Love or Money: The Effect of CEO Divorce on Firm Risk and Compensation

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April 2019

Abstract

I find lower firm risk in the year of a CEO divorce. This lower volatility is consistent with a reduction in risk incentives, as CEOs pay large divorce settlements and are less able to diversify firm-specific risk from their portfolios. Divorce has a larger impact on firms with cash-poor CEOs who lack diversification. Cash flow and accruals have lower volatility in the year of divorce, which is likely due to smoother discretionary expenses. The sensitivity of compensation to both price and volatility is significantly higher after divorce, suggesting compensation incentives adjust to portfolio incentives, with total compensation increasing by over $2 million on average. I find no evidence the results relate to increased distraction or alternative explanations.

JEL Classification: G32; M12; K36

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1. Introduction

How do managers' personal lives affect the firm? Prior literature documents the importance of personal relationships in family firms, where domestic and corporate decisions intertwine.[1] Outside the family firm, there is growing evidence regarding the value of individual executives' personal attributes, and recent work shows how companies suffer when executives are unable to perform due to personal conflicts, such as vacation, illness, or a death in the family. Despite evidence that personal events affect the firm, there is little evidence on how family and, specifically, family law affects managers' incentives and corporate policies.

This paper studies the impact of CEO divorce on the firm. Divorce is a significant, personal event, and it carries both emotional and economic costs. In a recent high-profile case, Harold Hamm, CEO of Continental Resources, wrote a check for $1 billion to Sue Ann Arnall following an award from a lengthy court battle (Schneyer, 2015). Despite the costs, marital dissolution is common in the U.S. with 36% of first-time marriages ending within 10 years (Copen, Daniels, Vespa, and Mosher, 2012). Given the prevalence and gravity of divorce, it provides a unique setting to examine how personal experiences affect corporate managers and the firm. Moreover, divorce is associated with a large decrease in CEO wealth, providing a unique experiment on the importance of CEO wealth to risk incentives and compensation.

I collect a sample of 80 divorces of Execucomp CEOs to test how divorce affects the CEO and firm. I find divorce is negatively related to equity risk in the CEO's firm. Specifically, idiosyncratic risk is lower by 0.022 in the year of divorce, which is statistically and economically significant. For comparison, the median Execucomp firm would move to around the 30th

[1] Family firms are affected by characteristics such as child gender (Bennedsen, Nielsen, Perez-Gonzalez, and Wolfenzon, 2007), family size (Bertrand, Johnson, Samphantharak, and Schoar, 2008), adoptions (Mehrotra, Morck, Shim, and Wiwattanakantang, 2013), and inheritance (Ellul, Pagano, and Panunzu, 2010).

percentile after a drop of 0.022 in idiosyncratic risk. The lower risk appears to result from a change in the company's risk policy, as cash flow volatility and abnormal accrual volatility are lower in the year of CEO divorce, suggesting divorce affects both equity risk and cash flow risk.

I look for evidence of changes in corporate policies driving the lower volatility and find proxies of 'real' earnings management are less volatile in the year of CEO divorce. Specifically, the standard deviation of discretionary expenses is lower in the year of divorce. The component of this proxy with the most significant decline in variance is Selling, General, and Administrative expenses (SG&A). This suggests managers use discretion over expenses to smooth accruals and cash flow following a change in their appetite for portfolio risk.

These results highlight the relation between CEOs' professional and private lives. I further examine this connection, as there are several ways in which divorce can affect CEOs and the firm.[2] For example, if a divorce settlement grants ownership of stock or options to the spouse, then the CEO's wealth becomes less sensitive to firm value and risk. This could increase agency conflicts (Jensen and Meckling, 1976) or reduce incentives to make risky investments (Guay, 1999).

However, anecdotal evidence suggests spouses are more likely to receive cash and other assets. In Hamm's divorce, the $1 billion settlement left his equity stake untouched. I expect these cash payments change portfolio incentives due to the adverse effects on diversification. The intuition is that after a divorce, a CEO's remaining portfolio is more heavily concentrated in own firm stock and options. This is due to the fact that CEOs are contractually or legally

[2] Larcker, McCall, and Tanyan (2013) propose similar hypotheses relating divorce to the firm.

prohibited from selling stock and options in their own firm.[3] With a less diversified portfolio, a CEO is encumbered with idiosyncratic risk, which decreases incentives to increase firm risk.

It is possible that CEOs attempt to adjust their portfolios in advance of a divorce, as a divorce is not likely a surprise. If CEOs can diversify, the relation between firm risk and divorce could be driven by another mechanism. Hence, I take steps to ensure the results are portfolio-related. First, I note that, in addition to selling restrictions, it would be difficult for CEOs to adjust their portfolio and compensation in the time before a divorce. While the duration of marital problems is unobservable, the U.S. census reveals that the time between first separation and first divorce has a median of 0.8 years for non-Hispanic white couples.[4] If separation provides a reasonable proxy for the time of expectation of divorce, it seems unlikely the CEO could overcome selling restrictions or change compensation incentives before a divorce.

I also use Execucomp data on CEO portfolio holdings to test whether executives' stock and option holdings decrease following divorce. Univariate evidence shows that stock and option holdings increase around a CEO divorce, and these increases are similar to increases for a matched sample of CEOs. That is, spouses do not receive significant stock or option holdings on average. Rather, this evidence suggests divorce settlements largely comprise outside wealth, such as cash, real estate, and other assets.

I then split the sample into CEOs with high and low outside wealth. I expect a loss of wealth has a relatively larger effect on CEOs with less cash wealth, because they are less able to

[3] For example, SEC Rule 144 prevents insiders from selling shares in their own firm under certain circumstances, and Section 16(c) of the Securities Exchange Act of 1934 prevents managers from short selling company stock. Executive compensation contracts include prohibitions on the sale, assignment, or transfer of stock-based compensation, limiting an executive's ability to diversify their position.

[4] Kreider, Rose M. and Renee Ellis, "Number, Timing, and Duration of Marriages and Divorces: 2009." Current Population Reports, P70-125, U.S. Census Bureau, Washington, DC, 2011.

diversify. I find that the relation between divorce and firm risk is weaker for CEOs with greater outside wealth, defined as CEOs with above-median salary and bonus from the past three years. In fact, coefficient estimates suggest that high cash wealth almost completely negates the effect of divorce on firm risk, consistent with risk incentives changing the most for the least diversified CEOs.

Another means by which divorce could affect CEOs is through the loss of focus and productivity due to the emotional, legal, and familial burdens of divorce. Survey evidence shows that employee divorce reduces productivity (Wheatley, Vogl, and Murrell, 1991), and there is evidence that personal distractions at the executive level are negatively related to firm risk. Yermack (2014) finds that stock volatility is lower when CEOs are away from the office on vacation. Mannor et al. (2015) suggest CEO anxiety leads to low-risk policies. Relatedly, Lu, Ray, and Teo (2016) suggest divorce creates distraction for hedge fund managers. If divorce similarly reduces a CEO's attention or increases stress, lower risk could result.

Although the inability to directly control for CEOs' focus is a limitation of this study, I test for the effects of divorce-related distraction in several ways. First, I examine firm performance. Bennedsen, Perez-Gonzalez, and Wolfenzon (2011) find CEO absences due to hospitalizations of only 10 days have a significant negative effect on profitability. The risk of disruption is potentially higher with divorce, since divorce takes a few months to over a year to finalize in some states. There is no significant evidence from multivariate analysis that CEOs going through divorce suffer from poorer earnings, sales, or equity performance in the year of a CEO divorce. These results are inconsistent with CEO distraction.

I further test for CEO distraction with Bloomberg's ranking of "The Best and Worst States for Getting Divorced". This ranking incorporates the costs of filing for divorce including

fees (typically less than a few hundred dollars) and, more importantly, the time requirements for completing a divorce in each state. I find CEOs in states requiring more time and money for divorce are not more likely to have lower firm risk around divorce. Assuming CEOs' attention to personal matters increases with the time to finalize a divorce, this suggests the lower firm risk does not result from distraction during a divorce.

In addition to changes in firm risk, I find evidence that divorce influences compensation policy, consistent with empirical evidence that boards align CEO compensation incentives after a change in portfolio incentives (Core and Guay, 1999). I find salaries, bonuses, restricted stock, and option grants increase for CEOs after a divorce. Salaries are significantly higher by around $150,000 (25%) and bonuses by $260,000 (33%). Stock grants and option grants increase by around $450,000 (125%) and $1,230,000 (55%) respectively. The increased equity-based compensation reveals changes to CEO incentives, as the sensitivity of compensation to a 1% change in price (Delta) and volatility (Vega) is higher after divorce by around $22,000 and $20,000. Although divorce does not have a significant effect on firm performance measures, the dollar cost to the firm from divorce-related compensation is substantial, at over $2 million on average in the year following divorce.

The increase in the sensitivity of compensation to stock price and, perhaps more importantly, volatility is consistent with prior literature that documents the risk-taking incentives of compensation. Coles, Daniel, and Naveen (2006) show that a higher CEO wealth-to-risk sensitivity (Vega) causally leads to riskier investment policies. Moreover, Low (2009) finds that firms respond to an exogenous decrease in CEOs' risk incentives by increasing risk-sensitive compensation, overcoming problems related to CEOs' risk aversion. Similarly, I find that CEOs'

Vega increases after a divorce, consistent with greater risk-incentive alignment following a decrease in divorced CEOs' risk appetite associated with decreased portfolio diversification.

Importantly, these results hold after controlling for firm performance. Divorce is endogenous in as much as it results from CEOs' decisions and actions. For example, a CEO that works harder or invests more time in the firm likely reduces the amount of his time dedicated to family, which could increase the probability of divorce. Hence, CEO effort could increase the probability of divorce while increasing performance and, hence, compensation, which is based on performance. Since I control for performance, I do not expect the fact that CEOs influence the probability of divorce to drive the observed relations between compensation and CEO divorce.

This paper primarily makes three contributions. First, I contribute to the literature on the importance of individual managers (e.g., Bertrand and Schoar, 2003). Several studies show that CEO attributes matter, including age (Yim, 2013), education (Miller, Xu, and Mehrotra, 2015), credentials (Falato, Li, and Milbourn, 2015) leverage preferences (Cronqvist, Makhija, and Yonker, 2012), political orientation (Christensen et al., 2015), frugality (Davidson, Dey, and Smith, 2015), emotions (DelGado-Garcia, La Fuente-Sabate, and Manuel, 2010), and past experiences (Malmendier, Tate, and Yan, 2011). Other related literature shows that traumatic personal events such as a hospitalization (Bennedsen, Perez-Gonzalez, and Wolfenzon, 2011), the death of the CEO (Johnson, Magee, Nagarajan, and Newman, 1985), or a death in the family (Bennedsen, Perez-Gonzalez, and Wolfenzon, 2006) affect firm performance due to the reduced productivity of the affected CEO. I contribute to this literature by showing that personal *decisions* influence CEOs' incentives and corporate policies.

In as much as the decision to divorce is not driven by corporate policies, divorce provides a quasi-exogenous shock to CEO incentives and reveals the importance of a change to portfolio

incentives on corporate risk policies. This differs from most prior studies of managerial risk preferences (Cain and McKeon, 2014; Graham, Harvey, and Puri, 2013) and characteristics that do not vary across time (Frank and Goyal, 2007; Graham, Li, and Qiu, 2012, among others). Recent work examines the relation between risk appetite and marital status, rather than a divorce itself. Roussanov and Savor (2014) and Nicolosi and Yore (2015) find that married CEOs engage in less risky behaviour than do CEOs who are single or have been divorced. I observe differences in firm outcomes around a change in marital status, which allows my study to differentiate between marital status and other CEO fixed characteristics. Although this literature provides substantial evidence on the importance of individual managers to the firm, Fee, Hadlock, and Pierce (2013) note the possibility that boards select managers based on their traits and management style when implementing corporate policy, which makes correlations between firm and managerial characteristics difficult to interpret. Due to the highly private nature of divorce, it is difficult to expect that a board could incorporate this personal decision ex ante into hiring decisions and corporate policy, suggesting divorce provides evidence on how personal characteristics affect the firm without regard to the board's selection of the CEO.

I also contribute to literature on the importance of CEO portfolio incentives for corporate risk taking, consistent with theoretical (e.g., Hall and Murphy, 2002) and empirical work (e.g., Coles, Daniel, and Naveen, 2006; Gormley, Matsa, and Milbourn, 2012). This literature emphasizes the importance of outside wealth in CEO portfolios for leverage decisions (Lewellen, 2006) and corporate hedging behavior (Bettis, Bizjak, and Lemmon, 2001), but this outside portion of the CEO's portfolio is generally unobservable. I suggest one of the mechanisms by which divorce reduces equity volatility is through reduced risk in corporate policies. For example, cash flow volatility and accrual volatility are both lower in the year of divorce. The

lower volatilities are consistent with greater hedging activity or earnings management. As divorce is also related to abnormal accrual volatility, I further add to the literature tying equity incentives to reporting decisions (Harris and Bromiley, 2007; Zhang et al., 2008) and discretionary accruals (Bergstresser and Philippon, 2006) by providing evidence that incentives from CEO portfolios, including outside wealth, affect accounting policy.

Finally, my work contributes to the literature tying CEO wealth to compensation policy (Baker and Hall, 2004; Hall and Murphy, 2002; Lambert, Larcker, and Verrecchia, 1991), which highlights the importance of outside wealth for portfolio and compensation incentives. With insufficient outside wealth, a lack of diversification can significantly reduce the subjective value and incentives of equity-based compensation to a CEO facing selling constraints. Becker (2006) uses Swedish tax data to obtain data on personal wealth and shows that wealthier CEOs receive greater compensation incentives in the cross-section, as wealthier CEOs are better able to diversify firm risk. I support this finding by providing evidence that richer CEOs are less impacted by divorce.[5] However, I find that wealth losses associated with divorce are related to compensation increases, suggesting boards increase incentives as CEOs become poorer.

The remainder of this paper is organized as follows. Section 2 describes the data and sample characteristics. Section 3 presents multivariate results related to firm risk and compensation following CEO divorce. Section 4 explores alternative explanations and robustness, and Section 5 concludes.

[5] Paravisini, Rappoport, and Ravina (2016) find evidence of increased risk aversion with decreases in real estate wealth, and they attribute this to declining absolute risk aversion (DARA) in wealth. While I primarily focus on the diversification effect of CEOs, since they hold large stock and option portfolios, the lower firms risk could be partially attributable to DARA risk preferences.

2. Data and sample characteristics

2.1. Data sources

I combine hand-collected data on CEO divorces with stock and accounting data from the Center for Research in Security Prices (CRSP) and Compustat. Execucomp provides the sample of CEOs as well as data on compensation and ownership for the years 1992 through 2008. I restrict the Execucomp data to firm–years for which compensation data are available. Table 1 provides definitions and information on variable construction.

[Table 1 about here]

To collect data on CEO divorces, I exclude CEOs who were only present for one firm–year to ensure time series data. This exclusion leaves 4,385 individual CEOs. I use Execucomp's information on the names, ages, and principal office locations of the CEOs and gather instances of CEO divorces using several data sources. LexisNexis and Westlaw have public records databases that include divorce filings for a large set of U.S. county-level jurisdictions. LexisNexis Academic Universe provides news and press releases related to CEOs and personal events. I combine these data with information from biographical websites, corporate webpages, and CEOs' personal sites (e.g., web pages of CEOs' personal foundations). Appendix A provides a more complete description of the data and collection of CEO divorce information.

