When CEOs Adapt:

An Investigation of Manager Experience, Policy and Performance Following Recessions

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Abstract

We examine CEO learning and changes in corporate policies and value. Following a recession, CEOs make strategic policy shifts, which are both persistent and substantive, resulting in higher firm value and performance during subsequent recessions. Specifically, recession experienced CEOs use conservative capital structure and leaner operations during periods of economic growth, providing excess capacity during economic contractions. As a result, Recession CEOs are equipped to raise more capital during recessions, whereby excess financial slack allows Recession CEOs to bolster cash reserves and limit bankruptcy risk through conservative financial policies. Additionally, we examine prior recession performance and find poor performers are the primary learners as they increase investment and performance in subsequent recessions. We offer novel evidence of permanent shifts in policies following direct managerial experience.

EFM Classification Codes: 120; 130; 140; 150; 210; 240

I. Introduction

CEOs are widely studied, and the debate as to the relevance and value of CEOs has sparked a literature relating CEO characteristics and corporate policies (Custódio & Metzger 2013; Graham *et al.* 2013).[1] While many studies examine early-life experience to identify CEO style (Bertrand & Schoar 2003; Malmendier & Nagel 2011; Malmendier *et al.* 2011; Schoar & Zuo 2013; Bernile *et al.* 2017), little is known about the shifts in corporate policy from learning within each CEO's career. However, recency effects suggest experiences from the latter part of a career have substantive impacts on decision-making (Shiller 1981; De Bondt & Thaler 1985; Daniel *et al.* 1998).[2] Therefore, we study changes in corporate policy and firm valuation following managerial recession experience. In particular, we focus on differences throughout economic conditions.

Prior research investigates CEO characteristics and experience but stops short of examining events during the CEO's tenure. For example, a developing literature focuses on the influence of formative early-life events on managerial style, including Bernile *et al.* (2017), who show a non-linear relation between early-life natural disasters and CEO risk-taking, and Bertrand and Schoar (2003), who find that earlier birth cohorts are more conservative. Similarly, Malmendier *et al.* (2011) and Schoar and Zuo (2013) examine the influence of early-life economic contractions and find CEOs experiencing an economic downturn during an early, formative stage in life are more conservative, while Fee *et al.* (2013) examine style around turnover. Considering recency effects, we investigate the impact of managerial experience on corporate policy, specifically focused on recession experience and its effects on firm policy and value during varying economic conditions.

[1] See e.g., Yihui *et al.* (2016), Demerjian *et al.* (2012), Kaplan *et al.* (2012), Bennedsen *et al.* (2012), Bennedsen *et al.* (2010), and Graham and Narasimhan (2004), which study CEOs and their relation to corporate policy.

[2] Also, see e.g., the neuroscience and psychology literatures, initiated by Bem (1965) and Deese and Kaufman (1957) and including recent work such as Martin *et al.* (2007), who explain memory recall is driven by the serial position of lists and often recall begins with the end, such that most recent events are most easily recalled.

To date, little is known about the consistency of behavior across economic conditions, which is surprising given how many chief executives encounter a recession during their tenure. Further, poor performance, CEO turnover, and firm reorganization are all more frequent when the economy is less certain, and avoiding these outcomes is critical to the success of not only the firm but also the CEO (Gilson & Vetsuypens 1993).[3] Importantly, economic events directly relate to strategic policies and risk-taking (Barker *et al.* 2001; Rajan & Zingales 2003; Fahlenbrach *et al.* 2012; Kacperczyk *et al.* 2014). Therefore, understanding the determinants of CEO strategic decisions around recessions may provide insight into corporate strategy and outcomes, which is valuable in an evolving economic landscape with frequent and persistent economic contractions.[4]

We document that CEOs with managerial recession experience ("Recession CEOs") retain excess borrowing capacity and financial flexibility in their capital structure during economic expansions. By operating with lower debt and working capital during expansions, Recession CEOs have financial slack during subsequent recessions and hoard cash to avoid bankruptcy, lowering the Altman (1968; 1989) Z-score relative to other firms. In recessions, excess borrowing capacity is utilized to raise capital and provide additional financial slack in the form of relatively higher cash holdings. In addition to a lower bankruptcy risk, the policies result in relatively higher firm value and performance during recessions. Finally, we show these positive corporate outcomes are not driven by persistently superior firms but by previously poor performers, suggesting Recession CEOs learn from direct managerial recession experience during their tenure as CEO.

[3] Also, see e.g., Easterwood *et al.* (2012), Brookman and Thistle (2009) and John *et al.* (1992). Other studies consider the effects of financial distress, and economic contractions, such as Bhagat *et al.* (1994) and Opler and Titman (1994), especially surrounding the recent recession.

[4] See e.g., The National Bureau of Economic Research's "US Business Cycle Expansion and Contractions," http://www.nber.org/cycles.html, which shows the frequency of recessions changes throughout time, with the recent decades containing as many recessions (by count and number of months) as any in the post-war era, including the longest recession in nearly a century.

For our analysis, we use a sample of S&P 1500 firms from 1992 to 2015 and identify CEOs during recessions. Subsequently, we label these CEOs as Recession CEOs and compare them to their peers without such experience. First, to establish whether managerial recession experience impacts CEO strategy across economic conditions, we compare corporate policies of Recession CEOs to peer CEOs on average. Specifically, we analyze bankruptcy risk (i.e., Altman Z-score, cash holdings, and working capital), capital structure, and investment in acquisitions, research and development, and capital expenditures to evaluate if CEO corporate policies relate to recession experience. We show that Recession CEOs hold 5% less debt (nearly $180 million) in their capital structure than their peers during expansionary periods, providing financial flexibility during subsequent economic downturns. This is consistent with the literature on negative experiences in formative years, indicating that recession experience results in conservative behavior. We also observe leaner operations in the form of a 5% lower level of investment ($70 million) and 4% (over $105 million) lower working capital, which may result from less available capital due to lower debt but may also lessen the cash conversion cycle. These leaner operations can also allow for financial flexibility, so next we examine policies during economic contractions. Again, Recession CEOs exhibit different financial policies than other CEOs. Relative to firms led by CEOs without recession experience, Recession CEO firms hold 8% more debt (nearly $320 million) in recessions, providing evidence of financial flexibility to issue long-term debt, perhaps at relatively inexpensive rates (Baker *et al.* 2003).

To identify the impact on shareholders, we also examine firm market value. We find that firms led by recession CEOs have lower market value during economic expansions but approximately 9% higher market value during recessions, relative to industry peers, accounting for over one billion USD. Our results show that simply observing the average effect is not

sufficient to fully understand the benefit of managerial recession experience. For some firms, limiting downside risk may be more important than upside potential. Similarly, this value appears to be in part related, not only relatively higher accounting performance (ROA), but also relatively lower bankruptcy likelihood, measured by Altman (1968; 1989) Z-Score, as recessions appear to have limited effects on Recession CEO firms, despite substantive costs for peers. Our results suggest CEOs who have managed a firm in a recession employ leaner, contrarian corporate policies resulting in positive valuation effects during recessions. Finally, we separately examine Recession CEOs by prior recession performance and find that changes in investment policy and firm value are driven by previously poor performers, suggesting our results are not a result of superior managerial ability or persistently high performance but executive learning.

Taken together, our results suggest Recession CEOs exhibit strategic corporate policies that respond to the economic environment and are associated with relatively higher firm value during recessions due to superior performance and lower risk. These results suggest CEOs learn from managerial experience to the benefit of shareholders during recessions. Whether CEOs learn that the probability or the cost of recessions exceeds a priori beliefs or simply how to navigate the environment, CEOs learn conservative capital structure and lean operations best prepare firms for future economic contractions, where flexible firms can take advantage of recession financing. Alternatively, the results would be consistent with Recession CEOs possessing superior ability, but this would imply markets only recognize this fact during subsequent recessions, evidence of substantive friction. Further, Recession CEOs with previously poor performance exhibit the largest benefits, suggesting any superior ability they possess does not manifest itself until after the recession, consistent with a learning explanation. Other explanations could relate to talent evaluation and turnover taking place during recessions, which the literature does not suggest

(Farrell & Whidbee 2003; Kaplan & Minton 2012).[5] Overall, our study offers insight into the impact of managerial experience on corporate policies and resulting market value in varying economic conditions. In particular, for firms especially concerned about performance during economic downturns, turning around previously poor performance, or survival during times of distress, direct managerial recession experience may be a first order concern.

We provide three primary contributions: investigating managerial experience as a determinant of corporate policy, comparing corporate policy across economic conditions, and analyzing firm value resulting from strategic shifts. First, we evaluate the impact of direct managerial experience and compare it to measures from the literature, by identifying the impact of managerial recession experience on capital allocation, structure, and value. While a growing number of studies examine early life experience, including growing up in The Great Depression (Malmendier *et al.* 2011), initial labor force entry during a recession (Schoar & Zuo 2013), and early life natural disasters (Bernile *et al.* 2017), they do not study recent experience. If the influence of a life event is decreasing over time, then more recent experience could overshadow early life experience (Daniel *et al.* 1998). Considering direct managerial experience, we observe CEO's changing styles, furthering research on managerial impact on corporate policy (Fee *et al.* 2013).

Next, while earlier studies analyze the influence of early-life events on CEO strategy, they evaluate the average influence throughout CEOs' careers, without considering its persistence across different economic settings. For example, if CEOs influenced by early-life recessions behave increasingly conservatively or aggressively in close proximity to recessions or expansions, then the observed effects may not persist across economic environments. Importantly, several

[5] See e.g., Blank *et al.* (2017), who show that from 1999 to 2012, 2008 has the fewest internal CEO succession events, which are the most common type of turnover, while 2012 has the most.

other literatures observe varying individual and organizational behaviors across economic conditions (Barker *et al.* 2001; Rajan & Zingales 2003; Fahlenbrach *et al.* 2012; Kacperczyk *et al.* 2014). We show that CEO strategy is another area where economic conditions relate to policy and resulting valuation, by separately analyzing recessionary and non-recessionary periods. We further the understanding of CEO style and determinants, suggesting it may be incomplete to characterize CEOs influenced by early-life hardship as conservative. Trends may depend on the frequency or length of expansions during the sample period. Therefore, we consider economic conditions to capture the conditional expectation for a particular economic state to generalize our results and implications, which is important since the composition of economic conditions varies over time.

