimates corporate restructuring with industry fixed effects, and column 5 estimates corporate restructuring with both year and industry fixed effects. Columns 2, 4, and 6 show marginal effects of variables included in columns 1, 3, and 5, respectively. The sample period is 2001-2015. The robust z-statistics are indicated in parenthesis. Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

	(1)	(2) Marginal	(3)	(4) Marginal	(5)	(6) Marginal
VARIABLES	Restructure	Eff.	Restructure	Eff.	Restructure	Eff.
founderCEO	-0.5557***	-0.0371***	-0.6003***	-0.0398***	-0.5382***	-0.0353***
	(-2.9984)	(0.0125)	(-3.2154)	(0.0125)	(-2.8525)	(0.0124)
log(CEOage)	-0.7551**	-0.0504**	-1.1749***	-0.0779***	-0.7430**	-0.0487**
	(-2.3868)	(0.0211)	(-3.7025)	(0.0213)	(-2.2974)	(0.0213)
equity_comp	0.1083	0.00722	-0.2000	-0.0133	0.0307	0.00201
	(0.5222)	(0.0138)	(-1.0407)	(0.0128)	(0.1459)	(0.0138)
ownership	-0.0018	-0.000117	-0.0014	-9.05e-05	-0.0011	-7.18e-05
	(-1.1460)	(0.000102)	(-0.9296)	(9.71e-05)	(-0.7733)	(9.27e-05)
duality	0.1250	0.00834	0.4845***	0.0321***	0.0750	0.00491
	(1.3230)	(0.00631)	(6.4126)	(0.00506)	(0.7954)	(0.00618)
leverage	0.5409**	0.0361**	0.6084**	0.0404**	0.7813***	0.0512***
	(2.1527)	(0.0168)	(2.2979)	(0.0177)	(2.9057)	(0.0178)
log(mktval)	0.3815***	0.0254***	0.4159***	0.0276***	0.4304***	0.0282***
	(10.7206)	(0.00252)	(11.3787)	(0.00253)	(11.6833)	(0.00251)
Tobin'sQ	-0.4213***	-0.0281***	-0.5685***	-0.0377***	-0.5453***	-0.0357***
	(-6.9049)	(0.00412)	(-8.3475)	(0.00455)	(-7.9201)	(0.00454)
cashflow	-2.6649***	-0.178***	-2.8165***	-0.187***	-2.6099***	-0.171***
	(-10.4242)	(0.0179)	(-10.4855)	(0.0185)	(-9.4236)	(0.0187)
liquidassets	1.1583***	0.0772***	0.5052	0.0335	0.4459	0.0292
	(3.1500)	(0.0246)	(1.3135)	(0.0255)	(1.1367)	(0.0257)
log(firmage)	0.2417***	0.0161***	0.1709***	0.0113***	0.1914***	0.0125***
	(4.0536)	(0.00399)	(3.0301)	(0.00373)	(3.2935)	(0.00380)
Constant	-2.4252*		0.5401		-1.4111	
	(-1.8885)		(0.4228)		(-1.0461)	
Observations	14,822		14,666		14,666	
Year FE	YES		NO		YES	
Industry FE	NO		YES		YES	
Pseudo R-squared	0.09439		0.1142		0.1282	