In the absence of a comprehensive source of divorce information for sample CEOs, there are data limitations that I address in several ways. First, the availability of court records and media coverage varies geographically, creating a potential sample bias. For example, New York State does not disclose divorces on public record. However, extensive media coverage of CEOs in New York City significantly increases the chance of observing a change in marital status.

Because industries cluster geographically, geographic limitations on public records databases or media coverage could lead to under-representation of some divorced CEOs by

industry. Table 2, Panel A reports the distribution of CEO divorces by Fama–French 48 industry classification. The number of firm–years in each industry is included for comparison. Overall, the distribution of divorces suggests that the CEO divorces are dispersed over several industries, and though there is variation, the proportion of divorces per firm–year does not suggest CEO divorces are over-represented in a small set of industries. As the divorces are distributed similarly to the Execucomp panel, I do not expect any meaningful industry-related bias in the sample of CEO divorces.

[Table 2 about here]

In addition to industry clustering, sample selection bias could result from reliance on media sources in various states (e.g., New York). Some CEOs may have more extensive media coverage, more family events in the media, or greater influence over the media. This may relate to firm characteristics if certain types of CEOs (e.g., "star" CEOs) or corporate policies (e.g., publicity) relate to both observing divorce and firm risk. To mitigate concerns of reporting bias, I limit the sample in a robustness analysis to only firms located in states with electronic court records. This restriction reduces the sample to firms for which I am not likely to have bias related to media coverage. The relation between firm risk, compensation, and divorce holds within this sub-sample, suggesting any selection bias has limited impact.

Another potential concern is that public records databases rely on electronic court records. I expect that the availability of public records increases over time, as more courts adopt electronic records systems, suggesting CEO divorces are more frequently observed in more recent years in the sample. Table 2, Panel B reports the distribution of CEO divorces across time. CEO divorce is more frequent in the mid-1990s, although there is no increasing trend in divorce

across time, suggesting little selection bias from the use of electronic records. Time fixed effects in multivariate analysis control for any remaining variation related to the timing of divorce.

I find 80 CEO divorces in the Execucomp sample of 4,385 CEOs. For comparison, I take the annual divorce rate of 3.6 per 1,000 people or, assuming CEOs are married, 8.5 per 1,000 married people in the U.S. in 2003 (Stevenson and Wolfers, 2007). The sample of 4,385 CEOs in 27,169 firm–years gives an expectation of 98 (231) divorces, assuming the national (married) rate applies to sample CEOs. Although data limitations hinder the data collection process, the number of divorces is arguably close to expectations. A conditional expectation provides for lower probabilities of divorce, given that divorce rates decrease with age, education, and wealth, while factors including race, religion, and nationality further reduce expectations of divorce for sample CEOs. Overall, I expect the rate of divorce for a CEO is significantly lower than the national average, and I expect my sample captures a very large proportion of CEO divorces. [6]

I also note that the number of divorces is similar in magnitude to Lu, Ray, and Teo (2016), who study fund manager divorces and find 76 in-sample divorces for 26,811 hedge funds. To the extent I am missing divorces, the data should be biased against finding results, as unobserved divorces potentially lead to similar changes in corporate policies in the non-divorce "control group" observations. While the number of divorces in the sample is admittedly a small number, I emphasize that the results provide evidence on more than divorce per se. Each divorce provides evidence on how corporate policies and compensation contracts change with executive

[6] The common heuristic that the divorce rate is 50% likely comes from the percentage of first marriages ending in divorce within ten years (although the actual statistic is closer to 36%). The percentage of first marriages ending in divorce is a concave function of years since the wedding, indicating a lower probability of divorce for longer marriages than in the general population. In addition, Stevenson and Wolfers (2011) report the percentage of marriages ending in divorce increases for more recent marriages, consistent with lower divorce rates for older couples. CEOs in the sample tend to be older (median age, 53) with longer marriages (median marriage year, 1976). Factors such as education and age at time of marriage also further reduce divorce probabilities.

wealth, and all executives have wealth, influence corporate policies, and receive compensation. Hence, the implications of the study of these 80 observations extend to the broader population.

2.2. Description of data

Panel A of Table 3 presents univariate statistics on the full panel of Execucomp CEOs. I include variables related to firm risk, compensation, ownership, and other firm characteristics. As proxies for risk, I use a measure of total equity volatility and one of firm-specific volatility. *Return Volatility* is the annualized standard deviation of monthly returns. I construct *Idiosyncratic Volatility* as the annual sum of squared errors from a four-factor Carhart (1997) model. The model includes the market variable, Rm-Rf, Fama and French's (1993) factors for size and value, SMB and HML, and a momentum variable, UMD, from Kenneth French's data library.[7] A minimum of six months of return data are required for each firm–year to be included in the sample. The sample means of idiosyncratic and total risk are 0.085 and 0.112.

I also include statistics on measures of CEO compensation and ownership. *Salary* and *Bonus* capture CEO cash compensation, and *Stock Grant Value* and *Option Grant Value* comprise annual equity-based compensation. CEO holdings include shares, restricted shares, exercisable options, and unexercisable options. I also include several firm characteristics, which primarily serve as control variables, including book asset value, market-to-book ratio, a proxy of cash constraints, tax carry-forwards, a dividend indicator, the annual stock return, the age of the firm in years, debt-to-asset ratio, and return on equity (ROE). CEO traits that capture risk preferences are proxied by indicators for CEO retirement age (63) and gender. The control variables are lagged one year, and all variables are Winsorized at the 1% level to reduce the effect of outliers.

[7] Results are robust to alternative measures of idiosyncratic risk, including a one-factor model.

[Table 3 about here]

For comparison, I report statistics for the subsample of divorced CEOs in Panel B of Table 3. Panel B reports the means of each variable in the year of a CEO divorce, the year before a CEO divorce, and the year after a CEO divorce. Of the 80 CEOs who divorce in the sample period, several divorce in the first or last year in office. This limitation leaves data for only 75 CEOs in the year before divorce and 72 CEOs in the year after divorce.

Table 3 reports mean differences across time for those CEOs in the sample around divorce. Paired *t*-tests and sign rank tests provide evidence on changes in firm characteristics around divorce. On both measures of risk, there is a drop around the divorce that reverses in the year after divorce. For the 75 CEOs in office the year before a divorce, the drop in idiosyncratic risk between the year before and the year of divorce is significant (t = -2.17). The drop in idiosyncratic risk seems short lived. For the CEOs remaining in office after their divorce, *t*-tests reveal no significant difference in idiosyncratic risk between the year after divorce and the year before divorce. However, there is some evidence that idiosyncratic risk remains lower in non-parametric tests in the year after divorce (sign rank z = -1.90). There is evidence of a drop in total firm risk, but univariate tests do not reveal statistical differences at conventional levels.

I next compare salaries, bonuses, stock grants, and option grants in the years surrounding CEO divorce. Panel B of Table 3 reveals significant increases in compensation in the years following a CEO divorce. From the year before divorce to the year after divorce, salary increases by nearly $150,000, bonuses by $260,000, restricted stock grants by $450,000, and option grants by $1,230,000. Paired *t*-tests reveal that increases are significant at the 5% level, with the exception of the increase in bonuses, which is not significantly higher. However, all types of compensation are higher in sign rank tests at the 5% level. I compare the firms with divorced

CEOs to a matched sample of firms, in Appendix Table A1. The matched sample of firms does not have similar increases in compensation over the same time periods. Only the value of stock grants shows a significant increase in *t*-tests for the matched sample, whereas salary, bonuses, and option grants are not significantly different for the matched sample for the years around divorce, suggesting the increase in compensation for divorced CEOs is not purely driven by a general time trend in executive compensation (e.g., Murphy, 1999).

Table 3, Panel B presents the value of firm stock and option holdings in the sample CEOs' portfolios in the years around divorce. If only outside wealth, such as cash or real estate, changes during a divorce, stock and option holdings should not significantly decrease during divorce. Option and stock holdings do not decrease on average around CEO divorce, which suggests that divorce primarily affects outside wealth, and spouses do not receive significant amounts of equity in divorce settlements. Statistical evidence confirms that stock and option holdings are not decreasing, but are in fact increasing. These increases in holdings are similar to increases for a matched sample of CEOs (see Appendix Table A1), suggesting any wealth lost in divorce increases the concentration of stock and option holdings in CEO portfolios. In Panel C, I restrict the sample to CEOs in sample for all three years, results are substantially unchanged. This result is consistent with anecdotal evidence that spouses do not receive substantial amounts of equity-based holdings in divorce settlements. For example, Wolff (2013) reports Rupert Murdoch's ex-wife Anna reportedly settled for cash and an agreement to keep their children's equity interest in his will, rather than taking any significant portion of equity herself.

For comparison, I also report the results of *t*-tests and sign rank tests for other firm characteristics. There is no significant change in market-to-book ratios, dividends, debt ratios, firm performance, and other firm characteristics. That is, changes in equity risk and

compensation do not coincide with significant changes in firm characteristics for divorced CEOs. Although there is some evidence of an increase in firm size around divorce, I control for size and other firm and CEO characteristics, such as age and gender, in the multivariate analysis to ensure results are not driven by such characteristics.

3. Multivariate analysis

3.1. CEO divorce and firm risk

I use multivariate analysis to study the impact of CEO divorce on firm risk and provide further evidence of a change in portfolio risk incentives related to divorce. Table 4 presents regressions of firm risk. I use the annualized standard deviation of monthly returns as a proxy for total firm risk, *Return Volatility*. I construct a measure of firm-specific risk, *Idiosyncratic Risk*, as the annual sum of squared errors from a four-factor Carhart (1997) model. I require six months per year of return data to be included in the sample. I also include as dependent variables the log of idiosyncratic and total risk, as prior literature notes skewness in the distribution of volatility.[8]

I capture the impact of CEO divorce on firm risk with indicators for the firm–years around CEO divorce. *CEO Divorce Year* equals 1 for a firm in the year of a CEO divorce, 0 otherwise. *Year After CEO Divorce* equals 1 if the previous firm–year had a divorce, 0 otherwise. *2nd Year After CEO Divorce* equals 1 for a firm if the CEO divorced two years prior. *Year Before CEO Divorce* equals 1 in the year preceding a CEO divorce, 0 otherwise.

I include several control variables to reduce the likelihood of finding a spurious relation between divorce and firm risk. I follow Ferreira and Laux (2007) in controlling for several determinants of idiosyncratic risk including firm size (log of book assets), ROE, leverage, market-to-book ratio, a dividend indicator, and firm age. I also include two CEO characteristics

[8] Several studies note idiosyncratic risk is skewed (e.g., Gaspar and Massa, 2006; Goyal and Santa-Clara, 2003; and Malkiel and Xu, 2003).

to capture CEOs' risk appetite. Serfling (2014) suggests a relation between CEO age and risk appetite, which I control for with an indicator for CEOs of retirement age (63 or older). Maestripieri, Sapienza, and Zingales (2009) suggest testosterone and gender impact risk tolerance, which I control for with an indicator for CEO gender. Campbell, Lettau, Malkiel, and Xu (2001) and Brown and Kapadia (2007) document an increase over time in idiosyncratic risk. In addition to firm age, I include time indicators corresponding to the listing groups in Brown and Kapadia (2007).[9] Variable definitions are in Table 1. I also include indicators for Fama–French 48 industries to control for industry-related differences in risk. Standard errors are clustered two-ways by both firm and year to reflect the panel nature of the data.

[Table 4 about here]

Table 4, Panel A reveals a significant, negative relation between the indicator for a CEO divorce and all proxies of firm risk. The coefficient estimate on *CEO Divorce Year* is -0.022 for idiosyncratic volatility, which is significant at the 1% level. In a regression of the log of idiosyncratic volatility, the coefficient is similar at -0.018 with significance at the 5% level. Regressions of total volatility, as measured with simple returns or log returns, also reveal lower firm risk in the year of divorce with coefficients of -0.010 on the indicator for divorce in both regressions, which are significant at the 5% (total volatility) and 10% levels (log volatility).

One concern with a sample of 80 divorces is that coefficient estimates are influenced by differences across CEOs or outliers with in the sample of divorced CEOs. In Panel B of Table 4, I address the first concern using firm-fixed effects. Within this specification, I ensure that lower divorce-related risk occurs for individual CEOs and does not reflect differences across divorced

[9] Results are robust to including controls for different definitions of industry (SIC), the number of segments, the standard deviation of ROE, tax carry-forwards, returns, and other firm characteristics that could be related to risk.

and non-divorced CEOs. Like Panel A, coefficient estimates reveal lower firm risk in the year of divorce.

In Panel C, I use quantile (median) regressions to mitigate the influence of outliers when estimating the effect of divorce on firm risk. Quantile regressions also account for firm-fixed effects and include control variables as in Panel A. Idiosyncratic risk continues to be significantly, negatively related to CEO divorce. For total risk, the coefficient on CEO divorce is not significant at conventional levels, but the indicator for the year after divorce reveals lower risk in the year following a CEO divorce. The weaker results at the median suggest the effect of divorce is not the same across firms, with divorce having a reduced effect at the median relative to the mean. This could suggest that the wealth shock is relatively more pronounced for CEOs at firms with relatively high risk, who have relatively high risk in their portfolios.

The lower observed risk is consistent with CEOs reducing firm risk in response to their portfolio incentives. That is, if CEOs are less diversified after divorce with less cash or other assets and they own significant amounts of stock and options that have selling constraints, then they hold significant amounts of idiosyncratic risk (Kahl, Liu, and Longstaff, 2003). Given the presence of contractual or legal restrictions on the sale of stock and options, I expect divorced CEOs have incentives to reduce risk with their corporate decisions, consistent with prior literature. For example, May (1995) finds evidence that CEOs undertake diversifying acquisitions to reduce risk in their personal portfolios. The relatively larger effect on idiosyncratic risk is consistent with portfolio incentives having a relatively larger impact on idiosyncratic risk than systematic risk, as CEOs have greater ability to hedge market risk (Armstrong and Vashishtha, 2012).

The reduction in risk is also consistent with managerial inattention. An executive distracted by the emotional and time commitments of divorce could suffer from a loss of productivity that could reduce activity or information flow to markets, similar to the reduced volatility associated with CEO holidays (Yermack, 2014). However, the comparison to the effect of holidays is limited, since the risk reduction related to CEO holidays is associated with delayed release of information. It is unlikely that news could be delayed for the length of a divorce. I next present further evidence on the relation between divorce and firm risk to distinguish between the effects of portfolio incentives changes and distraction related to divorce.

[Table 5 about here]

In Table 5, I regress the proxies of risk on indicators for the years around divorce and include several interaction terms. Panel A of Table 5 presents the risk regressions including a proxy for CEO cash wealth. If the relation between divorce and risk is related to portfolio diversification, I expect wealthier CEOs are less impacted by divorce than poorer CEOs, because wealthier CEOs with more cash can better diversify their portfolios after divorce. I define cash wealth as the sum of salary and bonuses for a CEO in the three prior years. Compensation data must be available for the prior three years to be included. I classify CEOs as high-wealth CEOs if their cash wealth is higher than the median divorce CEO, which is close to the median for the full sample of CEOs. I interact this indicator for high wealth with indicators for divorce to test for a greater impact of divorce on poorer CEOs.