Finally, while earlier studies identify conservative policies for firms with CEOs influenced by early-life difficulties, the impact of the policies on value is uncertain. If firm boards and shareholders seek to understand the performance of highly paid CEOs, we must consider not only behavior but also implications. CEOs in industries with high bankruptcy rates may benefit from CEO selection related to experience improving survival. The rest of the paper is organized as follows. Section II discusses related literatures, while Section III describes the sample. Section IV discusses the empirical methodology and results before Section V concludes.

II. Related Literature

CEOs have been extensively studied, likely more than any other group of individuals, yet it is not clear how CEOs develop and what characteristics make someone more likely to be a successful CEO (Bertrand 2009). However, the literature does show that management characteristics help explain variation in corporate finance decisions, including capital structure and investment allocation (Hambrick & Mason 1984; Bertrand & Schoar 2003; Coles *et al.* 2006;

Kwee *et al.* 2011; Malmendier *et al.* 2011). [6] Following the theory of the firm outlined by Jensen and Meckling (1976) where outcomes reflect managerial discretion, Hambrick and Mason (1984) gather a fragmented literature in management science and note organizational outcomes, including performance and strategic choices, are partially predicted by managerial background. Bertrand and Schoar (2003) provide evidence of the impact of managerial characteristics, showing managers influence firm decisions and explain heterogeneity in investment, financial, and organizational practices. They observe patterns across firms consistent with managerial "style." Specifically, they find earlier birth cohorts are conservative, while managers with a graduate, business education are more aggressive. Recently, Schoar and Zuo (2016) have illustrated that the market values certain managerial styles and backgrounds.

However, Fee *et al.* (2013) analyze CEO departures and conclude that style may not be individual-specific. They suggest managerial style depends on the board's CEO-selection process, allowing for nuanced managerial effects over the CEO's tenure, similar to Bennedsen *et al.* (2012), who find deaths of CEO family members are negatively related to firm performance around the time of the death. These results suggest within-manager variation may be substantive, potentially as much as the across-manager variation, suggesting CEOs may exhibit corporate policy changes during their tenure as CEO following new experience. While Bennedsen *et al.* (2012) focus on negative shocks to policy decisions and firm value, changes can be beneficial to shareholders also. For example, Yihui *et al.* (2016) focus on effects of CEO lifecycles and document benefits of CEO

[6] Custódio & Metzger (2013) find that industry-expert CEOs provide benefits to firms, such as superior acquisition identification and bargaining. Further, Custódio *et al.* (2013) conclude that CEO general skills and ability increase the value of a CEO, especially across firms. In this case, recent work experience allows for expertise associated with firm benefits. Alternatively, Xuan (2009) finds CEOs familiar with firms and industries allocate capital inefficiently.

investment cycles. However, these studies stop short of observing permanent firm policy changes related to experience during a CEO's tenure, creating within-manager variation.

A. CEO Experiences as Determinants of Corporate Policy

Corporate policy associated with prior experience is unique because it is individual-specific. Graham and Narasimhan (2004) provide evidence of the impact of managerial experience in their finding that the departure of a Depression-era President is linked with reduced firm risk aversion. Recently, Malmendier *et al.* (2011) observe that management experiences explain corporate financing decisions, noting CEOs growing up in the Great Depression are averse to debt and external financing. They also find that CEOs with military experience pursue aggressive policies and higher leverage. Further, Schoar and Zuo (2013) show economic conditions when CEOs enter the labor market have career implications. CEOs who first entered the labor market during a recession take less time to become CEO but manage smaller firms for less compensation and are less likely to change firms and industries. CEOs who enter the labor market during a recession also display conservative style: lower capital expenditures and R&D, less leverage, more diversification, and lower overhead. Most of the variation relates to experience entering the labor force rather than childhood experiences or ex ante selection, suggesting more recent effects may be significant. These studies suggest managers rely on experience in forming firm strategies.

However, while both observe the impact of early life experiences on CEO behavior, we focus on CEO experiences following their initial appointment as CEO, as more recent experiences could also directly impact CEO behavior (Deese & Kaufman 1957; Bem 1965; Daniel *et al.* 1998; Martin *et al.* 2007). In fact, the increased importance of the effects of recent events and experiences have been highly studied in equity markets and other areas of finance for decades (Hong & Stein 1999; Kadiyala & Rau 2004; Milian 2015). Though the current literature on CEOs largely ignores

the effect of recency, managers exhibit style during their tenure, which can relate to experiences early in life similar to early-life recession experience relating to conservative style.

B. The Importance of Economic Environment

The literature also finds that individual and organizational behavior varies across economic conditions. For example, Barker *et al.* (2001) study manager turnover around uncertainty and suggest that large firms replace fewer top management team members during turnaround attempts (Samuelson *et al.* 1985; Firth *et al.* 2006). This suggests that firms change strategy with economic conditions. Additionally, Fahlenbrach *et al.* (2012) investigate whether prior bank performance during the 1998 financial crisis is predictive of performance in the recent financial crisis and find that performance in both crises are related (Beltratti & Stulz 2012). These results imply that some firms may also be better equipped for transitional periods like economic downturns. Finally, in the economic literature, Rajan and Zingales (2003) observe that comparing the structure of an economy during transition yields different conclusions than during equilibrium, since different structures have different benefits (Kahneman & Tversky 1979; Song & Thakor 2006; Malmendier & Nagel 2011). To better understand determinants of CEO behavior and implications, we analyze firm policy and the valuation impact across economic conditions.

Kacperczyk *et al.* (2014) investigate mutual fund manager behavior at different points in the business cycle and observe that manager skill varies in importance throughout the cycle (Ferson & Schadt 1996). Similarly, it could be that CEOs exhibit multiple skillsets or strategies, which have varying levels of value during different economic conditions. Though the prior literature has associated early-life recession experience with conservative CEO strategy, it is also possible that a CEO's corporate policies vary with economic conditions. If CEOs with prior managerial recession experience are able to observe depressed asset prices during the business

cycle, they could take advantage of this in the subsequent cycle. This may be associated with strategy that is either increasingly conservative in proximity to recessions (as economic signals deteriorate), or strategy that is responsive to the economic environment, such that capital is allocated more rapidly during recessions, when assets are underpriced and firms are unable to compete. Thus, substantive within-manager variation in corporate policy may demonstrate learning from prior experiences following appointment as CEO. Furthermore, if firm policy is influenced by the experience of Recession CEOs, it is also possible that these firms exhibit higher relative firm value, resulting from learning. That is, CEOs with recession experience would be associated with corporate policies that result in positive effects on firm value, though not necessarily across all economic conditions.

III. Data and Sample Construction

The sample is constructed beginning with the Executive Compensation (Execucomp) database of Compustat, which is readily available beginning in 1992 through 2015 and covers firms included in the S&P 1500. Financial data for these firms come from Compustat. Using Execucomp, each firm's CEO is identified, beginning with CEOs in 1992, and their characteristics that capture experience are collected, including age and tenure. Next, in order to identify Recession CEOs (i.e., CEOs who experience a recession following the beginning of their tenure as CEO), The National Bureau of Economic Research (NBER) data regarding US Business Cycle Expansions and Contractions are utilized. These data include Business Cycle Reference Dates beginning in December 1854. According to NBER, contractions (recessions) begin at the peak of a business cycle and end at the trough. Data regarding the duration of each contraction, expansion,

and cycle are also available.[7] To examine the role of prior managerial recession experience, CEOs are characterized as Recession CEOs following a recession after the CEO's tenure begins. The subsequent recessions allow for the comparison of Recession CEOs to other (non-recession) CEOs. For example, CEOs who begin their CEO tenure prior to the 2001 recession are subsequently labeled as Recession CEOs in 2002 and beyond.

Our primary sample requires each observation to include the full set of control variables and variables of interest from the study, which limits the sample to 22,469 firm-year observations.[8] On the basis of firm-year observations, just over half of the sample has previous recession experience. Approximately 20% of the observations take place during a recession.[9] For the purposes of comparing our study to others such as Malmendier *et al.* (2011) and Schoar and Zuo (2013), approximately 32% of the sample CEO observations grew up during recessions and 28% entered the labor force during recessions.[10] Additionally, the limited amount of elapsed time reduces noise provided by alternative events. That is, the few years elapsed between recessions is

[7] See e.g., The National Bureau of Economic Research's "US Business Cycle Expansion and Contractions," http://www.nber.org/cycles.html, which states, "The NBER does not define a recession in terms of two consecutive quarters of decline in real GDP. Rather, a recession is a significant decline in economic activity spread across the economy, lasting more than a few months, normally visible in real GDP, real income, employment, industrial production, and wholesale-retail sales. For more information, see the latest announcement of the NBER's Business Cycle Dating Committee, dated 9/20/10…Prior to 1979 there no formal announcements of business cycle turning points."

[8] All tables but our subsample analysis, which focuses on the latter part of the sample period, and Tables V and VI, which focus on dependent variables with limited data, utilize the primary sample. Our results are generally similar with various sample requirements. For example, our results are robust to the inclusion of all observations with available data for each model. For the purposes of comparability and consistency, the same sample is utilized throughout each table. Primary data limitations are associated with CEO characteristics such as tenure and age.

[9] See e.g., Table I, which notes that approximately 60% of firm-year observations are associated with Recession CEOs. This is largely due to the fact that, following a recession, approximately 100% of CEOs have recession experience. This increases the importance of studying this group in the following recession. Prior to subsequent recessions, on average approximately 5% of the CEOs have prior managerial recession experience.

[10] While Schoar and Zuo (2013) label CEOs who turn ten years of age during a recession as "CEOs who grew up during a recession," we follow Malmendier et al. (2011) and identify CEOs who were born during a recession as those with Childhood Recession experience. However, our results and conclusions remain unchanged to alternative specifications.

far less than the duration of an individual's lifetime or career, which confounds the results with other impacts between the event of study (initial recession experience) and period of analysis (Tversky & Kahneman 1974; Shiller 1981; De Bondt & Thaler 1985; Daniel *et al.* 1998).