Table 3.5. Regressions of Corporate Restructuring Effectiveness

Table 3.5 presents the results from regression models of corporate restructuring effectiveness on the founder-CEO dummy and other controls. Corporate restructuring effectiveness is measured in performance improvement computed as the change in ROE one year before and after a corporate restructuring event. The variable of interest in these models is *founderCEO* that takes a value of 1 when a firm has a founder as CEO and 0 when a firm has a non-founder as CEO. Column 1 estimates corporate restructuring effectiveness with year fixed effects, column 2 estimates corporate restructuring effectiveness with industry fixed effects, and column 3 estimates corporate restructuring effectiveness with both year and industry fixed effects. The sample period is 2001-2015. The robust standard errors are indicated in parentheses. Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
VARIABLES	ΔROE	ΔROE	ΔROE
founderCEO	69.104*	53.799	66.064*
	(1.744)	(1.492)	(1.751)
log(CEOage)	121.616***	116.186***	90.207**
	(2.593)	(2.802)	(2.097)
equity_comp	16.037	-23.371	-1.527
	(0.740)	(-1.113)	(-0.072)
ownership	-0.036	-0.061	-0.031
	(-0.489)	(-0.785)	(-0.447)
duality	1.078	-16.484	-4.310
	(0.106)	(-1.471)	(-0.442)
leverage	-12.870	-9.875	-7.523
	(-0.511)	(-0.361)	(-0.267)
log(mktval)	2.892	4.798	2.730
	(0.911)	(1.477)	(0.855)
Tobin'sQ	-0.225	6.800	4.285
	(-0.043)	(1.320)	(0.837)
cashflow	39.051	18.367	25.658
	(1.150)	(0.551)	(0.677)
liquidassets	12.687	19.014	13.950
	(0.313)	(0.441)	(0.327)
log(firmage)	2.535	7.047	7.428
	(0.281)	(0.723)	(0.776)
Constant	-514.029***	-499.255***	-390.794**
	(-2.692)	(-2.958)	(-2.255)
Observations	864	864	864
Year FE	YES	NO	YES
Industry FE	NO	YES	YES
Adj. R-squared	0.0655	0.0386	0.0838

Table 3.6. Univariate Analysis of Corporate Restructuring: Propensity Score Matching

Table 3.6 shows the results from univariate analysis comparing corporate restructuring in founder-CEO firms and in nonfounder-CEO firms for propensity score matched sample during the period of 2001 to 2015. *N* is the number of total firm-year observations in each group. *Mean* is the average of the firm-year observations. *Std. Err.* and *Std. Dev.* are the standard error and standard deviation of firm-year observations, respectively. *Difference* is the difference in mean values and *t-stat* is the t-statistic of the difference of the two groups of firms. Variable definitions are provided in Appendix. *** indicates p-values of 1%.

Restructure (PSM)				
Variable	**N**	**Mean**	**Std. Err.**	**Std. Dev.**
Founder-CEO Firms (*founderCEO* = 1)	1,479	0.0325	0.0046	0.1773
Nonfounder-CEO Firms (*founderCEO* = 0)	1,479	0.0690	0.0066	0.2535
Difference		-0.0365***		
t-stat		-4.5395		

Table 3.7. Logistic Regressions of Corporate Restructuring: Propensity Score Matching