Panel A of Table 5 presents the results of the risk regressions with a high-wealth indicator and interactions of the wealth indicator with indicators of CEO divorce. The indicator for the year of divorce continues to be negative in all regressions with slightly larger coefficient estimates than those in Table 4. The interaction of high wealth and the indicator for the year of

CEO divorce is positive and significant in regressions of idiosyncratic risk, suggesting wealthier CEOs do not reduce firm risk to the same extent as less wealthy CEOs. Rather, the evidence suggests the negative relation between divorce and firm risk is primarily driven by less diversified CEOs. An *f*-test of the sum of the coefficient on the year of divorce and the coefficient on the interaction of high cash wealth and year of CEO divorce produces an insignificant *f*-statistic, providing no evidence for a relation between divorce and risk for wealthier CEOs. Similarly, an *f*-test of the joint effect of CEO divorce and CEO divorce for high wealth CEOs, suggests divorce does not significantly affect total risk for wealthy CEOs.[10]

Because I expect divorce provides emotional distraction for people of all wealth levels, the results on wealth interactions are consistent with and contributes to existing literature predicting that outside wealth affects CEO diversification and incentives. Lambert, Larcker, and Verrecchia (1991) posit that reduced diversification from lower outside wealth reduces CEOs' valuation of their compensation and the incentives it provides. Baker and Hall (2004) maintain that the higher dollar stakes of CEOs in larger firms require greater outside wealth to preserve portfolio incentives. Jin (2002) finds that optimal incentives decrease with firm-specific risk, rather than systematic risk, consistent with CEOs bearing large costs from a lack of diversification. Lewellen (2006) suggests that the lack of diversification influences CEO risk incentives and hinders leverage decisions. Bettis, Bizjak, and Lemmon (2001) present evidence that managers use collars and swaps to limit the exposure of their personal portfolios to firm risk.

Table 5 presents further evidence to disentangle the distraction and wealth effects of divorce. I use Bloomberg's 2011 ranking of "The Best and Worst States for Getting Divorced" as

[10] Interestingly, coefficient estimates on the indicator for the year following a CEO divorce reveal that the impact of divorce on firm risk persists into the year after divorce, but only for those CEOs with less wealth. CEOs with higher wealth do not have lower risk in the year following divorce.

a proxy for the cost of a divorce (Stonington and McIntyre, 2011). Bloomberg bases this ranking on the filing fees and the minimum time required for separation and finalization of divorce after filing. Although the filing fees of a few hundred dollars are inconsequential to an Execucomp CEO, I expect the ranking captures the distraction of divorce, for several reasons.

First, a longer legally required time to finalize a divorce likely increases the length of time for which a CEO loses focus and productivity. Second, this Bloomberg ranking correlates with the percentage of people in a state that identify with a religion with a correlation of 0.25 (unreported), significant at the 10% level.[11] This suggests the ranking not only captures financial costs and time commitments but also reflects local beliefs and the degree to which divorce carries social costs that could reduce a CEO's attention. These costs seem to have a meaningful effect on the decision to divorce, as the ranking has a correlation with the state-level divorce rate of -0.30 (unreported), significant at the 10% level, suggesting the ranking captures significant costs that influence marital stability.

Panel B of Table 5 presents results of risk regressions with indicators of the years around CEO divorce. I include an indicator that equals 1 if a CEO is located in a state in the top 25 of divorce costs, as ranked by Bloomberg.[12] This indicator is interacted with the indicators for CEO divorce. I include state fixed effects in addition to industry and year controls to account for any state-level variation in firm attributes that could correlate with the measure of divorce costs. The coefficient on the indicator for CEO divorce continues to be negative and significant in all regressions. However, the interaction term of CEO divorce and the indicator for a high-cost divorce is positive and significant, suggesting CEOs with the most distraction from divorce do

[11] Cragun, Kosmin, Keysar, and Navarro-Rivera (2009) provide evidence on religious identification by U.S. state.
[12] I use the headquarters' state as a proxy for the location of the CEO, because Liu and Yermack (2007) show that CEOs typically live close to their headquarters.

not show as large a drop in firm risk, relative to those CEOs that divorce in a low-cost state. This result is inconsistent with the idea that volatility is lower during divorce due to a CEO's inability to focus, but may reflect the fact that some couples reconcile with longer mandated times to complete a divorce as filings may not lead to final divorce (Lee, 2013).

I next explore the mechanism by which firm risk reduces around divorce. I primarily study accrual and cash flow volatility around divorce. If CEOs' risk preferences change following divorce, incentives to reduce risk through changes in accounting or corporate risk policy will increase. That is, CEOs could engage in increased hedging to reduce cash flow volatility or manage earnings to smooth accrual volatility to appear less risky.

[Table 6 about here]

In Panel A of Table 6, I regress the standard deviation of abnormal accruals, the sum of absolute abnormal accruals, and cash flow volatility on indicators for CEO divorce. I use a Jones (1991) model as modified by Dechow, Sloan, and Sweeney (1995) to obtain expected accruals using quarterly Compustat data and take abnormal accruals as the error term from this modified Jones model.[13] The sum and standard deviation of discretionary accruals are measured annually. I define cash flow volatility as the volatility of cash flow (operating income before depreciation less interest expense, taxes, and dividends) over assets each year, using quarterly data. I use ROE, the debt ratio, log of book assets, market-to-book ratio, a dividend indicator, firm age, CEO age, and gender as control variables, similar to regressions of equity risk.[14] Year and Fama–French industry indicators control for time and industry fixed effects.

[13] Results are robust to alternative measures of abnormal accruals.

[14] Results are robust to including CAPX, R&D expense, and tax carry-forwards in the cash flow-volatility regression, as Tufano (1996) predicts that expenses and tax carry-forwards influence decisions to hedge cash flows.

I find significantly lower volatility for discretionary accruals and cash flow in the year of CEO divorce, consistent with the drop in equity volatility. Accrual volatility and the sum of unsigned abnormal accruals are both significantly lower at the 5% level in the year of divorce. This result suggests incentives related outside wealth can influence the reporting of earnings, similar to prior results showing that financial reporting decisions are influenced by wealth incentives from compensation (Holthausen, Larcker, and Sloan, 1995; Huson, Tian, Wiedman, and Wier, 2011) and equity-based holdings (Bergstresser and Philippon, 2006).

Cash flow volatility is lower in the year of divorce with statistical significance at the 10% level. The lower risk in accruals and cash flow suggests a change in corporate policy to reduce firm risk following a loss of personal wealth, consistent with literature showing managers alter corporate policies from personal portfolio risk incentives. Tufano (1996) shows that managers with greater equity stakes engage in more hedging activity. Knopf, Nam, and Thornton (2002) find managers with a greater portfolio sensitivity to stock price engage in more corporate hedging activities, and Rajgopal and Shevlin (2002) present evidence that risk incentives influence managers of energy companies to undertake oil and gas investments with higher exploration risk. Coles, Daniel, and Naveen (2006) present causal evidence that CEO portfolio risk incentives determine firm risk through leverage decisions, as well as investment in either riskier (e.g., R&D) or safer (e.g., PP&E) investments.

I contribute to this literature by presenting evidence that outside wealth influences incentives and risk policies. My evidence is also consistent with these papers in terms of timing of changes in risk and accounting policy. For example, Pincus and Rajgopal (2002) find evidence that oil and gas managers use discretionary accruals to reduce ("hedge") earnings volatility due to exploration risk, and these accrual changes relate to the risk of discovery of "dry" wells in a

given year. Gormley and Matsa (2016) find evidence that managers diversify firm risk in the year following enactment of business combination laws.

In Panel B of Table 6, I provide evidence of which activities managers change to reduce the volatility of cash flows and accruals. I focus on expenses, because managers have discretion of such over expenses, and prior research on 'real' earnings management suggests this is one way that managers influence earnings. I follow Roychowdhury (2006) and study abnormal production costs and discretionary expenses with the following modification to his models:[15]

As I am interested in looking at annual changes, I need data with a higher frequency and therefore use quarterly data. He uses the residuals from the models of discretionary expenses and production costs to proxy for abnormal expenses and costs. I am interested in volatilities, and hence I use the annual standard deviation of these residuals, not levels, to study how managers might reduce their risk during divorce.

The first two columns of Panel B present the results of regressing the standard deviation of abnormal production costs and discretionary expenses on indicators for divorce. Control variables from the regressions of accrual volatility are used. Both production costs and discretionary expenses show lower volatility in the year of divorce, but lower volatility is only statistically significant for discretionary expenses. In the third and fourth columns of Panel B, I look at the primary components of discretionary expenses, R&D and SG&A. The standard deviation of R&D expenses is lower around CEO divorce but is only statistically significant in the year after CEO divorce. The standard deviation of SG&A is lower in the year of divorce with

[15] I also study other financial policies, such as acquisitions, equity issuance, debt changes (de-levering), hedging/derivatives use and capital expenditures in unreported analysis. There is no significant evidence of these policies changing as a result of divorce that could be driving the change in firm risk.

statistical significance at the 5% level. This suggests one of the possible mechanisms for managers to reduce risk around divorce is through smoothing of general expenses.[16]

3.2. CEO divorce and firm performance

I next examine the impact of CEO divorce on firm performance. Prior literature presents evidence that significant personal events of CEOs, such as the death of a child (Bennedsen, Perez-Gonzalez, and Wolfenzon, 2006), or a hospitalization (Bennedsen, Perez-Gonzalez, and Wolfenzon, 2011), have a negative impact on firm performance, as CEOs are unable to perform while distracted by personal trauma. I study the impact of CEO divorce on accounting and equity-based measures of firm performance to test if the divorce hinders managers' ability.

[Table 7 about here]

Table 7 presents the results of performance regressions. After controlling for firm size, market-to-book ratio, dividend payments, firm age, prior performance, CEO age, gender, industry, and year, I find no statistical evidence of an effect of CEO divorce on accounting performance (ROA and ROE). In fact, the coefficients are positive for both ROA and ROE in the year of divorce. Lu, Ray, and Teo (2016) find that the divorce of fund managers reduces fund performance. Similar to their proxy of performance, I study alpha. I use a four-factor model of monthly returns to measure abnormal performance of the manager. The annualized alpha and simple net-of-market returns show no abnormal equity performance around CEO divorce.

The lack of relation to performance could be due to fundamental differences between corporations and hedge funds or between CEOs and fund managers. At large corporations, other executives may be able to compensate for the CEOs' distraction, or CEOs may have stronger equity incentives than fund managers. Anecdotally, CEOs getting divorced are older without

[16] Note that while *payoffs* from R&D or other investments can take a long time to materialize, managers can change *expenses* with immediate implications.

young children, suggesting less distration.[17] Finally, I look at changes in sales, to see if there is any other evidence of performance declines around divorce. I find no significant effect of divorce on sales. These results suggest a limited effect of divorce on performance.

3.3. CEO divorce and compensation

Panel A of Table 8 presents tobit regressions of salary, bonuses, restricted stock grants, and option grants on the indicators for CEO divorce. Similar to risk regressions, I use indicators for the firm-years around CEO divorce. *Year Before CEO Divorce, CEO Divorce Year,* and *Year After CEO Divorce* equal 1 in the year before, during, and after a CEO divorce, respectively. I control for several variables that influence executive compensation. As larger firms and firms with more growth options provide more incentive compensation (Smith and Watts, 1992), I control for firm size and growth opportunities with the log of assets and the market-to-book ratio. I use simple annual returns to control for performance (e.g., Baber, Janakiraman, and Kang, 1996). Because taxes or the need for cash can make options and stock relatively more valuable, I control for cash constraints, tax carry-forwards, and dividend constraints (Matsunaga, 1995; Yermack, 1995). I also include controls for CEO age and gender to account for risk preference and compensation differences across CEO type. Control variables are lagged one year because firms may not be able to update incentive compensation continuously with changes in firm characteristics. Complete variable definitions appear in Table 1. I include Fama–French industry and year indicators, and I cluster standard errors two-ways at the firm and year level.[18]

[Table 8 about here]

[17] Over the one-year window I examine, there is also relatively more noise than the six-month period studied in Lu, Ray, and Teo (2016).

[18] Two-way clustering by firm and year accounts for the panel nature of the data (Cameron, Gelbach, and Miller, 2010), and results are robust to state fixed effects to capture any effect of local laws and other geographic effects.

The coefficient estimates related to CEO divorce in Panel A of Table 8 are consistent with the univariate results. In the year following CEO divorce, all measures of compensation are significantly higher. The coefficient estimates suggest that CEOs' salaries are higher by $80,709 and bonuses are higher by $355,319 on average in the year after their divorce. Option grants and restricted stock grants are $1,248,277 and $1,310,762 higher on average in the year after divorce. Interestingly, the coefficient estimates for stock grant compensation are much smaller in the univariate analysis than in the tobit model, which accounts for the probability of receiving a restricted stock grant. [19] Salary and restricted stock compensation remain significantly higher in the second year following divorce, suggesting a longer-term effect on compensation policy, whereas the total compensation increase reveals an economically significant cost of divorce to shareholders of several million dollars on average for sample firms.

The fact that compensation adjustment is primarily observed in the year after divorce is consistent with prior work on incentive alignment. In their study of how boards adjust compensation incentives to portfolio incentives, Core and Guay (1999) look at compensation in the current year, relative to year-end incentives from the prior year. In fact, they note that if compensation incentives were adjusted continuously, they would not expect to find such incentive changes. Hence, I would expect to observe wealth-shock related changes to compensation incentives in the following year.[20]

Note that the coefficient on the indicator *Year Before CEO Divorce* is not significant for any form of compensation. Separation is required before a divorce filing in many states. For

[19] I use tobit regressions because some firms grant stock and option awards irregularly or not at all (Hartzell and Starks, 2003), but note the results are robust to ordinary least squares (OLS) regressions and taking the log of the dependent variables to account for any skewness in the distribution of compensation.

[20] I also look at the typical time period between compensation grand in the Execucomp database. The mean time between grants is about 300 days, with a mode of 365, suggesting six months is the expected lag. It would take longer if the board needs to observe the changes to corporate policy before changing incentives.

example, statutes in Illinois require two years of separation for a no-fault divorce (750 Ill. Comp. Stat. § 5/401). If boards increase compensation to provide incentives for CEOs to focus their attention on performance during divorce, then there should be some evidence of compensation increases before divorce, when marital problems and separations arise. Rather, changes in compensation appear to be due to the divorce and settlement agreement, consistent with compensation changes following a loss of wealth.

The changes in compensation around divorce are consistent with prior literature showing undiversified CEOs discount risky equity-based compensation due to idiosyncratic risk and require larger awards of stock and options to achieve the same subjective value as an investor that can freely trade such awards. Kahl, Liu, and Longstaff (2003) show agents that are unable to diversify their portfolios place discounts of up to 80% on the market value of their stock, and discounts increase with lower outside wealth. Similarly, Meulbroek (2001) provides evidence that undiversified managers value option compensation at less than half of the market value due to the inability to hedge idiosyncratic risk. Hall and Murphy (2002) show that a CEO with a higher percentage of their wealth invested in the firm (67%) would require stock compensation worth twice the value of an equivalent cash payment to maintain the same utility.[21]

3.4. The sensitivity of CEO compensation and divorce

In Table 8, Panel B I regress the wealth and risk sensitivity (Delta and Vega) of option compensation on indicators for the years around CEO divorce and control variables. Delta is the change in the dollar value of annual CEO option grants for a 1% change in stock price, following Core and Guay (2002). Vega is defined as the dollar change in the value of options for a 0.01 change in equity volatility.