Since firms are limited to the S&P 1500, sample firms are all large with mean (median) *Sales* of approximately $6.5 ($1.6) billion. Mean (median) *Tobin's Q* for the sample is 1.82 (1.43) and both the mean and median R*eturn-on-assets* for the sample are approximately 12%, comparable to other Execucomp samples (Coles *et al.* 2008).[11] Data are normalized as a percentage of total assets. For example, *Total Investment* is the ratio of the sum of acquisitions, capital expenditures, and research and development expenses to total assets. The mean (median) ratio of *Total Investment* and *Total Debt* as a percentage of total assets for the sample is 10% (8%) and 25% (24%), respectively. The mean (median) level of total assets of the firms in the sample is approximately $15 ($2) billion. These data are also analyzed on an industry-adjusted basis using two-digit Standard Industrial Classification (SIC) code, for the Compustat universe of firms (Woidtke 2002). Industries with fewer than five firms for any particular period are dropped from the sample.[12] The average tenure and age of CEOs in the sample are 8 years and 56 years of age, respectively. The descriptive statistics for these data are tabulated in Panels A and B of Table I.

Next, we compare Recession CEOs to other CEOs by industry. Panel C of Table I summarizes the sample by the first digit of the standard industrial classification code. We show that Recession CEOs are least prevalent in retail firms and most common in the agriculture industry. However, on average, the distribution of Recession CEOs is similar to that of other CEOs, with more than half of CEOs in each industry having recession experience. Since manufacturing

[11] Coles *et al.* (2008) tabulate that Tobin's Q and ROA for a similar sample from 1992 to 2001 have a mean (median) of 1.79 (1.41) and 13.8% (13.4%), respectively.
[12] Results are robust to dropping industries with fewer than ten firms as well.

firms make up the largest industry in the sample, they also account for the largest percentage of CEOs both with and without managerial recession experience.

IV. Methodology and Results

To measure the influence of recession experience, we compare corporate policy and valuation for Recession CEOs and other CEOs by economic environment in Table II. The data are first segmented by whether or not the CEO has recession experience and then by recessionary and expansionary periods. Comparing the difference between the four groups leads to a few substantive distinctions, with the difference-in-differences being of particular interest for the purposes of this study. First, the difference between the sample of Recession CEOs and other CEOs during recessions, is statistically significantly different, at the 1% level, from the same difference during expansions, when comparing industry-adjusted debt.[13] This difference-in-differences is positive (0.02 = 2% of assets, which is approximately 8% of the sample average debt level). While non-recession CEOs exhibit debt that is similar (insignificantly lower) during recessions, Recession CEOs are associated with significantly higher recession debt. This would be consistent with Baker *et al.* (2003), which document that firms take advantage of low interest rate environments by issuing long-term debt.

We also show that Recession CEOs are associated with significantly lower net working capital, suggesting Recession CEOs operate leaner short-term financial policies. Finally, we observe a positive, though not statistically significant, difference between Recession CEOs and other CEOs for Altman Z-Scores, suggesting Recession CEOs could be associated with lower

[13] We also perform similar analysis with data that are not industry-adjusted (raw), the difference-in-difference for debt is also positive and statistically significant on a raw basis, similar to the industry-adjusted analysis.

bankruptcy probabilities. This difference is particularly important during recessions, when Z-scores are significantly lower for both groups, resulting in higher bankruptcy probability for all firms, as expected. However, this does not provide evidence as to whether or not this financing decision pays off for these CEOs in terms of firm value. Though the differences are positive for both firm value (*Ind-Adj Q)* and performance (*ROA)*, these differences are not statistically significant. As a result, multivariate analysis will be required in order to uncover a more complete picture of these results and further control for industry and firm characteristics in a more comprehensive analysis.

A. Multivariate Analysis of Recession CEOs & Corporate Policy

Before analyzing Recession CEOs during recessions, we investigate the general strategy of Recession CEOs, across economic conditions. Table III compares Recession CEOs to other CEOs, using capital allocation, capital structure, and firm value on an industry-adjusted basis. All specifications include fixed effects for two-digit SIC code.[14] We control for both firm and CEO characteristics. Firm-level controls associated with the manner in which the firm operates include *Leverage, Ind-Adj ROA, Total Assets, and R&D Intensity*, consistent with papers such as Coles *et al.* (2008). *Leverage* is included in order to control for firm risk that may exhibit differential responses in the dependent variables, especially during recessionary periods.[15] *Ind-Adj ROA* controls for firms that have varying levels of efficiency while *Total Assets* controls for other relative size effects. *R&D Intensity* is the ratio of research and development expenses to total assets, which controls for firms that exhibit high research and development expenses and thus have

[14] Results are generally qualitatively and quantitatively similar to both one- and three-digit SIC code specifications.
[15] Other specifications using different risk metrics, such as Beta, Return Volatility, Recent Loss in Market Capitalization, and Firm Age, provide similar results.

higher investment relative to assets or market value relative to book value (*Tobin's Q*).[16] These controls alleviate some of the firm specific effects that are of concern as being relevant to the variables of interest. Not surprisingly, Table III suggests that larger firms hold more debt and allocate less capital to investment, as a percentage of total assets.

Controls related to CEO characteristics include the age of the CEO, the CEO's tenure at the firm, and other recessionary experiences identified by the literature. The two primary effects previously studied are associated with whether or not CEOs have been influenced by a recession during formative early-life stages. The first study that examines these types of effects is Malmendier *et al.* (2011), which considers the effect of CEOs who grew up during The Great Depression. In a recent study, Schoar and Zuo (2013) examine the impact of CEOs who enter the labor market for the first time during a recession. In order to control for these effects, two variables are included. First, by calculating the CEO's birth year using the age given in Execucomp, the economic condition during the CEO's birth year is identified. *Childhood Recession* is a variable that is equal to one if the CEO was born during a period the NBER has identified as a recession and zero otherwise. The coefficient for *Childhood Recession* indicates the effect of CEOs who have experienced a recession as a young child. Next, we instrument for the year in which a CEO entered the labor market by assuming entry at the age of 24, consistent with Schoar and Zuo (2013).[17] This is the average age of CEOs first entering into the labor market in the sample of Execucomp CEOs. Thus, by utilizing a variable, *Labor Force Entry Recession*, which is equal to one when the CEO is age 24 during a recession and zero otherwise, the coefficient on this variable

[16] Consistent with studies such as Coles *et al.* (2008), R&D is set to zero when missing from Compustat.
[17] We follow Schoar and Zuo (2013) to remove the endogenous choice of the timing at which the individual determines to enter the labor market by creating an instrument for when the CEO would be expected to enter the labor market. The methodology utilized is simply to use the average labor market entry age of 24.

identifies the effect of CEOs who enter the labor market for the first time during a recessionary period. The impact of experiencing a recession as CEO of a firm is identified by the indicator variable, *Recession CEO*.[18] More importantly, the interaction of *Recession CEO* and *Recession, Recession CEO*Recession*, identifies the effect of a Recession CEO leading a firm through a recession.

When analyzing industry-adjusted debt in column 1 of Table III, the results also suggest that Recession CEOs are not significantly different from their peers, on average. Further, results in column 2 indicate that Recession CEOs do not allocate capital to investment in a significantly different manner than their peers, which suggests that Recession CEOs do not invest differently than their peers, across economic conditions. However, column 3 indicates that Recession CEOs exhibit lower firm value on an industry-adjusted basis. These results show that Recession CEOs do not always use significantly different financial policies than other CEOs, but this analysis does not allow for variation in economic conditions, which likely impact policies and firm value. Therefore, we will explore the role of different economic conditions next. Though Recession CEOs exhibit lower relative firm value on average, economic conditions may be important determinants of the magnitude and direction of this effect.

B. Capital Structure & Investment Strategy of Recession CEOs

In order to determine whether CEOs who have guided firms through recessions are associated with firm strategies around subsequent recessionary periods that are different from their peers, we follow up the univariate analysis from Table II with the multivariate setting described above in Table IV, beginning the investigation into differences in corporate policy around

[18] *Recession CEO* has also been substituted by a count of the number of recessions experienced as CEO with similar results. Results are also robust to various beginning and ending dates for the sample recessionary periods.

recessions. To identify the difference between the sample of Recession CEOs and other CEOs who do not have prior recession experience, the data is again segmented first by whether or not the CEO has recession experience and then by whether or not the period is a recession. If, in fact, Recession CEOs are influenced by recession experience as a CEO, then this impact should be evident in corporate policy. In this case, the strategy of firms led by Recession CEOs would be significantly different from the strategy of firms with other CEOs.

Columns 1 and 2 of Table IV analyze total debt on a raw and industry-adjusted basis. Given the univariate results, a positive coefficient on *Recession CEO * Recession* is expected. The multivariate results are consistent with this expectation and indicate total debt is relatively higher for Recession CEOs during recessions, relative to their industry peers. Specifically, when using industry-adjusted debt in column 2, the coefficient on *Recession CEO * Recession* is positive (Coefficient = 0.0211) and statistically significant (P-Value < 0.001). The economic magnitude suggests that debt is $322 (0.0211 * $15,244 = $322) million higher during recessions for firms with Recession CEOs relative to other firms.[19] This coefficient is 80% larger than that of *Recession CEO* (Coefficient = -0.0117), suggesting that while Recession CEOs hold lower debt on average during expansions, compared to peer firms, this difference is economically smaller than the difference during recessions. This is evidence that although CEOs who have recession experience as CEO may operate at lower debt ratios in general, relatively less debt allows Recession CEOs to take advantage of this slack at opportune times. If Recession CEOs are taking advantage of this slack during recessionary periods by operating at debt levels closer to other CEOs, it may have

[19] Table I notes that *Total Assets* for the sample has a mean of $15,244 million, which is utilized for the purposes of these calculations, due to scale of debt measures. Results are similar utilizing the constant and excluding fixed effects.

advantages in terms of relative costs of debt.[20] For example, Baker *et al.* (2003) find that firms take advantage of low interest rates by taking out long-term debt. This could be, in part, due to the effects Beltratti and Stulz (2012) find, where reliance on short-term financing during the financial crisis is associated with fragility.

Although Recession CEOs demonstrate greater leverage in recessionary periods, the use of this increased debt is unknown. One possibility is that firms with Recession CEOs are able to invest at periods that are economically fruitful, enabled by the increased debt. If experienced CEOs observe that investment projects are more profitable when undertaken during recessions, then one would expect firms who have Recession CEOs to increase investment during recessions, while other CEOs do not. In the alternative case, the inverse would be expected. Columns 3 and 4 of Table IV analyze investment, focusing on raw and industry-adjusted dependent variables. In both columns, we observe a negative and statistically significant relation between recession experience and investment (Coefficients = -0.0112 and -0.00459, respectively), which indicates that Recession CEOs exhibit relatively conservative investment strategies during expansionary environments, compared to industry peers. This effect accounts for 4.5% of the average firm's total investment and $70 million (based on the coefficient in column 4), suggesting the result is both statistically and economically meaningful. In contrast, in the third column we observe a positive and significant coefficient on the interaction of *Recession CEO* * *Recession* indicating that Recession CEOs invest more in recessionary periods when they can take advantage of low-cost opportunities. However, the coefficient is insignificant in the fourth column when we utilize industry-adjusted investment as the dependent variable.