In Table 3.7, we report the results from logistic regression models of corporate restructuring on the founder-CEO dummy and other controls using propensity score matched sample. The variable of interest in these models is *founderCEO* that takes a value of 1 when a firm has a founder as CEO and 0 when a firm has a non-founder as CEO. Column 1 estimates corporate restructuring with year fixed effects, column 3 estimates corporate restructuring with industry fixed effects, and column 5 estimates corporate restructuring with both year and industry fixed effects. Columns 2, 4, and 6 show marginal effects of variables included in columns 1, 3, and 5, respectively. The sample period is 2001-2015. The robust z-statistics are indicated in parenthesis. Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
		Marginal		Marginal		Marginal
VARIABLES	Restructure	Eff.	Restructure	Eff.	Restructure	Eff.
founderCEO	-0.8304***	-0.0373***	-0.9107***	-0.0455***	-0.8390***	-0.0413***
	(-3.6879)	(0.0102)	(-3.9858)	(0.0115)	(-3.6352)	(0.0113)
log(CEOage)	-0.7166	-0.0322	-1.0701	-0.0535	-0.6627	-0.0326
	(-1.0131)	(0.0319)	(-1.4136)	(0.0381)	(-0.8701)	(0.0376)
equity_comp	0.0287	0.00129	-0.1035	-0.00517	-0.0163	-0.000801
	(0.0645)	(0.0200)	(-0.2326)	(0.0223)	(-0.0361)	(0.0222)
ownership	0.0016	7.24e-05	0.0026*	0.000130	0.0026	0.000127
	(0.9899)	(7.34e-05)	(1.6470)	(7.93e-05)	(1.5857)	(8.03e-05)
duality	-0.0870	-0.00391	0.3217*	0.0161*	-0.0659	-0.00324
	(-0.3577)	(0.0109)	(1.7150)	(0.00936)	(-0.2555)	(0.0127)
leverage	0.6135	0.0276	0.8698	0.0435	1.0104*	0.0497*
	(1.1219)	(0.0247)	(1.4807)	(0.0294)	(1.7126)	(0.0290)
log(mktval)	0.4307***	0.0194***	0.5204***	0.0260***	0.5392***	0.0265***
	(5.1418)	(0.00411)	(5.9080)	(0.00477)	(6.1935)	(0.00462)
Tobin'sQ	-0.4569***	-0.0205***	-0.6510***	-0.0325***	-0.6084***	-0.0300***
	(-4.3608)	(0.00485)	(-5.4478)	(0.00613)	(-5.0378)	(0.00606)
cashflow	-3.0300***	-0.136***	-3.4626***	-0.173***	-3.1158***	-0.153***
	(-5.5004)	(0.0273)	(-6.0308)	(0.0310)	(-5.3691)	(0.0303)
liquidassets	0.5672	0.0255	0.1497	0.00748	-0.0586	-0.00289
	(0.8324)	(0.0307)	(0.1984)	(0.0377)	(-0.0727)	(0.0397)
log(firmage)	0.3026**	0.0136**	0.2703*	0.0135**	0.3106**	0.0153**
	(2.2641)	(0.00601)	(1.9600)	(0.00686)	(2.2033)	(0.00688)
Constant	-2.0468		-0.5829		-1.7819	
	(-0.7275)		(-0.1853)		(-0.5454)	
Observations	2,958		2,595		2,595	
Year FE	YES		NO		YES	
Industry FE	NO		YES		YES	
Pseudo R-squared	0.1194		0.1383		0.1587	

Table 3.8. Regressions of Restructuring Effectiveness: Propensity Score Matching

Table 3.8 presents the results from regression models of corporate restructuring effectiveness on the founder-CEO dummy and other controls using all sample. Corporate restructuring effectiveness is measured in performance improvement computed as the change in ROE one year before and after a corporate restructuring event. The variable of interest in these models is *founderCEO* that takes a value of 1 when a firm has a founder as CEO and 0 when a firm has a non-founder as CEO. Column 1 estimates corporate restructuring effectiveness with year fixed effects, column 2 estimates corporate restructuring effectiveness with industry fixed effects, and column 3 estimates corporate restructuring effectiveness with both year and industry fixed effects. The sample period is 2001-2015. The robust standard errors are indicated in parentheses. Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
VARIABLES	ΔROE	ΔROE	ΔROE
founderCEO	94.225**	70.371*	83.262*
	(2.055)	(1.765)	(1.739)
log(CEOage)	143.885	24.701	24.197
	(1.003)	(0.258)	(0.162)
equity_comp	39.462	15.194	12.089
	(0.782)	(0.413)	(0.229)
ownership	0.086	-0.248	-0.172
	(0.636)	(-1.055)	(-0.702)
duality	-50.060	-19.603	-7.075
	(-1.052)	(-0.818)	(-0.168)
leverage	23.648	84.412	39.077
	(0.346)	(0.896)	(0.359)
log(mktval)	13.527	4.190	-1.225
	(0.945)	(0.479)	(-0.105)
Tobin'sQ	-8.035	6.346	8.783
	(-0.609)	(0.448)	(0.605)
cashflow	140.353	102.346	177.040
	(1.099)	(0.770)	(0.826)
liquidassets	-108.068	-56.466	-65.234
	(-0.807)	(-0.371)	(-0.408)
log(firmage)	3.177	42.263	44.552
	(0.168)	(1.024)	(0.881)
Constant	-679.129	-253.962	-220.216
	(-1.115)	(-0.648)	(-0.358)
Observations	103	103	103
Year FE	YES	NO	YES
Industry FE	NO	YES	YES
Adj. R-squared	0.0734	0.206	0.111