[21] Several studies examine the discount agents place on risky compensation, including Carpenter (1998), Hall and Murphy (2000), Ingersoll (2006), Kahl, Liu, and Longstaff (2003), and Lambert, Larcker, and Verrecchia (1991).

I find both Delta and Vega are significantly higher in the years following a CEO divorce at the 1% and 5% level.[22] Delta increases by around $21,572 and Vega increases by around $19,680 in the year after a CEO divorce. In the third and fourth column of Panel B, I take the log of the sensitivities due to the skew in the distribution of these variables. The results are even more striking. Delta and Vega are significantly higher at the 1% level in all years following divorce, suggesting a significant increase in the award of incentives, even after controlling for time and firm characteristics.

The increase in incentives suggests boards adjust incentives after CEOs' portfolio incentives change. Core and Guay (1999) document that equity-based portfolio incentives affect compensation policy with lower portfolio incentives leading to higher compensation incentives. The result here differs in that the compensation incentive increase follows a change in portfolio incentives from a change in outside wealth, rather than equity-based holdings. This provides support for prior literature that suggests outside wealth is an important determinant of compensation and risk incentives.

4. Alternative explanations and robustness

In this section, I address several alternative explanations for the relation between CEO divorce, firm risk, and compensation, including concerns relating to endogeneity, fixed effects, and selection bias.

4.1. The timing of divorce and compensation

One potential concern is that CEOs time divorces to precede large awards of compensation, or time compensation awards to follow divorce. A CEO would have a strong incentive to push back compensation if settlements do not account for such future expected compensation, reducing

[22] Results are robust to simple OLS regressions, zero-filling missing option compensation data, and including restricted stock grants as part of the wealth sensitivity.

payments to the spouse. If CEOs time divorce or compensation to avoid sharing these payments with the spouse, then divorce is not exogenous to compensation policy, which limits the interpretation of my results.

My empirical strategy addresses concerns of timing in two ways. First, I include an indicator for the year before divorce in all multivariate analyses. If CEOs defer compensation in an attempt to minimize the assets to be divided in a divorce settlement, then I expect compensation is abnormally low in the year before divorce.[23] However, in Table 8 only salary is lower in the year before divorce, and none of the measures of compensation, including salary, have statistically significant coefficients on the indicator for the year before divorce. There is no evidence that CEOs hold back compensation until after a divorce. This result is consistent with the fact that there may not be an incentive to defer compensation in several jurisdictions in which courts hold that future compensation can be awarded to the spouse.[24]

Second, it is unlikely that CEOs time divorce in advance of expected compensation increases. The impact of divorce on compensation is robust to controlling for several determinants of compensation, including industry and year fixed effects. If CEOs expect compensation increases, it is likely due to expectations related to fundamentals, such as performance, and the indicator for divorce should not pick up additional compensation after the divorce, given that stock returns are included in the regressions. The results are also robust to controlling for the current year's (not lagged) stock returns and measures of accounting performance, such as ROA and ROE.

[23] Compensation plans could operate in cycles of longer than one year. In robustness analysis, I look at compensation over an expanded timeframe, from two years before to three years after divorce. Even two years before divorce, there is no evidence of statistically significant lower compensation. Results are available upon request.

[24] For example, *Bender v. Bender*, 258 Conn. 733, 785 A.2d 197 (2001); *In re Marriage of Reich*, 150 Or. App. 311,946 P.2d 319 (1997).

[Table 9 about here]

I address potential issues related to the self-selection of divorce in a multi-stage framework. In Table 9, I control for the probability of divorce in compensation regressions. The probability of divorce is estimated using a probit regression in which the dependent variable is the indicator for CEO divorce. This model is estimated using several firm, time, and CEO characteristics. The firm and CEO attributes are not significantly related to the probability of divorce, which supports the idea that divorce is exogenous to firm attributes. To aid in identification, I include a variable that is related to CEO divorce, but not related to firm risk and compensation. The divorce rate in the state of the firm's headquarters should influence a CEO's decision to divorce, as it broadly represents the relative costs and benefits of divorce to the CEO. However, I do not expect this rate has any meaningful impact on compensation policy, satisfying the exclusion requirement of the instrument.

Coefficient estimates in the first column of Table 9 support the prediction that the state divorce rate is positively related to the probability of a CEO divorce, with statistical significance at the 5% level. I next predict the probability of divorce from the probit and include this probability in the compensation regressions.[25] The relation between CEO divorce and compensation is qualitatively similar after including this predicted probability. That is, the divorce itself, rather than factors influencing the CEO's decision to divorce, impact compensation policy. I attribute the importance of the divorce event to the loss of wealth that occurs during a divorce, which does not occur to married CEOs who are at high risk of divorce.

[25] Results are similar using the inverse mills ratio rather than a predicted probability to correct for self-selection.

4.2. CEO divorce and rent extraction

Another potential explanation is that poor governance and rent extraction produce higher compensation around divorce. Several studies provide evidence that excessive compensation is related to poor corporate governance and cronyism.[26] Entrenched CEOs could use their influence to recoup some wealth lost in divorce by increasing their pay. If compensation increases after divorce result from governance problems, I expect the higher compensation related to divorce is concentrated in firms with more powerful CEOs.

I test for the impact of governance on compensation around divorce by examining several measures of the strength of corporate governance including board compensation committee independence; Gompers, Ishii, and Metrick's (2003) G-index; Bebchuk, Cohen, and Ferrell's (2009) E-index; and executive ownership. For board data, I collect data on directors from proxy statements from the Securities and Exchange Commission's (SEC's) EDGAR database in the year of divorce. I follow Yermack (1996) and classify directors as insiders if they have strong connections to the firm or other conflicts of interest, independent otherwise. If a majority of the compensation committee members are independent, I consider the committee independent. The G-index is provided by ISS (formerly IRRC/RiskMetrics), and the E-index comes from Lucian Bebchuk's website.

In unreported analyses, I split the sample into high and low governance based on these proxies. In univariate and multivariate analysis, I find no evidence that increases in compensation around divorce concentrate in poorly governed firms.[27] The results are robust to

[26] Bebchuk, Cremers, and Peyer (2011), Brick, Palmon, and Wald (2006), Core, Holthausen, and Larcker (1999), and Hartzell and Starks (2003) present evidence that compensation is related to governance issues.
[27] The results are available from the author upon request.

splitting the sample by compensation committee independence, above-median G-index, "dictator" status (G-index ≥14), above-median E-index, or below-median CEO ownership.

4.3. Magnitude of the loss of wealth

In this paper, I propose that divorce affects CEOs' incentives. Although the effect could result from the distraction of this traumatic family event, I present evidence that the impact on the firm is a change in risk incentives from a loss of wealth. Evidence that changes in wealth affect CEO incentives is a contribution of this study, but the robustness of this conclusion is admittedly limited by the inability to directly observe the exact size of divorce settlements.

One unobservable factor that could limit the size of settlements is the existence of prenuptial agreements. However, I do not expect these to have much impact on the settlement amounts. Survey evidence suggests only 3% of wealthy individuals have prenuptial agreements, and they are often thrown out in divorce cases due to improper contracting or limitations. [28] For example, Ivana Trump received more than that specified by her prenuptial agreement with Donald Trump, and Jack Welch's (former CEO of GE) prenuptial agreement had a ten-year sunset provision that had expired by the time of his divorce.

Moreover, anecdotal evidence suggests the reduction in assets is substantial. In high-wealth divorces, settlements can reach hundreds of millions of dollars, and legal costs alone can total hundreds of thousands of dollars.[29] Although not every court takes a community property view that each spouse receives half of the marital assets, courts generally maintain the non-working spouse's standard of living (Krause and Meyer, 2004). Examples from in-sample

[28] A BusinessWeek/Harris poll surveyed individuals making over $100,000 annually, and found less than 3% of these individuals had a prenuptial agreement (Symonds, Burrows, and Forest, 2013); the survey is available online at http://www.businessweek.com/1998/31/b3589005.htm.

[29] There are also nonpecuniary costs, as marriage-specific capital is lost. Stevenson (2007) provides quasi-experimental evidence that investments in education, children, and domestic skills are related to marital stability, as spouses may lose investment in these things with a divorce.

anecdotes suggest settlements range between 25 and 50% of marital assets. For example, Lorna Wendt received half of the marriage's "hard assets", and the judge ruled that she was entitled to much of the value of Gary Wendt's options in GE Capital (although not the options themselves). In the divorce of Craig and Wendy McCaw, the latter was awarded an estimated $460 million of the couple's $1.3 billion in assets, suggesting CEO divorce settlements are large in both percentage of marital assets and dollar value.

4.4. Matched sample analysis

I check that the results are robust to a matched sample analysis because of concerns that the smaller sample of firms with a CEO divorce is not comparable to the full sample of Execucomp firms, even after the inclusion of a battery of control variables. I match firms in the year of a CEO divorce to another firm in the same Fama–French 48 industry category with the closest book asset size. Appendix B provides the results and a full description of the findings. Overall, univariate and multivariate results in the matched sample analysis are consistent with the full sample, further supporting the idea that the drop in risk is motivated by portfolio considerations.

5. Conclusion

I find lower equity risk in the year of a CEO divorce. There is also lower volatility in cash flows and abnormal accruals, which seems to be driven by lower volatility in expenses. I attribute lower risk to the fact that CEOs lose significant amounts of wealth in divorce settlements, primarily cash, real estate, and other outside wealth. As CEO portfolios become less diversified without the cash, portfolio idiosyncratic risk increases and incentivizes reductions in firm risk.

In support of this interpretation, I find the reduction in risk is concentrated in firms with CEOs with lower cash wealth, as they are less able to diversify their portfolios. I also rule out alternative explanations. First, the lower risk does not result from CEOs losing options, which

would reduce incentives for firm risk. There is no evidence of a decline in stock or option holdings around divorce. Second, I find no evidence that CEOs are less able to perform, which could lead to less information production and volatility. There is no drop in firm performance, and CEOs with longer legally mandated divorce waiting periods do not reduce risk more than other CEOs that divorce, providing no support that CEO distraction drives the results.

I also present evidence that compensation incentives adjust in response to portfolio incentives. There is evidence of higher salary, bonuses, stock grants, and option grants following the decrease in risk after divorce. In total, the average sample CEO receives over $2 million dollars in abnormal compensation related to divorce. This is consistent with an increase in risk incentives. The sensitivity of compensation to firm volatility increases by $19,000 on average the year after divorce, and this increase in incentives corresponds with equity volatility returning to normal levels the year after divorce.

These results highlight the importance of CEOs' personal wealth and, more generally, personal and family life on corporate risk policy. Although there is growing evidence on the value of managers' attributes, personal events, and family characteristics, I present evidence of a personal decision that affects CEOs while they are in office, whereas the existing literature typically focuses on pre-determined CEO characteristics. This provides evidence of the impact of the CEO's personal life on the firm, which is not subject to criticisms that CEOs with particular personal or family attributes are selected when the firm implements corporate policy and demonstrates the importance of CEOs' private lives on the firm.

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Table 1
Variable definitions

Variable	Definition
2nd Year After CEO Divorce	An indicator equal to 1 in the second year following a CEO divorce.
Annual Grant Delta	The dollar change in the value of CEO option compensation for a 1% change in firm value.
Annual Grant Vega	The dollar change in the value of CEO option compensation for a 0.01 change in the annualized standard deviation of stock returns.
Annual Return	The annual stock return of a firm.
Annualized Alpha	The alpha estimated annually from a four-factor (Carhart) model of returns.
Assets	The book value of firm assets, in millions of dollars.
Bonus	The annual bonus of the CEO in thousands.
Cash Constraints	The three-year average of (common and preferred dividends plus cash flow used in investing minus cash flow from operations)/assets.
Cash Flow Volatility	The annual standard deviation of cash flow (operating income before depreciation less interest expense, income tax, and dividends) scaled by book value of assets. Data are quarterly. At least two quarters of data are required each year.
CEO Divorce Year	An indicator equal to 1 in the year of a CEO divorce.
Debt-to-assets	The sum of long-term debt and current liabilities divided by book assets.
Discretionary Expenses	Discretionary expenses are defined following Roycowdhury (2006).
Dividend Constraints	An indicator equal to 1 if the ratio [(retained earnings plus cash dividends and repurchases)/prior year's cash dividends and repurchases] is less than 2 in any of the previous three years, or if the denominator is 0 for all three years.
Dividend Payer	An indicator equal to 1 if the firm pays dividends in a given year, 0 otherwise.
Divorce Rate	A state's divorce rate, as provided by Bloomberg's 2011 survey.
Exercisable Option Value	The value of unexercised exercisable options held by the CEO. Option values are calculated as the difference between strike price and trading price at calendar year end, as reported by Execucomp in thousands.
Female	An indicator equal to one if a CEO is female.
Firm Age	The difference between the year of observation and the first year a firm shows up in the CRSP database.
High Cost Divorce	An indicator equal to 1 if a CEO is located in a state that ranks in between 25 and 50 in Bloomberg's 2011 ranking of the best and worst states to divorce.

Table 1 (continued)

Variable	Definition
High Cash Wealth	An indicator equal to one if a CEO has cash wealth above the median divorced CEO. Cash wealth is proxied by the sum of the previous three years' salary and bonus compensation for each CEO.
Idiosyncratic Volatility	The annual sum of squared errors from a four-factor Carhart (1997) model of returns. Monthly data are used to calculate the idiosyncratic volatility measure.
Market-to-book	The ratio of the market value of equity plus book debt divided by the book value of assets.
Net-of-Market Returns	Annual stock returns net of the CRSP value-weighted index.
Option Grant Value	The Black–Scholes value of annual option grants in thousands. The value of options required by FAS 123R is used after 2006.
Production Costs	Production costs as defined by Roychowdhury (2006).
Restricted Stock Value	The value of stock held by the CEO that is not vested, reported in thousands.
Retirement Age	An indicator equal to one if a CEO is over 63 years old.
Return on Assets	The ratio of net income to the book value of assets.
Return on Equity	The ratio of net income to the book value of equity.
Return Volatility	The standard deviation of returns, calculated annually from monthly data.
Salary	The annual salary of the CEO in thousands.
Value of Shares Owned	The value of shares owned by the CEO, excluding options in thousands.
Std. Discretionary Accruals	The annual standard deviation of quarterly discretionary accruals. Discretionary accruals are the error term from a modified Jones (1991) model of accruals.
Stock Grant Value	The value of annual grants of restricted stock calculated as the number of grants times the stock price of the firm. The value of stock grants required by FAS 123R is used after 2006.
Sum of Abs. Val. of Discretionary Accruals	The annual sum of quarterly discretionary accruals. Discretionary accruals are the error term from a modified Jones (1991) model of accruals.
Tax Carry-Forwards	An indicator equal to 1 for a firm if there were carry-forwards in any of the three previous years.
Unexercisable Option Value	The value of unexercisable options held by the CEO. Option values are calculated as the difference between strike price and trading price at calendar year end, as reported by Execucomp in thousands.
Year After CEO Divorce	An indicator equal to 1 in the year following a CEO divorce.
Year Before CEO Divorce	An indicator equal to 1 in the year before a CEO divorce.