[20] See e.g., Federal Reserve Economic Data (FRED) are available at the Federal Reserve Bank of St. Louis and include interest rate data that show relatively lower interest rate environments in economic downturns: http://research.stlouisfed.org/fred2/.

C. Corporate Activity and Operations of Recession CEOs

In order to understand the investment policy and capital structure, the next analysis investigates the explicit form of investment, as well as changes in capital structure. Columns 1 through 4 of Table V examine long-term debt, debt issues, capital expenditures, and acquisitions, respectively. We observe that while each is significantly (P-Values < 0.0015) lower for Recession CEOs (Coefficients = -0.0183, -0.0343, -0.00673, and -0.00252, respectively), the relations between *Recession CEO * Recession* and long-term debt (Coefficient = 0.0171), as well as debt issues (Coefficient = 0.0508), are both positive and significant (P-Values = 0.0150 and 0.0216, respectively). Our results suggest that Recession CEOs demonstrate conservative approaches during expansionary periods but make strategic choices to raise additional capital during economic contractions. While other firms typically reduce long-term debt, Recession CEOs are associated with relatively higher debt, largely driven by higher long-term debt issues. This may be the result of relatively lower interest rate environments, which are frequently present during economic contractions (Baker *et al.* 2003). Although there is limited evidence of a positive relation with recession experience and investment, the results are also consistent with the idea that Recession CEOs operate with less debt during expansions, allowing slack to increase debt in recessions.

Further analysis of operations and activity is continued in Table VI, which investigates the financial slack of the firm and resulting bankruptcy risk. Columns 1 and 2 examine the impact of recession experience on cash held relative to the industry, as well as net working capital. Consistent with recession CEOs utilizing cash to manage liquidity in challenging economic times, we observe a significant (P-Value = 0.0882) and positive (Coefficient = 0.00765) relation between the interaction of *Recession CEO * Recession* and industry-adjusted cash. Interestingly, we also observe that Recession CEOs hold 3.9% ($106 million) less working capital (Coefficient = -

0.00698) during expansionary environments, resulting in a leaner operating style. With Recession CEOs holding less working capital during expansions and more cash in recessionary periods, we consider the relation between recession experience and risk of bankruptcy, measured by the Altman Z-score in column 3. Although recession experience is associated with a negative relation with the Altman Z-score, indicating increased risk of bankruptcy, the coefficient on *Recession CEO * Recession* is positive (Coefficient = 0.627) and significant (P-Value = 0.00238) suggesting a decreased risk of bankruptcy for firms led by recession experienced CEOs during recessions, relative to other firms. The economic magnitude is similar to that of the decline for all firms during recessions (Coefficient = -0.740), suggesting that while all other firms become more likely to go bankrupt during recessions, firms led by Recession CEOs remain relatively stable. Recession CEOs choose lower default probability, when other firms are more likely to default, to run a leaner operating style during growing economic periods. The difference in each of these changes is also nearly as large as the difference between the Altman (1968; 1989) Z-score distress zone (1.81) and safe zone (2.99), which is the difference between the threshold indicating default is most likely to the threshold suggesting solvency is most likely. Thus, Recession CEOs are making large significant shifts in the probability of bankruptcy by changing financial policies.

Our results suggest Recession CEOs run leaner operations that could result in additional bankruptcy risk, when the economy is expanding and uncertainty is lower. However, when the economy contracts and bankruptcy is most prevalent, Recession CEOs hoard cash to avoid bankruptcy. Overall, the results indicate Recession CEOs make decisions to increase their financial flexibility, while lowering the cost of default and the likelihood of fragility during economic downturns. Since all of these factors point toward Recession CEOs preparing for economic downturns, it may also be possible that these firms exhibit market value differences as a result.

D. Firm Market Value & Performance of Recession CEOs

While the prior literature has analyzed the influence of corporate policy associated with early-life recession influence, less attention has been paid to the outcomes associated with these policies. In order to identify one particular area of interest, we consider the resulting market value associated with Recession CEOs. Table VII analyzes the firm market value and performance associated with Recession CEOs. Each model indicates that Recession CEOs are associated with relatively higher market value (Coefficients = 0.195 and 0.142, respectively) during recessions compared to other CEOs, even once we control for the effects of firm, CEO, and industry characteristics. During recessions, Recession CEOs exhibit 7.8% (0.142/1.82 = 0.078) to 10.7% (0.195/1.82 = 0.107) higher market value, consistent with CEOs learning from experience and strategically employing policy to sustain recessionary firm value relatively higher than other peer firms, especially within the industry. We perform similar tests for return-on-assets on a raw and industry-adjusted basis and observe similar trends, with Recession CEOs exhibiting significantly higher performance during subsequent recessions.

These results provide preliminary evidence that Recession CEOs behave differently than other CEOs, especially during recessions, indicating Recession CEOs learn from prior experience and behave strategically with the knowledge and skills acquired during previously experienced recessions, so they might implement these newly learned strategies in recessions to come. This variation indicates that within-manager variation may be as important as across-manager variation. These results are consistent with a responsive strategy, indicating that CEOs exhibit substantive variation in corporate policy associated with their experiences.

E. Prior Recession Performance Subsample Analysis and Robustness

We also perform subsample and robustness tests in order to further explore our results and alleviate alternative explanations. Specifically, we subsample firms by accounting performance during the prior recession and examine subsequent policy changes and performance. In Table VIII, we examine capital structure changes by prior recession performance. We find that CEOs who perform worse during the prior recession lower long-term debt during subsequent recession, while previous high performers issue more long-term debt. In Table IX, we examine investment changes. We observe that poor performers increase investment, while other firms do not make significant changes. In particular, this difference is driven by changes in capital expenditures. Finally, in Table X, we examine firm value and performance following these changes. We observe that firms that previously suffered from poor performance subsequently exhibit higher value, higher performance and lower bankruptcy risk in recessions. This rules out explanations related to persistently superior performance, even in recessionary periods, as well as high ability CEOs and superior firms.

Further, we perform robustness tests to investigate alternative measures related to CEO early-life recession experience. In Table XI, we show similar interactive effects tested for early-life recession influences and the impacts those have on firms during recessions. The results are largely insignificant and do not suggest our results are driven by other unobserved effects or that these effects provide the same policies or benefits, indicating recessionary investment, debt, performance, and value are not significantly related to early-life or labor force entry recessions. In additional untabulated results, we examine CEOs who gain experience in one firm but subsequently manage another firm. Our results are qualitatively similar, though the power limitations result in insignificant coefficients, except when examining industry-adjusted performance and debt (on both a raw and industry-adjusted basis), further providing evidence of

transferable learning across firms. Similarly, our conclusions hold for propensity score matching, where results are qualitatively similar but significance is lost in some instances due to the reduction in sample size.

Overall, these tests provide evidence that Recession CEOs are associated with higher (industry-adjusted) firm value, cash, and performance, in addition to lower bankruptcy risk, during recessions. Thus, Recession CEOs are associated with benefits from learning from prior experience as CEO during a previous recession, while other CEOs are associated with less favorable results during recessionary periods. Lessons learned could manifest themselves in the form of more appropriate estimates for costs and likelihoods of economic contractions, among other skills or expertise. The results suggest not only a higher market value for firms with Recession CEOs but also a mechanism for obtaining higher value through financial slack during recessionary periods.

V. Concluding Remarks

The results of our study suggest managerial recession experience has a significant impact on CEO strategy and corporate policy. That is, within-manager variation in style is related to the experience obtained following their appointment as CEO. Specifically, CEOs who experience a recession during their tenure as CEO are subsequently influenced by this experience and exhibit learning, which is evident in corporate policy, performance, and value. During recessions, Recession CEOs are associated with increased financial slack, which results in higher firm performance and value. Our results are consistent with learning from recessions resulting in strategic firm policies. The evidence suggests firms benefit from the responsive strategies

implemented by Recession CEOs who best learn how to navigate through recessions. Overall, CEO strategy is indicative of strategic policy, dependent upon economic conditions.

We offer at least three implications for the current literature around CEOs. First, providing a new focus in the study of economic conditions, we observe the differential impact of corporate policies and strategy during varying economic conditions. CEOs implement different styles based upon economic conditions, and the CEOs with experience during recessionary conditions are able to strategize specifically for those periods. These results may have implications for industries or firms experiencing transition and distress for other reasons as well. This is especially important to those concerned with the influence of the business cycle on different skill sets. Firms concerned about future recessions or solvency during downturns should consider whether direct managerial recession experience is of primary importance in the hiring process.

Next, we add to the understanding of corporate policy impacts on firm market value. Previously, little attention has been allocated to the cost or benefit of a particular managerial style on the firm. However, different strategic decisions should be expected to have consequences for both firm and CEO outcomes. Further study regarding industries that benefit more from being conservative is left to the future literature. Likewise, these findings also have implications for the manner in which CEOs are fired, offering the idea that firms could benefit from allowing CEOs to develop human capital and create value for shareholders.

Finally, we contribute to the manner in which economic experiences should be characterized. Economic downturns are some of the most important and highly studied events, so recession experience is a focal point. Our new measure of experience may be generalizable to industry downturns and other economic uncertainty more broadly. As noted above, if CEOs learn, then within-manager variation could be important in identifying the presence of CEO style. Given

the debate over the relevance of CEO style, controlling for learning that takes place during a CEO's career could provide an important consideration for testing and comparing CEO style across individuals and periods for future analysis. Additionally, with recent studies attempting to measure and understand CEO talent and performance, CEO learning could provide implications for quantifying a CEO's type and value. When comparing candidate's backgrounds, identifying CEO learning should become increasingly important in hiring decisions. Additionally, when determining the appropriateness of the fit between a CEO and firm, some firms may have business models or be in industries where recession experience is more valuable than average. Thus, beginning to understand CEO learning provides not only an important frame of reference for future research, but this idea and setting could also generalize to countless other areas of research around corporate management. Therefore, it could be important to understand how the labor market for CEOs develops and functions in light of recent events. Together, these three pieces contribute to the literature to enhance the understanding of corporations and CEOs.