Table 3.9. Corporate Restructuring within 5 Years of CEO Transitions

Panel A of Table 3.9 shows the results from univariate analysis comparing corporate restructuring in the 5-year period after founder-CEO transitions and that in the 5-year period after nonfounder-CEO transitions. *N* is the number of firm-year observations. *Mean* is the average of the firm-year observations. *Std. Dev. i*s the standard deviation of firm-year observations. *Difference* is the difference in mean values and *t-stat* is the t-statistic of the difference of the two groups of firms. *** indicates p-values of 1%. Panel B of Table 3.9 presents results from logistic regression models of corporate restructuring on the founder-CEO transition dummy and other controls using a sample of firms that witness restructuring within 5-year period after CEO transitions. The variable of interest in these models is *founderCEOfirm* that takes a value of 1 when a firm-year observation is in the 5-year period after a founder-CEO transition and 0 when a firm-year observation is in the 5-year period after a nonfounder-CEO transition. Column 1, 3, and 5 estimate corporate restructuring with year fixed effects, with industry fixed effects, and with both year and industry fixed effects, respectively. Columns 2, 4, and 6 show marginal effects of variables included in columns 1, 3, and 5, respectively. The sample period is 2001-2015. The robust z-statistics are indicated in parenthesis. Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

Panel A. Univariate Analysis

Restructure within 5 Years of CEO Transition				
Variable	**N**	**Mean**	**Std. Err.**	**Std. Dev.**
Founder-CEO Transition (*founderCEOfirm* = 1)	340	0.0471	0.0115	0.2121
Nonfounder-CEO Transition (*founderCEOfirm* = 0)	4,305	0.1071	0.0047	0.3093
Difference		-0.0600***		
t-stat		-3.5141		

Panel B. Logistic Regression Analysis

	(1)	(2) Marginal	(3)	(4) Marginal	(5)	(6) Marginal
VARIABLES	Restructure	Eff.	Restructure	Eff.	Restructure	Eff.
founderCEOfirm	-0.6844***	-0.0580***	-0.6191**	-0.0533**	-0.6861***	-0.0576***
	(-2.8814)	(0.0204)	(-2.4991)	(0.0215)	(-2.6224)	(0.0221)
Constant	-3.8107*		-3.2607*		-3.2739	
	(-1.8474)		(-1.6532)		(-1.6248)	
Controls	YES		YES		YES	
Observations	4,645		4,505		4,505	
Year FE	YES		NO		YES	
Industry FE	NO		YES		YES	
Pseudo R-squared	0.1044		0.1176		0.1425	

Table 3.10. Corporate Restructuring Effectiveness within 5 Years of CEO Transitions

Table 3.10 presents the results from regression models of corporate restructuring effectiveness on the founder-CEO transition dummy and other controls using the sample in the 5-year period after CEO transitions. Corporate restructuring effectiveness is measured in performance improvement computed as the change in ROE one year before and after a corporate restructuring event. The variable of interest in these models is *founderCEOfirm* that takes a value of 1 when a firm-year observation is in the 5-year period after a founder-CEO transition and 0 when a firm-year observation is in the 5-year period after a nonfounder-CEO transition. Column 1 estimates corporate restructuring effectiveness with year fixed effects, column 2 estimates corporate restructuring effectiveness with industry fixed effects, and column 3 estimates corporate restructuring effectiveness with both year and industry fixed effects. The sample period is 2001-2015. The robust standard errors are indicated in parentheses. Variable definitions are provided in Appendix, and ***, **, and * indicate p-values of 1%, 5%, and 10%, respectively.