Table 2

The distribution of CEO divorces

Panel A—CEO divorces by Fama–French 48 industry classification

Industry	Description	CEO divorces	Observations	%
1	Agriculture	1	83	1.20
2	Food Products	4	536	0.75
3	Candy and Soda	0	66	0.00
4	Beer and Liquor	1	104	0.96
5	Tobacco Products	1	49	2.04
6	Recreation	1	150	0.67
7	Entertainment	1	278	0.36
8	Printing and Publishing	0	340	0.00
9	Consumer Goods	2	491	0.41
10	Apparel	2	403	0.50
11	Healthcare	1	474	0.21
12	Medical Equipment	0	600	0.00
13	Pharmaceutical Products	3	968	0.31
14	Chemicals	2	781	0.26
15	Rubber and Plastic Products	0	155	0.00
16	Textiles	0	191	0.00
17	Construction Materials	2	518	0.39
18	Construction	3	325	0.92
19	Steel Works Etc.	0	565	0.00
20	Fabricated Products	0	76	0.00
21	Machinery	3	963	0.31
22	Electrical Equipment	0	340	0.00
23	Automobiles and Trucks	2	529	0.38
24	Aircraft	3	147	2.04
25	Shipbuilding, Railroad Equipment	0	43	0.00
26	Defense	0	75	0.00
27	Precious Metals	0	118	0.00
28	Non-metallic and Industrial Metal Mining	1	116	0.86
29	Coal	0	33	0.00
30	Petroleum and Natural Gas	2	1,018	0.20
31	Utilities	7	1,580	0.44
32	Communication	1	585	0.17
33	Personal Services	0	265	0.00
34	Business Services	12	2,408	0.50
35	Computers	1	1,017	0.10
36	Electronic Equipment	5	1,592	0.31
37	Measuring and Control Equipment	0	488	0.00
38	Business Supplies	0	570	0.00
39	Shipping Containers	0	110	0.00
40	Transportation	1	742	0.13
41	Wholesale	1	899	0.11
42	Retail	5	1,836	0.27
43	Restaurants, Hotels, Motels	2	554	0.36
44	Banking	5	1,701	0.29
45	Insurance	3	1,239	0.24
46	Real Estate	0	12	0.00
47	Trading	0	863	0.00
48	Almost Nothing	2	173	1.16
Total		80	27,169	

Table 2 (continued)

Panel B—CEO divorces by year

Year	CEO divorces	Observations	%
1992	4	432	0.93
1993	4	1,123	0.36
1994	7	1,496	0.47
1995	12	1,561	0.77
1996	10	1,605	0.62
1997	7	1,638	0.43
1998	3	1,695	0.18
1999	6	1,755	0.34
2000	6	1,756	0.34
2001	5	1,638	0.31
2002	5	1,648	0.24
2003	1	1,717	0.06
2004	5	1,723	0.30
2005	2	1,721	0.12
2006	2	1,826	0.11
2007	1	1,943	0.05
2008	0	1,892	0.00
Total	80	27,169	

This table reports the number of Execucomp CEOs who divorced from 1992 to 2008. CEO divorces are listed by Fama–French 48 industry classification in Panel A. Panel B reports the number of divorces by year. The number of firm–years in each industry or year is reported for comparison.

Table 3
Univariate statistics

Panel A—Univariate statistics for the full sample

Variable	N	Mean	Std. Dev.	Min.	Max.
Risk					
Idiosyncratic Volatility	24,897	0.085	0.113	0.004	0.690
Return Volatility	24,897	0.112	0.066	0.030	0.375
Compensation					
Salary	27,169	631.560	315.999	0.001	1,750.000
Bonus	27,169	569.079	953.482	0.000	6,000.000
Stock Grant Value	27,169	593.839	1,546.326	0.000	9,737.770
Option Grant Value	27,169	1,690.679	3,314.366	0.000	21,234.410
Ownership					
Value of Shares Owned	27,151	48,218.400	162,192.900	0.000	1,246,910.000
Unexercisable Option Value	27,169	2,450.376	6,171.307	0.000	42,519.600
Exercisable Option Value	27,169	7,422.277	18,077.230	0.000	124,078.200
Restricted Stock Value	27,169	1,479.168	4,014.178	0.000	26,401.210
Firm Characteristic					
Assets (mil.)	27,169	8,113.522	23,114.540	40.846	175,001.000
Market-to-book	27,169	1.766	4.192	0.001	308.104
Cash Constraints	27,169	-0.168	0.132	-0.543	0.310
Tax Carry-forwards	27,169	0.312	0.463	0.000	1.000
Dividend Payer	27,169	0.610	0.488	0.000	1.000
Annual Return	25,175	0.161	0.492	-0.744	2.427
Firm Age	25,339	22.367	18.597	0.000	78.000
Debt-to-assets	23,344	0.426	0.188	0.065	1.062
Return on Equity	27,158	0.093	0.323	-1.712	1.536
Female	27,169	0.015	0.120	0.000	1.000
Retirement Age	27,169	0.149	0.356	0.000	1.000

Table 3 (continued)

Panel B—Differences across time for the sample of CEOs who divorce

	Year before divorce (Obs. = 75)	Year of divorce (Obs. = 80)	Year after divorce (Obs. = 72)	Difference (2)–(1)		Difference (3)–(1)	
Variable	(1)	(2)	(3)	*t*-stat.	*z*-stat.	*t*-stat.	*z*-stat.
Risk							
Idiosyncratic Volatility	0.085	0.068	0.081	-2.17	-1.34	-0.38	-1.90
Return Volatility	0.111	0.104	0.111	-1.28	-1.33	0.30	-0.33
Compensation							
Salary	601.725	662.688	751.097	4.67	6.91	4.82	6.96
Bonus	778.591	1,033.590	1,040.234	3.28	4.12	1.11	3.44
Stock Grant Value	358.029	353.835	806.674	0.01	1.53	2.35	3.06
Option Grant Value	2,250.275	2,931.601	3,482.655	1.17	2.03	2.22	2.21
Ownership							
Value of Shares Owned	182,805.000	183,358.200	214,092.300	0.78	1.09	1.32	0.83
Unexercisable Option Value	4,809.340	4,681.192	4,448.072	0.19	1.44	0.71	0.98
Exercisable Option Value	7,080.320	9,534.474	11,244.470	2.01	1.77	2.08	1.85
Restricted Stock Value	926.915	1,149.401	1,566.668	2.21	2.76	2.08	2.54
Firm Characteristic							
Assets (mil.)	10,607.450	11,854.520	13,604.990	1.87	4.95	2.20	5.26
Market-to-book	2.549	2.340	2.124	-1.00	-0.38	-1.91	-1.08
Cash Constraints	-0.197	-0.186	-0.196	1.28	0.81	-0.04	0.07
Tax Carry-forwards	0.280	0.275	0.292	0.57	0.58	0.57	0.58
Dividend Payer	0.587	0.638	0.653	0.81	0.82	1.42	1.41
Annual Return	0.209	0.178	0.115	-0.57	-0.90	-0.73	-0.32
Firm Age	21.243	23.038	24.000	35.74	7.49	46.50	7.15
Debt-to-assets	0.395	0.396	0.394	-0.36	-0.67	-0.76	-1.34
Return on Equity	0.138	0.124	0.117	-1.05	-0.90	-1.50	-0.73

Table 3 (continued)

Panel C—Differences across time for the sample of CEOs who divorce, restricted to CEOs in the sample all three years

	Year before divorce (Obs. = 68)	Year of divorce (Obs. = 68)	Year after divorce (Obs. = 68)	Difference (2)–(1)		Difference (3)–(1)	
Variable	(1)	(2)	(3)	*t*-stat.	*z*-stat.	*t*-stat.	*z*-stat.
Risk							
Idiosyncratic Volatility	0.085	0.072	0.085	-1.96	-1.71	-0.39	-1.90
Return Volatility	0.110	0.105	0.114	-1.40	-1.52	0.30	-0.33
Compensation							
Salary	604.711	674.921	756.021	4.61	6.90	4.82	6.96
Bonus	784.321	1,071.654	1,024.276	3.10	3.74	1.11	3.43
Stock Grant Value	394.885	395.240	842.036	0.00	1.36	2.35	3.06
Option Grant Value	2,318.327	2,706.911	3,592.619	0.57	1.65	2.23	2.21
Ownership							
Value of Shares Owned	199,564.700	213,730.800	226,421.700	0.79	1.55	1.32	0.83
Unexercisable Option Value	3,909.750	3,235.323	4,672.884	-1.21	0.91	0.71	0.98
Exercisable Option Value	6,725.469	9,209.953	11,763.330	2.05	1.97	2.08	1.85
Restricted Stock Value	971.730	1,213.410	1,592.357	2.11	3.09	2.08	2.54
Firm Characteristic							
Assets (mil.)	10,557.070	12,058.820	13,865.370	1.77	4.79	2.20	5.26
Market-to-book	2.586	2.378	2.162	1.42	-0.52	-1.91	-1.08
Cash Constraints	-0.198	-0.189	-0.199	1.17	0.93	-0.04	0.07
Tax Carry-forwards	0.294	0.309	0.309	0.57	0.58	0.57	0.58
Dividend Payer	0.574	0.618	0.632	1.35	1.34	1.43	1.41
Annual Return	0.204	0.175	0.113	-0.46	-0.15	-1.34	-0.99
Firm Age	0.204	0.175	0.151	-0.38	-0.74	-0.73	-0.32
Debt-to-assets	21.448	22.074	23.044	32.24	7.94	46.51	7.92
Return on Equity	0.407	0.401	0.392	-0.59	-1.05	-0.76	-1.34

This table reports univariate statistics and difference in means tests for the sample of Execucomp CEOs from 1992 to 2008. Panel A reports summary statistics for the full Execucomp sample for variables that proxy for firm risk, CEO compensation, CEO ownership, and other firm characteristics. Panel B reports the means of these variables for firms at which a CEO was divorced. Means are reported in the years before, during, and following a CEO divorce. For 80 CEOs who were identified as divorced, 75 were in office in the year before their divorce, and 72 remained in office the year after their divorce. Panel C restricts the sample to CEOs in office in all three years. *T*-tests and sign rank tests show the significance of the differences of firm and CEO characteristics across time around the divorce. Variable definitions are in Table 1. Firm characteristics are lagged by one year. Variables are Winsorized at the 1% level. Compensation and ownership variables are reported in thousands.

Table 4

The impact of CEO divorce on firm risk

Panel A – CEO divorce and risk

Variable	Idiosyncratic volatility	Log idiosyncratic volatility	Return volatility	Log return volatility
Year Before CEO Divorce	0.007	0.007	0.003	0.001
	(0.89)	(1.14)	(0.63)	(0.30)
CEO Divorce Year	-0.022***	-0.018**	-0.010**	-0.010*
	(-2.58)	(-2.46)	(-2.07)	(-1.73)
Year After CEO Divorce	-0.014	-0.011	-0.007	-0.008
	(-1.55)	(-1.47)	(-1.19)	(-1.37)
2nd Year After CEO Divorce	-0.002	-0.001	0.004	0.006
	(-0.21)	(-0.08)	(0.61)	(0.85)
Log of Assets	-0.017***	-0.014***	-0.008***	-0.008***
	(-9.20)	(-10.09)	(-6.92)	(-6.35)
Return on Equity	-0.052***	-0.042***	-0.029***	-0.028***
	(-10.60)	(-11.13)	(-8.27)	(-8.66)
Debt-to-assets	0.075***	0.062***	0.039***	0.039***
	(6.74)	(7.10)	(7.03)	(6.56)
Market-to-book	0.004***	0.003***	0.003***	0.003***
	(4.69)	(4.85)	(4.97)	(4.82)
Dividend Payer	-0.031***	-0.027***	-0.024***	-0.024***
	(-5.83)	(-6.14)	(-7.24)	(-7.14)
Firm Age	-0.021***	-0.020***	-0.021***	-0.023***
	(-3.59)	(-3.95)	(-4.65)	(-4.76)
Female	0.011	0.009	0.006	0.008
	(1.28)	(1.30)	(1.15)	(1.33)
Retirement Age	-0.011***	-0.009***	-0.006***	-0.006***
	(-4.39)	(-4.34)	(-4.58)	(-4.66)
Industry controls	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Obs.	21,367	21,367	21,367	21,367
Adj. R^2	0.233	0.253	0.326	0.301

Panel B – Firm fixed effects

Variable	Idiosyncratic volatility	Log idiosyncratic volatility	Return volatility	Log return volatility
Year Before CEO Divorce	0.003	0.004	0.003	0.001
	(0.24)	(0.38)	(0.35)	(0.13)
CEO Divorce Year	-0.026***	-0.021***	-0.011**	-0.010**
	(-2.84)	(-2.69)	(-2.23)	(-2.03)
Year After CEO Divorce	-0.021*	-0.017*	-0.009	-0.010*
	(-1.86)	(-1.80)	(-1.42)	(-1.66)
2nd Year After CEO Divorce	-0.006	-0.004	0.004	0.005
	(-0.58)	(-0.43)	(0.62)	(0.69)
Firm characteristics	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Obs.	21,367	21,367	21,367	21,367
Adj. R^2	0.044	0.050	0.203	0.187

Panel C – Quantile Regressions (Median)

Variable	Idiosyncratic volatility	Log idiosyncratic volatility	Return volatility	Log return volatility
Year Before CEO Divorce	0.002	0.000	-0.003	-0.001
	(0.46)	(0.05)	(-0.41)	(-0.21)
CEO Divorce Year	-0.009**	-0.008*	-0.009	-0.006
	(-2.23)	(-1.78)	(-0.95)	(-0.72)
Year After CEO Divorce	-0.004	-0.006	-0.010*	-0.011***
	(-0.70)	(-0.75)	(-1.82)	(-2.68)
2nd Year After CEO Divorce	0.001	-0.001	0.004	0.004
	(0.12)	(-0.07)	(0.81)	(0.92)
Firm characteristics	Yes	Yes	Yes	Yes
Firm controls	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Obs.	21,367	21,367	21,367	21,367
Adj. R^2	0.044	0.050	0.203	0.187

This table reports the results of regressions of firm risk on indicators for CEO divorce for Execucomp firms for the years 1992 to 2008. The independent variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. The dependent variables are idiosyncratic volatility and return volatility, as well as the log of idiosyncratic volatility and volatility constructed from log returns. Idiosyncratic volatility is estimated annually as the sum of squared errors from a four-factor Carhart (1997) model estimated with monthly returns. Return volatility is the annual standard deviation of monthly returns for each firm–year. Variable definitions are included in Table 1. Control variables are lagged one year. In Panel A, Fama–French 48 industry fixed effects and indicators for time are included but not reported. Panels B and C control for firm fixed effects, control variables are suppressed for brevity. Panel B uses least squares regressions, while Panel C uses quantile (median) regressions. Variables are Winsorized at the 1% level. Standard errors are clustered two-ways by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Table 5