Taken with the recent literature, our findings clarify the discussion around the importance of recession experience, particularly experiences following CEO appointment. Though some firms may prefer superior expansionary performance, Recession CEOs may be valued in industries where downside risk is higher or at firms particularly concerned with management turnover during extreme, negative periods. By identifying one primary setting in which CEOs may be expected to learn and observing altered firm strategies associated with higher firm market value and performance, we provide evidence that CEO style differs in meaningful manners throughout the career of the CEO. Consistent with Bennedsen *et al.* (2012), who observe events in a CEO's career associated with declining value and performance, this study provides the corollary, where CEOs experience events which are associated with future benefits for the firm. By focusing on events

that happen during the tenure of most CEOs and observing substantive learning, this study begins the exploration of CEO learning, which helps to further clarify the methodology and implications for understanding CEOs.

References

Altman, E.I., 1968. Financial Ratios, Discriminant Analysis and Prediction of Corporate Bankruptcy. Journal of Finance 23, 589-609

Altman, E.I., 1989. Measuring Corporate Bond Mortality and Performance. Journal of Finance 44, 909-922

Baker, M., Greenwood, R., Wurgler, J., 2003. The maturity of debt issues and predictable variation in bond returns. Journal of Financial Economics 70, 261-291

Barker, V.L., Patterson Jr, P.W., Mueller, G.C., 2001. Organizational Causes and Strategic Consequences of the Extent of Top Management Team Replacement During Turnaround Attempts. Journal of Management Studies 38, 235-270

Beltratti, A., Stulz, R.M., 2012. The credit crisis around the globe: Why did some banks perform better? Journal of Financial Economics 105, 1-17

Bem, D.J., 1965. An Experimental-Analysis of Self-Persuasion. Journal of Experimental Social Psychology 1, 199-218

Bennedsen, M., Perez-Gonzalez, F., Wolfenzon, D., 2010. Do CEOs Matter. Working Paper

Bennedsen, M., Perez-Gonzalez, F., Wolfenzon, D., 2012. Evaluating the Impact of The Boss: Evidence from CEO Hospitalization Events. Working Paper

Bernile, G., Bhagwat, V., Rau, P.R., 2017. What Doesn't Kill You Will Only Make You More Risk-Loving: Early-Life Disasters and CEO Behavior. The Journal of Finance 72, 167-206

Bertrand, M., 2009. CEOs. In: Annual Review of Economics. pp. 121-149.

Bertrand, M., Schoar, A., 2003. Managing with style: The effect of managers on firm policies. Quarterly Journal of Economics 118, 1169-1208

Bhagat, S., Brickley, J.A., Coles, J.L., 1994. The Costs of Inefficient Bargaining and Financial Distress - Evidence from Corporate Lawsuits. Journal of Financial Economics 35, 221-247

Blank, B., Hadley, B., Minnick, K., Rivolta, M.L., 2017. Horse Race or Heir Apparent: The Role of Internal Competition on New CEOs' Compensation.

Brookman, J., Thistle, P.D., 2009. CEO tenure, the risk of termination and firm value. Journal of Corporate Finance 15, 331-344

Coles, J.L., Daniel, N.D., Naveen, L., 2006. Managerial incentives and risk-taking. Journal of Financial Economics 79, 431-468

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

Custódio, C., Metzger, D., 2013. How Do CEOs Matter? The Effect of Industry Expertise on Acquisition Returns. Review of Financial Studies 26, 2008-2047

Daniel, K., Hirshleifer, D., Subrahmanyam, A., 1998. Investor Psychology and Security Market Under- and Overreactions. Journal of Finance 53, 1839-1885

De Bondt, W.F.M., Thaler, R.H., 1985. Does the Stock Market Overreact? Journal of Finance 40, 793-805

Deese, J., Kaufman, R.A., 1957. Serial effects in recall of unorganized and sequentially organized verbal material. Journal of experimental psychology 54, 180

Demerjian, P., Lev, B., McVay, S., 2012. Quantifying Managerial Ability: A New Measure and Validity Tests. Management Science 58, 1229-1248

Easterwood, J.C., Ince, O.S., Raheja, C.G., 2012. The evolution of boards and CEOs following performance declines. Journal of Corporate Finance 18, 727-744

Fahlenbrach, R., Prilmeier, R., Stulz, R.M., 2012. This Time Is the Same: Using Bank Performance in 1998 to Explain Bank Performance during the Recent Financial Crisis. Journal of Finance 67, 2139-2185

Farrell, K.A., Whidbee, D.A., 2003. Impact of firm performance expectations on CEO turnover and replacement decisions. Journal of Accounting and Economics 36, 165-196

Fee, C.E., Hadlock, C.J., Pierce, J.R., 2013. Managers with and without Style: Evidence Using Exogenous Variation. Review of Financial Studies 26, 567-601

Ferson, W.E., Schadt, R.W., 1996. Measuring Fund Strategy and Performance in Changing Economic Conditions. Journal of Finance 51, 425-461

Firth, M., Fung, P.M.Y., Rui, O.M., 2006. Firm Performance, Governance Structure, and Top Management Turnover in a Transitional Economy*. Journal of Management Studies 43, 1289-1330

Gilson, S.C., Vetsuypens, M.R., 1993. CEO Compesnation in Financially Distressed Firms - An Empirical Analysis. Journal of Finance 48, 425-458

Graham, J.R., Harvey, C.R., Puri, M., 2013. Managerial attitudes and corporate actions. Journal of Financial Economics 109, 103-121

Graham, J.R., Narasimhan, K., 2004. Corporate Survival and Managerial Experiences During the Great Depression. Permanent Working Paper

Hambrick, D.C., Mason, P.A., 1984. Upper Echelons - The Organization as a Reflection of its Top Managers. Academy of Management Review 9, 193-206

Hong, H., Stein, J.C., 1999. A Unified Theory of Underreaction, Momentum Trading, and Overreaction in Asset Markets. The Journal of Finance 54, 2143-2184

Jensen, M.C., Meckling, W.H., 1976. Theory of Firm - Managerial Behavior, Agency Costs and Ownership Strcuture. Journal of Financial Economics 3, 305-360

John, K., Lang, L.H.P., Netter, J., 1992. The Voluntary Restructuring of Large Firms in Response to Performance Decline. Journal of Finance 47, 891-917

Kacperczyk, M., Van Nieuwerburgh, S., Veldkamp, L., 2014. Time-Varying Fund Manager Skill. Journal of Finance 69, 1455-1484

Kadiyala, P., Rau, P.R., 2004. Investor reaction to corporate event announcements: underreaction or overreaction? The Journal of Business 77, 357-386

Kahneman, D., Tversky, A., 1979. Prospect Theory - Analysis of Decision Under Risk. Econometrica 47, 263-291

Kaplan, S.N., Klebanov, M.M., Sorensen, M., 2012. Which CEO Characteristics and Abilities Matter? Journal of Finance 67, 973-1007

Kaplan, S.N., Minton, B.A., 2012. How Has CEO Turnover Changed? International Review of Finance 12, 57-87

Kwee, Z., Van Den Bosch, F.A.J., Volberda, H.W., 2011. The Influence of Top Management Team's Corporate Governance Orientation on Strategic Renewal Trajectories: A Longitudinal Analysis of Royal Dutch Shell plc, 1907–2004. Journal of Management Studies 48, 984-1014

Malmendier, U., Nagel, S., 2011. Depression Babies: Do Macroeconomic experiences affect risk taking? Quarterly Journal of Economics 126, 373-416

Malmendier, U., Tate, G., Yan, J., 2011. Overconfidence and Early-Life Experiences: The Effect of Managerial Traits on Corporate Financial Policies. Journal of Finance 66, 1687-1733

Martin, G.N., Carlson, N.R., Buskist, W., 2007. Psychology.

Milian, J.A., 2015. Unsophisticated Arbitrageurs and Market Efficiency: Overreacting to a History of Underreaction? Journal of Accounting Research 53, 175-220

Opler, T.C., Titman, S., 1994. Financial Distress and Corporate Performance. Journal of Finance 49, 1015-1040

Rajan, R.G., Zingales, L., 2003. The great reversals: the politics of financial development in the twentieth century. Journal of Financial Economics 69, 5-50

Samuelson, B.A., Galbraith, C.S., McGuire, J.W., 1985. Organizational Performance and Top-Management Turnover. Organization Studies 6, 275-291

Schoar, A., Zuo, L., 2013. Shaped by Booms and Busts: How the Economy Impacts CEO Careers and Management Styles. NBER Working Paper

Schoar, A., Zuo, L., 2016. Does the Market Value CEO Styles? American Economic Review 106, 262-66

Shiller, R.J., 1981. Do Stock-Prices Move Too Much to be Justified by Subsequent Changes in Dividends. American Economic Review 71, 421-436

Song, F.H., Thakor, A.V., 2006. Information control, career concerns, and corporate governance. Journal of Finance 61, 1845-1896

Tversky, A., Kahneman, D., 1974. Judgement Under Uncertainty - Heuristics and Biases. Science 185, 1124-1131

Woidtke, T., 2002. Agents watching agents?: evidence from pension fund ownership and firm value. Journal of Financial Economics 63, 99-131

Yihui, P., Wang, T., Weisbach, M.S., 2016. CEO Investment Cycles. Review of Financial Studies 29, 2955-2999

Table I: Summary Statistics

Table I summarizes firm (Panel A) and CEO (Panel B) characteristics for current and former S&P 1500 firms for the years 1992 through 2015 for a total of 22,469 observations, as well as industry concentration (Panel C). Column 1 presents sample means, column 2 presents standard deviation of the sample, and columns 3, 4, and 5 present the 25th, 50th, and 75th percentiles for the sample. CEO characteristic variables are collected from Execucomp, accounting variables are collected from Compustat, and recession information is collected from the National Bureau of Economic Research. Panel C provides industry breakdown of the sample, separating Recession CEOs from other CEOs. Industry definitions are based upon one-digit Standard Industrial Classification (SIC) code. *Recession CEO* is an indicator variable that is equal to one if the CEO of the firm was CEO during a recession and zero otherwise. CEO characteristic variables are collected from Execucomp, accounting variables are collected from Compustat, and recession information is collected from the National Bureau of Economic Research.

