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# Founder-CEOs, Investment Decisions, and Stock Market Performance

Rüdiger Fahlenbrach\*

## Abstract

Eleven percent of the largest public U.S. firms are headed by the CEO who founded the firm. Founder-CEO firms differ systematically from successor-CEO firms with respect to firm valuation, investment behavior, and stock market performance. Founder-CEO firms invest more in research and development, have higher capital expenditures, and make more focused mergers and acquisitions. An equal-weighted investment strategy that had invested in founder-CEO firms from 1993 to 2002 would have earned a benchmark-adjusted return of 8.3% annually. The excess return is robust; after controlling for a wide variety of firm characteristics, CEO characteristics, and industry affiliation, the abnormal return is still 4.4% annually. The implications of the investment behavior and stock market performance of founder-CEO firms are discussed.

## I. Introduction

Eleven percent of the largest public U.S. firms are still headed by a founder. Do these “founder-CEOs” differ from “successor-CEOs”? If so, does this organizational difference translate into differences in firm behavior, valuation, and performance?

Recent research suggests that firms in which the founding family continues to be involved in management have a higher valuation than other firms (e.g., Adams, Almeida, and Ferreira (2009), Anderson and Reeb (2003), Palia and Ravid (2003), and Villalonga and Amit (2006)). Using a novel data set, I demonstrate that founder-CEO firms not only have a higher valuation but also better stock market performance, and that they make different investment decisions.

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Founder-CEOs differ from successor-CEOs in several aspects. Founder CEOs are less likely to be removed from office than other CEOs. Founder-CEOs often consider their firm as their life's achievement. This intrinsic motivation and long-term approach encourages founder-CEOs to pursue the optimal shareholder-value maximizing strategy instead of concentrating on short-term actions or "enjoying the quiet life." Founder-CEOs may have more organization-specific skills. Thanks to their equity stake and their entrepreneur status, founder-CEOs are likely to have more influence and decision-making power. The considerable equity stakes founders hold can potentially reduce the principal-agent problem. Founder-CEOs may also have a different attitude toward risk than successor-CEOs, leading to different investment decisions.<sup>1</sup> Moreover, founder-CEOs have shaped their organizations from inception, and thus the impact of differences in managerial characteristics on corporate behavior and performance should be particularly strong in founder-CEO firms.

To carry out my analysis, I construct a sample of 2,327 large, publicly listed U.S. firms during the 1992–2002 period (14,000 firm-years) and identify 361 sample firms that were run by the original founder or cofounder of the firm during 1,468 firm-years.

I find that a value-weighted (equal-weighted) investment strategy that bought founder-CEO firms would have earned an abnormal return of 10.7% (8.3%) annually in excess of a benchmark four-factor model. The excess return remains sizable at 4.4% annually when I control for tenure, fractional CEO ownership, industry, and firm age, and when I include all of the firm characteristics identified by Brennan, Chordia, and Subrahmanyam (1998). The strong stock market results for founder-CEO firms are surprising. If having a founder-CEO was consistently beneficial for firms, it is not obvious why the market would not have fully incorporated the founder-CEO effect into stock prices. I therefore discuss several possible explanations of the excess stock market performance, such as unexpectedly positive accounting performance or shareholders' fear of expropriation at the beginning of the sample period, but find little evidence that could justify the magnitude of the reported excess returns.

The investment behavior of founder-CEO firms differs from the investment behavior of firms that have successor CEOs. They invest more in research and development (R&D), have higher capital expenditures (CAPEX), and make more focused mergers and acquisitions (M&A). The economic effect is large; founder-CEO firms spend up to 22% more on R&D and up to 38% more on CAPEX than nonfounder firms. More investments or acquisitions are not necessarily

<sup>1</sup> See, e.g., Stein (1989) (short-term actions), Bertrand and Mullainathan (2003) ("the quiet life"), Fama and Jensen (1983) (organization-specific skills), Shleifer and Vishny (1997) and Burkhardt, Panunzi, and Shleifer (2003) (influence on successions), Adams et al. (2005) (decision-making power), and Begley and Boyd (1987), Kihlstrom and Laffont (1979), and McClelland (1965) (attitudes toward risk). A considerable amount of research in the management and small business literature discusses additional characteristics of entrepreneurs and their impact on the firm (for an overview, see Low and MacMillan (1988) and Shane and Venkataraman (2000); other examples include Begley (1995), Daily and Dalton (1992), Evans and Leighton (1989), Reuber and Fischer (1999), and Willard, Krueger, and Feeser (1992)).

value-increasing; they could, for example, also indicate an overinvestment problem in firms with entrenched founder-CEOs. I study the market reactions to M&A announcements of founder-CEO firms and find no evidence that the market reacts negatively to merger announcements.

The relation between performance and investment behavior and founder-CEO status is potentially endogenous. For example, good expected future performance could potentially lead the founder to stay put, or unobservable firm characteristics could cause both the different investment decisions and the founder-CEO status. In the valuation and investment regressions, I therefore use an instrumental variables (IVs) approach. I instrument founder status with an indicator variable that is equal to one if, at the time of the IPO, the firm bears the name of one of its founders and an indicator variable that is equal to one if the firm incorporated prior to 1940.

My paper is related to the literature that seeks to understand the performance consequences of organizational forms with strong family ownership. Anderson and Reeb (2003) find that S&P 500 family firms have a higher firm valuation, measured by Tobin's Q, and a higher return on assets (ROAs). Villalonga and Amit (2006) study ownership, control, and management of family Fortune 500 companies and also find that family firms have a higher firm valuation, but the effects are concentrated in firms in which the founder has an active involvement. Adams et al. (2009), Morck, Shleifer, and Vishny (1988), and Palia and Ravid (2003) find systematic differences between founder-CEO and nonfounder-CEO firms with respect to firm valuation, and Adams et al. (2009) show that the causality is likely to run from founder-CEOs to valuation. My paper is different from the above in that my main focus is on the stock market performance and investment behavior of these founder-CEO firms and on offering a possible explanation of the valuation effect. Jayaraman, Khorana, Nelling, and Covin (2000) study the stock market performance of 47 large publicly traded founder-CEO firms during the period 1980–1991 and do not find an overall effect of founder-CEOs. Differences in sample size, sample period, and econometric methodology may explain why I obtain different results.

My paper is also related to research that studies whether managers matter for firms' financial decision making. Bertrand and Mullainathan (2003), Bertrand and Schoar (2003), Chevalier and Ellison (1999), and Malmendier and Tate (2005) investigate whether and how managerial characteristics affect corporate behavior and performance. Data constraints usually limit the managerial characteristics that can be examined in large cross-sectional studies, and measures such as educational background, test scores, or age cohort are conjectured to proxy for managerial characteristics such as knowledge, ability, or risk-taking behavior. I contribute to this literature by using founder-CEO status as a uniquely quantifiable aspect of corporate management.

The remainder of the paper is organized as follows. Section II deals with sample selection and the choice and construction of the IVs and offers summary statistics of the data. Section III presents the valuation and stock market results. Section IV deals with the investment behavior of founder-CEOs and how it relates to the characteristics of entrepreneurs. Section V discusses the implications of the investment and stock market results, and Section VI concludes.

## II. Data

### A. Data Sources

My initial sample consists of firms that are listed in any of the five Investor Responsibility Research Center (IRRC) publications (Rosenbaum (1990), (1993), (1995), (1998), and (2000)) and that have filed proxy statements with the SEC between July 1992 and June 2002. The IRRC's sample is drawn from the S&P 500 and the annual lists of the largest corporations in *Fortune*, *Forbes*, and *BusinessWeek*, and it has been used in many governance studies (e.g., Gompers, Ishii, and Metrick (2003), Cremers and Nair (2005)).

I obtain information on the firms' CEOs from two sources. S&P's ExecuComp database provides information on CEO identity, characteristics, and compensation for 11,968 firm-year observations, or 86% of the sample. I retrieve the remaining CEO information by looking up proxy statements of the respective firms, which yields an additional 1,913 firm-years. My total raw sample contains 13,881 firm-years, representing 2,327 unique firms and 3,633 unique CEOs.