Firm risk, CEO wealth, and the distraction of divorce

Panel A—The impact of divorce and CEO wealth on firm risk

Variable	Idiosyncratic volatility	Log idiosyncratic volatility	Return volatility	Log return volatility
Year Before CEO Divorce	0.011	0.011	0.008	0.007
	(0.77)	(0.95)	(0.56)	(0.48)
CEO Divorce Year	-0.040***	-0.032***	-0.015*	-0.017**
	(-2.85)	(-2.74)	(-1.89)	(-2.17)
Year After CEO Divorce	-0.027	-0.020	-0.021*	-0.023*
	(-1.30)	(-1.17)	(-1.69)	(-1.88)
2nd Year After CEO Divorce	-0.007	-0.003	-0.007	-0.007
	(-0.40)	(-0.23)	(-0.66)	(-0.60)
High Cash Wealth X *Year Before CEO Divorce*	0.015	0.007	-0.009	-0.012
	(0.30)	(0.19)	(-0.31)	(-0.45)
High Cash Wealth X *CEO Divorce Year*	0.038*	0.032*	0.011	0.014
	(1.92)	(1.87)	(0.83)	(0.97)
High Cash Wealth X *Year After CEO Divorce*	0.023	0.017	0.028*	0.029*
	(0.92)	(0.79)	(1.68)	(1.76)
High Cash Wealth X *2nd Year After CEO Divorce*	0.014	0.010	0.024	0.028
	(0.56)	(0.47)	(1.43)	(1.44)
High Cash Wealth	-0.001	-0.000	0.002	0.002
	(-0.10)	(-0.05)	(0.33)	(0.35)
Log of Assets	-0.016***	-0.013***	-0.008***	-0.007***
	(-9.61)	(-11.13)	(-9.29)	(-8.86)
Return on Equity	-0.051***	-0.041***	-0.030***	-0.029***
	(-9.56)	(-10.07)	(-8.65)	(-8.69)
Debt-to-assets	0.080***	0.067***	0.042***	0.043***
	(6.67)	(6.97)	(7.03)	(6.88)
Market-to-book	0.004***	0.003***	0.003***	0.004***
	(3.32)	(3.30)	(4.43)	(4.51)
Dividend Payer	-0.033***	-0.029***	-0.025***	-0.025***
	(-5.51)	(-5.79)	(-6.78)	(-6.62)
Firm Age	-0.023***	-0.021***	-0.021***	-0.022***
	(-3.76)	(-3.99)	(-4.21)	(-4.14)
Female	0.006	0.005	0.003	0.006
	(0.63)	(0.68)	(0.66)	(0.97)
Retirement Age	-0.012***	-0.009***	-0.007***	-0.007***
	(-5.12)	(-4.96)	(-4.60)	(-4.39)
Industry controls	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
Obs.	15,916	15,916	15,916	15,916
Adj. R^2	0.214	0.233	0.300	0.277

Table 5 (continued)

Panel B—The impact of divorce and the cost of divorce on firm risk

Variable	Idiosyncratic volatility	Log idiosyncratic volatility	Return volatility	Log return volatility
Year Before CEO Divorce	-0.005	-0.002	-0.012	-0.012
	(-0.26)	(-0.14)	(-1.22)	(-1.22)
CEO Divorce Year	-0.046***	-0.040***	-0.027***	-0.029***
	(-3.55)	(-3.51)	(-2.93)	(-3.51)
Year After CEO Divorce	-0.014	-0.011	-0.009	-0.007
	(-0.71)	(-0.65)	(-0.90)	(-0.63)
2nd Year After CEO Divorce	-0.019	-0.014	-0.001	0.004
	(-1.23)	(-1.06)	(-0.10)	(0.26)
High Cost Divorce X	0.015	0.012	0.021	0.018
Year Before CEO Divorce	(0.86)	(0.76)	(1.57)	(1.34)
High Cost Divorce X	0.031**	0.028**	0.022**	0.025***
CEO Divorce Year	(2.16)	(2.27)	(2.48)	(3.55)
High Cost Divorce X	-0.001	-0.001	0.002	-0.003
Year After CEO Divorce	(-0.05)	(-0.07)	(0.12)	(-0.21)
High Cost Divorce X	0.024	0.019	0.008	0.003
2nd Year After CEO Divorce	(1.19)	(1.08)	(0.65)	(0.17)
Log of Assets	-0.017***	-0.015***	-0.008***	-0.008***
	(-7.60)	(-8.36)	(-6.84)	(-6.39)
Return on Equity	-0.052***	-0.041***	-0.029***	-0.027***
	(-9.14)	(-9.52)	(-7.95)	(-8.06)
Debt-to-assets	0.078***	0.064***	0.041***	0.041***
	(6.73)	(7.04)	(7.47)	(6.96)
Market-to-book	0.004***	0.003***	0.003***	0.003***
	(4.50)	(4.64)	(5.53)	(5.70)
Dividend Payer	-0.028***	-0.024***	-0.022***	-0.022***
	(-5.68)	(-5.95)	(-6.88)	(-6.58)
Firm Age	-0.018***	-0.017***	-0.019***	-0.021***
	(-3.86)	(-4.52)	(-5.09)	(-5.08)
Female	0.011	0.009	0.005	0.007
	(1.25)	(1.26)	(1.04)	(1.31)
Retirement Age	-0.011***	-0.009***	-0.006***	-0.006***
	(-4.14)	(-4.10)	(-4.06)	(-4.10)
Industry controls	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes
State Controls	Yes	Yes	Yes	Yes
Obs.	21,065	21,065	21,065	21,065
Adj. R^2	0.239	0.259	0.334	0.309

This table reports the results of regressions of firm risk on indicators for CEO divorce for Execucomp firms for the years 1992 to 2008. The independent variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. The dependent variables are idiosyncratic volatility and return volatility, as well as the log of idiosyncratic volatility and volatility constructed from log returns. Idiosyncratic volatility is estimated annually as the sum of squared errors from a four-factor Carhart (1997) model estimated with monthly returns. Return volatility is the annual standard deviation of monthly returns for each firm–year. Variable definitions are included in Table 1. Control variables are lagged one year. Panel A reports the results of regressions of firm risk on CEO divorce interacted with a proxy for CEO cash wealth. *High Cash Wealth* is an indicator equal to 1 if a CEO has cash wealth above the median divorced CEO. Cash wealth is proxied by the sum of the previous three years' salary and bonus compensation for each CEO. Panel B interacts CEO divorce with an indicator for a costly divorce. *High Cost Divorce* is an indicator equal to 1 if a CEO is located in a state that ranks in the top 25 of Bloomberg's 2011 ranking of the worst states to divorce. Fama–French 48 industry and time fixed effects are included in both panels but not reported. State indicators are included in Panel B. Variables are Winsorized at the 1% level. Standard errors are clustered two-ways by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Table 6

CEO divorce, accruals, cash flow volatility, and real earnings management

Panel A – CEO divorce, accruals, and cash flow volatility.

Variable	Std. discretionary accruals	Sum of abs. val. of discretionary accruals	Cash flow volatility
Year Before CEO Divorce	0.007	-0.005	-0.002
	(0.23)	(-0.07)	(-1.41)
CEO Divorce Year	-0.072**	-0.180**	-0.002*
	(-2.23)	(-2.43)	(-1.83)
Year After CEO Divorce	-0.035	-0.098	-0.001
	(-1.06)	(-1.36)	(-0.50)
2nd Year After CEO Divorce	-0.044	-0.117	-0.000
	(-0.87)	(-1.01)	(-0.34)
Log of Assets	-0.008***	-0.021***	-0.002***
	(-4.47)	(-4.92)	(-11.44)
Return on Equity	0.010	0.032	-0.003***
	(0.49)	(0.68)	(-5.12)
Debt-to-assets	0.013	0.037	0.006***
	(0.62)	(0.80)	(5.02)
Market-to-book	0.003*	0.008*	0.000***
	(1.68)	(1.68)	(3.11)
Dividend Payer	-0.010	-0.031	-0.001***
	(-1.11)	(-1.37)	(-2.59)
Firm Age	-0.010	-0.029	0.000
	(-1.36)	(-1.25)	(0.49)
Female	0.006	0.017	0.004***
	(0.20)	(0.24)	(2.62)
Retirement Age	-0.012**	-0.027**	-0.001***
	(-2.19)	(-2.01)	(-3.78)
Time controls	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes
Obs.	13,699	13,699	17,525
Adj. R^2	0.171	0.180	0.125

Table 6 (continued)

Panel B – Real earnings management

	Std. Abnormal Prod. Costs	Std. Abnormal Discrt. Exp.	Std. Abnormal R&D	Std. Abnormal SG&A
Year Before CEO Divorce	0.002	-0.024	0.009	-0.025
	(0.06)	(-1.25)	(0.98)	(-1.35)
CEO Divorce Year	-0.029	-0.039**	-0.008	-0.033**
	(-0.90)	(-2.30)	(-1.15)	(-2.09)
Year After CEO Divorce	-0.032	-0.019	-0.007*	-0.019
	(-1.30)	(-0.88)	(-1.76)	(-1.05)
2nd Year After CEO Divorce	-0.058*	0.012	0.015	-0.007
	(-1.93)	(0.39)	(1.26)	(-0.36)
Log of Assets	-0.007***	-0.004***	-0.001**	-0.003***
	(-5.28)	(-3.52)	(-2.25)	(-3.97)
Debt-to-Assets	0.010	0.009	0.006	0.006
	(0.56)	(0.78)	(1.09)	(0.65)
Market-to-Book	0.002	0.001**	0.001***	0.001
	(1.26)	(2.51)	(3.26)	(1.63)
Dividend Payer	0.001	-0.003	-0.002**	-0.001
	(0.28)	(-1.05)	(-2.14)	(-0.27)
Firm Age	-0.000	-0.001	0.006**	-0.005
	(-0.01)	(-0.06)	(2.03)	(-0.66)
Female	0.031**	0.013	-0.000	0.012
	(2.22)	(0.81)	(-0.04)	(0.93)
Retirement Age	0.002	0.001	-0.000	0.004
	(0.49)	(0.21)	(-0.11)	(1.19)
Return on Equity	-0.001	-0.014***	-0.004**	-0.011***
	(-0.08)	(-3.23)	(-2.00)	(-2.99)
Time Controls	Yes	Yes	Yes	Yes
Industry Controls	Yes	Yes	Yes	Yes
Obs.	14,926	18,443	21,576	18,443
Adj. R^2	0.196	0.255	0.189	0.273

This table reports the results of regressions of volatility in accounting variables on indicators for CEO divorce for Execucomp firms for the years 1992–2008. The main variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. In Panel A, discretionary accruals are the error term from a modified Jones (1991) model of accruals. Volatility is measured each year using quarterly data. Cash flow volatility is the annual standard deviation of quarterly cash flows (operating income before depreciation less interest expense, income tax, and dividends) scaled by book assets. In Panel B, the dependent variables include two measures of real earnings management (production costs and discretionary expenses), R&D expense, and SG&A expense. Control variables are lagged one year. Variable definitions are in Table 1. Time and Fama–French 48 industry fixed effects are included but not reported. All variables are Winsorized at the 1% level. Standard errors are clustered two-ways, by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Table 7
CEO divorce and firm performance

Variable	Return on equity	Return on assets	Annualized Alpha	Net-of-Market Return	Change in Sales
Year Before CEO Divorce	-0.010	-0.008	0.105	0.074	0.028
	(-0.47)	(-0.90)	(1.04)	(1.48)	(1.64)
CEO Divorce Year	0.025	0.004	0.010	-0.007	0.039
	(0.71)	(0.36)	(0.11)	(-0.19)	(1.64)
Year After CEO Divorce	0.007	-0.002	0.017	-0.041	0.010
	(0.52)	(-0.27)	(0.16)	(-1.21)	(0.52)
2nd Year After CEO Divorce	-0.018	-0.008	-0.079	0.006	0.002
	(-0.43)	(-0.86)	(-1.41)	(0.16)	(0.08)
Log of Assets	0.007*	0.002	-0.045***	-0.011**	-0.005**
	(1.72)	(1.49)	(-4.26)	(-2.33)	(-2.45)
Debt-to-assets	0.124***	0.016*	0.090**	0.057*	-0.009
	(3.58)	(1.68)	(1.97)	(1.73)	(-0.71)
Market-to-book	0.001	0.001	0.007**	-0.004	0.003**
	(0.38)	(1.22)	(2.23)	(-0.82)	(1.96)
Dividend Payer	0.040***	0.013***	-0.033**	-0.002	-0.010*
	(5.64)	(5.86)	(-2.18)	(-0.19)	(-1.85)
Firm Age	0.049***	0.010*	-0.027	0.009	-0.092***
	(2.89)	(1.84)	(-0.77)	(0.52)	(-6.03)
Female	-0.021	-0.001	-0.067*	-0.045***	-0.018*
	(-1.61)	(-0.24)	(-1.94)	(-3.56)	(-1.77)
Retirement Age	0.007	0.005***	-0.027***	-0.007*	0.004
	(1.29)	(3.39)	(-3.41)	(-1.66)	(0.93)
Return on Equity	0.300***		-0.113**	-0.018	0.070***
	(10.08)		(-2.33)	(-0.63)	(8.36)
Return on Assets		0.628***			
		(20.41)			
Industry controls	Yes	Yes	Yes	Yes	Yes
Time controls	Yes	Yes	Yes	Yes	Yes
Obs.	21,600	21,604	21,560	21,560	21,600
Adj. R^2	0.120	0.423	0.204	0.380	0.190

This table reports the results of regressions of firm risk on indicators for CEO divorce for Execucomp firms for the years 1992–2008. The independent variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. The dependent variables are measures of firm performance. Return on equity and Return on assets are the ratio of net income scaled by shareholders' equity and total book assets, respectively, from the current year. Alpha is the annualized alpha from a four-factor model of monthly returns, estimated each year. Net of market returns are annual equity returns, less the CRSP value-weighted index. Changes in sales are the year-over-year percent increases in sales. Variable definitions are included in Table 1. Control variables are lagged one year. Fama–French 48 industry fixed effects and indicators for time are included but not reported. Variables are Winsorized at the 1% level. Standard errors are clustered two-ways by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Table 8

CEO divorce and compensation incentives

Panel A—The impact of divorce on compensation

Variable	Salary	Bonus	Option grant	Stock grant
Year Before CEO Divorce	10.021	219.400	218.734	61.993
	(0.47)	(1.45)	(0.44)	(0.20)
CEO Divorce Year	47.099	421.943***	982.669*	-13.547
	(1.59)	(3.04)	(1.96)	(-0.04)
Year After CEO Divorce	80.709***	355.319***	1248.277***	1310.762***
	(3.62)	(3.47)	(2.60)	(4.37)
2nd Year After CEO Divorce	70.245***	254.513	360.364	955.214***
	(2.93)	(1.58)	(1.47)	(3.82)
Log of Assets	123.045***	281.649***	925.153***	666.978***
	(43.38)	(24.03)	(31.72)	(22.02)
Market-to-book	1.131***	5.111***	100.028***	-23.547
	(3.43)	(4.88)	(10.70)	(-1.25)
Cash Constraints	-26.834	-53.804	-2488.599***	285.707
	(-1.01)	(-0.49)	(-6.78)	(0.66)
Tax Carry-forwards	11.941*	-40.105*	217.865***	111.785*
	(1.68)	(-1.89)	(3.24)	(1.71)
Dividend Payer	2.425	-4.470	87.472	346.174***
	(0.28)	(-0.15)	(0.68)	(5.70)
Annual Return	14.787***	439.791***	634.115**	298.677***
	(3.11)	(9.59)	(2.56)	(3.78)
Female	43.084	-55.991	64.302	291.572
	(1.23)	(-0.67)	(0.17)	(1.20)
Retirement Age	44.689***	115.595**	-583.085***	-534.037***
	(4.56)	(2.36)	(-4.48)	(-5.81)
Time controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes
Obs.	25,474	25,474	25,474	25,474
Pseudo-R^2	0.047	0.028	0.015	0.04

Table 8 (continued)

Panel B—The impact of divorce on incentive compensation sensitivities

Variable	Annual grant Delta	Annual grant Vega	Log of annual grant Delta	Log of annual grant Vega
Year Before CEO Divorce	6447.887	3520.314	0.187	0.129
	(0.59)	(0.38)	(0.83)	(0.60)
CEO Divorce Year	14089.300	9313.398	0.379***	0.363***
	(1.56)	(1.47)	(2.58)	(2.86)
Year After CEO Divorce	21572.856***	19680.941**	0.550***	0.562***
	(2.77)	(2.38)	(4.80)	(4.18)
2nd Year After CEO Divorce	8374.635	8159.358	0.382***	0.356***
	(1.14)	(1.04)	(4.16)	(3.54)
Log of Assets	19131.863***	20849.624***	0.455***	0.527***
	(30.93)	(33.97)	(23.40)	(24.72)
Market-to-book	4182.824***	2862.392***	0.068*	0.060*
	(28.62)	(27.37)	(1.93)	(1.70)
Cash Constraints	-51644.937***	-43463.823***	-1.222***	-1.404***
	(-6.69)	(-6.00)	(-7.92)	(-7.71)
Tax Carry-forwards	3487.976**	-179.352	0.145***	0.056
	(2.50)	(-0.14)	(4.65)	(1.50)
Dividend Payer	4248.437**	2842.215	0.093***	0.093***
	(2.12)	(1.45)	(2.85)	(2.94)
Annual Return	14859.335***	12276.155***	0.323***	0.315***
	(3.06)	(4.29)	(5.14)	(6.58)
Female	8535.147	6954.547	0.115	0.052
	(0.97)	(0.83)	(0.76)	(0.34)
Retirement Age	2076.035	1848.697	-0.090**	-0.090**
	(0.71)	(0.65)	(-2.06)	(-2.05)
Time controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes
Obs.	16,571	16,571	16,571	16,571
Pseudo-R^2	0.012	0.014	n/a	n/a
Adj. R^2	n/a	n/a	0.397	0.434

This table reports the results of regressions of CEO compensation on indicators for CEO divorce for Execucomp firms for the years 1992–2008. The main variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. Panel A reports results of regressions of salary, bonus, stock, and option compensation. Panel B reports results of tobit regressions of compensation sensitivities, Delta and Vega. The first two columns of Panel B are tobit regressions of the dollar sensitivities, and in the last two columns, the log of these sensitivities is regressed on divorce indicators in least squares regressions. Variables are defined in Table 1. Control variables are lagged one year. Year and Fama–French industry fixed effects are included but not reported. Variables are Winsorized at the 1% level. Standard errors are clustered two-ways by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Table 9
Self-Selection of Divorce

Variable	CEO Divorce	Salary	Bonus	Option Grant	Stock Grant
Divorce Rate	0.059**				
	(2.23)				
Year Before CEO Divorce		6.631	139.823	496.710	-82.840
		(0.25)	(1.08)	(0.89)	(-0.17)
CEO Divorce Year		39.435	380.569**	1264.934*	-156.940
		(1.02)	(2.15)	(1.88)	(-0.39)
Year After CEO Divorce		74.844***	371.975***	1504.575***	1095.737***
		(3.02)	(2.72)	(3.23)	(2.98)
2nd Year After CEO Divorce		60.657***	159.897	478.873**	717.333***
		(2.72)	(1.10)	(2.04)	(2.68)
Pr(Divorce)		2246.455***	6733.902***	900.241	3814.781
		(3.46)	(3.16)	(0.08)	(0.45)
Log Assets	0.033	141.256***	263.450***	986.760***	694.389***
	(0.92)	(47.17)	(27.46)	(31.13)	(22.47)
Market-to-Book	0.002	0.564*	3.389***	95.112***	-53.812**
	(0.93)	(1.95)	(3.96)	(10.52)	(-2.37)
Female	0.160	63.801	-5.511	172.600	470.819*
	(0.46)	(1.60)	(-0.07)	(0.42)	(1.95)
Retirement Age	-0.211	52.754***	104.130***	-597.387***	-358.248***
	(-1.63)	(6.58)	(4.34)	(-4.59)	(-3.18)
Return on Equity	-0.137	65.899**	-122.912	-2155.352***	508.034
	(-0.36)	(2.42)	(-1.28)	(-5.83)	(1.34)
Debt-to-Assets	0.107	-15.190**	-69.363***	83.790	13.196
	(1.11)	(-2.29)	(-3.67)	(1.24)	(0.20)
Dividend Payer	0.023	1.304	23.192	139.884**	207.773***
	(0.19)	(0.18)	(1.11)	(2.12)	(3.33)
Firm Age	0.099	15.671***	366.015***	617.706**	247.040***
	(1.19)	(2.75)	(3.79)	(2.50)	(3.26)
Cash Constraints	0.084				
	(0.92)				
Tax Carry Forwards	0.099				
	(0.41)				
Dividend Payer	0.039				
	(0.32)				
Annual Return	-0.051				
	(-0.21)				
Time controls	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes
Obs.	21,296	21,296	21,296	21,296	21,296
Pseudo-R2	0.122	0.058	0.030	0.016	0.043

This table reports the results of regressions of CEO compensation on indicators for CEO divorce for Execucomp firms for the years 1992–2008. The main variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. Compensation regressions include a predicted probability of a CEO divorce. The first column presents a probit regression modelling the probability of CEO divorce. The probit includes all variables related to regressions of risk and compensation, as well as an excluded variable, *Divorce Rate*, to aid in identification. Variables are defined in Table 1. Control variables are lagged one year. Year and Fama–French industry fixed effects are included but not reported. Variables are Winsorized at the 1% level. Standard errors are clustered two-ways by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Appendix A: CEO divorce data

Data on CEO divorces come from several sources including public records databases, media, and government websites. I use LexisNexis and Westlaw's public records databases, which contain divorce filings for most US states. These divorce records contain the names of the parties involved, the date of the filing, the location of the filing, the age of the parties, the date of the marriage (filing date), and, typically, the number of children from the marriage. The public records information varies by court, with some jurisdictions providing less personal information about the divorcing couples. The public records databases are limited to jurisdictions with electronic records. In addition, some jurisdictions, notably New York, do not include divorce filings on public records. The list of states from which data are available is presented in below.

I also gather data on CEO divorces from government sources. Texas produces a comprehensive list of divorces from local courts for the state. This list can be downloaded from the state's official website. The Texas data contain the names of parties involved, the location of the filing, the date of the filing, the ages of the parties, the date of the marriage, the number of children, and case-specific identifiers. I also find data on CEO divorces in the Thompson Insider Trading database. Until August 1996, stock transactions by insiders related to qualified domestic relations orders (QDROs) had to be reported to the SEC with transaction code Q. QDROs were typically the result of divorces.

I use LexisNexis Academic Universe to search in the media for information on CEO divorces. In addition to general media searches, I search the *New York Times* Weddings/Celebrations section for marital information. In general, the *New York Times* covers high-profile marriages and divorces, including CEOs and their children. The coverage of these marriages frequently provides background information on previous marriages.

The final sources of CEO marital information are biographical websites (e.g., nndb.com and answers.com) and CEOs' personal web pages. Biographical information is frequently available from CEO personal foundation sites or from the website of the CEO's company.

Due to the inability to match CEOs with divorce filings based on a unique identifier (e.g., Social Security Number), I match CEOs to their divorces based on names and other personal information. I require matching on several variables to ensure the quality of matches, because several of the CEOs' names are common. To control for possible coincidence of names, I match on age, location, and any other personal information to appropriately link CEOs to their correct marital history. For common names, I require matching on several variables, including age, spouse's name, number of children, and geography (i.e., the court with the divorce filing is in the same city as the CEO's headquarters). For the most common names (e.g., John F. Smith of General Motors), I require media sources to explicitly identify the CEO and relevant marital information. For less common names, (e.g., Ignatius J. Panzica of Global Motorsport Group) I do not require identification of a divorce in the media, but match the CEO to a divorce filing based on name.

The LexisNexis and Westlaw Divorce and Marriage Filing Coverage as of 2009:

LexisNexis

Alaska Divorce Records 1983–current
Arizona Divorce Records (Maricopa County only) 2005–current
California Divorce Records varies by county
California Marriage Records varies by county
Colorado Marriage Records 1975–2002 Not Updating
Colorado Divorce Records 2001–2002 Not Updating
Connecticut Marriage Records 1959–2006 Not Updating
Connecticut Divorce Records 1960–2004 Not Updating
Florida Marriage Records 1970–current
Florida Divorce Records 1970–current
Georgia Marriage Records 1964–1999 Not Updating
Georgia Divorce Records 1964–1999 Not Updating
Kentucky Marriage Records 1973–2006 Not Updating
Kentucky Divorce Records 1973–2006 Not Updating
Maine Marriage Records 1900–1996 Not Updating
Michigan Marriage Records (Grand Traverse City) 1900–2004 Not Updating
Michigan Marriage Records (Ingham City)2005–2009
Nevada Marriage Records 1968–2007 not updating
Nevada Divorce Records 1968–current
North Carolina Marriage Records 1998–current
North Carolina Divorce Records 1998–current
Ohio Marriage Records 1986–current
Ohio Divorce Records 1986–current
Oklahoma Divorce Records 1974–current
Oklahoma Marriage Records 1997–current
Pennsylvania Divorce Records (Bucks county only) 1980–current
Rhode Island Divorce Records 1970–2005
Texas Marriage Records statewide 1960–12/2006 (Dallas, Harris and El Paso updating and current)
Texas Divorce Records statewide 1980–12/2006 (Dallas, Harris and El Paso updating and current)
Utah Divorce Records 2004–current

Westlaw

Arizona Divorce Records 1995–current
Georgia Divorce Records 2000–current
Louisiana Divorce Records 2000–current
Maryland Divorce Records 2000–current
Michigan Divorce Records 2000–current
Missouri Divorce Records 2000–current
Oregon Divorce Records 1988–current
Pennsylvania Divorce Records 2000–current
South Carolina Divorce Records 2000–current
Tennessee Divorce Records 2000–current
Virginia Divorce Records 2000–current

Appendix B: Matched sample analysis

Appendix Table A1 provides univariate evidence on the firms with a CEO divorce and the matched sample for the years immediately surrounding a CEO divorce. Columns (5)–(8) provide statistical evidence on differences across time for the sample of firms with a CEO divorce and the matched sample. On firm risk, there is evidence in nonparametric tests that idiosyncratic risk is lower following a divorce. However, there is no evidence that idiosyncratic risk or total risk is lower for matched firms.

Trends in compensation are also consistent with full sample evidence. Compensation does not vary substantially between the years before and after divorce for the matched sample. There is little evidence in *t*-tests of statistically significant increases, with the exception of restricted stock grants, which are marginally higher at the 10% level ($t = 1.72$). The CEOs that divorce show significant (at the 5% level in *t*-tests) increases in compensation for salary, restricted stock grants, and option grants, indicating compensation is increasing more for CEOs that divorce. Nonparametric tests reveal similar patterns. Only salary and restricted stock significantly increase in sign rank tests for the matched sample, whereas all measures of compensation are significantly higher at the 5% level in sign rank tests for the divorced CEOs.

Ownership comparisons across time between the matched sample and the divorced CEOs reinforce the idea that spouses of CEOs do not get large portions of stock and option holdings as the result of a divorce. Neither the value of shares owned, nor unexercisable options significantly change around divorce for the divorcing CEOs or the matched sample. Exercisable options and restricted stock show increases around divorce that are comparable to the matched sample.

In multivariate analysis, I use the full time series of data for the sample firms with CEO divorce and the matched sample, which provides 1,330 observations. Appendix Table A2 presents regressions of equity risk on indicators for the years around divorce, as well as several

control variables and fixed effects for time and industry. Controls are defined in Table 1. Consistent with full sample results, the indicator for the year of a CEO divorce is significantly negatively related to idiosyncratic risk and the log of idiosyncratic risk at the 1% level. The indicator for divorce is also negatively related to total return volatility with significance at the 10% level, while log return volatility is significantly related to divorce at the 5% level.

Appendix Table A3 presents multivariate results of compensation regressions including firms with a CEO divorce and the matched sample. Results are similar in sign and magnitude to the full sample results. In Panel A of Table A3, the indicator for the year after a CEO divorce shows compensation is significantly higher compared to the matched sample in the year after divorce by around $55,000, $252,000, and $1,115,000 for salary, bonus, and stock compensation. Option compensation is also higher, although it is only significantly higher in the year of divorce by $977,000 and not the year after divorce. Panel B of Table A3 reveals that compensation sensitivities are significantly higher after divorce relative to the matched sample by about $15,000 for both Delta and Vega. After taking the log of sensitivities to reduce the effect of outliers, Delta and Vega continue to be significantly higher after divorce. Although the matched sample results have reduced power to detect differences between divorced CEOs and the control group, the results overall are consistent with the full sample, suggesting CEO divorce is related to risk and compensation policies, providing evidence that divorce affects CEO portfolio incentives and compensation policy.

Table A1
Univariate comparison of divorced CEOs and a matched sample

	Year before divorce (Obs. = 75)		Year after divorce (Obs. = 72)		Difference (3)–(1)		Difference (4)–(2)	
	Divorced CEO	Matched sample	Divorced CEO	Matched sample	*t*-stat.	*z*-stat.	*t*-stat.	*z*-stat.
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Risk								
Idiosyncratic Volatility	0.085	0.062	0.081	0.057	-0.38	-1.90	-0.90	-1.08
Return Volatility	0.111	0.096	0.111	0.098	0.30	-0.33	0.53	0.63
Compensation								
Salary	601.725	635.969	751.097	657.627	4.82	6.96	-0.01	2.38
Bonus	778.591	821.512	1,040.234	723.779	1.11	3.44	-0.75	1.03
Stock Grant Value	358.029	254.302	806.674	520.204	2.35	3.06	1.72	2.26
Option Grant Value	2,250.275	2,064.094	3,482.655	1,915.701	2.22	2.21	0.08	1.01
Ownership								
Value of Shares Owned	182,805.000	90,025.200	214,092.300	71,652.820	1.32	0.83	-1.20	-0.36
Unexercisable Option Value	4,809.340	3,106.040	4,448.072	2,818.021	0.71	0.98	0.23	-0.14
Exercisable Option Value	7,080.320	5,943.398	11,244.470	7,390.710	2.08	1.85	1.35	2.97
Restricted Stock Value	926.915	1,706.860	1,566.668	1,735.958	2.08	2.54	0.29	1.63
Firm Characteristic								
Assets (mil.)	10,607.450	12,077.480	13,604.990	13,049.550	2.20	5.26	1.75	4.46
Market-to-book	2.549	2.118	2.124	2.046	-1.91	-1.08	0.60	1.05
Cash Constraints	-0.197	-0.187	-0.196	-0.169	-0.04	0.07	0.20	0.48
Tax Carry-forwards	0.280	0.200	0.292	0.264	0.57	0.58	1.14	1.13
Dividend Payer	0.587	0.667	0.653	0.694	1.42	1.41	0.00	0.00
Annual Return	0.209	0.201	0.115	0.162	-0.73	-0.32	0.46	0.67
Firm Age	21.243	23.014	24.000	25.958	46.50	7.15	34.62	7.90
Debt-to-assets	0.395	0.363	0.394	0.361	-0.76	-1.34	-1.02	-1.35
Return on Equity	0.138	0.133	0.117	0.111	-1.50	-0.73	-0.29	-0.04

This table reports univariate statistics and tests for the sample of Execucomp CEOs from 1992 to 2008. The sample is restricted to years surrounding a CEO divorce. Columns (1)–(4) report the means of risk, compensation, ownership, and firm characteristics for firms at which a CEO was divorced during his tenure and a matched sample of firms. For 80 CEOs who were identified as divorced, 75 were in office in the year before their divorce, and 72 remained in office the year after their divorce. The divorced CEOs are matched to comparable CEOs at firms sharing Fama–French 48 industry classification, similar book asset size, and year of observation (divorce year). The same matched sample is used for comparisons in the year before divorce and year after divorce. Variable definitions are in Table 1. Firm characteristics are lagged by one year. All variables are Winsorized at the 1% level. Compensation and ownership variables are reported in thousands. *T*-statistics and *z*-statistics are reported for *t*-tests and sign rank tests of the changes around divorce for the divorced CEOs and the matched sample.

Table A2

The impact of CEO divorce on firm risk with a matched sample

Variable	Idiosyncratic volatility	Log idiosyncratic volatility	Return volatility	Log return volatility
Year Before CEO Divorce	0.010	0.008	0.003	0.000
	(0.88)	(0.98)	(0.46)	(0.08)
CEO Divorce Year	-0.013***	-0.011***	-0.006*	-0.006**
	(-3.10)	(-2.88)	(-1.82)	(-2.18)
Year After CEO Divorce	-0.004	-0.004	-0.002	-0.004
	(-0.56)	(-0.54)	(-0.32)	(-0.59)
2nd Year After CEO Divorce	-0.004	-0.002	0.003	0.006
	(-0.98)	(-0.73)	(0.41)	(0.60)
Log of Assets	-0.009***	-0.008***	-0.003**	-0.002
	(-4.21)	(-4.56)	(-2.24)	(-1.59)
Return on Equity	-0.056***	-0.044***	-0.033***	-0.030***
	(-2.95)	(-2.85)	(-3.10)	(-2.79)
Debt-to-assets	0.072**	0.060**	0.042***	0.041***
	(2.41)	(2.47)	(3.43)	(3.22)
Market-to-book	0.001	0.001	0.003***	0.003***
	(0.78)	(0.81)	(3.01)	(3.61)
Dividend Payer	-0.034**	-0.029***	-0.023***	-0.021***
	(-2.51)	(-2.60)	(-3.39)	(-3.19)
Firm Age	-0.044	-0.041*	-0.040*	-0.045**
	(-1.51)	(-1.66)	(-1.88)	(-2.03)
Retirement Age	-0.008**	-0.006**	-0.005	-0.004
	(-2.55)	(-2.11)	(-1.45)	(-1.13)
Time controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes
Obs.	1,330	1,330	1,330	1,330
Adj. R^2	0.256	0.274	0.355	0.325

This table reports the results of regressions of firm risk on indicators for CEO divorce for Execucomp firms for the years 1992–2008. The sample is restricted to firms at which a CEO was divorced during his tenure and a matched sample of firms. The divorced CEOs are matched to comparable CEOs at firms sharing Fama–French 48 industry classification, similar book asset size, and year of observation (divorce year). The same matched sample is used for all sample years. The independent variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. The dependent variables are idiosyncratic volatility and return volatility, as well as the log of idiosyncratic volatility and volatility constructed from log returns. *Idiosyncratic Volatility* is estimated annually as the sum of squared errors from a four-factor Carhart (1997) model estimated with monthly returns. *Return Volatility* is the annual standard deviation of monthly returns for each firm–year. Variable definitions are included in Table 1. Control variables are lagged one year. Fama–French 48 industry fixed effects and indicators for time are included but not reported. Variables are Winsorized at the 1% level. Standard errors are clustered two-ways by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Table A3

The impact of CEO divorce on compensation with a matched sample

Panel A—Divorce and compensation with a matched sample

Variable	Salary	Bonus	Option grant	Stock grant
Year Before CEO Divorce	16.210	141.308	623.184	-339.244
	(0.52)	(1.20)	(1.04)	(-0.79)
CEO Divorce Year	24.273	290.804**	977.651**	-218.308
	(0.79)	(2.16)	(2.20)	(-0.78)
Year After CEO Divorce	55.583*	252.169**	1062.986	1115.068***
	(1.66)	(2.14)	(1.60)	(3.32)
2nd Year After CEO Divorce	45.102**	126.217	581.890	955.596***
	(2.02)	(0.74)	(1.61)	(2.79)
Log of Assets	112.748***	271.969***	949.011***	393.612***
	(8.76)	(5.17)	(7.19)	(4.14)
Market-to-book	-3.947	19.421	169.645	-14.500
	(-0.76)	(0.71)	(1.28)	(-0.15)
Cash Constraints	-126.708	-214.833	-2400.995	1697.144
	(-1.15)	(-0.44)	(-1.42)	(1.54)
Tax Carry-forwards	16.276	47.341	1076.620***	-73.365
	(0.60)	(0.42)	(2.63)	(-0.25)
Dividend Constraints	41.836	-6.064	170.612	-271.009
	(1.27)	(-0.07)	(0.41)	(-0.76)
Annual Return	8.980	460.230***	675.051**	645.534**
	(0.51)	(3.63)	(2.47)	(2.04)
Retirement Age	-84.746	339.179	-607.780	-1501.307***
	(-1.18)	(1.17)	(-1.00)	(-3.23)
Time controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes
Obs.	1,558	1,558	1,558	1,558
Pseudo-R^2	0.056	0.026	0.019	0.044

Table A3 (continued)

Panel B—Divorce and compensation with a matched sample

Variable	Annual grant Delta	Annual grant Vega	Log of annual grant Delta	Log of annual grant Vega
Year Before CEO Divorce	3494.383	204.789	0.104	0.047
	(0.26)	(0.02)	(0.38)	(0.19)
CEO Divorce Year	4156.103	-840.369	0.151	0.115
	(0.53)	(-0.14)	(0.92)	(0.84)
Year After CEO Divorce	15454.431**	14550.179**	0.308**	0.314***
	(2.22)	(2.12)	(2.49)	(2.66)
2nd Year After CEO Divorce	14079.355**	14098.418	0.356***	0.306***
	(2.05)	(1.53)	(3.94)	(3.41)
Log of Assets	19465.624***	22796.459***	0.420***	0.484***
	(9.16)	(9.69)	(8.37)	(10.09)
Market-to-book	14144.585***	13268.264***	0.166***	0.187***
	(4.61)	(5.29)	(4.14)	(4.75)
Cash Constraints	-40565.827*	-35777.879*	-0.566	-0.860**
	(-1.87)	(-1.86)	(-1.57)	(-2.17)
Tax Carry-forwards	16338.008**	15443.611**	0.304***	0.257***
	(2.39)	(2.38)	(2.88)	(2.73)
Dividend Constraints	-1111.303	-5136.613	-0.147	-0.134
	(-0.09)	(-0.45)	(-0.94)	(-0.97)
Annual Return	18297.981***	15329.621***	0.383***	0.334***
	(8.19)	(8.14)	(5.16)	(2.97)
Retirement Age	14539.640	7110.663	-0.075	-0.121
	(1.39)	(0.75)	(-0.55)	(-0.92)
Time controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes
Obs.	1,029	1,029	1,029	1,029
Adj. R^2	n/a	n/a	0.492	0.514
Pseudo-R^2	0.017	0.019	n/a	n/a

This table reports the results of regressions of CEO compensation on indicators for CEO divorce for Execucomp firms for the years 1992–2008. The sample is restricted to firms at which a CEO was divorced during his tenure and a matched sample of firms. The divorced CEOs are matched to comparable CEOs at firms sharing Fama–French 48 industry classification, similar book asset size, and year of observation (divorce year). The same matched sample is used for all sample years. The main variables of interest are indicators equal to 1 in the year of a CEO divorce, the year before a CEO divorce, the year after a CEO divorce, and two years after a CEO divorce. Panel A reports results of tobit regressions of salary, bonus, stock, and option compensation. Panel B reports results of regressions of compensation sensitivities, Delta and Vega. The first two columns of Panel B are tobit regressions of the dollar sensitivities, and in the last two columns, the logs of these sensitivities are regressed on divorce indicators in least squares regressions. Variables are defined in Table 1. Control variables are lagged one year. Year and industry fixed effects are included but not reported. Variables are Winsorized at the 1% level. Standard errors are clustered two-ways by firm and year. *T*-statistics are presented below coefficient estimates in parentheses. *, **, and *** indicate statistical significance at the 0.10, 0.05, and 0.01 levels.

Figure 1 – Mean and Median Volatilities for Years Around CEO Divorce

Figure 1.A

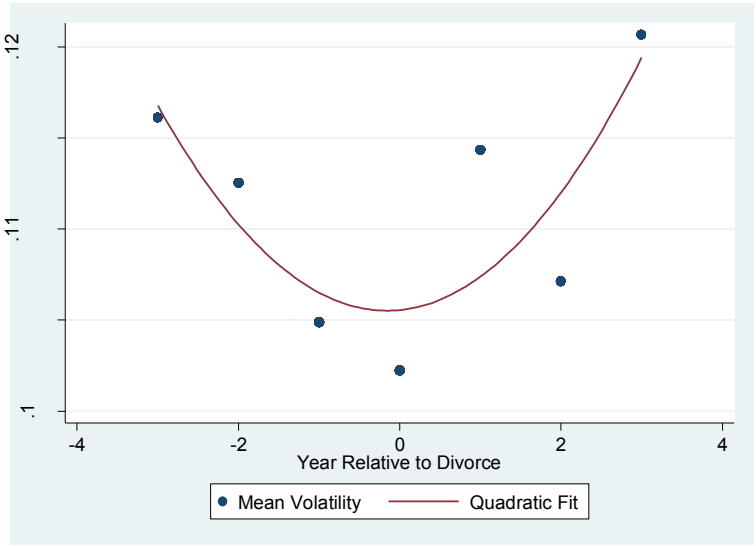


Figure 1.B

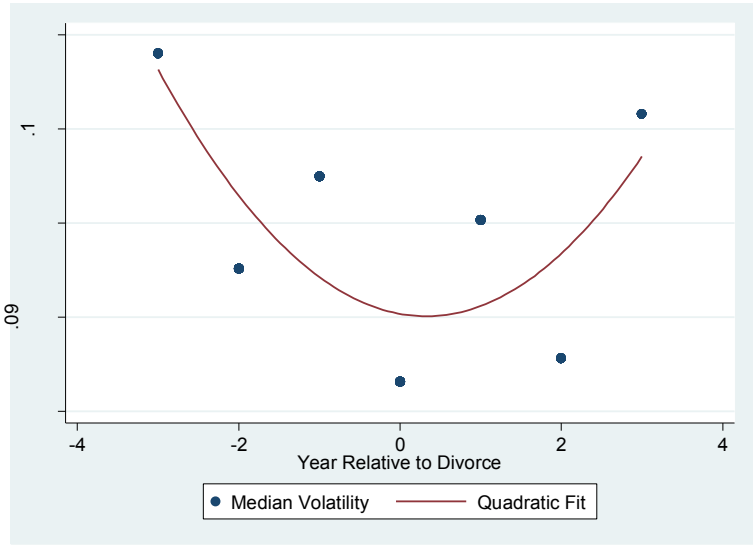


Figure 1.C

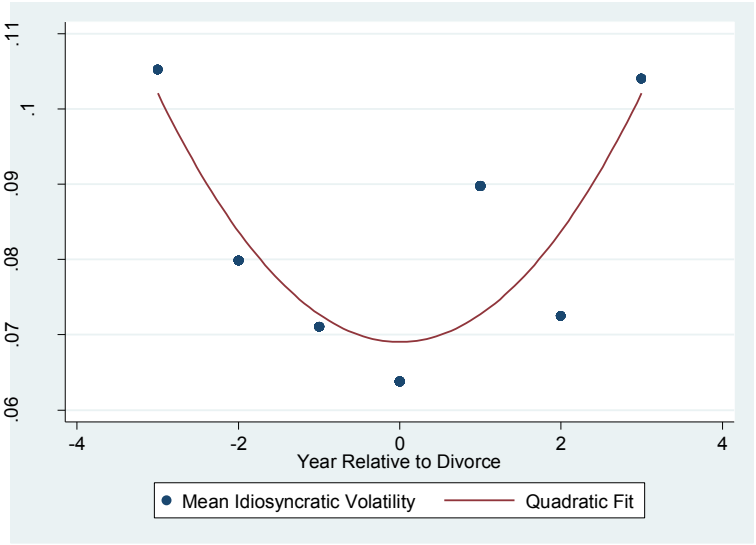
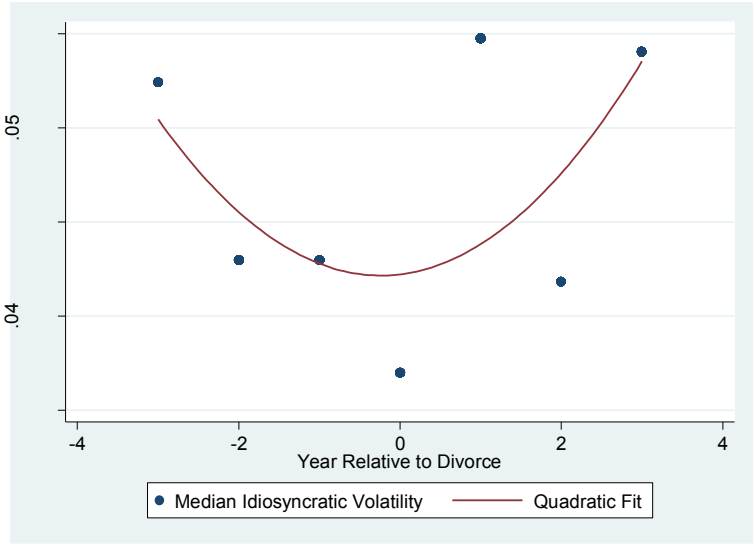


Figure 1.D



These figures show the change in volatility for CEOs in office in the seven years starting three before divorce. Figures 1.A and 1.C show the mean volatility and idiosyncratic volatility by year relative to divorce. Figures 1.B and 1.D show the median volatility and idiosyncratic volatility by year relative to divorce.