Panel A: Firm Characteristics

	Mean	Standard Deviation	25th	Median	75th
Tobin's Q	1.82	1.56	1.13	1.43	2.01
Sales	6,545	19,656	586	1,599	4,840
Total Assets	15,244	86,666	692	2,098	7,443
ROA	0.12	0.10	0.08	0.12	0.17
Total Investment	0.10	0.10	0.04	0.08	0.14
R&D Intensity	0.02	0.05	-	-	0.02
Total Debt	0.25	0.17	0.12	0.24	0.36
Total Long-Term Debt	0.21	0.16	0.07	0.20	0.031

Panel B: CEO Characteristics

	Mean	Standard Deviation	25th	Median	75th
CEO Tenure	8	7	3	5	10
CEO Age	56	7	52	56	61
Recession CEO	0.54	0.50	-	1	1
Recession	0.18	0.39	-	-	-
Recession CEO*Recession	0.05	0.22	-	-	-
Birth Year	1949	10	1942	1949	1956
Childhood Recession	0.41	0.49	-	-	1
Labor Force Entry Recession	0.36	0.48	-	-	1

Panel C: Industry Summary

Industry	Recession CEOs	Non-Recession CEOs	All CEOs	Recession CEOs	Non-Recession CEOs	All CEOs	Percent Recession CEOs
Agriculture	48	17	65	0%	0%	0%	74%
Mining & Construction	2,927	2,466	5,393	24%	24%	24%	54%
Manufacturing	3,077	2,714	5,791	25%	26%	26%	53%
Transportation, Communication, & Utilities	1,674	1,564	3,238	14%	15%	14%	52%
Retail and Wholesale Trade	1,292	1,192	2,484	11%	11%	11%	52%
Financial Services	1,408	1,043	2,451	12%	10%	11%	57%
Entertainment and Business Services	1,075	1,000	2,075	9%	10%	9%	52%
Health and Legal Services	544	373	917	5%	4%	4%	59%
Public Administration	32	23	55	0%	0%	0%	58%
Overall	12,077	10,392	22,469	100%	100%	100%	54%

Table II: Firm Characteristics by Recession Experience Around Recessions

Table II presents univariate comparisons of firm and CEO characteristics for the years 1992 through 2015. Columns 1-2 present means for firms with CEOs who have not previously experienced a recession during their CEO tenure. Column 1 includes only firm years that do not take place during an NBER identified recession, while column 2 only includes years identified as during an NBER recession. Columns 3-4 include only firms with Recession CEOs, again with column 3 representing years not identified as recessions and column 4 only including years during recessions. Columns 5-6 represent differences, with column five being firms with Recession CEOs less those firms with other CEOs, all during periods not identified as NBER recessions. Column 6 provides the same difference during recession years. Finally, column 7 provides a difference-in-differences, calculated as the difference between firms with Recession CEOs and other CEOs during recessionary years, less the difference during non-recession years. CEO characteristic variables are collected from Execucomp, accounting variables are collected from Compustat, and recession information is collected from the National Bureau of Economic Research. ***, **, and * indicates statistical significance for difference-in-differences at the 1%, 5%, and 10% levels.

	(1)	(2)	(3)	(4)	(5) (1) - (3)	(6) (2) - (4)	(7) (5) - (6)
	Recession CEOs		Non-Recession CEOs		Experience Less: No Experience		
	Recession	Expansion	Recession	Expansion	Recession	Expansion	Overall
Ind-Adj Debt	0.04	0.03***	0.03	0.04	0.01	(0.01)	0.02***
Ind-Adj Q	0.28	0.34*	0.32	0.42	(0.04)	(0.09)	0.05
Ind-Adj Invest	0.01	0.02	0.02	0.02	(0.00)	(0.00)	(0.00)
Ind-Adj ROA	0.05	0.05	0.05	0.05	0.00	(0.00)	0.00
Ind-Adj ROE	0.25	0.21	0.29	0.34	(0.04)	(0.13)	0.09
Ind-Adj Cash	0.00	(0.00)	0.00	0.00	(0.00)	(0.00)	0.00
Net Working Capital	0.17	0.18*	0.18	0.17***	(0.01)	0.01	(0.02)**
Altman Z-Score	3.78	4.12**	3.57	4.15***	0.21	(0.02)	0.24

Table III: Are Recession Experienced CEOs Always Different?

Table III presents coefficient estimates of multivariate linear regressions of *Ind-Adj Debt*, *Ind-Adj Invest*, and *Ind-Adj Q* on *Recession CEO* for current and former S&P 1500 firms for the years 1992 through 2015. Dependent variables are adjusted using two-digit SIC code for the Compustat universe of firms. *Ind-Adj Q* is calculated as the ratio of total assets less book value of equity plus market value of equity to total assets, less the industry median *Tobin's Q*, consistent with all industry-adjusted calculations. *Ind-Adj Invest* is the ratio of the sum of acquisitions, capital expenditures, and research and development expenses to total assets, less the industry median. *Ind-Adj Debt* is defined as the ratio of book value of total debt to the book value of assets, less the industry median. CEO experience information is collected from Execucomp and recession information is collected from the NBER. *Recession CEO* is an indicator variable that is equal to one if the CEO of the firm was CEO during a prior recession and zero otherwise. *Recession* is an indicator that is equal to one if the firm-year takes place during an NBER identified recession year and zero otherwise. *Recession CEO*Recession* is computed as the product of *Recession* and *Recession CEO*. Control variables include *Childhood Recession, Labor Force Entry Recession, Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity. Childhood (Labor Force Entry) Recession* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *R&D Intensity* is the ratio of research and development expenses to total assets. *CEO Age* and *CEO Tenure* are taken from Execucomp, with *CEO Age* calculated as the difference between the current year and the birth year of the CEO and *CEO Tenure* calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

VARIABLES	(1) Ind-Adj Debt	(2) Ind-Adj Invest	(3) Ind-Adj Q
Recession CEO	-0.00771	-0.00303	-0.0772**
	(0.127)	(0.194)	(0.0245)
Childhood Recession	-0.00656*	0.00243	0.00293
	(0.0994)	(0.162)	(0.915)
Labor Force Entry Recession	0.00719*	-0.00139	0.00371
	(0.0780)	(0.429)	(0.887)
Leverage		-0.0202***	-2.351***
		(0.00927)	(<0.001)
Ind-Adj ROA	-0.0175	-0.138***	1.956***
	(0.397)	(<0.001)	(<0.001)
Log (Total Assets)	0.0171***	-0.00552***	-0.0111
	(<0.001)	(<0.001)	(0.316)
R&D Intensity	0.0433		3.677***
	(0.324)		(<0.001)
Log (CEO Age)	-0.0446**	-0.0383***	-0.713***
	(0.0103)	(<0.001)	(<0.001)
Log (CEO Tenure)	0.00105	0.00402***	0.0688***
	(0.697)	(0.00104)	(<0.001)
Observations	22,469	22,469	22,469
R-squared	0.126	0.085	0.155
Industry and Year Fixed Effects	Yes	Yes	Yes

Table IV: Do Recession Experienced CEOs Finance and Use Capital Differently?

Table IV presents coefficient estimates of multivariate linear regressions of *Total Debt, Ind-Adj Debt, Total Investment* and *Ind-Adj Invest* on *Recession CEO, Recession,* and the interaction of *Recession CEO* and *Recession* for current and former S&P 1500 firms for the years 1992 through 2015. Dependent variables are adjusted using two-digit SIC code for the Compustat universe of firms, so *Ind-Adj Debt* is defined as the ratio of book value of total debt to the book value of assets, less the industry median *Total Debt. Ind-Adj Invest* is the ratio of the sum of acquisitions, capital expenditures, and research and development expenses to total assets, less the industry median *Invest.* CEO experience information is collected from Execucomp and recession information is collected from the NBER. *Recession CEO* is an indicator variable that is equal to one if the CEO of the firm was CEO during a prior recession and zero otherwise. *Recession* is an indicator that is equal to one if the firm-year takes place during an NBER identified recession year and zero otherwise. Control variables include *Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity. Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets, less the industry median of *ROA*. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

VARIABLES	(1) Total Debt	(2) Ind-Adj Debt	(3) Total Investment	(4) Ind-Adj Invest
Recession CEO	-0.0217***	-0.0117***	-0.0112***	-0.00459**
	(<0.001)	(0.00871)	(<0.001)	(0.0293)
Recession	-0.0127***	-0.00574	-0.0110***	-0.00497**
	(0.00170)	(0.153)	(<0.001)	(0.0208)
Recession CEO * Recession	0.0273***	0.0211***	0.00871**	0.00290
	(<0.001)	(0.00380)	(0.0208)	(0.437)
Childhood Recession	0.00321	0.00730*	-0.00174	-0.00137
	(0.438)	(0.0732)	(0.356)	(0.435)
Labor Force Entry Recession	-0.00512	-0.00611	0.00142	0.00222
	(0.201)	(0.125)	(0.438)	(0.200)
Ind-Adj ROA	-0.175***	-0.0198	0.0147	-0.136***
	(<0.001)	(0.334)	(0.513)	(<0.001)
Log (Total Assets)	0.0192***	0.0174***	-0.00845***	-0.00569***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
R&D Intensity	-0.374***	0.0408		
	(<0.001)	(0.351)		
Leverage			-0.0210**	-0.0189**
			(0.0149)	(0.0128)
Log (CEO Age)	-0.0240	-0.0457***	-0.0589***	-0.0386***
	(0.175)	(0.00843)	(<0.001)	(<0.001)
Log (CEO Tenure)	0.00405	0.00131	0.00728***	0.00432***
	(0.104)	(0.605)	(<0.001)	(<0.001)
Observations	22,469	22,469	22,469	22,469
R-squared	0.289	0.125	0.218	0.083
Industry Fixed Effects	Yes	Yes	Yes	Yes

Table V: How Do Recession Experienced CEOs Structure Capital Around Recessions?