	(1)	(2)	(3)
VARIABLES	ΔROE	ΔROE	ΔROE
founderCEOfirm	-46.723*	-43.139	-53.841*
	(-1.779)	(-1.390)	(-1.692)
log(CEOage)	61.324	13.347	-30.500
	(0.765)	(0.224)	(-0.528)
equity_comp	19.900	-26.699	0.674
	(0.423)	(-0.608)	(0.014)
ownership	0.122*	0.128	0.035
	(1.952)	(1.427)	(0.412)
duality	-2.624	-46.313**	-23.536
	(-0.159)	(-2.536)	(-1.303)
leverage	-5.742	-46.727	-43.347
	(-0.181)	(-1.251)	(-1.074)
log(mktval)	-0.757	2.143	-1.898
	(-0.144)	(0.374)	(-0.294)
Tobin'sQ	8.968	13.896	8.823
	(1.179)	(1.470)	(1.010)
cashflow	35.736	11.149	24.490
	(0.693)	(0.190)	(0.376)
liquidassets	37.198	79.213	69.981
	(0.682)	(1.296)	(1.113)
log(firmage)	14.010	19.440	28.056
	(1.172)	(1.217)	(1.613)
Constant	-304.722	-110.664	95.626
	(-0.960)	(-0.459)	(0.419)
Observations	396	396	396
R-squared	0.120	0.162	0.243
Year FE	YES	NO	YES
Industry FE	NO	YES	YES
Adj. R-squared	0.0657	0.0231	0.0862

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APPENDIX

Variable Definitions

Variable	Definition
CHAPTER ONE: DO FIRMS LED BY FOUNDERS TAKE HIGHER RISK?	
Dependent Variables	
Overall Risk Measures	
Total Risk	The total volatility of each firm computed from the CAPM regression model using the previous 252 days of daily returns. The value is multiplied by 100.
Idio. Risk	The idiosyncratic volatility of each firm computed from the CAPM regression model using the previous 252 days of daily returns. The value is multiplied by 100.
Opt. Vol.	The option implied volatility: the firm's expected volatility used in the fair value calculation for stock options available to directors and executives.
Operational Risk Measures	
R&D	Research and development expenses divided by total assets in a given year.
Opr. Lev.	Operating leverage defined as the percentage change in operating income for a percentage change in sales in a given year.
Financial Risk Measures	
Current Ratio	Current ratio (liquidity measure) computed as total current assets divided by total current liabilities in a given year.
Long Debt	Long-term debt (leverage ratio) computed as total long-term debt divided by book value of total assets in a given year.
Total Debt	Total debt (leverage ratio) computed as the sum of total long-term debt and total current debt divided by book value of total assets in a given year.
Independent Variables	
CEO Characteristics	
Founder-CEO	Equals 1 if the firm is led by a founder-CEO, and 0 otherwise.
log(CEO Age)	Natural logarithm of (CEO age + 1) in a given year.
log(CEO Tenure)	Natural logarithm of (CEO tenure +1) in a given year.
log(Delta)	Natural logarithm of CEO pay-performance sensitivity obtained from Coles et al. (2006).
log(Vega)	Natural logarithm of CEO wealth to stock volatility obtained from Coles et al. (2006).
Duality	Equals 1 if the CEO of the firm also serves as the chairperson of the board, and 0 otherwise.
High Ownership	Equals 1 if the proportion of ownership by the CEO calculated as shares owned by him/her excluding options divided by common shares outstanding is at least 0.5% of the whole firm, and 0 otherwise.
Firm Characteristics	
log(Assets)	Natural logarithm of book value of total assets in a given year.
Market-to-Book	Market-to-book ratio computed as fiscal-year end stock price times the number of shares outstanding divided by book value of total assets.

Leverage	Sum of long-term debt and current debt divided by book value of total assets in a given year.
ROA	Net income divided by book value of total assets in a given year.
Cash Holdings	Total cash amount divided by total assets in a given year.
Sales Growth	Total sales in year t minus total sales in year t-1 divided by total sales in year t-1.
Return	Annual stock return in a given year.
log(Firm Age)	Natural logarithm of (firm age + 1) in a given year.
PPE	Total tangible assets (property, plants and equipment) divided by total stockholders' equity in a given year.

CHAPTER TWO: FOUNDER-LED FIRMS AND LITIGATION RISK

Dependent Variables

$Litigation_t$	Equals 1 if one or more lawsuit filings of nonsecurities litigation are made against the firm during the year, and 0 otherwise.

Independent Variables

$FounderCEO_t$	Equals 1 for a firm year under founder-CEO management, and 0 othewise.
FPS_t	Equals 1 if the firm is in the biotech (SIC codes 2833–2836 and 8731–8734), computer (3570–3577 and 7370–7374), electronics (3600–3674), or retail (5200–5961) industry, and 0 otherwise.
$FF10_t$	Equals 1 if the firm is in the high-tech (Fama-French 10 Industry Code 5), telecom (Code 6), shops (Code 7), or health (Code 8) industry, and 0 otherwise.
$lnassets_{t-1}$	Natural log of total assets at the end of year t-1.
$salesgrowth_{t-1}$	Year t-1 sales less year t-2 sales scaled by beginning of year t-1 total assets.
$return_{t-1}$	Market-adjusted 12-month stock return for year t-1.
$sd12_{t-1}$	Standard deviation of the firm's 12-month returns for year t-1.
$skew12_{t-1}$	Skewness of the firm's 12-month return for year t-1.
$turnover_{t-1}$	Trading volume accumulated over the 12-month period ending with the fiscal year-end before lawsuit filing (for sued firms), and year t-1 fiscal year-end month (for non-sued firms) scaled by beginning of year t-1 shares outstanding.

CHAPTER THREE: CORPORATE RESTRUCTURING IN FOUNDER-LED FIRMS

Dependent Variables

restructure	Equals 1 if one or more corporate restructuring announcements are made during the year, and 0 otherwise.
ΔROE	$ROA_{t+1} - ROA_{t-1}$

Independent Variables

CEO Characteristics

founderCEO	Equals 1 if a firm is led by a founder-CEO, and 0 otherwise.

founderCEOfirm	Equals 1 if a firm-year observation is in the 5-year period after a founder-CEO transition and 0 when a firm-year observation is in the 5-year period after a nonfounder-CEO transition.
log(CEOage)	Natural logarithm of (CEO age + 1) in a given year.
equity_comp	Compensation excluding salary and bonus divided by total compensation in a given year.
ownership	The proportion of shares owned by CEO to the total number of shares outstanding in a given year.
duality	Equals 1 if the CEO of the firm also serves as the chairperson of the board, and 0 otherwise.
Firm Characteristics	
leverage	Sum of long-term debt and current debt divided by book value of total assets in a given year.
log(mktval)	Natural logarithm of total market value in a given year.
Tobin'sQ	Tobin's Q computed as (total market value of firm) / (total asset value of firm) in a given year.
cashflow	Cash flow divided by book value of total assets in a given year.
liquidassets	Sum of cash and marketable securities adjustment divided by book value of total assets in a given year.
log(firmage)	Natural logarithm of (firm age + 1) in a given year.

VITA

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PUBLICATIONS AND PRESENTATIONS

Nishikawa, Y., Lawrence, E., Upadhyay, A. (2017). *Risk and Return Comparison of Firms Led by Founders and Outside CEOs.* Paper presented at the Academy of Behavioral Finance and Economics 2017 Annual Meeting, Los Angeles, California.

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