To identify founder-CEOs, I read the proxy section on key executive personnel for each firm-CEO combination in the database. To qualify as founder-CEO, a CEO must either be a founder or a member of the group that founded the company. A CEO who took over the company through a management or leveraged buyout or a CEO who belongs to the second or older generation of a family firm does not qualify as a founder-CEO. When the proxy does not provide information about the CEO's employment history from which I can infer whether he founded the firm, I use the Hoover's report on the company's history. For the rare cases in which Hoover's does not mention the company's founder, I use a Dow Jones Interactive Service news search to verify the founder status of the CEO.<sup>2</sup>

Panel A of Table 1 summarizes the founder classification of my sample companies by firms, CEOs, and firm-years. I identify 372 CEOs as founder- or cofounder-CEOs. There are fewer founder-CEO firms, because 11 companies were led subsequently by two different cofounders (e.g., Bed, Bath & Beyond's Leonard Feinstein and Warren Eisenberg). I classify 1,468 firm-years as observations in which the current CEO is either the founder or cofounder of the company (10.6% of the total firm-years). All summary statistics and the sample description are based on these numbers. Panel B of Table 1 divides the firm-years by fiscal year. The percentage of founder firm-years does not vary much across calendar years 1992–1997 but is higher for 1998–2000. The IRRC added several smaller

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<sup>2</sup>Some of the founder classifications require more subjective assessments. Berkshire Hathaway is such an example. Warren Buffett founded the Buffett Partnership in 1956 and bought Berkshire Hathaway, a textile company, nine years later. He dissolved the Buffett partnership in 1969 but used the Berkshire Hathaway name to continue to acquire companies. Since Warren Buffet fundamentally transformed Berkshire Hathaway from a textile to a holdings and investment company, I classify him as a founder. Another example is the Loews Corp. Larry and Bob Tisch founded Tisch Hotels in the late 1940s and in 1960 gained control of MGM's Loew's Theaters. The Tisch Brothers demolished most of the Loew's center city theaters and sold off the land to developers. It was not until 1971 that they changed the name of their by-then diversified conglomerate holding company to Loews. I therefore classify them as founders of Loews. Fewer than 10 firms have such a subjective classification, and all results hold when I remove these firms from my sample.

companies to its list of tracked firms, and about 20% of these companies are headed by a founder-CEO.<sup>3</sup>

TABLE 1  
Sample of Firms and Frequency of Founder-CEO Observations

Table 1 describes simple summary statistics for the frequency of founder-CEO observations for a sample of 13,881 firm-years from 1992 to 2002. The sample is described in Section II. Founder-CEOs are CEOs who could be classified as either the founder or cofounder of the firm in any of the sample years. Panel A presents the number of firms, firm-year observations, and CEOs. Panel B presents the time-series distribution of founder-CEOs. Panel C presents the frequency of firms whose name at the IPO contains a personal name related to one of the founders, by decade of incorporation. Statistically significant differences at the 1%, 5%, and 10% levels between the incidence of personal names in Panel C are indicated by \*\*\*, \*\*, and \*, respectively.

	<u>Total</u>	<u>No. of Founder-CEOs</u>	<u>Frequency [%]</u>		
<i>Panel A. Full Sample (1992–2001)</i>					
Firms	2,327	361	15.5		
CEOs	3,633	372	10.2		
Firm-years	13,881	1,468	10.6		
<i>Panel B. Firm-Years by Fiscal Year-End Groups</i>					
<u>Fiscal Year</u>	<u>Total</u>	<u>No. of Founder-CEOs</u>	<u>Frequency [%]</u>		
1992	1,129	108	9.6		
1993	1,322	132	10.0		
1994	1,303	120	9.2		
1995	1,354	127	9.4		
1996	1,325	119	9.0		
1997	1,336	133	10.0		
1998	1,767	224	12.7		
1999	1,691	216	12.8		
2000	1,513	169	11.2		
2001	1,141	120	10.5		
<i>Panel C. Firm-Years by Decade of Incorporation and Frequency of Firms with Personal Name</i>					
<u>Year of Incorporation</u>	<u>Nonfounder Firms</u>		<u>Founder-CEO Firms</u>		<u>p-Value for Difference</u>
	<u>No. of Obs.</u>	<u>% Personal</u>	<u>No. of Obs.</u>	<u>% Personal</u>	
1940 or prior	752	41.0	1	100.0	0.23
1941–1950	136	39.0	9	66.7	0.09*
1951–1960	197	19.3	25	40.0	0.02**
1961–1970	298	10.4	62	30.6	<0.01***
1971–1980	273	7.3	127	31.5	<0.01***
1981–1990	248	4.8	132	15.9	<0.01***
1991–2000	52	9.6	15	13.3	0.68

Financial information for the sample firms is obtained from Compustat, and market value and stock returns are obtained from the monthly Center for Research in Security Prices (CRSP) files. Following the recommendation of Kahle and Walkling (1996), I obtain SIC codes from Compustat. I also retrieve information on the governance index of Gompers et al. (2003) from the IRR database. I use the Securities Data Company (SDC) platinum database to identify all completed corporate M&As during the sample period. The institutional holdings data come from SEC Form 13F quarterly filings, provided by Thomson Financial.

## B. Choice and Construction of Instrumental Variables

In all but the stock market return regressions, I instrument founder-CEO status. The founder-CEO status is potentially endogenous because past success

<sup>3</sup>I have reestimated the principal regressions by removing these smaller firms from the sample and find quantitatively and qualitatively similar results for the impact of founder-CEOs.

and the anticipation of future success and attractive investment opportunities can make it more likely for the founder-CEO to remain in office. Such an endogenous setting makes a causal interpretation of a founder-CEO effect on performance and investment behavior more challenging and needs to be taken into account using appropriate IV techniques.

A valid IV needs to fulfill two conditions. First, the instrument needs to be exogenous in the principal equation of interest. Second, the coefficient of the instrument must be nonzero in a linear projection of the endogenous variable onto all explanatory variables. I instrument founder-CEO status using two variables. The first instrument (“personal name”) is an indicator variable that is one if the firm name at the initial public offering is related to the personal name of the founder.<sup>4</sup> The instrument satisfies the first condition: There is no reason to suspect that the name of a corporation at the IPO is related to its current performance and investment decisions. Concerning the second condition, I expect a positive correlation between the instrument and founder-CEO status: It seems more likely that the corporation bears the name, or is related to the name, of the founder(s) of the firm at the IPO if the founder is still present at the IPO.

The second instrument (“early incorporation”) is an indicator variable that is equal to one if the firm incorporated prior to 1940. This instrument is a coarse proxy for the “dead founders” instrument of Adams et al. (2009). They convincingly argue that the fraction of dead founders is a good instrument: It is negatively correlated with having a founder-CEO, and it appears uncorrelated with performance beyond the control variables of the second-stage regression. The early incorporation instrument assumes that for firms incorporated prior to 1940, all founders are dead, and for firms incorporated after 1940, all founders are alive. This approximation is necessary due to the large number of firms (2,327) in my database.<sup>5</sup> In all linear projections of founder-CEO status on the instruments and all other explanatory variables (the first-stage regressions), the coefficients of “personal name” and “early incorporation” are, consistent with the intuition, positive for “personal name” and negative for “early incorporation” and are both highly statistically significant.

<sup>4</sup>The firm name at the IPO stems from the CRSP database, which tracks historical names. Three examples show the general procedure of classifying the name of the firm as a personal name related to the founder of the firm: Dell Computer Corp., P&G, and Ann Taylor. The most straightforward case of a personal name is the first example, Dell Computer Corp. Michael Dell, founder of the firm, chose his last name as part of the firm’s name. Whenever a firm’s name contains an abbreviation such as P&G, the second example, I searched Hoover’s, Factiva, and the company’s Web site to determine whether the abbreviation stood for a personal name related to the founder or for a product or technology. Hoover’s states, “Candle maker William Procter and soap maker James Gamble merged their small Cincinnati businesses in 1837, creating The Procter & Gamble Company (P&G).” Therefore P&G would be classified as a personal name. The third example, Ann Taylor, would not be classified as a firm with a personal name related to the founder, although the founder chose the name. Consider the following information from Hoover’s: “Ann Taylor Stores started out in 1954 as a shop on Chapel Street in New Haven, Connecticut. Founder Robert Liebeskind targeted women who would later be called “preppie,” using the conservative (and fictitious) Ann Taylor name.”

<sup>5</sup>Adams et al. (2009) carefully study the history of 258 out of the 321 firms in their sample to identify all founders and whether they are dead or alive. For 63 firms incorporated prior to 1930, they do not collect data and assume all founders are dead.

Panel C of Table 1 presents data on the incidence of personal names by decade of incorporation and by founder-CEO status for all 2,327 sample firms. The data confirms that founder-CEO firms have a statistically significantly higher frequency of personal names in all decades with the exception of the first and last, when few founder-CEO firms were established.

### 1. Instrumental Variable Regression Framework

I use three different IV estimation techniques in the empirical part of the paper. I estimate a standard two-stage least squares (2SLS) model. In the first stage, I regress founder-CEO status on the instruments and all other explanatory variables, and in the second stage the fitted values for the founder-CEO status are used as a right-hand-side variable. Like Adams et al. (2009), I estimate a dummy endogenous variable model, because the potentially endogenous variable of interest, founder-CEO status, is an indicator variable. Heckman (1978) has developed a dummy endogenous variable model that takes into account the binary nature of the endogenous variable and estimates a binary response model in the first stage. When I study the investment behavior of founder-CEO firms in Section IV.B.2, I examine the number of acquisitions a firm makes each year. I estimate Terza's (1998) full information maximum likelihood endogenous switching model for count data, which also allows for the binary nature of the endogenous variable. For the firm value regressions, I report both the first- and second-stage results for the 2SLS IV regressions. In all other IV regression tables, I only report the results of the second stage using the instrumented founder variable to conserve space.

### C. Sample Description

Table 2 reports the attrition of my sample of founder-CEOs, based on the CRSP delisting codes and on CEO successions. Of the 372 founder-CEOs of the sample, 41% of the founders are still identified as CEOs in the most recent proxy statement available. In about one-third of the sample of founder-CEOs, a succession event from a founder-CEO to a nonfounder-CEO takes place. Founder-CEOs leave the sample in 19% of all cases because their companies were acquired or merged. An additional 4% of all firms led by founder-CEOs go bankrupt.

I divide the sample into 48 industries, based on the classification of Fama and French (1997) but using the up-to-date classification scheme from Kenneth French's Web site.<sup>6</sup> Founder-CEO firms are present in 38 out of the 48 industries (80%). While founder-CEO firms have wide industry dispersion, some industries have a high representation of founder-CEO firms. Founder-CEO firms represent 26.4% of all firm-year observations in the Electronic Equipment category, 25% of all observations in Healthcare, and 22.2% in the Computer category. The largest number of founder firm-years per industry are in the categories Business Services, Retail, and Electronic Equipment.

Table 3 presents summary statistics of the sample. It reports cross-sectional means and medians of firm time-series averages. Columns 1 and 2 show firm characteristics of the companies that were never headed by a founder-CEO during the

<sup>6</sup>[http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)



TABLE 2  
Sample Attrition of Founder-CEOs

Founder-CEOs are CEOs who could be classified as either the founder or cofounder of the firm in any of the sample years. Remaining in Sample signifies that the founder-CEO is still heading the firm at the end of the sample period. Succession documents a succession from a founder-CEO to either another cofounder or a nonfounder-CEO. Merged or Acquired signifies that the founder-CEO firm left the sample due to an acquisition or merger during the sample period, and Delisted by Exchange signifies a delisting of the founder-CEO firm due to a violation of listing requirements or bankruptcy.

Event	Founder-CEO	
	Number of Observations	Frequency [%]
Remaining in Sample	153	41.13
Succession to Nonfounder	123	33.06
Merged or Acquired	71	19.09
Delisted by Exchange	14	3.76
Succession to Cofounder	11	2.96
Total	372	100.00

entire sample period, and columns 3 and 4 show the means and medians of firm characteristics for founder-CEO firms. I use a nonparametric Wilcoxon rank sum test to test the equality of medians of the firm characteristics for the founder and nonfounder subsamples. With the exception of ROA and market capitalization, all medians of the firm characteristics of Table 3 are statistically different for founder-CEO and nonfounder-CEO firms at less than the 5% level.

While my database contains approximately four to eight times as many firms and significantly more smaller firms than previous studies (e.g., Anderson and Reeb (2003), Villalonga and Amit (2006)), my sample firms are still large firms: Nonfounder-CEO firms have a mean (median) market value of \$4.4 billion (\$1 billion) and mean (median) total assets of \$8.3 billion (\$1.4 billion). Founder-CEO firms are smaller than the average nonfounder firm, both in terms of total assets and net sales. Founder-CEO firms have a different capital structure: The mean and median financial leverage, measured as long-term debt over total assets, is smaller for founder-CEO firms than for nonfounder-CEO firms.<sup>7</sup>

Differences in two ratios between founder-CEO firms and their nonfounder counterparts suggest that founder-CEO firms are more growth oriented: They have a higher ratio of CAPEX to assets and a higher ratio of R&D expenditures to assets. Some of these differences might be explained by the fact that nonfounder-CEO firms are older than founder-CEO firms: The median nonfounder-CEO firm was incorporated 42 years ago, compared with an average time since incorporation of 20 years for the founder-CEO firms.

Founder-CEO firms, not controlling for other factors, seem to be valued higher and perform better. They have on average a 42% higher Tobin's Q than nonfounder firms, and both the mean and median annualized one- and three-year stock market returns of founder-CEO firms exceed those of the other firms. However, stock returns of founder-CEO firms are more volatile than the returns of nonfounder-CEO firms.

<sup>7</sup>Anderson, Mansi, and Reeb (2003) find that S&P 500 family firms have more leverage than non-family firms. Table 3 shows the unconditional means and medians for leverage, and founder firms are significantly smaller than nonfounder firms in my larger and more heterogenous sample of 2,300 firms. Once I control for size, founder-CEO firms do not have less leverage than nonfounder firms.

TABLE 3  
Firm and CEO Characteristics

Table 3 presents summary statistics of sample firm and CEO characteristics. The sample period is 1992–2001. The total sample consists of the largest publicly listed U.S. firms, a total of 2,327 unique firms. The table contains cross-sectional means and medians of firm time-series averages. Founder firms are firms that in any of the sample years were headed by a CEO who was the original founder or cofounder of the firm. For the calculation of columns 3 and 4, only the years in which the founder was CEO of the firm were included in the time series. A statistically significant difference in medians between founder-CEO and nonfounder-CEO firms at the 1% and 5% significance levels is indicated by \*\* and \*, respectively (based on a nonparametric Wilcoxon test).

	Other Firms (N = 1,966)		Founder Firms (N = 361)	
	Mean	Median	Mean	Median
<i>Panel A. Firm Characteristics</i>				
Market value [MM\$]	4,377.90	1,037.01	3,819.84	845.60
Assets—Total [MM\$]	8,257.43	1,359.59	2,154.79	660.59**
Net sales [MM\$]	3,351.83	1,045.47	1,462.27	618.89**
Common equity [MM\$]	1,374.45	445.55	802.49	299.71**
Firm age [years]	53.60	42.25	22.14	20.00**
Long-term debt/Assets	0.22	0.20	0.19	0.12**
CAPEX/Assets	0.06	0.05	0.07	0.06**
R&D/Assets	0.05	0.02	0.07	0.04*
No R&D reported [%]	50.57	—	40.05	—
Cash flow [%]	6.75	7.53	7.41	8.15*
<i>Panel B. Valuation and Performance</i>				
Proxy for Tobin's Q	1.76	1.32	2.50	1.79**
Return on assets [%]	3.41	3.65	3.70	4.21
One-year stock return [%]	8.63	10.22	13.20	14.47**
Three-year stock return [%]	10.45	11.58	15.15	16.15**
Volatility [%]	38.40	33.50	49.78	46.22**
<i>Panel C. CEO Characteristics</i>				
CEO age	55.12	55.50	57.16	56.50**
CEO tenure [years]	6.36	4.75	16.38	14.25**
CEO stock ownership [%]	2.14	0.36	11.13	6.71**
CEO owns ≥ 25% [%]	1.85	—	13.56	—
Equity pay/Total pay [%]	38.96	37.67	35.50	35.88*

Founder-CEOs on average are slightly older and have a substantially longer tenure than hired CEOs (16.4 years vs. 6.4 years). Founder-CEOs still hold a substantial fraction of the equity of their firms. The mean (median) stock ownership of founder-CEOs is 11.1% (6.7%), while nonfounder-CEOs have a mean (median) ownership of 2.1% (0.4%). Of all founder-CEOs, 13.6% hold more than 25% of the outstanding shares of their firms. Founder-CEOs receive a smaller share of their annual total compensation (salary, bonus, option grants, restricted stock grants, and other annual payments) in equity-based compensation than nonfounder-CEOs, although the percentage difference of 3.5% is small, considering the large difference in shares owned.

### III. Founder-CEOs, Valuation, and Stock Performance

In this section, I examine differences in performance and firm valuation between firms led by founder-CEOs and by nonfounder-CEOs. In Section III.A, I study firm valuation. In Section III.B, I study the difference in stock returns and factor loadings between sample firms that are still run by their founder-CEOs and firms that are run by nonfounder-CEOs.

### A. Firm Valuation

Firm value is measured by a proxy for Tobin's  $Q$ . I approximate  $Q$  by the ratio of the market value of assets to the book value of assets. The market value is calculated as the sum of the book value of assets and the market value of common stock less the book value of common stock and deferred taxes. The market value of equity is measured at the end of the current calendar year, and the accounting variables are measured in the current fiscal year. The variable measuring the influence of the founder-CEO is an indicator variable that is one if the CEO of the firm could be classified as founder at the beginning of the fiscal year, and zero otherwise.

My large sample of founders contains 123 succession events and allows me to use—besides the IV models—an additional regression setup that can control for unobserved, firm-specific characteristics, an advantage over previous studies with smaller samples: I estimate a firm-fixed effects model that identifies the coefficient of the founder dummy uniquely through firms in which the CEO changes from founder to nonfounder.

In the IV and treatment effect models, founder-CEO status is instrumented with “personal name” and “early incorporation.” The log of sales is used to control for size. I follow Shin and Stulz (2000) and include the log of firm age as of December of year  $t$ . Daines (2001) finds that  $Q$  is different for Delaware and non-Delaware firms, so I also include a Delaware dummy as a control. Morck and Yang (2002) show that S&P 500 inclusion has a positive impact on  $Q$ , which increased during the 1990s. In separate regressions, I also control for CEO-specific characteristics such as ownership, CEO age, and CEO tenure. Both regressions include year and the 48 Fama and French (1997) industry dummies, and standard errors are corrected using the Huber-White-Sandwich estimator that takes firm-level clustering into account (Rogers (1993), Petersen (2009)).

Table 4 presents the first-stage results of the 2SLS IV regression of firm valuation on founder-CEO status and explanatory variables. The coefficients of the two IVs are consistent with my expectations. If the firm name at the IPO is related to the personal name of a founder, it is statistically significantly more likely that the firm has a founder-CEO during my sample period. If the firm incorporated prior to 1940, it is more likely that the founders are dead. Indeed, the coefficient on the indicator variable “early incorporation” is strongly negatively significant. The  $R^2$  of the first-stage regression varies between 15% and 32%, depending on whether personal characteristics of the CEO such as age, ownership, or tenure are included in the regression specification.

Columns 1 and 2 of Table 5 show the results of the second stage of the 2SLS IV regressions. The instrumented founder-CEO coefficient in column 1 is significantly positive. The inclusion of CEO-specific characteristics in column 2 does not change the significance of the results. Founder-CEOs continue to have a sizeable positive and statistically significant impact on firm value as measured by  $Q$ , which is consistent with the results of Adams et al. (2009), Anderson and Reeb (2003), and Palia and Ravid (2003). Columns 3 and 4 of Table 5 show the results of the endogenous treatment effects model. Founder-CEO status has a positive coefficient that is highly statistically and economically significant. The coefficient

TABLE 4  
2SLS Instrumental Variable Estimation of Tobin's Q on Founder-CEOs:  
First-Stage Regression Results

Table 4 presents the results of the first stage of a two-stage least squares (2SLS) instrumental variable (IV) regression of a proxy for Tobin's Q on a founder dummy variable and control variables. Founder-CEO status is instrumented with an indicator variable that is equal to one if the name of the firm at the IPO contains a personal name related to a founder ("personal name") and an indicator variable that is equal to one if the firm was incorporated prior to 1940 ("early incorporation"). Models 1 and 2 contain all other control variables of the respective second-stage regression. The regressions include year dummy and industry dummy variables to control for time and industry effects. Standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	Dependent Variable: Founder-CEO Dummy	
	Model 1	Model 2
Constant	0.038 (0.092)	-0.382*** (0.089)
Personal name	0.068*** (0.006)	0.041*** (0.006)
Early incorporation	-0.137*** (0.009)	-0.142*** (0.008)
log (firm age)	-0.086*** (0.006)	-0.082*** (0.007)
log (sales)	-0.001 (0.002)	-0.002 (0.002)
Delaware dummy	-0.014** (0.005)	-0.009* (0.005)
S&P 500 dummy	0.001 (0.007)	0.027*** (0.007)
CEO ownership		0.012*** (0.001)
CEO age		0.002*** (0.000)
log (CEO tenure)		0.068*** (0.003)
Year-fixed effects	Yes	Yes
Industry-fixed effects	Yes	Yes
R <sup>2</sup>	0.15	0.32

in the fully specified regression of column 4 is 0.471, which suggests that Tobin's Q in founder-CEO firms is 25.9% higher than in nonfounder-CEO firms.<sup>8</sup> The positive and statistically significant coefficients of the IV regressions indicate that the causation appears to run from founder-CEOs to valuation. The founder dummy remains economically and statistically significant when I use the firm-fixed effects model (column 5 of Table 5). Q is 12.7% higher when the founder is CEO, providing new evidence that the effect is indeed a founder-CEO, and not a firm-fixed effect.<sup>9</sup>

It is reassuring that the estimated coefficients in columns 1–4 of Table 5 are close to the economic magnitude of the founder effects estimated by Adams

<sup>8</sup>The effect is calculated by dividing the coefficient of 0.471 by the sample average Tobin's Q of 1.82.

<sup>9</sup>After a founder-CEO steps down after a long tenure, the book value of assets might be reset to current market values, generating a large decrease in Tobin's Q and leading to the fixed effects regression results. To assess the validity of this argument, I calculate the change in book value of assets in the last year of the founder-CEO and compare it with the change in book value for the first year of the new CEO. These two values are almost identical, with the median change for the founder being 11.19% and the median change for the successor being 11.67%.

et al. (2009). Also, both papers reach similar conclusions about the direction of causality—from founders to valuation—although they are estimated using different samples and time periods.

TABLE 5  
Tobin's Q and Founder-CEOs

Table 5 presents the results of regressions of a proxy for Tobin's Q on a founder dummy variable and control variables. In columns 1 and 2, results from the second stage of a two-stage least squares (2SLS) instrumental variable (IV) regression are reported. Columns 3 and 4 report the results from the second stage of an endogenous treatment effects model. In columns 1–4, founder-CEO status is instrumented with an indicator variable that is equal to one if the name of the firm at the IPO contains a personal name related to a founder ("personal name") and an indicator variable that is equal to one if the firm was incorporated prior to 1940 ("early incorporation"). Column 5 reports the results of a firm-fixed effects model, in which the founder-CEO variable is identified through firms in which the CEO changes from founder to successor. Q is approximated as the ratio of the market value of assets to the book value of assets, less the industry's median Q (using the 48 Fama-French (1997) industries). The market value is calculated as the sum of the book value of assets and the market value of common stock less the book value of common stock and deferred taxes. The market value of equity is measured at the end of the current calendar year, and the accounting variables are measured in the current fiscal year. The founder dummy variable is one if the CEO could be classified as founder or cofounder of the firm at the beginning of the fiscal year, and zero otherwise. The regressions of columns 1–5 include year dummy variables to control for time effects. The standard errors of the coefficients in columns 1–5 are corrected for serial correlation on a firm level and for heteroskedasticity using the Huber-White-Sandwich estimator. Standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	IV Regression		Treatment Effects		Fixed Effects
Founder dummy (instrumented)	0.984** (0.410)	1.245** (0.483)	0.475*** (0.127)	0.471*** (0.134)	
Founder dummy					0.318*** (0.092)
log (firm age)	−0.109 (0.099)	−0.252** (0.101)	−0.222*** (0.053)	−0.210*** (0.056)	
log (sales)	−0.120*** (0.023)	−0.102*** (0.024)	−0.092*** (0.025)	−0.078*** (0.026)	−0.234*** (0.035)
Delaware dummy	0.107* (0.054)	0.114** (0.057)	0.039 (0.056)	0.049 (0.059)	
S&P 500 dummy	0.641*** (0.077)	0.623*** (0.084)	0.564*** (0.075)	0.559*** (0.078)	
CEO ownership		−0.006 (0.007)		0.002 (0.004)	0.004 (0.004)
CEO age		−0.021*** (0.004)		−0.019*** (0.004)	−0.006** (0.002)
log (CEO tenure)		0.035 (0.044)		0.092*** (0.025)	0.028 (0.019)
Year-fixed effects	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	No
Firm-fixed effects	No	No	No	No	Yes
R <sup>2</sup>	0.21	0.21	—	—	0.03

## B. Stock Market Returns

### 1. Portfolio Construction

The Securities Exchange Act of 1934 (Reg. §240.14a) requires a firm to send to its shareholders a proxy statement that provides material facts concerning matters on which the shareholders will vote, as well as data on the last fiscal year's five highest paid officers and their compensation. Each proxy statement must contain the date on which the document was filed with the SEC; therefore, by studying a proxy statement, one can determine when the statement was made publicly available. Proxy statements are usually filed three months after the end of the fiscal year and one to two months before the annual meeting. The executive

compensation information in S&P's ExecuComp database is collected from proxy statements, and the proxy filing date is reported as part of the ExecuComp database in the field SRCDATE.

Each July, starting in 1993 and up to 2002, I form a portfolio by buying all firms whose proxy statements were filed between July of year  $t - 1$  and June of year  $t$ , and whose CEO could be identified as a founder. The portfolio is updated annually. If a firm is delisted in any month between July and June, I include the delisting return from CRSP for the respective firm. In some cases, firms file their proxy statements in July of year  $t - 1$  and in the following year in June. In such cases, I discard the July  $t - 1$  observation to avoid duplicating the same firm in the founder portfolio. The investment strategy I use is fully implementable: At the time the portfolio is constructed, the classification into founder-CEO and nonfounder-CEO firms is based upon publicly available information. In addition, this investment strategy is very conservative. If founder-CEO firms have higher returns, the investment strategy can likely be improved by updating the portfolio more frequently and by removing from the founder sample all firms whose founder-CEO has stepped down. With my current investment strategy, a founder-CEO might have stepped down in August of year  $t - 1$ , yet that firm would still be classified as a founder-CEO firm from July  $t$  until June  $t + 1$ .

The following additional data requirements reduce the original sample size by 4.9%. I exclude 473 firm-years (3.4%) from the sample due to missing Compustat and CRSP data. I remove all ExecuComp firms that are missing the proxy filing date, and I do not use firms that filed their proxies before June 1992 and after July 2002. These two steps remove 85 firm-years (0.6%) from my sample. The avoidance of double-counting reduces the sample size by 132 firm-years. My final sample—the one I use in all return regressions—consists of 13,192 firm-years, of which 1,409 (10.7%) are classified as founder firm-years. It contains 2,270 firms.

## 2. Empirical Results

An equal-weighted (value-weighted) investment in the founder-CEO portfolio in July 1993 with one rebalancing period per year would have yielded an average annual raw return of 16.34% (13.87%) in December 2002, while the equal-weighted (value-weighted) market return over the same period was 9.99% (8.48%).

One possible explanation for this performance difference is that several equity characteristics of founder-CEO firms differ from those of other firms, namely, their exposure to the market factor, market capitalization, book-to-market ratio, and immediate past returns—all characteristics that have been shown to be significant in forecasting future returns (see, e.g., Banz (1981), Fama and French (1992), and Jegadeesh and Titman (1993)). To analyze whether these differences in characteristics can explain the differences in returns, I estimate a four-factor model that consists of the three Fama-French factors (Fama and French (1993)) and a momentum factor (Carhart (1997)). I do not engage in the ongoing debate about whether these factors are proxies for risk; I simply view the model as a method of performance attribution and interpret the estimated intercept coefficient as the abnormal return in excess of what could have been achieved by an investment in these factors.

The founder-CEO sample contains some of the largest and most successful firms of the 1990s, including Berkshire Hathaway, Charles Schwab, Comcast, Computer Associates International, Dell, Home Depot, Microsoft, Oracle, Sun, and Toys “R” Us. I thus estimate both value- and equal-weighted return regressions to see whether the results are primarily driven by a few large firms.

The first two rows of Table 6 show that a value-weighted portfolio of founder-CEO firms yields a monthly alpha of 89 basis points (bps), which corresponds to an annual rate of 10.68%. An equal-weighted investment in the founder-CEO portfolio yields a monthly alpha of 69 bps, or an annual rate of 8.28%. This result demonstrates that the excess performance is not driven by the success of a few large firms. It is interesting to note that the factor loadings of the book-to-market factor (HML) are significant for both the value- and equal-weighted portfolios but that they change sign. The value-weighted portfolio invests more in growth firms, whereas the equal-weighted portfolio is geared toward a value investment style. Panel B of Table 6 shows the results of a four-factor return regression on a portfolio of all nonfounder-CEO firms. Both the value- and equal-weighted alpha of the nonfounder-CEO portfolio are economically small and statistically indistinguishable from zero.

TABLE 6  
Performance-Attribution Regressions for the Founder Portfolio (July 1993–December 2002)

Table 6 reports estimates from a regression based on a four-factor model for a portfolio of firms in which the founder or cofounder is still the CEO. Both value- and equal-weighted monthly return regressions are estimated. The portfolio is reset each July. The dependent variable is the monthly return in excess of the T-bill rate from either a value- or equal-weighted investment in the founder-CEO portfolio. The four factors are defined in Fama and French (1993) and Carhart (1997). The factors are the returns to zero-investment portfolios designed to capture market (RMRF), size (SMB), book-to-market (HML), and momentum (Momentum) effects, respectively. Fama and French (1993) and Carhart (1997) provide details on how to construct these factors. Standard errors are in parentheses. \* and \*\* indicate significance at the 5% and 1% levels, respectively.

	Monthly Alpha [%]	RMRF	SMB	HML	Momentum	Adj. $R^2$
<i>Panel A. Founder-CEO Portfolio</i>						
Value-weighted	0.890** (0.280)	1.043** (0.075)	−0.190* (0.074)	−0.713** (0.096)	−0.074 (0.039)	0.851
Equal-weighted	0.690** (0.166)	1.153** (0.044)	0.573** (0.044)	0.226** (0.057)	−0.199** (0.023)	0.928
<i>Panel B. Nonfounder-CEO Portfolio</i>						
Value-weighted	0.051 (0.056)	0.969** (0.015)	−0.142** (0.015)	0.168** (0.019)	−0.015 (0.008)	0.982
Equal-weighted	0.123 (0.121)	1.058** (0.032)	0.401** (0.032)	0.648** (0.042)	−0.122** (0.017)	0.926

Table 7 presents the alphas of four-factor model regressions when using alternative specifications that control for various sample characteristics. The first characteristic I control for is the presence of technology firms, which did extraordinarily well in the 1990s, the period from which the majority of my firm-years are taken, and which are overrepresented among founder-CEO firms. I repeat the analysis of Table 6 but follow Anderson and Reeb (2003) and exclude firms whose two-digit SIC code is either 35 (industrial machinery and equipment), 36 (electronic and other electrical equipment), 38 (instruments and related products), or 73 (business services). While the filter is an approximation,

as technology firms operate in a wide array of SIC codes, it removes, e.g., America Online, Apple, Dell, Gateway, Microsoft, Oracle, Peoplesoft, and Sun from the founder-CEO portfolio. The results are in the first row of Table 7. The monthly alpha is reduced for both the value-weighted and equal-weighted regression, but it is still economically and statistically significant. The alpha for the value-weighted portfolio of founder-CEO firms (69 bps per month) corresponds to an annual rate of 8.28%; the alpha for an equal-weighted investment in the portfolio of founder-CEO firms (48 bps per month) corresponds to an annual rate of 5.76%. I conclude from this analysis that the presence of technology firms is not the main driver of the excess performance over the four-factor mimicking portfolios.

TABLE 7  
Performance-Attribution Regressions for the Founder Portfolio for Alternative Specifications  
(July 1993–December 2002)

Table 7 reports estimates from regressions based on a four-factor model for a portfolio of firms in which the original founder or cofounder is still the CEO. Both value- and equal-weighted monthly return regressions are estimated. The portfolio is reset each July. The explanatory variables are RMRF, SMB, HML, and Momentum. These variables are the returns to zero-investment portfolios designed to capture market, size, book-to-market, and momentum effects, respectively. Fama and French (1993) and Carhart (1997) provide details on how to construct these factors. The first row presents the performance alpha when firms whose two-digit SIC code is 35 (industrial machinery and equipment), 36 (electronic and other electrical equipment), 38 (instruments and related products), and 73 (business services) are excluded from the sample. The second regression estimates the four-factor model with industry-adjusted returns as the dependent variable. The third and fourth rows present the portfolio alphas when the sample period is split in half. Standard errors are in parentheses. \* and \*\* indicate significance at the 5% and 1% levels, respectively.

	Monthly Four-Factor Alphas [%]	
	Value-Weighted	Equal-Weighted
Technology firms excluded	0.688* (0.293)	0.476* (0.177)
Industry-adjusted returns	0.528** (0.169)	0.444** (0.132)
July 1993–March 1998	1.010** (0.344)	0.390* (0.184)
April 1998–December 2002	0.954* (0.456)	1.060** (0.255)

Although the founder-CEO portfolio has wide industry dispersion, the uneven distribution of founder-CEO and successor-CEO firms within the different industries suggests that industry affiliation plays an important role. I reestimate the four-factor model by using industry-adjusted returns. I derive a time series of industry-adjusted returns by subtracting the monthly industry return from the raw returns of my sample firms.<sup>10</sup> The value-weighted monthly alpha is 53 bps (an annual rate of 6.36%) and the equal-weighted monthly alpha is 44 bps (an annual rate of 5.28%), and both alphas remain highly statistically significant at less than the 1% level.

The third and fourth rows of Table 7 show that the excess performance is not a function of the particular sample period chosen and alleviate concerns that the increase in sample size in 1998 could be the main driver of the return results.

<sup>10</sup>The reported results use equal-weighted industry returns. The result is robust to using value-weighted industry returns.



When I divide the sample into two periods of equal length, the value-weighted and equal-weighted portfolios show positive and statistically significant excess performance both in the early and late sample periods. The later subperiod has a considerably higher equal-weighted alpha but a stable value-weighted alpha compared to the earlier sample period. The IRRC started coverage of some smaller firms in February 1998. These small founder-CEO firms did well during 1998–2002, moving the alpha of the equal-weighted regression, but they are too small to influence the value-weighted regressions.

To control for a variety of equity characteristics other than exposure to the market, size, book-to-market ratio, and momentum, I also conduct cross-sectional Fama-MacBeth (1973) regressions. I use the extensive list of characteristics in Brennan et al. (1998), as well as institutional ownership (Gompers and Metrick (2001)), inclusion in the S&P 500 (Morck and Yang (2002)), an index of the strength of shareholder rights (Gompers et al. (2003)), and CEO ownership. For each month in the sample period, I estimate an equal-weighted cross-sectional regression of the industry-adjusted return on a vector of explanatory control variables and the founder dummy and then calculate the mean and time-series standard deviation of the 118 monthly (March 1993–December 2002) coefficients.

For each firm, the founder dummy variable is updated during the month following the proxy filing date. CEO tenure is the number of months since the CEO took office. CEO ownership is measured as the percentage of common equity held by the CEO at the end of the prior fiscal year. Institutional ownership is measured as shares held by institutions (aggregated over all five types collected by Thomson Financial) divided by total shares outstanding. I use the most recent quarter as of the end of month  $t - 1$ , with shares outstanding measured on the same date. I include a dummy variable indicating membership in the S&P 500 as of the end of month  $t - 1$ . All other explanatory variables are calculated as described in Brennan et al. (1998).

Table 8 reports the results. The first model includes control variables designed to compare the Fama-MacBeth (1973) results to the four-factor regressions. The coefficient on the founder dummy has a value of 36 bps and is statistically significant at the 2% level. The parameter value is close to the corresponding alpha of 44 bps in the industry-adjusted, equal-weighted four-factor regression of Table 7.

The second model uses all explanatory variables as controls. The coefficient of the founder dummy is economically and statistically significant, at 37 bps monthly (an annual rate of 4.44%). During the sample period, among the other firm characteristics, only size and one of the momentum factors (the compounded gross return from month  $-7$  to  $-12$ ) are positive and statistically significant.

In summary, the coefficient on the founder dummy remains economically and statistically significant in the Fama-MacBeth (1973) regressions. Founder-CEO firms outperform other firms in a statistically and economically significant way. As an additional robustness check, I have formed long-short portfolios matched through two-way sorts by key characteristics (e.g., firm age and size, firm age and CEO tenure) where I go long the founder portfolio and short the matched nonfounder portfolio. The returns to these portfolios are strongly positively significant.

TABLE 8  
Fama-MacBeth Month by Month Regressions of Stock Returns  
on Founder Dummy and Control Variables

Table 8 presents the average coefficients and time-series standard errors for 118 cross-sectional regressions for each month from March 1993 to December 2002. The dependent variable is the industry-adjusted stock return for month  $t$ . Industry adjustment is done by subtracting the appropriate Fama-French (1997) industry return each month from each firm's stock return. Firms are assigned to be founder-CEO firms if the CEO mentioned in the annual proxy statement is identifiable as founder or cofounder of the firm. For each firm, the founder dummy variable is updated in the month following the proxy filing date. Book equity is the book value of common equity plus balance-sheet deferred taxes and is calculated for each firm's latest fiscal year ending in calendar year  $t - 1$ . The book-to-market ratio is calculated using market equity in December of year  $t - 1$ . Market value is measured in month  $t - 1$ . Firm age is the number of months passed since the firm was first listed on a U.S. exchange. Return  $x-y$  is the compounded gross return for months  $t - y$  to  $t - x$ . CEO tenure is the months passed since the CEO took office. CEO ownership is the number of shares held by the CEO divided by the number of shares outstanding. G-score is the shareholder rights index of Gompers et al. (2003). Price is the closing price of the stock at the end of month  $t - 2$ . Nasdaq volume (NYSE-AMEX volume) is the dollar volume of trading in month  $t - 2$  for stocks that trade on the Nasdaq (NYSE and AMEX). It is approximated as stock price at the end of month  $t - 2$ , multiplied by share volume in month  $t - 2$ . For New York Stock Exchange (NYSE) and American Stock Exchange (AMEX) stocks, Nasdaq volume equals zero. For Nasdaq stocks, NYSE-AMEX volume equals zero. Dividend yield is the ratio of dividends in the previous fiscal year (Compustat Item 21) to market capitalization measured at calendar year end. Nasdaq dummy is a dummy variable equal to one if the firm traded on the Nasdaq Stock Market at the beginning of month  $t$ , and zero otherwise. S&P 500 is a dummy variable indicating membership in the S&P 500 as of the end of month  $t - 1$ . Institutional ownership is measured as shares held by institutions divided by total shares outstanding. I use the most recent quarter as of the end of month  $t - 1$ , with shares outstanding measured on the same date. In the regressions, the values of the accounting variables are matched with industry-adjusted returns from July of year  $t$  to June of year  $t + 1$ . Standard errors are reported in parentheses. \* and \*\* indicate significance at the 5% and 1% levels, respectively.

	Model 1	Model 2
Intercept	0.22 (1.12)	-0.94 (1.21)
Founder dummy	0.36* (0.14)	0.37* (0.17)
log (book-to-market)	0.09 (0.08)	0.09 (0.07)
log (market value)	0.00 (0.07)	0.38* (0.17)
Return 2,3	0.54 (0.63)	0.63 (0.58)
Return 4,6	0.52 (0.49)	0.72 (0.48)
Return 7,12	1.02** (0.33)	1.07** (0.30)
log (firm age) (in months)		-0.06 (0.06)
log (CEO tenure) (in months)		0.04 (0.04)
CEO ownership		-1.18 (0.65)
G-score		0.00 (0.01)
Price		-0.26 (0.14)
NYSE-AMEX volume		-0.25 (0.15)
Nasdaq volume		-0.26 (0.16)
Dividend yield		-0.90 (1.84)
Nasdaq dummy		0.59 (0.97)
S&P 500		-0.17 (0.17)
Institutional ownership		0.06 (0.34)

## IV. Characteristics of Entrepreneurs and Investment Behavior

The performance and valuation results are strongly significant after controlling for managerial ownership, suggesting a role of the founder-CEO beyond an incentive alignment through his equity stake. I now examine the investment behavior and M&A activities of founder-CEO firms and discuss how the findings are related to characteristics commonly attributed to founders.

Two traits of entrepreneurs that potentially relate to investment behavior are attitude toward risk and the handling of ambiguous situations. For example, Sarasvathy, Simon, and Lave (1998) find that entrepreneurs and bankers manage and perceive risks very differently. Budner (1962) defines intolerance for ambiguity as “a tendency to perceive ambiguous situations as sources of threat,” and in Begley and Boyd (1987), entrepreneurs handle ambiguous situations better than bankers do.

The productivity surge during my sample period of the 1990s generated new opportunities that founder-CEOs may have been more willing to seize. I study this hypothesis by examining whether founder-CEOs make different expenditure and M&A decisions than nonfounder-CEOs.

### A. Research and Development and Capital Expenditures

I study whether firms have different expenditure patterns by examining CAPEX and R&D expenditures, relative to the total assets of the firm.

Table 9 shows the results of IVs, endogenous treatment effects, and firm-fixed effects models that include both firm-specific and CEO-specific control variables. The R&D regressions only include firm-year observations for which Compustat reports data (6,300 observations). Both R&D and CAPEX are scaled by the average of contemporaneous and lagged book value of assets.<sup>11</sup>

Throughout all three specifications, the coefficient of R&D is statistically significant at the 1% level. The effect of founder-CEOs appears economically large. Firms with founder-CEOs spend up to 5.4% more on R&D than nonfounder firms. When I control for unobservable firm-specific characteristics in the firm-fixed effects regressions and measure the effect of founder-CEOs only against their successors in the same firm, founders spend 1.2 percentage points more on R&D. Relative to the sample mean of 5.3%, this corresponds to 22.6% more expenditures for R&D.

The average founder-CEO firm has higher CAPEX than nonfounder firms. The increase in CAPEX is robust through all three specifications. Relative to the average CAPEX of 6.2% in the sample, the firm-fixed effects coefficient (column 6 of Table 9) corresponds to 38% higher CAPEX.

Overall, founder-CEO firms seem to have higher discretionary expenditures. The large coefficients of the firm-fixed effects regressions for both R&D and CAPEX suggest that it is indeed a founder-CEO effect driving the results of R&D

<sup>11</sup>The results are robust to scaling by lagged book value of assets, lagged sales, or lagged properties, plant, and equipment.

TABLE 9  
R&D and Capital Expenditures

Table 9 presents the results of regressions of research and development and capital expenditures on a founder indicator variable and control variables. Columns 1 and 2 report the results of the second stage of a two-stage least squares (2SLS) instrumental variable (IV) regression, and columns 3 and 4 report the results of the second stage of a two-stage endogenous treatment effects model. Founder-CEO status is instrumented with an indicator variable that is equal to one if the name of the firm at the IPO contains a personal name related to the founder and an indicator variable equal to one if the firm incorporated prior to 1940. Columns 5 and 6 report the results of a firm-fixed effects model, in which the founder-CEO variable is identified through firms in which the CEO changes from founder to successor. CAPEX is capital expenditures divided by the average of current and past year's assets. R&D ratio is R&D expenditures divided by the average of current and past year's assets. The founder dummy variable is one if the CEO could be classified as founder or cofounder of the firm at the beginning of the fiscal year, and zero otherwise. Regressions in columns 1–4 include year and 48 Fama-French (1997) industry dummy variables to control for time and industry, and the standard errors of the coefficients are corrected for serial correlation on a firm level and for heteroskedasticity using the Huber-White-Sandwich estimator. Standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	IV Regressions		Treatment Effects		Fixed Effects	
	R&D	CAPEX	R&D	CAPEX	R&D	CAPEX
Constant	0.188*** (0.026)	0.241* (0.140)	0.142*** (0.021)	0.222** (0.106)	0.105*** (0.017)	0.126** (0.055)
Founder dummy (instrumented)	0.054*** (0.020)	0.155*** (0.034)	0.017*** (0.006)	0.043*** (0.010)		
Founder dummy					0.011*** (0.003)	0.024* (0.013)
log (sales)	−0.009*** (0.002)	−0.005** (0.002)	−0.010*** (0.002)	−0.007*** (0.002)	−0.009*** (0.002)	0.009* (0.005)
Q	0.004*** (0.001)	0.030*** (0.002)	0.004*** (0.001)	0.032*** (0.002)	0.001*** (0.003)	0.029*** (0.002)
CEO ownership	−0.001*** (0.000)	−0.002*** (0.000)	−0.001*** (0.000)	0.000 (0.001)	−0.001 (0.001)	−0.001 (0.001)
CEO age	−0.001*** (0.000)	−0.002*** (0.000)	−0.001*** (0.000)	−0.002*** (0.001)	−0.001 (0.002)	−0.001*** (0.000)
log (tenure)	−0.004 (0.003)	−0.002 (0.003)	0.001 (0.002)	0.008*** (0.002)		
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	No	No
Firm-fixed effects	No	No	No	No	Yes	Yes
R <sup>2</sup>	0.351	0.285	—	—	0.154	0.137

and CAPEX, and not merely a growth firm effect. Furthermore, the use of IV techniques alleviates concerns that the founder only stays as CEO if the firm is doing well and can afford to grow rapidly.

## B. Mergers and Acquisitions

I study the completed U.S corporate M&A activities of founder-CEO and nonfounder-CEO firms during the sample period. The M&A activities of founder-CEO firms may be different from those of nonfounder CEOs for at least two reasons.

A manager's risk preferences may be associated with takeover decisions (e.g., Amihud and Lev (1981), May (1995)). For example, May (1995) studies the acquisition behavior of different groups of CEOs and finds evidence that diversifying merger activity is influenced by managerial objectives and preferences. The previously mentioned literature suggests that founders have higher risk-bearing capacities than nonfounders. Founder-CEO firms may therefore be less prone to making potentially value-destroying diversifying acquisitions. Jensen (1993) has conjectured that an executive can use acquisition activity not to buy targets that are

strategic and enhance the firm's value but rather to waste corporate resources and to build an empire. Founder-CEOs might be less prone to such inefficient empire building because they have a higher equity stake and a longer planning horizon. However, if founder-CEOs choose to empire build, they may succeed more often due to the powerful position they have in their firm. I examine the number of acquisitions per year as well as the value of the total annual acquisitions relative to firm size to test these hypotheses.

## 1. Deal Characteristics

I use the SDC Platinum database to identify all completed acquisitions by sample firms of private, public, and subsidiary targets from January 1992 to December 2002.

Table 10 shows summary statistics of the data. The 2,327 sample firms make a total of 8,138 acquisitions during the sample period. Nonfounder-CEO firms undertake 7,070, and founder-CEO firms undertake 1,068 acquisitions. SDC reports complete transaction data for approximately 47% of all acquisitions. I classify an acquisition as nondiversifying if the target's main business line is operating in the same Fama-French (1997) industry as the acquirer's. Nonfounder-CEO firms made 3,765 nondiversifying acquisitions, which corresponds to 53.3% of all acquisitions they made. The univariate statistics show that founder-CEO firms undertook more nondiversifying acquisitions (60.9% of all activity). The majority of all target companies are private companies for both nonfounder- and founder-CEO firms, followed by subsidiary and public targets. The incidence of private targets is, at 60.2%, significantly higher for founder-CEO firms than for nonfounder-CEO firms (48.9%). At the same time, the incidence of public targets is significantly lower for founder-CEO firms. Given that Moeller, Schlingemann, and Stulz (2004) and Masulis, Wang, and Xie (2007) find, on average, positive acquirer announcement returns for private targets and negative returns for public targets, the frequencies of Table 10 can be interpreted as suggestive evidence for better acquisitions by founder-CEO firms.

Panel B of Table 10 shows the statistics for all M&As for which SDC provides details on transaction price and method of payment. The statistics on diversifying acquisitions and type of target are similar to the overall sample. Nonfounder-CEO firms tend to make more cash-only acquisitions, and the overall percentage of cash in deals is significantly higher for nonfounder-CEO firms (61.6%) than for founder-CEO firms (56.4%).

## 2. Acquisition Count and Acquisition Ratios

I use two measures to identify acquisition activity. Following Gompers et al. (2003), I count the number of acquisitions per firm-year (acquisition count). To gauge the acquisition activity in relation to the size of the firm, I also calculate an acquisition ratio as the sum of the prices of all acquisitions in each calendar year, divided by the firms' average market capitalization for the first day and last day of the year. The latter statistic requires recorded transaction prices and thus uses only 3,280 and 502 observations for nonfounder-CEO firms and founder-CEO firms, respectively. The mean transaction volume by firm-year is \$596 million (median \$65 million).

TABLE 10  
Mergers and Acquisitions: Summary Statistics

Panel A of Table 10 presents the number and characteristics of all completed mergers and acquisitions (M&As) of private, public, and subsidiary targets made by sample firms during the sample period. Panel B presents the number and characteristics of M&As for which a transaction price and method of payment were recorded by SDC. The first two columns provide statistics for nonfounder-CEO firm-years, the last two columns present statistics for founder-CEO firm-years. \*\* and \* indicate statistically significant difference in the means for founder- and nonfounder firms at the 1% and 5% levels, respectively.

	Nonfounder Firm-Years		Founder Firm-Years	
	No. of Obs.	% of Total	No. of Obs.	% of Total
<i>Panel A. All Mergers and Acquisitions</i>				
Total number of acquisitions	7,070	100.00	1,068	100.00
Total number of acquisitions with transaction prices	3,280	46.39	502	47.00
Nondiversifying acquisitions	3,765	53.25	650	60.86**
Diversifying acquisitions	3,305	46.75	418	39.14**
Private target	3,459	48.92	643	60.21**
Public target	1,257	17.78	145	13.58**
Subsidiary target	2,354	33.30	280	26.22**
<i>Panel B. M&amp;As with Recorded Transaction Prices</i>				
Total number of acquisitions	3,280	100.00	502	100.00
Nondiversifying acquisitions	1,906	58.11	320	63.75*
Diversifying acquisitions	1,374	41.89	182	36.25*
Private target	1,228	37.44	247	49.20**
Public target	930	28.35	107	21.31**
Subsidiary target	1,122	34.21	148	29.48*
Cash-only acquisitions	1,567	47.77	212	42.23*
Average % paid with cash	61.58%		56.44%**	
Average % paid with stock	33.63%		38.87%**	
Average % paid differently	4.79%		4.69%	

Table 11 summarizes the results of regressions for both the acquisition count and the acquisition ratio. For the acquisition count, I estimate a full information maximum likelihood endogenous switching model for count data (Terza (1998)) to address the issue of endogeneity of founder-CEO status. In this model, the dummy variable for the treatment group (founder-CEO) is instrumented with “personal name” and “early incorporation.” Columns 1–3 of Table 11 present the results for the acquisition count on the instrumented founder dummy, the natural logarithm of Q, the natural logarithm of market capitalization, firm age, and operating cash flow, all measured in December  $t - 1$ . Andrade and Stafford (2004) document that there is industry clustering for acquiring firms during the 1970–1994 period. Therefore, I include the 48 Fama-French industry dummies and year dummies in the regression.

Columns 4–6 of Table 11 present the results of IV Tobit regressions of the acquisition ratio on the same explanatory variables and instruments. I estimate a Tobit regression because 53% of the sample firm-years have a value of zero dollars for the dependent variable.

Column 1 of Table 11 demonstrates that larger, older firms with higher market values acquire more firms per year. Firms that are headed by founder-CEOs make more acquisitions per year than nonfounder-CEO firms after controlling for CEO characteristics. CEO ownership enters the regression with a negative effect, and CEO tenure has a positive effect. Columns 2 and 3 split the sample into nondiversifying and diversifying acquisitions and show a clear pattern:

TABLE 11  
Mergers and Acquisition Activity of Sample Firms (1992–2002)

The first three columns present results from a pooled time-series Poisson regression that allows for endogenous treatment effects. The dependent variable is the number of acquisitions per firm per year, the dependent variables include the natural logarithms of book-to-market ratio, firm age, and market capitalization, as well as cash flow, shares owned by the CEO, CEO age, and CEO tenure, all measured in December  $t - 1$ . Founder-CEO status is instrumented with an indicator variable that is equal to one if the name of the firm at the IPO contains a personal name related to the founder and an indicator variable equal to one if the firm incorporated prior to 1940. Additionally, I include year and the 48 Fama-French industry dummy variables to control for time and industry clustering (not reported). The first column reports the overall results, and the second and third columns split the sample into diversifying and nondiversifying acquisitions. The fourth through sixth columns present the results of an instrumental variable Tobit regression of the acquisition ratio on the same explanatory variables, using the same instruments for founder-CEO status. Acquisition ratio is defined as the sum of the value of all corporate acquisitions during a year scaled by the average of market value at the beginning and end of the year the acquisition occurred. Standard errors are reported in parentheses. \*, \*\*, and \*\*\* indicate significance at the 10%, 5%, and 1% levels, respectively.

	Acquisition Count			Acquisition Ratio		
	All	Diver.	Non-Diver.	All	Diver.	Non-Diver.
Intercept	-2.26*** (0.61)	-3.13*** (0.87)	-3.17** (0.72)	-0.39 (0.27)	-0.67** (0.25)	-2.17*** (0.41)
Founder dummy (instrumented)	0.22* (0.13)	0.02 (0.21)	0.38*** (0.12)	0.28 (0.31)	0.37 (0.31)	0.22 (0.39)
log (Q)	0.12** (0.05)	0.12* (0.06)	0.12* (0.06)	0.02 (0.01)	0.02 (0.01)	0.02 (0.02)
log (Market cap)	0.23*** (0.03)	0.28*** (0.04)	0.18*** (0.03)	0.01 (0.01)	0.013** (0.006)	0.02* (0.01)
log (Firm age)	0.03 (0.07)	0.02 (0.08)	0.04 (0.07)	-0.02 (0.04)	0.05 (0.04)	-0.07 (0.05)
Cash flow	0.45 (0.31)	0.39 (0.40)	0.49 (0.39)	-0.01 (0.09)	0.01 (0.07)	-0.02 (0.12)
CEO age	-0.02*** (0.00)	-0.010 (0.007)	-0.02*** (0.01)	-0.004*** (0.001)	-0.004** (0.001)	-0.003* (0.002)
CEO ownership [%]	-0.014** (0.005)	-0.006 (0.007)	-0.020*** (0.005)	-0.006 (0.004)	-0.008* (0.004)	-0.003 (0.005)
CEO tenure	0.07** (0.04)	0.05 (0.04)	0.09** (0.04)	-0.005 (0.025)	-0.02 (0.02)	0.03 (0.03)
Year-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Founder-CEOs make considerably more nondiversifying acquisitions than nonfounder-CEOs (i.e., they invest in firms that are in the same industry).<sup>12</sup> This result is consistent with the conjectures of Fama and Jensen (1983) about organization-specific skills of entrepreneurs and the evidence of May (1995), who shows that entrepreneurs are specialists who acquire firms that correspond to their specific skill set.

Columns 4–6 of Table 11 show the results of an IV Tobit regression of relative acquisition size on explanatory variables and founder status. The results suggest that founder-CEOs are not different from other firms' CEOs with respect to the overall acquisition dollar volume relative to the market valuation. Firm characteristics, with the exception of size, do not seem to influence firms' dollar acquisition activity relative to their market valuations.

Columns 1–3 of Table 11 show that founders make more acquisitions per year, and columns 4–6 demonstrate that the aggregate value of these acquisitions

<sup>12</sup>The results of columns 1–3 of Table 11 hold when I condition on having price and type of payment information available before I count the number of acquisitions.

is not different from those made by other CEOs. Overall, it can therefore be concluded that the average value per acquisition is smaller for founder-CEO firms.

Taken together, the results of Table 11 demonstrate that founder-CEO firms are active in the acquisition market, but that they buy targets that are operating in their industry of knowledge and that are smaller in size.

## V. Discussion of Empirical Results

### A. Discussion of Founder-CEO Firms' Stock Returns

At first glance, the strong stock market results of founder-CEO firms are puzzling. Founder-CEO status is easily observable. If a founder-CEO consistently mattered for the success of a firm, founder-CEO status should be fully incorporated into share prices. But then, one would not expect any excess performance of founder-CEO firms. I now discuss several possible explanations of the observed excess stock market performance.

In the stock return regressions, I do not instrument founder-CEO status. Yet, if high current valuations were to cause founders to stay put and if firms with high current valuations had different expected returns than firms with low current valuations, then founder-CEO firms may have different returns than other comparable firms for reasons unrelated to the founder. In other words, founder-CEO status would not be entirely exogenous in the stock return regressions.<sup>13</sup> I find that founder-CEO firms have a higher stock market performance than comparable firms. This finding is inconsistent with the above explanation because the empirical literature has found that high valuation firms typically have *lower* expected returns (e.g., because of the value premium or overvaluation). In addition, evidence in Table 5 indicates that the direction of causality runs from founder-CEOs to valuation.

My stock market return results are consistent with the idea that the market feared that founder-CEOs would expropriate outside shareholders, but overestimated the costs at the beginning of the sample period. However, such an explanation is inconsistent with the firm valuation results: Founder-CEO firms were persistently valued higher than nonfounder-CEO firms.

The positive stock market returns could potentially be explained by the market's continuous surprise over a better-than-expected accounting performance by founder-CEO firms. I examine two measures of accounting performance: return on assets (ROA) and operating cash flow (OCF). I follow Holthausen and Larcker (1996) in the definition of both variables. I use an industry and performance matched benchmark, as suggested by Barber and Lyon (1996), Holthausen and Larcker (1996), and Larcker (2003), to detect any abnormal performance. This test asks whether an outside observer would be able to detect a better performance of a founder-CEO firm in year  $t$  if he had matched a founder-CEO firm to a nonfounder-CEO firm with similar accounting performance in year  $t - 1$ . I do not find any evidence of an abnormal accounting performance, using the two

<sup>13</sup>I thank an anonymous referee for pointing this out to me.



measures described above. The market's surprise over good accounting performance is not a driving factor of the stock market performance results.<sup>14</sup>

An alternative explanation is that founder-CEOs have a different attitude toward risk and tend to pursue active growth strategies. These strategies may have worked well during my sample period of a particularly strong economic expansion, but they may hurt firms during other time periods. Investors may therefore demand a risk premium for an investment in founder-CEO firms. When I include proxies for the investment activities of founder-CEO firms in the Fama-MacBeth regressions of Table 8, the excess performance is reduced by 5 bps but remains positive and significant.

Overall, the stock market results appear robust to a variety of potential explanations. There is some evidence that the stock market results are correlated with the investment decisions of founder-CEOs. It would be interesting to see whether the stock market results are a particularity of my sample period, in which the economy was mostly in an expansion, or whether they also hold for other periods that include recessions.

## B. Discussion of Founder-CEO Firms' Investment Behavior

I find that founder-CEO firms invest more in CAPEX and R&D and make more but smaller nondiversifying acquisitions. These results are consistent with the results of other studies linking CEO characteristics to firm decision making (e.g., Bertrand and Schoar (2003)). One possible interpretation of the results of Tables 9 and 11 is that these higher expenditures and strategic acquisitions in the core business lead to the increases in firm valuation reported in Table 5.

It is important to note, however, that more investments or acquisitions are not necessarily value-increasing. Investments are an input in the production process and not an outcome variable. For example, large new investments in negative net present value (NPV) projects are value-destroying. Founder-CEOs may be more susceptible to an overinvestment problem, perhaps because they meet less resistance to investing in poor projects or to undertaking negative NPV acquisitions due to their dominant position within the organization. An alternative link between firm valuation and investments could therefore be that more investments lead to a lower firm valuation and that the stronger valuation of founder-CEO firms comes from those firms in which founders employ fewer resources more efficiently.

To shed some light on the issue of whether founder-CEOs that invest more make good or bad investment decisions, I look at the announcement returns to the acquisitions made by founder-CEOs. In unreported regressions, I calculate returns to the announcements of acquisitions by sample firms, separated by founder-CEO status. The announcement return is measured as a cumulative market-model-adjusted abnormal stock return around initial acquisition announcements. I use five-day cumulative abnormal returns around the announcement date, and the CRSP value-weighted return as market return. The results are very similar using equally-weighted market returns and a shorter  $[-1, 1]$  or longer  $[-3, 3]$

<sup>14</sup>A table containing the results is available from the author.

event window. The market reaction to founder-CEO firms announcing acquisitions is positive; both the mean and median cumulative abnormal return is positive and statistically significantly different from zero. When I estimate multivariate regressions of announcement returns following the framework of Moeller et al. (2004) and Masulis et al. (2007), I find that the overall market reaction to founder-CEO-announced acquisitions is positive but insignificant. For a subgroup of acquisitions (cash-only), the market reaction is positive and statistically significant.<sup>15</sup>

Overall, I conclude that one part of the investment activity of founders, acquisition activity, does not appear to be value-destroying. This suggests that investment decisions of founders could indeed have a positive association with the higher valuation for founder firms. In future work, it would be interesting to establish an even closer link between all investment decisions and valuation.

## VI. Conclusion

Eleven percent of the largest public U.S. firms are led by founder-CEOs. I document that founder-CEO firms differ systematically from successor-CEO firms. Founder-CEO firms not only have a higher firm valuation than nonfounder-CEO firms, but also a higher stock market performance. Furthermore, they undertake more acquisitions in their core business and invest more in R&D and capital expenditures.

Villalonga and Amit (2006) demonstrated that the previously identified higher valuation of family firms (e.g., Anderson and Reeb (2003)) appears to be mostly driven by family firms with founder involvement. Merely a large ownership stake by descendants of a founding family does not appear to influence valuation. The results of Adams, Almeida, and Ferreira (2009) and this paper confirm this finding and establish that causality appears to run from founder-CEOs to higher valuation. In addition, my results contribute to our understanding of what makes firms with founder-CEOs special. The investment behavior of founder-CEOs is consistent with the characteristics ascribed to founder-CEOs in the literature and suggests that founder-CEOs have a large impact on the decisions taken by their organizations.

I provide some evidence that the larger investment expenditures of founder-CEO firms do not correspond to an overinvestment by founder-CEOs, but that they are used to undertake positive NPV projects. Therefore, one possible explanation of the higher valuation of founder-CEO firms is that during the 1990s, founder-CEOs successfully embraced an expanded investment opportunity set.

An equal-weighted (value-weighted) investment strategy that invested in founder-CEO firms during 1993–2002 would have earned an abnormal return of 8.3% (10.7%) annually in excess of what could have been achieved by a passive investment in the four factors described in Fama and French (1993) and Carhart (1997). The excess return is persistent after the removal of technology firms and occurs in both the earlier and later sample period. I study several explanations

<sup>15</sup>The results of these regressions are available from the author.

of this surprising result but do not find evidence that could rationalize the excess stock market performance.

Is the excess stock market performance of founder-CEO firms a particularity of my sample period of overall exceptional stock market performance? To what extent is the excess performance related to the investment behavior of founder-CEOs, and does it differ in different economic scenarios? Answers to these questions could shed further light on the surprising stock performance results of founder-CEO firms.

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