Table V presents coefficient estimates of multivariate linear regressions of *Total LTD, LTD Issues, Capital Expenditures,* and *Acquisitions* on *Recession CEO, Recession,* and the interaction of *Recession CEO* and *Recession* for current and former S&P 1500 firms for the years 1992 through 2015. *Acquisitions* is the ratio of acquisition expenses to total assets. *Total LTD* is the ratio of total long-term debt to total assets. *LTD Issues* is the ratio of *Long-Term Debt - Issuance* to total assets. *Long-Term Debt - Issuance* represents the amount of funds generated from issuance of long-term debt and excludes changes in current debt and fees; it contains long-term debt issuance net of the reduction in long-term debt and cash flows from financing activities. CEO experience information is collected from Execucomp and recession information is collected from the NBER. Control variables include *Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity. Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

	(1)	(2)	(3)	(4)
VARIABLES	Total LTD	LTD Issues	Capital Expenditures	Acquisitions
Recession CEO	-0.0183***	-0.0343***	-0.00673***	-0.00525***
	(<0.001)	(<0.001)	(<0.001)	(0.00147)
Recession	-0.0110***	-0.0145**	-0.00565***	-0.00536***
	(0.00621)	(0.0449)	(<0.001)	(0.00225)
Recession CEO * Recession	0.0171**	0.0508**	0.00315	0.00183
	(0.0150)	(0.0216)	(0.122)	(0.526)
Childhood Recession	0.00180	-0.00170	-0.00154	0.000967
	(0.649)	(0.835)	(0.197)	(0.439)
Labor Force Entry Recession	-0.00214	0.00645	0.00268**	-0.00137
	(0.575)	(0.460)	(0.0253)	(0.241)
Leverage			-0.0262***	0.0618***
			(<0.001)	(<0.001)
Ind-Adj ROA	-0.148***	-0.0961***	0.0369***	0.0261***
	(<0.001)	(0.00882)	(<0.001)	(<0.001)
Log (Total Assets)	0.0167***	-0.00613*	-0.00339***	-0.000524
	(<0.001)	(0.0550)	(<0.001)	(0.208)
R&D Intensity	-0.387***	-0.395***		
	(<0.001)	(<0.001)		
CEO Age	-0.0224	-0.00187	-0.0117**	-0.0163***
	(0.178)	(0.966)	(0.0437)	(0.00549)
Log (CEO Tenure)	0.00444*	0.0133***	0.00404***	0.00258***
	(0.0661)	(0.00699)	(<0.001)	(0.00254)
Observations	20,234	20,234	20,234	20,234
R-squared	0.288	0.046	0.345	0.072
Industry Fixed Effects	Yes	Yes	Yes	Yes

Table VI: How Do Recession Experienced CEOs Change Operations During Recessions?

Table VI presents coefficient estimates of multivariate linear regressions of *Ind-Adj Cash, Net Working Capital* and *Altman Z-Score* on *Recession CEO, Recession*, and the interaction of *Recession CEO* and *Recession* for current and former S&P 1500 firms for the years 1992 through 2015. *Ind-Adj Cash* is the ratio of cash holdings to book value of assets, less the industry median. *Net Working Capital* is computed as the difference between current assets and current liabilities. *Altman Z-Score* is a measure of a firm's bankruptcy likelihood taken from Altman (1968; 1989) and calculated using current assets, current liabilities, earnings, revenues, total assets, total liabilities and equity. CEO experience information is collected from Execucomp and recession information is collected from the NBER. Control variables include *Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity. Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

	(1)	(2)	(3)
VARIABLES	Ind-Adj Cash	Net Working Capital	Altman Z-Score
Recession CEO	-0.00241	-0.00698*	-0.877***
	(0.317)	(0.0947)	(<0.001)
Recession	0.00127	0.00166	-0.740***
	(0.601)	(0.661)	(<0.001)
Recession CEO * Recession	0.00765*	-0.00272	0.627***
	(0.0882)	(0.672)	(0.00238)
Childhood Recession	-0.00146	-0.00186	0.0333
	(0.516)	(0.640)	(0.771)
Labor Force Entry Recession	0.000482	0.00332	-0.153
	(0.823)	(0.372)	(0.179)
Leverage	-0.150***	-0.215***	-11.61***
	(<0.001)	(<0.001)	(<0.001)
Ind-Adj ROA	-0.163***	0.0505***	9.524***
	(<0.001)	(0.00848)	(<0.001)
Log (Total Assets)	-0.00923***	-0.0331***	-0.358***
	(<0.001)	(<0.001)	(<0.001)
R&D Intensity	0.0281	0.337***	-4.009*
	(0.453)	(<0.001)	(0.0936)
CEO Age	-0.0138	-0.0103	-4.037***
	(0.181)	(0.553)	(<0.001)
Log (CEO Tenure)	-0.00215	0.0112***	0.735***
	(0.137)	(<0.001)	(<0.001)
Observations	19,604	19,604	19,604
R-squared	0.179	0.505	0.139
Industry Fixed Effects	Yes	Yes	Yes

Table VII: Do Shareholders with Recession Experienced CEOs Benefit?

Table VII presents coefficient estimates of multivariate linear regressions of *Tobin's Q, Ind-Adj Q, ROA*, and *Ind-Adj ROA* on *Recession CEO, Recession*, and the interaction of *Recession CEO* and *Recession* for current and former S&P 1500 firms for the years 1992 through 2015. Dependent variables are adjusted using two-digit SIC code for the Compustat universe of firms, so *Ind-Adj Q* is calculated as the ratio of total assets less book value of equity plus market value of equity to total assets, less the industry median *Tobin's Q.* CEO experience information is collected from Execucomp and recession information is collected from the NBER. *Recession CEO* is an indicator variable that is equal to one if the CEO of the firm was CEO during a prior recession and zero otherwise. *Recession* is an indicator that is equal to one if the firm-year takes place during an NBER identified recession year and zero otherwise. Control variables include *Leverage, Ind-Adj ROA, Total Assets*, and *R&D Intensity*. *Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets, less the industry median *ROA*. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *R&D Intensity* is the ratio of research and development expenses to total assets. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

VARIABLES	(1) Tobin's Q	(2) Ind-Adj Q	(3) ROA	(4) Ind-Adj ROA
Recession CEO	-0.265***	-0.213***	-0.00788***	-0.0103***
	(<0.001)	(<0.001)	(0.00149)	(0.00210)
Recession	-0.309***	-0.128***	-0.0131***	-0.00429
	(<0.001)	(<0.001)	(<0.001)	(0.152)
Recession CEO * Recession	0.195***	0.142***	0.00941**	0.00871*
	(<0.001)	(0.00152)	(0.0176)	(0.0677)
Childhood Recession	0.00882	-0.00404	-0.00248	-0.00386
	(0.742)	(0.878)	(0.275)	(0.201)
Labor Force Entry Recession	-0.0115	-0.00638	-0.000922	-0.000859
	(0.676)	(0.818)	(0.666)	(0.776)
Leverage	-2.625***	-2.219***	-0.208***	-0.209***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Ind-Adj ROA	2.935***	2.108***		
	(<0.001)	(<0.001)		
Log (Total Assets)	-0.0195*	-0.0200*	0.00375***	0.00540***
	(0.0586)	(0.0613)	(<0.001)	(<0.001)
R&D Intensity	5.282***	3.826***	-0.706***	-0.249**
	(<0.001)	(<0.001)	(<0.001)	(0.0198)
Log (CEO Age)	-0.819***	-0.735***	-0.00723	-0.0255*
	(<0.001)	(<0.001)	(0.503)	(0.0588)
Log (CEO Tenure)	0.134***	0.107***	0.00565***	0.00763***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Observations	22,469	22,469	22,469	22,469
R-squared	0.242	0.139	0.274	0.265
Industry Fixed Effects	Yes	Yes	Yes	Yes

Table VIII: Which CEOs Change Capital Structure during Recessions?

Table VIII presents coefficient estimates of multivariate linear regressions of *Total LTD* and *LTD Issues* on *Recession CEO, Recession,* and the interaction of *Recession CEO* and *Recession* indicators for current and former S&P 1500 firms for the years 2002 through 2015 by subsamples of prior recession experience. Firms are segmented by the median of *Net Income* during the 2001 recession. CEO experience information is collected from Execucomp and recession information is collected from the NBER. *Recession CEO* is an indicator variable that is equal to one if the CEO of the firm was CEO during a prior recession and zero otherwise. *Recession* is an indicator that is equal to one if the firm-year takes place during an NBER identified recession year and zero otherwise. *Total LTD* is the ratio of total long-term debt to total assets. *LTD Issues* is the ratio of *Long-Term Debt - Issuance* to total assets. *Long-Term Debt - Issuance* represents the amount of funds generated from issuance of long-term debt and excludes changes in current debt and fees, contains long-term debt issuance net of the reduction in long-term debt and cash flows from financing activities. CEO experience information is collected from Execucomp and recession information is collected from the NBER. Control variables include *Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity. Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

	(1)	(2)	(3)	(4)
	Total Long-Term Debt		Long-Term Debt Issues	
VARIABLES	Below Median NI	Above Median NI	Below Median NI	Above Median NI
Recession CEO	-0.0321***	-0.0260***	-0.0105	-0.0868*
	(<0.001)	(0.00747)	(0.525)	(0.0663)
Recession	0.0150*	-0.0119	0.0241*	-0.00244
	(0.0857)	(0.156)	(0.0869)	(0.893)
Recession CEO * Recession	-0.0205*	0.0295**	-0.00187	0.0575*
	(0.0724)	(0.0107)	(0.937)	(0.0851)
Childhood Recession	-0.00425	-0.00241	-0.0249	0.0110
	(0.644)	(0.793)	(0.317)	(0.654)
Labor Force Entry Recession	0.0166*	0.00590	0.0555**	-0.0347*
	(0.0743)	(0.495)	(0.0497)	(0.0930)
Industry-Adjusted ROA	-0.133***	-0.102***	0.0309	-0.242
	(0.00409)	(0.00231)	(0.655)	(0.154)
Log (Total Assets)	0.000573	0.0225***	-0.0122	0.00182
	(0.873)	(<0.001)	(0.265)	(0.747)
R&D Intensity	-0.479***	-0.268***	-0.496***	-0.292***
	(<0.001)	(<0.001)	(<0.001)	(0.00187)
Log (CEO Age)	-0.0691*	0.0311	-0.134	0.0635
	(0.0814)	(0.364)	(0.113)	(0.543)
Log (CEO Tenure)	0.0217***	0.00246	0.0245**	0.0137
	(<0.001)	(0.636)	(0.0146)	(0.295)
Observations	3,458	3,397	3,458	3,397
R-squared	0.266	0.211	0.133	0.086
Industry Fixed Effects	Yes	Yes	Yes	Yes

Table IX: Which CEOs Change Investment during Recessions?

Table IX presents coefficient estimates of multivariate linear regressions of *Total Investment* and *Capital Expenditures* on *Recession CEO, Recession,* and interaction of *Recession CEO* and *Recession* for current and former S&P 1500 firms for the years 2002 through 2015 by subsamples of prior recession experience. Firms are segmented by the median of net income during the 2001 recession. *Total Investment* is the ratio of the sum of acquisitions, capital expenditures, and research and development expenses to total assets. *Recession CEO* is an indicator variable that is equal to one if the CEO of the firm was CEO during a prior recession and zero otherwise. *Recession* is an indicator that is equal to one if the firm-year takes place during an NBER identified recession year and zero otherwise. CEO experience information is collected from Execucomp and recession information is collected from the NBER. Control variables include *Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity. Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

	(1)	(2)	(3)	(4)
	Total Investment		Capital Expenditures	
VARIABLES	Below Median NI	Above Median NI	Below Median NI	Above Median NI
Recession CEO	-0.0286***	-0.0207***	-0.0218***	-0.0129***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Recession	-0.0170***	-0.0105**	-0.0141***	-0.00301
	(0.00491)	(0.0458)	(<0.001)	(0.264)
Recession CEO * Recession	0.0191**	0.0101	0.00889**	0.00481
	(0.0170)	(0.102)	(0.0308)	(0.136)
Childhood Recession	0.00136	0.00127	0.00364	0.00595**
	(0.793)	(0.721)	(0.231)	(0.0134)
Labor Force Entry Recession	-0.00242	0.000128	-0.00508	-0.00300
	(0.679)	(0.973)	(0.109)	(0.203)
Industry-Adjusted ROA	-0.00627***	-0.00601***	0.0629***	0.0386***
	(0.00290)	(<0.001)	(<0.001)	(0.00380)
Log (Total Assets)	-0.0668***	0.0101	-0.00159	-0.00388***
	(<0.001)	(0.453)	(0.206)	(<0.001)
Leverage	-0.0353	0.142***	-0.0178*	-0.0203*
	(0.443)	(<0.001)	(0.0688)	(0.0531)
Log (CEO Age)	-0.0813***	-0.0488***	-0.0208	-0.0324***
	(<0.001)	(0.00588)	(0.158)	(0.00844)
Log (CEO Tenure)	0.0111***	0.00539**	0.00730***	0.00407***
	(<0.001)	(0.0182)	(<0.001)	(0.00425)
Observations	4,326	4,330	3,858	3,823
R-squared	0.180	0.322	0.284	0.518
Industry Fixed Effects	Yes	Yes	Yes	Yes

Table X: Which Shareholders Benefit from Recession CEO Policy Changes?

Table X presents coefficient estimates of multivariate linear regressions of *Tobin's Q, ROA,* and *Altman Z-Score* on *Recession CEO, Recession,* and interaction of *Recession CEO* and *Recession* for current and former S&P 1500 firms for the years 2002 through 2015 by subsamples of prior recession experience. Firms are segmented by the median of net income during the 2001 recession. *Recession CEO* is an indicator variable that is equal to one if the CEO of the firm was CEO during a prior recession and zero otherwise. *Recession* is an indicator that is equal to one if the firm-year takes place during an NBER identified recession year and zero otherwise. *Tobin's Q* is calculated as the ratio of total assets less book value of equity plus market value of equity to total assets. *Altman Z-Score* is a measure of a firm's bankruptcy likelihood taken from Altman (1968; 1989) and calculated using current assets, current liabilities, earnings, revenues, total assets, total liabilities and equity. CEO experience information is collected from Execucomp and recession information is collected from the NBER. Control variables include *Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity. Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

	(1)	(2)	(3)	(4)	(5)	(6)
	Tobin's Q		ROA		Altman Z Score	
	Below	Above	Below	Above	Below	Above
VARIABLES	Median NI	Median NI	Median NI	Median NI	Median NI	Median NI
Recession CEO	-0.669***	-0.244***	-0.0327***	-0.0181***	-3.189***	-0.168
	(<0.001)	(0.00232)	(<0.001)	(<0.001)	(<0.001)	(0.439)
Recession	-0.584***	-0.0771	-0.0410***	-0.00326	-2.122***	0.431
	(<0.001)	(0.250)	(<0.001)	(0.462)	(0.00133)	(0.119)
Recession CEO * Recession	0.485***	-0.0563	0.0384***	0.00319	2.069***	-0.524*
	(0.00165)	(0.462)	(<0.001)	(0.552)	(0.00395)	(0.0650)
Childhood Recession	-0.0308	-0.0386	0.00661	0.000675	-0.424	-0.452*
	(0.688)	(0.493)	(0.248)	(0.885)	(0.254)	(0.0541)
Labor Force Entry Recession	-0.0771	0.000485	-0.00127	-0.0103**	-0.299	0.249
	(0.343)	(0.994)	(0.820)	(0.0265)	(0.414)	(0.459)
Industry-Adjusted ROA	2.499***	4.897***			11.72***	9.902***
	(<0.001)	(<0.001)			(<0.001)	(<0.001)
Log (Total Assets)	-0.0363	-0.0652***	0.00614**	-0.0113***	-0.371***	-0.672***
	(0.253)	(0.00760)	(0.0106)	(<0.001)	(0.00875)	(<0.001)
R&D Intensity	4.740***	4.218**	-0.818***	0.286**	-8.264	5.590
	(<0.001)	(0.0197)	(<0.001)	(0.0355)	(0.115)	(0.200)
Leverage	-2.831***	-2.338***	-0.182***	-0.180***	-14.33***	-10.44***
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log (CEO Age)	-1.635***	-0.351	-0.00233	0.0137	-7.694***	-1.778
	(0.00120)	(0.147)	(0.923)	(0.511)	(<0.001)	(0.118)
Log (CEO Tenure)	0.200***	0.109***	0.00676**	0.00116	1.289***	0.502**
	(<0.001)	(0.00655)	(0.0341)	(0.719)	(<0.001)	(0.0145)
Observations	4,326	4,330	4,326	4,330	4,137	3,531
R-squared	0.185	0.539	0.320	0.487	0.132	0.468
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes

Table XI: Does Early Life Recession Experience Have Similar Effects?

Table XI presents coefficient estimates of multivariate linear regressions of *Ind-Adj Debt*, *Ind-Adj Invest*, and *Ind-Adj Q* on *Childhood Recession CEO, Labor Force Entry Recession CEO, Recession*, and the interaction of early life recession influences and *Recession* for current and former S&P 1500 firms for the years 1992 through 2015. Dependent variables are adjusted using two-digit SIC code for the Compustat universe of firms, so *Ind-Adj Invest* is the ratio of the sum of acquisitions, capital expenditures, and research and development expenses to total assets, less the industry median *Invest.* CEO experience information is collected from Execucomp and recession information is collected from the NBER. *Childhood Recession (Labor Force Entry Recession)* is one if the CEO birth (initial labor market entry) year is a recession year, according to the NBER. *Recession* is an indicator that is equal to one if the firm-year takes place during an NBER identified recession year and zero otherwise. Control variables include *Leverage, Ind-Adj ROA, Total Assets,* and *R&D Intensity*. *Leverage* is defined as the ratio of book value of total debt to the book value of assets. *Ind-Adj ROA* is the ratio of earnings before interest, taxes, depreciation, and amortization to book value of assets. *Total Assets* is taken from Compustat (at) and scaled to trillions of dollars for the purposes of interpreting the coefficients. *CEO Age and CEO Tenure* are taken from Execucomp, with age calculated as the difference between the current year and the birth year of the CEO and Tenure calculated as the log of the number of years as CEO at the firm. Industry definitions are based upon two-digit Standard Industrial Classification (SIC) code. Robust p-values are in parentheses. Standard errors are clustered at the firm level. Standard errors are clustered at the firm level. Significance at the 10%, 5%, and 1% levels are indicated as *, **, and ***.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Ind-Adj Debt	Ind-Adj Debt	Ind-Adj Invest	Ind-Adj Invest	Ind-Adj Q	Ind-Adj Q
Childhood Recession	-0.00594	-0.00632	0.00270	0.00225	0.00451	-0.00743
	(0.142)	(0.113)	(0.134)	(0.195)	(0.884)	(0.788)
Labor Force Entry Recession	0.00716*	0.00759*	-0.00141	-0.00229	-0.00545	-0.00771
	(0.0791)	(0.0706)	(0.421)	(0.220)	(0.836)	(0.790)
Recession	0.00211	0.00214	-0.00288	-0.00581***	-0.0534**	-0.0860***
	(0.606)	(0.580)	(0.185)	(0.00520)	(0.0491)	(0.00185)
Childhood * Recession	-0.00189		-0.00268		-0.0643*	
	(0.755)		(0.392)		(0.0669)	
Entry * Recession		-0.00217		0.00475		0.0149
		(0.730)		(0.158)		(0.663)
Recession CEO	-0.00842**	-0.00843**	-0.00414**	-0.00410**	-0.191***	-0.190***
	(0.0480)	(0.0478)	(0.0367)	(0.0388)	(<0.001)	(<0.001)
R&D Intensity	0.0413	0.0416			3.829***	3.833***
	(0.345)	(0.343)			(<0.001)	(<0.001)
Leverage			-0.0188**	-0.0187**	-2.214***	-2.213***
			(0.0132)	(0.0134)	(<0.001)	(<0.001)
Ind-Adj ROA	-0.0196	-0.0195	-0.136***	-0.136***	2.109***	2.112***
	(0.339)	(0.341)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log (Total Assets)	0.0175***	0.0175***	-0.00568***	-0.00569***	-0.0195*	-0.0195*
	(<0.001)	(<0.001)	(<0.001)	(<0.001)	(0.0675)	(0.0675)
Log (CEO Age)	-0.0449***	-0.0448***	-0.0386***	-0.0385***	-0.732***	-0.728***
	(0.00970)	(0.00989)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Log (CEO Tenure)	0.00136	0.00136	0.00432***	0.00433***	0.108***	0.108***
	(0.593)	(0.591)	(<0.001)	(<0.001)	(<0.001)	(<0.001)
Observations	22,469	22,469	22,469	22,469	22,469	22,469
R-squared	0.125	0.125	0.083	0.083	0.139	0.139
Industry Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes