CEO Severance Pay and Corporate Tax Planning

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Abstract

We examine the association between CEO severance pay (i.e., payment the CEO would receive if s/he is involuntarily terminated) and corporate tax planning activities. We find that CEO severance pay increases corporate tax planning activities, consistent with CEO severance pay offering contractual protection against managers' downside risk and thereby inducing managers to engage in optimal tax planning. Further, CEO severance pay provides stronger tax planning incentives in situations where we expect the downside risk protection provided by severance pay to matter more – when CEOs are otherwise more risk averse and when CEOs are more likely to bear downside risk. Finally, we find that CEO severance pay reduces firms' cost of equity capital, suggesting that investors perceive the tax planning taken by managers to reduce agency costs and increase firm value. Overall, our results suggest that CEO severance pay provides tax planning incentives and contributes to shareholder value.

Keywords: corporate tax planning; CEO severance pay; risk-taking incentives

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1 Introduction

Corporate tax planning activities have the potential to increase shareholders' after-tax wealth, but may also result in penalties assessed by the tax authority if a firm is audited. Tax positions increase a firm's expected cash flows (from the expected tax savings), but also increase the dispersion of these cash flows, widening the probability distribution of future cash flows (Goh, Lee, Lim, and Shevlin 2016). Tax planning, therefore, is analogous to investing in risky positive net-present-value projects, favored by risk-neutral shareholders but not necessarily by risk-averse managers. Theoretically, to reduce this tax-related agency problem, shareholders need to design compensation contracts to induce a second-best tax outcome (Crocker and Slemrod 2005).

Prior research examines the extent to which stock-based compensation contracts encourage optimal tax planning and offers mixed evidence. Desai and Dharmapala (2006) find that when CEOs are awarded more stock options they engage in less corporate tax planning, while Rego and Wilson (2012) and Armstrong, Blouin, Jagolinzer, and Larcker (2015) find that these CEOs engage in more corporate tax planning. Although options have the potential to increase CEO wealth, this only occurs when a firm's stock price exceeds the option's strike price. In the event the manager takes a risk and the outcome is value decreasing, options are likely to be less valuable or worthless. Thus, stock options alone may not induce risk-averse managers to take an optimal level of risk because while options offer upside potential, they fail to adequately protect managers from downside risk.

We introduce a uniquely different compensation contract, namely, CEO severance pay. Theoretically, CEO severance pay induces managerial risk taking, as it offers contractual protection against managers' downside risk (Chen, Cheng, Lo, and Wang 2015; Ju, Leland, and Senbet 2002). While theoretically appealing, the incentive effect of CEO severance pay is largely ignored in the tax planning literature, which is surprising as over 75 percent of

S&P 1500 firms have sizeable severance agreements with their CEOs (Cadman, Campbell, and Klasa 2016).[1] Firms that award severance pay to dismissed CEOs defend this practice by stating that these contracts protect managers from a downside risk. For example, Clorox Corporation states that "by mitigating the economic hardship associated with unexpected termination, these benefits aid in attracting and retaining named executive officers and encouraging management to take reasonable amounts of risk" (SEC 2007). Downside risk protection is particularly important in our setting, as the risk associated with implementing tax planning strategies can damage a firm's reputation, decrease firm value (Graham, Hanlon, Shevlin, and Shroff 2014), and even result in CEO turnovers (Chyz and Gaertner 2016). In this paper, we examine the role of CEO severance pay in corporate tax planning to shed light on the extent to which managerial incentive contracts are related to corporate tax planning.

Using a hand-collected sample of CEO severance pay, and holding other risk-taking incentives constant (i.e., from stock options), we find an incrementally positive association between CEO severance pay and corporate tax planning activities. A one-standard-deviation increase in CEO severance pay translates into a 2.89% to 5.00% increase in corporate tax planning. Consistent with the theoretical argument that CEO severance pay helps to induce an optimal level of risk taking, this evidence suggests that severance pay motivates managers to engage in value creating tax planning strategies. Thus, our findings fit into an efficient contracting framework between the firm and its manager (Ju et al. 2002; Cadman et al. 2016).

As with all empirical work and particularly in compensation, our tests represent associations for which we cannot definitively ascribe causality. Nevertheless, we mitigate

[1] During the last decade, the ten largest CEO severance packages have cost shareholders a total of $2.4 billion (GMI 2013).

the possibility that our results are due to a correlated omitted variable through two additional analyses. First, we use propensity score matching to match high and low severance pay firms on non-severance observable characteristics. Our results continue to hold. Second, we use an instrumental variable approach. As instruments, we use a firm's geographic proximity to its local largest severance payer as well as the local median severance pay. Tests of instrument strength and over-identification indicate that our instruments are not weak or over-identified, validating our instruments. Our results survive these alternative estimation methods that reduce the endogeneity concern.

To better understand our findings, we decompose total severance pay into four subcomponents: (1) cash-based severance pay based on the manager's salary and cash bonus, (2) continuing health care or related benefits, (3) the value associated with the immediate vesting of all unvested stock options and stock awards, and (4) the value associated with the immediate vesting of all unvested pension payments. We scale the amount of each subcomponent by total CEO severance pay to compare their relative importance. We find that only cash-based and stock-based CEO severance pay is related to corporate tax planning. This result sheds light on a potentially efficient way to structure severance agreements.

To test for the underlying mechanism (i.e., downside risk protection) that links severance pay to tax planning activities, we perform two cross-sectional analyses. If CEO severance pay increases corporate tax planning because it protects managers against downside risk, such an effect should be stronger when CEOs (1) are otherwise more risk averse and (2) face greater downside risk. We find that CEO severance pay has a greater effect on corporate tax planning when a CEO is early in his/her tenure, is not overconfident, and is politically conservative. Thus, risk-averse managers are more sensitive to the incentive effect of CEO severance pay. We also find increased responsiveness to severance pay

contracts when a CEO's firm adopts a risky prospector strategy, is less diversified, and has a higher idiosyncratic risk, situations in which managers are likely to face greater downside risk.

We provide further evidence on the mechanism linking severance pay to corporate tax planning by exploring the value implications of CEO severance pay. Goh et al. (2016) find that shareholders value tax planning activities by requiring lower returns on tax planning firms. If CEO severance pay induces more tax planning activities, then on the margin shareholders should demand lower required returns. We construct measures of implied cost of equity capital based on Claus and Thomas (2001), Easton (2004), Gebhardt, Lee, and Swaminathan (2001), and Gode and Mohanram (2003). We find consistent evidence that CEO severance pay lowers the cost of equity capital.

Our study contributes to the literature in several ways. First, we provide further evidence on the "under-sheltering puzzle." The phenomenon that some firms engage in more tax planning activities than others is not fully understood (Hanlon and Heitzman 2010; Shevlin 2007; Weisbach 2001). Much of this literature refers to firm and manager characteristics as possible explanations. Firm characteristics frequently examined are firm size, profitability, capital structure, asset structure, and foreign-source income (Gupta and Newberry 1997; Lisowsky 2010; Wilson 2009). Manager characteristics shown to affect tax planning include educational background, managerial ability, political conservatism, and personal tax aggressiveness (Christensen, Dhaliwal, Boivie, and Graffin 2015; Chyz 2013; Dyreng, Hanlon, and Maydew 2010). More recent studies suggest that a possible explanation for the substantial variation in corporate tax planning activity is the heterogeneity in managerial incentives. We complement these studies, providing evidence that one particular form of managerial incentives (i.e., CEO severance pay) can at least partially explain the large variance in corporate tax planning activities.

Second, we add to the literature on incentive contracts and corporate tax planning. Prior studies focus primarily on risk incentives such as stock options. Findings related to the association between managerial incentives and corporate tax planning are inconclusive: some studies find a positive effect, while others show either a negative or zero effect (Armstrong et al. 2015; Desai and Dharmapala 2006; Rego and Wilson 2012). In contrast to prior studies, we examine a uniquely different compensation agreement – CEO severance pay – that can complement the role of risk incentives by providing protection against downside risk. Our results indicate that one possible reason for prior inconclusive evidence can be partially attributed to the lack of control for this important compensation component. In addition, we answer the call of Hanlon and Heitzman (2010) to provide more evidence on corporate tax planning within an agency framework.

Finally, our study extends the literature on CEO severance pay. As a prevalent compensation practice, providing CEOs with severance pay has received much attention. Theoretical work suggests that CEO severance pay is a form of risk taking incentive due to its unique role in contractual protection against managers' downside risk. Motivated by this argument, prior research finds that severance pay encourages a reasonable level of risk taking (Almazan and Suarez 2003; Baginski, Campbell, Koo, and Hinson 2016; Cadman et al. 2016; Chen et al. 2015). We extend the empirical work to a tax setting. Our findings support the notion that severance pay is a part of an optimal contracting scheme that encourages a reasonable level of risk taking, and are inconsistent with the notion that severance contracts are a manifestation of agency costs that are only obtained by powerful, entrenched CEOs.

2 Literature review and hypothesis development

2.1 Corporate tax planning within an agency framework

The seminal work by Allingham and Sandmo (1972) lays the theoretical foundation for individual tax planning. The optimal amount of individual tax planning is increasing in the income tax rate, but decreasing in the probability of being detected, the amount of the tax penalty due upon detection, and the extent to which an individual is risk averse.

Slemrod (2004) argues that this simple framework cannot apply to corporate tax planning. A modern corporation features the separation of ownership and control. Shareholders, holding well-diversified portfolios, are risk-neutral. They favor all risky and valuable activities that add to shareholder value (Jensen and Meckling 1976; Merton 1973). Managers, however, invest their human capital in specific firms. They are not able to diversify their portfolios in a manner similar to shareholders. Therefore, risk-averse managers are not incentivized to take the amount of risk desired by shareholders (Chen and Chu 2005). This gives rise to risk-related agency problems (Guay 1999).

Corporate tax planning exhibits this risk-related agency problem (Armstrong et al. 2015; Rego and Wilson 2012). While tax planning generates tax savings accrued to shareholders (Desai and Dharmapala 2009), a risky tax position can be challenged by the tax authority upon an audit (Mills 1998). For example, in 2014 alone, the IRS required $17.2 billion in audit adjustments against corporations and imposed $2.1 billion in penalties on corporations (IRS 2014). These additional payments, along with the associated penalties, are large enough to offset the tax savings from tax planning (Wilson 2009). Even worse, corporate tax planning can negatively impact a firm's reputation with investors, customers, and activists. Doug Shulman, the IRS commissioner, asserts that tax planning activities can impose a significant risk on firm reputation and that "the general public has little tolerance for overly aggressive tax planning."[2] News on corporate tax planning, once

[2] For more details, refer to Doug Shulman, "Speech to the National Association of Corporate Directors Governance conference", October 19, 2009.

released to the public, often results in media coverage suggesting that firms are not properly fulfilling their civic duties (i.e., not "paying their fair share") (Bankman 2004). Negative press coverage, negative stock market reactions, downgrades in creditworthiness, and customer backlash often follow (Christensen et al. 2015; Hanlon and Slemrod 2009; Hasan, Hoi, Wu, and Zhang 2014). Therefore, risk-averse managers may not be incentivized to engage in risky corporate tax planning. Theoretically, shareholders must create aligned incentives to encourage managers to take an optimal level of tax risk (Crocker and Slemrod 2005).

2.2 Managerial incentives and corporate tax planning

Empirical work on the association between managerial incentives and corporate tax planning is emerging, yet shows mixed evidence. Much of this literature focuses on risk based incentives such as stock options and awards but offers mixed results. Desai and Dharmapala (2006) find that CEO stock options result in a lower level of corporate tax planning. Contrary to Desai and Dharmapala (2006), Rego and Wilson (2012) find that CEO stock options increase corporate tax planning. Rego and Wilson (2012) argue that stock options can provide CEOs with convex payoffs by linking option values to stock return volatility. This option vega induces risk-averse managers with concave utility functions to take risky tax positions. Finally, Armstrong et al. (2015) find that CEO stock options provide only modest tax planning incentives on average. Instead, results from their quantile regressions show that options matter the most when corporate tax planning is extremely high or extremely low.

Worth noting is that these studies focus on risk incentives that provide upside gain potential. However, this potential is only realized in prosperous situations: when the actual stock price is above the option exercise price. In adverse circumstances where stock

performance worsens, stock options are out of the money, losing their incentive power. Therefore, stock options and awards are not effective in protecting managers against downside risk. CEO downside risk protection is particularly important in corporate tax planning, as stock performance is easily affected by negative outcomes from tax planning (Hanlon and Slemrod 2009) and managers engaging in corporate tax planning face an increased probability of being dismissed due to poor performance (Chyz and Gaertner 2016). Absent downside risk protection, risk-averse managers are not incentivized to engage in corporate tax planning due to career concerns in adverse events.

2.3 CEO severance pay and corporate tax planning

Figures 1 through 3 illustrate how a severance contract functions differently than stock option incentives. As shown in Figure 1, the manager has a concave personal utility function. Winning $1,000 increases his/her utility by less than losing $1,000 decreases utility. Thus, the manager is risk-averse, and this risk-aversion deters him/her from taking a reasonable amount of risk to maximize firm value. To mitigate this agency problem and to incentivize the manager to be more risk-neutral, a firm can choose to grant him/her stock options. Figure 2 presents the payoff function of the stock option. The option is "in-the-money" only when the market price exceeds the strike price, otherwise the option has a zero value. Due to its convex payoff function, the stock option helps to bring the managers' incentives more in line with risk-neutral shareholders by effectively straightening out (i.e., removing the concavity of) the *upside* of the manager's utility function.

On the other hand, severance pay plays a distinct role. Figure 3 shows the payoff function of severance pay. It becomes "in-the-money" when the manager is involuntarily terminated, and is worthless when the manager retains his/her job. Therefore, severance pay has a convex payoff function which straightens out (i.e., removes the concavity of) the

downside of the manager's utility function. Putting this together, a combination of stock options and severance pay should motivate the manager to be more risk-neutral than either contract would do alone (Almazan and Suarez 2003; Ju et al. 2002; Ross 2004).

Prior studies find evidence consistent with the above theoretical analysis that CEO severance pay induces optimal risk taking. In particular, Cadman et al. (2016) find that CEO severance pay increases stock return volatility, the level and the change in firm leverage, and same-industry (rather than diversifying) acquisitions. They also find that CEO severance pay is positively associated with acquisition announcement returns and the value of cash holdings, consistent with CEO severance pay motivating managers to undertake not only risky projects but also projects with a positive net present value. Brown, Jha, and Pacharn (2015) focus on the financial sector, and find that CEO severance pay is positively associated with market-based risk after controlling for the incentive effect of equity-based compensation, indicating that severance pay induces risk taking. Consistent with this strand of literature, we expect that CEO severance pay encourages tax-related risk taking, leading to a positive association between CEO severance pay and corporate tax planning. We state the hypothesis as follows.

H1: There is a positive association between CEO severance pay and corporate tax planning.

There is also an argument that CEO severance pay exacerbates agency problems by imposing a significant cost on executive turnover. Prior studies show that entrenched CEOs are able to obtain excess pay (Bebchuk and Fried 2003), and that entrenched CEOs pursue less risky strategies and invest in projects with lower net present values (Gompers, Ishii, and Metrick 2003). If CEO severance pay represents managerial rent extraction, we will *not* find a positive association between CEO severance pay and corporate tax planning, as entrenched managers would not take the same amount of risk (Cadman et al. 2016).

3 Data, sample, and descriptive statistics

3.1 Hand-collected data on CEO severance pay

On August 11, 2006, the SEC released new disclosure requirements regarding executive compensation. As a result, firms are now required to quantify and disclose contracted severance pay that CEOs would receive upon forced termination, either without cause or for good reason (as defined in the contract). Prior to this regulation change, disclosures of severance pay only included whether such a contract exists and a narrative description of any material payments. Furthermore, these disclosures did not distinguish between whether the payments were already vested (i.e., the CEO would receive them regardless of termination) or unvested (i.e., amounts that will only be received by a CEO upon dismissal). Detailed information on CEO severance pay contracts was only publicly disclosed once the CEO departed from the firm.[3] In contrast, firms must now quantify and disclose all components of severance pay, including the unvested portion of the payment (i.e., amounts that will only be received by a CEO upon dismissal). This requirement enables researchers to examine the impact of *ex ante* CEO severance pay on corporate tax planning in a comprehensive manner (Cadman et al. 2016).

We use firms' proxy statements (DEF-14, DEF-14A, or item 11 of Form 10-K) to hand-collect the exact amount of each component of severance pay.[4] We collect the total amount of severance payments, the cash payment portion (e.g., salary and bonus continuation up to a certain number of years after termination), the portion comprised of continuation of

[3] The restricted sample size problem and potential self-selection bias make *ex post* CEO severance pay a less attractive setting compared to *ex ante* CEO severance pay. Furthermore, Cadman et al. (2015) show that when a CEO is involuntarily terminated, the *ex post* payment is virtually identical to the *ex ante* contracted amount (ratio of *ex post* payout to *ex ante* contracted amount of 1.04, correlation between the two of 0.99). This provides assurance that the severance pay a CEO should expect to receive upon involuntary termination is the contracted amount provided *ex ante*.

[4] A CEO will receive these payments if s/he is dismissed "without cause" or resigns for "good reason". See Cadman et al. (2015) for a detailed description of these scenarios.

healthcare and other benefits, the unvested stock options and stock awards that vest immediately upon dismissal, the stock awards that vest immediately upon dismissal, the incremental pension benefits that vest upon dismissal, and other uncategorized portions.

We compare our hand-collected data to ExecuComp, which provides *ex ante* CEO severance pay as of 2006. Cadman et al. (2016) identify several problems with ExecuComp data. For example, when firms present tables that do not report a "total" amount for severance payments, ExecuComp incorrectly reports the first or last number in a column as the total. Also, ExecuComp includes vested payments to a CEO, which do not reflect the incremental severance pay to the CEO if s/he were dismissed. Finally, ExecuComp reports a zero value for severance pay in some cases when firms do in fact have contracted payments disclosed in the proxy statements.[5] Due to these issues with ExecuComp data, our primary analysis relies on more accurate hand-collected data from firms' proxy statements.

3.2 Sample selection and descriptive statistics

We start with firms covered in ExecuComp during the years where we have hand-collected severance pay data (i.e., 2006 and 2007).[6] We exclude financial firms, firms with foreign headquarters, and firms with missing financial data. We also exclude observations where firms experience CEO turnover, acquisitions during the year, or other circumstances where severance pay information is unavailable. Our final sample comprises 1,422 firm-year observations.

Panel A of Table 1 reports the sample distribution by industry. Industries are defined using the Fama-French 10 industry breakdown from Professor Ken French's website. The

[5] These firms disclosed severance payments in narrative form instead of tabular form, resulting in ExecuComp mistakenly coding a zero amount of the severance pay.
[6] Since the new requirements apply to firms with fiscal year end after December 15, 2006, we also collect data for 2007 to ensure enough firms are included in our sample.

manufacturing, business equipment, and wholesale, retail, and some services industries comprise the largest percentages of industries in our sample. To alleviate concerns about industry concentration of severance payments, we incorporate industry fixed effects throughout.

Panel B of Table 1 reports CEO compensation information. The average contracted severance pay of our sample is $6.0 million, while the counterpart reported in ExecuComp is $7.1 million. This is likely because ExecuComp includes as severance the amount a CEO has already "earned", which highlights why ExecuComp severance data contains measurement error. We also report the mean values of various components of severance pay. Cash-based payment and stock-based payment constitute the largest proportion of total severance pay. Also, note that severance pay is rather significant when compared to alternative forms of CEO compensation. In particular, contracted severance pay is, on average, 7.6 times CEO salary, 4.2 times bonus (discretionary cash bonus and plan-based bonus), 3.7 times stock awards, and 4.4 times option awards. The sharp contrast highlights the economic significance of severance pay in CEO compensation.

Panel C of Table 1 reports descriptive statistics for corporate tax planning, severance pay, firm characteristics, and CEO characteristics for the full sample. Across all three of our effective tax rate measures defined in the Appendix (i.e., GAAP effective tax rate, cash effective tax rate, and current effective tax rate), firms' effective tax rates have mean values ranging from 25.9% to 29.7%, all of which fall below the statutory tax rate of 35%. This suggests that, on average, firms engage in at least some degree of tax planning.

Table 2 reports Pearson and Spearman correlation coefficients for the sample. Total severance pay (*SERPAY*) is negatively associated with all three of our proxies for tax planning. These univariate correlations suggest that severance pay encourages corporate tax planning.

4 CEO severance pay and corporate tax planning

4.1 Empirical model

We use the following empirical model to assess the association between CEO severance pay and corporate tax planning:

$$\begin{aligned} TP_{i,t} = {} & \beta_0 + \beta_1 SERPAY_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 ROA_{i,t} + \beta_4 LEV_{i,t} + \beta_5 MB_{i,t} + \beta_6 FIRMAGE_{i,t} \\ & + \beta_7 MNE_{i,t} + \beta_8 RD_{i,t} + \beta_9 CAPX_{i,t} + \beta_{10} PPE_{i,t} + \beta_{11} INTANG_{i,t} + \beta_{12} EQINC_{i,t} \\ & + \beta_{13} NOL_{i,t} + \beta_{14} DNOL_{i,t} + \beta_{15} CEOAGE_{i,t} + \beta_{16} CEOTENURE_{i,t} + \beta_{17} MSHARE_{i,t} \\ & + \beta_{18} VEGA_{i,t} + \beta_{19} DELTA_{i,t} + \sum YEAR + \sum INDUSTRY + \varepsilon_{i,t}, \end{aligned} \quad (1)$$

where i and t index firm i and year t, respectively. The dependent variable is corporate tax planning (*TP*). We use effective tax rate as our main proxy for corporate tax planning. This is consistent with Crocker and Slemrod's (2005) theoretical argument that "[t]o align incentives, it may be appropriate for the tax officer's salary to depend (inversely) on the effective tax rate achieved." Thus, effective tax rate is an ideal proxy for our theoretical construct, especially under the setting of agency conflicts. However, as noted in Hanlon and Heitzman (2010), effective tax rate can be calculated in multiple ways, and the use of a single effective tax rate measure in isolation may not accurately capture corporate tax planning. In particular, while the GAAP effective tax rate, calculated as total tax expense over pre-tax income, is widely used in the tax planning literature, two reasons can render this measure a somewhat noisy proxy for corporate tax planning. First, total tax expense is comprised of current and deferred tax expense. Thus, a shift from current to deferred tax expense has no effect on total tax expense. In this sense, the GAAP effective tax rate does not reflect tax planning strategies realized through deferring taxes. Instead, current effective tax rate, defined as current tax expense over pre-tax income, can alleviate this concern. As an increase in deferred tax expense can result in a decrease in current tax expense, current effective tax rate can capture deferral-based tax strategies. Second, total

tax expense that constitutes the calculation of GAAP effective tax rate includes certain accounting items such as valuation allowance irrelevant to tax planning (Dyreng, Hanlon, and Maydew 2008). Cash effective tax rate, defined as cash taxes paid over pre-tax income, can reduce this impact. For these reasons, we use multiple effective tax rates to capture corporate tax planning. This approach follows prior studies (e.g., Dyreng et al. 2010; Dyreng, Hanlon, Maydew, and Thornock 2015). In sensitivity tests, we consider alternative measures of corporate tax planning to ensure robustness.

We focus our analysis on CEO severance pay. We deflate CEO severance pay by the firm's total assets, as total assets (unlike earnings) are nonnegative. In addition, total assets are less subject to managerial discretion as compared to market-based deflators. Nevertheless, we use alternative deflators in our sensitivity tests to ensure that our measure of CEO severance pay is not sensitive to alternative scalers. Our main focus is the coefficient on *SERPAY*, which indicates the effect of CEO severance pay on corporate tax planning. A negative coefficient on *SERPAY* would support the notion that CEO severance pay encourages managers to engage in corporate tax planning.

We control for other variables shown in prior literature to be related to corporate tax planning. We first control for a set of firm characteristics. *SIZE* is defined as the natural logarithm of a firm's total assets. The association between firm size and corporate tax planning is not clear. Zimmerman (1983) suggests that large firms attract more political attention. This political cost discourages them from tax planning. On the other hand, large firms lobby more often. Through lobbying, they receive more favorable tax treatments. This political power leads large firms to engage more in tax planning (Porcano 1986). In addition, Stickney and McGee (1982) find no association between firm size and corporate tax planning. Given these mixed findings, we make no prediction on firm size.

The association between a firm's profitability and corporate tax planning is not clear. Profitable firms are in high tax brackets. All else equal, these firms should exhibit higher effective tax rates (Gupta and Newberry 1997; Wilkie and Limberg 1993). However, Rego (2003) suggests that profitable firms have more resources in tax planning . *ROA* controls for the existing level of a firm's profitability. Given the conflicting arguments, we make no prediction on the association between *ROA* and corporate tax planning.

Mills, Erickson, and Maydew (1998) suggest that a high leverage ratio reflects greater financial complexity. Firms with complicated financial instruments have more tax planning opportunities (Newberry 1998; Newberry and Dhaliwal 2001). In contrast, Graham and Tucker (2006) find a substitution effect between debt tax shields and corporate tax shelters, documenting that firms are less likely to engage in tax planning when they already have large debt tax shields. *LEV* controls for the existing level of firm's leverage. Given these mixed findings, we make no prediction on this association.

We next control for firm maturity. We use two measures to capture firm maturity: (1) market-to-book ratio and (2) firm age. Growth firms often make large capital investments. This gives them increased ability to take tax credits such as depreciation allowance (Chen, Chen, Cheng, and Shevlin 2010). Therefore, growth firms exhibit lower effective tax rates. On the other hand, growth firms are less experienced in tax planning (Cheng, Huang, Li, and Stanfield 2012). In this case, growth firms have higher effective tax rates. We do not predict the association between firm maturity and corporate tax planning.

Rego (2003) suggests that multinational firms have more tax planning opportunities (e.g., relocate income in low tax jurisdictions). However, Dyreng et al. (2015) find that multinational firms exhibit higher effective tax rates than domestic firms. As such, it is not clear whether multinational firms engage in more or less tax planning , and we make no

prediction on the coefficient on our control variable *MNE*, which is an indicator variable set to one if a firm has pre-tax foreign income, and zero otherwise

We control for firm investment levels using capital expenditure (*CAPX*). Firms with high levels of investments often receive larger investment tax credits and therefore exhibit lower effective tax rates. On the other hand, a high investment level often signals greater firm growth. As growth firms are not experienced in tax planning, such firms can also exhibit higher effective tax rates. Therefore, we do not predict this association.

We also control for firm capital intensity and R&D intensity. *PPE* is capital intensity measured as property, plant, and equipment. Gupta and Newberry (1997) show that capital intensive firms have lower effective tax rates, as these firms can generate more tax credits. *RD* is R&D expenditure. Similarly, firms with more intensive R&D expenditures also have access to more tax credits and therefore can exhibit lower effective tax rates (Wilson 2009).

We further control for potential sources of book-tax differences. We first control for asset tangibility (*INTANG*). We also include equity income in earnings (*EQINC*). We draw on the findings in Chen et al. (2010) and expect a positive sign for *INTANG* and a negative sign for *EQINC*. Finally, we include two measures of loss carry forward. *NOL* is loss carry forward, an indicator variable equal to 1 for firms with positive loss carry forward and 0 otherwise. *DNOL* is the change in the loss carry forward over total assets. Firms can use loss carry forward to deduct taxable income (Chen et al. 2010). Hence, we expect such firms to have lower effective tax rates.

Finally, we control for managerial characteristics. Dyreng et al. (2010) find a pronounced managerial effect on corporate tax planning. We use CEO age and CEO tenure to capture manager effects. Importantly, we also control for managerial incentives. *MSHARE* is CEO stock ownership. *VEGA* is the change in the value of a CEO's stock options and holdings for a one percent increase in stock return volatility. *DELTA* is the change in the value of a

CEO's stock options and holdings for a one percent increase in stock price. Controlling for these managerial incentives can help isolate the incentive effect of CEO severance pay.

4.2 Baseline results

Table 3 presents our baseline results. We focus on the coefficient estimate on *SERPAY*, which captures the impact of CEO severance pay on corporate tax planning. We find that the coefficient on *SERPAY* is significantly negative for all three measures of tax planning. This result is also economically significant. For an average firm, a one-standard-deviation increase in *SERPAY* reduces *GAAP* by 2.89% [-1.6810 × 0.0051/ 0.2968], *CASH* by 5.00% [-2.5424 × 0.0051/ 0.2593], and *CURR* by 4.51% [-2.4015 × 0.0051/ 0.2716], respectively. For a median firm, a one-standard-deviation increase in *SERPAY* reduces *GAAP* by 2.65% [-1.6810 × 0.0051/ 0.3230], *CASH* by 4.98% [-2.5424 × 0.0051/ 0.2604], and *CURR* by 4.23% [-2.4015 × 0.0051/ 0.2898], respectively.

These results are consistent with severance pay encouraging managers to engage in tax planning. Our results are inconsistent with severance pay reflecting management entrenchment, as entrenched managers refrain from taking the same amount of risk.

The coefficients on control variables are mostly significant. Profitable firms have higher effective tax rates, consistent with the notion that such firms often fall into high tax brackets, exhibiting higher effective tax rates (Gupta and Newberry 1997). High levered firms have lower effective tax rates, consistent with such firms utilizing financial complexity to avoid taxes (Mills et al. 1998). Growth firms engage less in tax planning. This supports the idea that growth firms are less experienced in tax planning (Cheng et al. 2012). Multinational firms avoid more taxes (Dyreng et al. 2015). Firms with large long-term investments have lower effective tax rates (Gupta and Newberry 1997). Firms with more intensive capital and R&D expenditure exhibit lower effective tax rates, consistent with

such firms utilizing more tax credits. Firms with large intangible assets have higher effective tax rates and firms can use loss carry forward to lower effective tax rates (Chen et al. 2010). Older CEOs and short tenured CEOs engage less in tax planning. These results are consistent with a manager effect documented in Dyreng et al. (2008).

Importantly, we find that the coefficient on vega is significantly negative in one specification. This finding is consistent with vega increasing corporate tax planning (Rego and Wilson 2012). However, we also notice that this result is not robust to alternative measures of effective tax rate. The weak result is also consistent with Armstrong et al. (2015) that stock options only provide tax planning incentives for extreme corporate planning activities. We find that the coefficient on option delta is not significant. This finding is consistent with Armstrong et al. (2015), who document that option delta is not effective in inducing managerial risk taking.

4.3 Endogeneity

4.3.1 Propensity score matching

Omitted variables can bias our baseline estimation. One form of omitted variable bias arises from functional form misspecification. More specifically, our baseline model can omit, for example, a quadratic term of certain independent variables that simultaneously affect CEO severance pay and corporate tax planning. This functional form misspecification can render our focus variable *SERPAY* endogenous. To address this concern, we use a matched sample approach, which imposes no assumptions on functional form (Kothari, Leone, and Wasley 2005).

We follow Fang, Tian, and Tice (2014) to implement the propensity score matching. For each year, we sort firms into terciles based on CEO severance pay. Top tercile firms are high severance pay firms while bottom tercile firms are low severance pay firms. Through

matching, we can make high versus low severance pay firms more comparable on observables. We construct an indicator variable (*HSERPAY*) to capture the likelihood of being a high severance pay firm. In the first stage, we estimate a Probit model. The dependent variable is the newly constructed *HSERPAY*. The independent variables are the same controls from our baseline model. We then calculate the propensity scores for all firms in our sample. We perform the nearest neighbor matching. For each high severance pay firm, we select the matched firm that minimizes the distance between the propensity scores. If a firm is matched to more than one firm, we retain only the pair with the minimum distance in propensity score. This matching without replacement results in 374 observations with 187 unique pairs.

Table 4 presents the results. Column (1) reports pre-matching Probit regression results. High severance firms are smaller, less profitable, and younger. Moreover, high severance pay firms have more foreign income, less R&D expenditure, and larger capital expenditure. In addition, managers hold fewer shares in high severance pay firms but their option vega is higher. The pre-matching Probit regression has a pseudo-R^2 equal to 0.20. Also, the χ^2 test for model fitness has a p-value below 0.001. These results suggest that these variables do well in explaining the probability of being a high severance pay firm. Column (2) reports post-matching Probit regression results. The coefficients on independent variables become largely insignificant. The pseudo-R^2 drops to 0.02 and χ^2 test for model fitness shows a p-value near 1. These results indicate a successful matching. Columns (3) to (5) estimate our baseline model using this matched sample. We find that the coefficient on *SERPAY* remains negative and significant for all three effective tax rate measures. We also replace *SERPAY* with an indicator variable equal to 1 for firms with high CEO severance pay and 0 otherwise. Columns (6) to (8) show similar results. Consequently, our baseline results are not influenced by potential functional form misspecification.

4.3.2 Instrumental variable approach

We next use an instrumental variable approach. We use two instruments for CEO severance pay. The selection of the instruments is based on the community effect of decision making. Prior studies show that decision makers located in the same community make similar decisions through social interactions or information diffusion (Brown, Ivković, Smith, and Weisbenner 2008; Hong, Kubik, and Stein 2005; Pool, Stoffman, and Yonker 2015). Therefore, we expect that a focal firm's CEO severance pay is affected by its community CEO severance pay. To capture this community effect, we first calculate the geographic distance between a focal firm and the local largest severance payer. We define communities at the city-level (Pool et al. 2015) and use firm headquarter ZIP codes to pinpoint latitudes and longitudes. The Vincenty formula is applied to calculate the geographic distance. Closer geographic proximity between a focal firm and its local largest severance payer leads to a higher likelihood that this focal firm also exhibits a larger amount of CEO severance pay. The second instrument we use is the community median CEO severance pay. We expect that a focal firm's severance pay increases with the community median severance pay.

Table 5 presents the estimation results. Column (1) reports the first-stage regression results. The dependent variable is CEO severance pay (*SERPAY*). The independent variables are the two instruments (*MSERPAY* and *DISTANCE*) and all the controls from our baseline model. We find that the coefficient on *MSERPAY* is significantly positive and that the coefficient on *DISTANCE* is significantly negative. Therefore, CEO severance pay increases with its community median severance pay and decreases with the geographic distance from the local largest severance payer, supporting our predictions.

We next test for weak instruments. Valid instruments need to strongly predict severance pay. We perform an *F*-test by excluding the two instruments from the first-stage regression. This yields an *F*-statistic equal to 142.61. This statistic is much higher than 10, the critical value for a weak instrument *F*-statistic (Staiger and Stock 1997). We also perform a Stock and Yogo (2005) test to verify the instrument strength. We derive a Cragg-Donald *F*-statistic equal to 708.67. This statistic exceeds the critical value of 19.93 for weak instruments.[7] These results suggest that our instruments are not weak. Thus, the instrumental variable estimates are unlikely to be biased toward OLS estimates.

We also check whether our instruments satisfy the exclusion restriction condition. Valid instruments should be exogenous. This requires that our instruments are not correlated with the error term. As we use more than one instrument, we can check this through an over-identification test. We derive a Hansen *J*-statistic equal to 0.196. The associated *p*-value is 0.6577. There is no evidence that our instruments violate the exclusion restriction condition. Thus, our instruments appear valid. In this sense, the instrumental variable estimates can capture a causal impact of CEO severance pay on corporate tax planning.

Columns (2) - (4) of Table 5 report the second-stage instrumental variable estimation results. The dependent variable is corporate tax planning, measured as the three effective tax rates. The main independent variable is the instrumented CEO severance pay, measured as the predicted values from the first-stage estimation. We find that the coefficient on the instrumented *SERPAY* remains significantly negative across all three specifications. Thus, our baseline results survive the instrumental variable estimation, suggesting that the impact of CEO severance pay on corporate tax planning is less likely

[7] Stock and Yogo (2005) suggest that, for one endogenous regressor (n=1) and two instruments (K = 2), the critical value for weak instrument based on the maximum size bias at the 5% significance level is 19.93. Refer to Table 5.2 in Stock and Yogo (2005) for more details.

due to correlated omitted variables.

4.4 Alternative measures of key variables

Prior studies use alternative measures of corporate tax planning. These include long-term effective tax rates, corporate tax sheltering, and book-tax differences. We calculate three-year effective tax rates (*LGAAP*, *LCASH*, *LCURR*), and use Wilson's (2009) model to estimate corporate tax sheltering (*SHELTER*). For measures related to book-tax differences, we follow Kim, Li, and Zhang (2011) to calculate total book tax difference (*BTD*), and follow Desai and Dharmapala (2006) to derive the residual book-tax difference (*DDBTD*). Firms with a large book-tax difference are more likely to engage in corporate tax planning.

Table 6 present the results using these alternative measures of corporate tax planning. Columns (1) - (3) show that the coefficient on *SERPAY* is significantly negative, indicating that CEO severance pay also reduces long-term effective tax rates. The coefficient on *SERPAY* is significantly positive in Column (4), suggesting that CEO severance pay increases a firm's likelihood to engage in corporate tax sheltering. Columns (5) - (6) show that CEO severance pay increases the total book-tax difference as well as the residual book-tax difference, as the coefficient on *SERPAY* is positive and significant in both cases. These results reinforce our baseline results.

We also consider alternative measures of CEO severance pay. In our initial design, we deflate the total amount of CEO severance pay by the firm's total assets. While total assets can be an appropriate deflator, it is possible that our earlier results are driven by a scaling effect. To address this concern, we use two alternative scalers. We first deflate the total amount of CEO severance pay by total current compensation (*SERPAYT*). Columns (1) - (3) of Table 7 report the results. The coefficient on *SERPAY* remains significantly negative in two out of three specifications. We also deflate total severance pay by the market value of

equity (*SERPAYM*). Columns (4) - (6) of Table 7 report results consistent with those in Columns (1) - (3). Therefore, our results are not driven purely by a scaling effect.

4.5 Components of CEO severance pay and corporate tax planning

Here, we decompose CEO severance pay into several components. We explore whether each component of CEO severance pay equally affects corporate tax planning. An examination of this issue is important to further our understanding of the source of the incentive effect of CEO severance pay. Such an examination also sheds light on efficient ways to structure CEO severance pay.

Total severance pay comprises four components: (1) the cash payment which involves salaries and bonuses, (2) continuing healthcare and other benefits, (3) the immediate vesting of any unvested stock options and awards, and (4) the vesting of previously unvested pension payments. For each component, we scale the amount by the total amount of CEO severance pay in order to compare the relative importance of each component.

Table 8 presents the results. We find evidence that the cash component of CEO severance pay (*SERCASH*) and the stock options and awards component (*SEROPTION*) lower effective tax rates. However, the continuing healthcare (*SERBENEFIT*) and the pension components (*SERPENSION*) are not associated with effective tax rates. Thus, only cash payment and stock options/awards components positively affect corporate tax planning. We find no significant difference between the two subcomponents when we test for the equality of the two coefficients ($F = 1.34$, $p = 0.2466$ with *CURR*). This suggests that cash payment and stock options/awards components are equally important in providing tax planning incentives.

5 Testing for the mechanism

In this section, we test for the mechanism (i.e., downside risk protection) through which CEO severance pay affects corporate tax planning. While, theoretically, CEO severance pay offers risk-taking incentives due to its contractual protection for risk-averse managers against downside risk, our empirical results may have alternative explanations. In this case, we are likely to estimate a spurious positive effect of CEO severance pay on corporate tax planning. To rule out this possibility, we conduct cross-sectional tests. We focus on two theoretical constructs: managerial risk aversion and the manager's inherent downside risk. If our theoretical argument holds, we should find that the effect of CEO severance pay offers stronger tax planning incentives when managers are otherwise more risk averse and when they are more likely to suffer downside risk. Thus, our cross-sectional tests focus on exploring whether our established baseline results vary with managerial risk aversion and downside risk.

5.1 Effect of managerial risk aversion

We first explore whether CEO severance pay offers a stronger incentive when CEOs are otherwise more risk averse. Risk-averse managers should be more sensitive to the incentive effect from severance pay than risk-tolerant managers. Following prior studies, we use several empirical proxies to capture this theoretical construct.

5.1.1 CEO tenure

CEO tenure is informative about managerial risk aversion. There is evidence that long-tenured managers are more risk tolerant than short-tenured managers. One possible reason is that long-tenured managers have more knowledge about the firm's environment and are more experienced in dealing with uncertainty (Simsek 2007). Another reason is that, over time, there is less uncertainty about managerial ability (Core and Guay 1999).

Therefore, negative outcomes associated with risk taking are less likely to be attributed to low managerial ability. Consequently, we use CEO tenure to infer managerial risk aversion. We expect that our baseline results are more pronounced for short-tenured CEOs.

We partition the sample into firms whose CEOs have a long tenure (i.e., top quartile of tenure) and firms whose CEOs are early in their tenure (i.e., bottom quartile of tenure). Panel A of Table 9 presents the results. A significantly negative coefficient on *SERPAY* is only evident in the short-tenured CEO subsample. This suggests that CEO severance pay only motivates short-tenured CEOs to take risky tax positions.

5.1.2 CEO overconfidence

Next, we use a CEO psychological attribute, overconfidence, to capture managerial risk aversion. Overconfident CEOs often overestimate the expected payoffs of risky investments. Such managers are less risk-averse and are enthusiastic about risk and uncertainty (Hirshleifer, Low, and Teoh 2012). We use managers' stock option holding decisions to capture CEO overconfidence. Risk-averse managers excise their options earlier (Hall and Murphy 2002), while overconfident managers are less likely to do so. Following Campbell, Gallmeyer, Johnson, Rutherford, and Stanley (2011), we calculate option "money-ness," which is equal to per-option realizable value divided by estimated average excise price.[8]

We partition the sample into firms with overconfident CEOs (i.e., top quartile of overconfidence) and firms with non-overconfident CEOs (i.e., bottom quartile of overconfidence). Panel B of Table 9 presents the results. The coefficient on CEO severance pay is negative and significant for all the effective tax rate measures in the non-overconfident CEO subsample. In contrast, the coefficient does not load for any effective tax

[8] Per-option realizable value equals the percentage of total realizable value of exercisable options (ExecuComp variable OPT_UNEX_EXER_EST_VAL) over the number of exercisable options (OPT_UNEX_ EXER_NUM). Estimated average excise price equals stock price at fiscal year-end (PRCC) minus per-option realizable value.

rate measure in the overconfident CEO subsample. These results indicate that CEO severance pay encourages non-overconfident CEOs to take tax risk while having no such effect on overconfident CEOs.

5.1.3 CEO political orientation

Lastly, we use CEO political orientation to capture managerial risk aversion. Prior research suggests that Republican managers are more risk-averse and therefore adopt more conservative corporate policies (Ansolabehere, Rodden, and Snyder Jr. 2006; Christensen et al. 2015; Hutton, Jiang, and Kumar 2014; Layman, Carsey, and Horowitz 2006). To measure CEO political orientation, we hand-collect data on managerial political donations from the Federal Election Commission website (http://www.fec.gov). From the "detailed files", we extract the information on individual donors, candidates and parties. We identify CEOs among individual donors by names, employers, and occupations. Following Christensen et al. (2015), we measure political orientation as the difference between Republican donations and Democratic donations over total donations. A high value of this measure indicates that a manager is more aligned with the Republican Party and thus is more likely to be risk averse.

We sort firms into quartiles of CEO political orientation. Top quartile firm managers are more likely to be Republican, while bottom quartile managers are more likely to be Democratic. Panel C of Table 9 presents the results. For Republican managers, the coefficient on *SERPAY* is significantly negative in two out of three specifications. For Democratic managers, however, the coefficient on *SERPAY* is insignificant. These results indicate that severance pay encourages more risk averse (i.e., Republican) CEOs to take more tax-related risks while having no effect on less risk averse (i.e., Democratic) CEOs.

To summarize, we find that CEO severance pay provides stronger tax planning

incentives to managers who are short-tenured, not overconfident, and politically conservative. These managers require CEO severance pay to motivate them to take riskier tax positions. In contrast, for risk-tolerant managers, CEO severance pay provides limited tax planning incentives, as they are not otherwise disinclined to take riskier tax positions.

5.2 Effect of managerial downside risk

We focus our second set of cross-sectional tests on the downside risk managers bear. To do so, we identify settings that can exacerbate the extent of the downside risk. We use firm business risk as such settings. Firms with riskier businesses are more likely to experience adverse consequences associated with risky tax positions, as firm business risk can exacerbate negative consequences from tax risk. As before, we adopt several proxies for firm business risk.

5.2.1 Firm business strategy

Miles and Snow (1978, 2003) categorize firms' business strategy into a prospector strategy versus a defender strategy. Prospectors are market leaders. They seek change and pursue innovation. Defenders, however, focus on narrow markets to improve efficiency. Prior work suggests that firm business risk varies between a prospector and a defender strategy. Relative to a defender strategy, a prospector strategy entails higher business risk (Bentley, Omer, and Sharp 2013). As in Chen, Gul, Verraraghavan, and Zolotoy (2015), we use business strategy to capture business risk.

Following Bentley et al. (2013), we create a composite measure of business strategy. This composite measure is constructed on six dimensions.[9] Each dimension is calculated using a

[9] The six dimensions are (1) the propensity to seek new products, captured by R&D intensity, (2) the ability to produce and distribute goods and services, captured by labor intensity, (3) growth opportunities, captured by

rolling 5-year average. For each year-industry pair, we rank firms into quintiles according to each of the six dimensions and assign scores of 1-5 to these quintiles. We next sum the scores of the six dimensions. This is the composite business strategy measure. A higher value of this measure indicates that a firm's business strategy tilts more toward a prospector strategy.

We sort firms into quartiles of the composite business strategy measure. Top quartile firms exhibit a prospector strategy, while bottom quartile firms are defenders. Panel A of Table 10 presents the results. The coefficient on *SERPAY* is significantly negative for prospectors but is insignificant for defenders. These results suggest that CEO severance pay provides tax planning incentives to CEOs of firms with a risky prospector strategy.

5.2.2 Firm diversification

Through diversification, firms can better smooth investment risk and cash flow risk across divisions (Duchin 2010). In addition, diversified firms have access to the internal capital market, which reduces their reliance on costly external financing (Stein 1997). Therefore, more diversified firms exhibit lower business risk. To quantify diversification, we use Jacquemin and Berry's (1979) entropy measure of diversification:

$$DT = \sum_{i=1}^{N} P_i Ln(1/P_i), \quad (2)$$

where N denotes the number of industry segments and P is the sales percentage of each segment. We use the 2-digit SIC industry classification to distinguish segments. One advantage of this diversification measure, as argued by Palepu (1985), is that it considers both dimensions of diversification: the number of segments and the importance of each segment in terms of sales.

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changes in sales revenues, (4) the emphasis on marketing and sales, captured by marketing intensity, (5) organizational stability, measured as employee fluctuations, and (6) the commitment to technology as reflected in inverse capital intensity.

We sort firms into quartiles based on this diversification measure. Top quartile firms are more diversified firms, while bottom quartile firms are less diversified firms. Panel B of Table 10 presents the results. For less diversified firms, the coefficient on *SERPAY* is negative and significant in two out of the three specifications. However, for more diversified firms, the coefficient on *SERPAY* is insignificant. These results suggest that CEO severance pay increases the tax planning incentives primarily for CEOs of less diversified firms.

5.2.3 Firm idiosyncratic risk

Firm idiosyncratic risk represents the variation in stock returns that cannot be explained by market return or industry return. It stems from a firm's nature and business strategies. Higher idiosyncratic risk often indicates higher firm fundamental risk embedded in the business. Following Kim and Shi (2012), we use the following equation to estimate idiosyncratic risk:

$$RET_{i,t} = \beta_0 + \beta_1 MKTRET_{i,t} + \beta_2 MKTRET_{i,t-1} + \beta_3 INDRET_{i,t} + \beta_4 INDRET_{i,t-1} + \varepsilon_{i,t}, \quad (3)$$

where *MKTRET* denotes weekly value-weighted stock market returns and *INDRET* denotes weekly value-weighted industry returns, both excluding firm *i*. Idiosyncratic risk is defined as regression residuals from regressing individual stock returns on current and lagged stock market returns and industry returns.

We sort firms into quartiles based on this idiosyncratic risk measure. Top quartile firms are firms with higher idiosyncratic risk while bottom quartile firms are those with lower idiosyncratic risk. Panel C of Table 10 presents the results. We find that CEO severance pay provides stronger tax planning incentives primarily to CEOs of high idiosyncratic risk firms, but not to managers of firms with low idiosyncratic risk.

In sum, we find that CEO severance pay provides stronger tax planning incentives when firms adopt a risky prospector strategy, are less diversified, and exhibit higher idiosyncratic

risk. To the extent that firms with high business risk are more vulnerable to the adverse effects from risk taking, managers operating in such firms are exposed to higher downside risk. In these situations, severance pay more strongly influences corporate tax planning.

6 CEO severance pay and cost of capital

We provide further evidence on the underlying mechanism by examining the value implications of CEO severance pay. Specifically, we examine how CEO severance pay affects a firm's cost of equity capital. This test is motivated by a recent study from Goh et al. (2016) who examine how corporate tax planning affects a firm's cost of equity capital. Following the theoretical framework of Lambert, Leuz, and Verrecchia (2007), they argue that the effect of corporate tax planning on cost of equity capital depends on the trade-off between the additional tax savings, which increase a firm's expected cash flows, and the incremental risk, which volatilizes a firm's cash flows. Their empirical analysis shows that corporate tax planning lowers a firm's cost of equity capital. This suggests that the marginal benefit from an additional dollar of investment in corporate tax planning outweighs its associated cost. Extending this research to our setting, we should find that CEO severance pay, which encourages corporate tax planning, lowers a firm's cost of equity capital.

To access the association between CEO severance pay and the cost of equity capital, we estimate the following regression model:

$$\begin{aligned} COC_{i,t} = {} & \beta_0 + \beta_1 SERPAY_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 MB_{i,t} + \beta_4 BETA_{i,t} + \beta_5 SIGMA_{i,t-1} \\ & + \beta_6 LEV_{i,t} + \beta_7 ROA_{i,t} + \beta_8 LTD_{i,t} + \beta_9 DISP_{i,t} + \varepsilon_{i,t}, \end{aligned} \quad (4)$$

where *COC* is the cost of equity capital, measured as a firm's implied cost of equity capital. Compared with realized returns, implied cost of equity capital measures, constructed based on the dividend discount model and the residual income model, can better approximate the

theoretical construct: *ex ante* required returns (Dhaliwal, Krull, Li, and Moser 2006). We calculate four measures of implied cost of equity capital based on Claus and Thomas (2001), Easton (2004), Gebhardt et al. (2001), Gode and Mohanram (2003). We also take the average of the four as an alternative measure, resulting in five measures of implied cost of equity capital. Our focus is the coefficient on *SERPAY*, which captures the impact of CEO severance pay on cost of equity capital. A negative coefficient on *SERPAY* would support that CEO severance pay lowers cost of equity capital.

Following prior studies, we control for other determinants of cost of equity capital. We first control for the Fama-French three factors. *SIZE* is firm size, *MB* is market-to-book ratio, and *BETA* is market beta. In addition, Fu (2009) finds that idiosyncratic risk is positively associated with expected returns. We therefore include *SIGMA,* which measures idiosyncratic risk. Fama and French (1992) find that expected returns increase in leverage. Therefore, we control for firm leverage (*LEV*). Expected returns also increase in firm profitability (Ball, Gerakos, Linnainmaa, and Nikolaev 2016). We thus include *ROA,* which denotes firm profitability. Gebhardt et al. (2001) find that implied cost of equity capital increases in long-term growth (*LTG*) and analyst forecast dispersion (*DISP*). Accordingly, we also control for these two factors.

Table 11 presents the results examining the association between CEO severance pay and cost of equity capital. Columns (1) - (5) correspond to the four individual measures of implied cost of equity capital as well as the average of the four. The coefficient on *SERPAY* is significantly negative across all the specifications, supporting that CEO severance pay lowers cost of equity capital. These results are consistent with CEO severance pay inducing optimal risk taking that adds to shareholder value, and inconsistent with CEO severance pay causing excess risk taking or reflecting managerial entrenchment.

7 Conclusion

An emerging literature examines corporate tax planning within an agency framework. Corporate tax planning requires aligned incentives to encourage risk-averse mangers to take a risk-neutral level of risk. However, empirical work has yet to agree on whether incentive contracts affect corporate tax planning and, if so, how.

Prior studies overlook a unique compensation contract, CEO severance pay, which offers managers contractual protection against downside risk. We examine whether CEO severance pay affects corporate tax planning. We find a positive association between CEO severance pay and corporate tax planning. This positive association is robust to alternative measures of key variables and alternative estimation methods that can alleviate potential endogeneity concerns. Further, we find that the effect of CEO severance pay on corporate tax planning is stronger when mangers are otherwise more risk averse and when managers face greater downside risk. Finally, we find that CEO severance pay increases firm value through a reduction in the cost of equity capital. Our findings support the notion that severance pay is part of an optimal contracting scheme that encourages a reasonable level of risk taking, and are inconsistent with the notion that severance contracts are a manifestation of agency costs that are only obtained by powerful, entrenched CEOs.

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Appendix
Variable definition

Variable	Definition	Compustat
Panel A	**CEO severance pay and corporate tax planning**	
Dependent variables		
GAAP	GAAP effective tax rate, measured as total tax expense over pre-tax book income less special items.	TXT/(PI-SPI)
CASH	Cash effective tax rate, measured as cash taxes paid over pre-tax book income less special items.	TXPD/(PI-SPI)
CURR	Current effective tax rate, measured as current tax expense over pre-tax book income less special items. Current tax expense is calculated by subtracting deferred income taxes from total tax expense.	(TXT-TXDI)/(PI-SPI)
Main independent variable		
SERPAY	CEO severance pay, measured as the contracted total severance payment amount to a firm's CEO as disclosed in the 10-K report over total assets.	Hand-collected
Control variables at the firm level		
SIZE	Firm size, measured as the logarithm transformed total assets.	AT
ROA	Firm profitability, measured as earnings before extraordinary items over total assets.	IB/AT
LEV	Firm leverage, measured as current debt plus long-term debt over total assets.	(DLC+DLTT) /AT
MB	Market-to-book ratio, measured as the market value of equity over the book value of equity.	(CSHO×PRCC_ F)/CEQ
FIRMAGE	Firm age, measured as the difference between the current year and the year a firm first appears on Compustat.	
MNE	Multinationality, measured as an indicator variable that equals 1 for firms with pre-tax foreign income and 0 otherwise.	PIFO
RD	R&D intensity, measured as R&D expenditure over sales.	XRD/SALE
CAPX	Firm investment, measured as capital expenditure over net property, plant, and equipment.	CAPX/PPENT
PPE	Capital intensity, measured as net property, plant, and equipment over total assets.	PPENT/AT
INTANG	Asset tangibility, measured as intangible assets over total assets.	INTAN/AT
EQINC	Equity income, measured as equity income in earnings over total assets.	ESUB/AT
NOL	Loss carry forward, measured as an indicator variable that equals 1 for firms with positive loss carry forward and 0 otherwise.	TLCF
DNOL	Change in loss carry forward, measured as changes in loss carry forward over total assets.	TLCF/AT
Control variables at the manager level		
CEOAGE	CEO age, measured as the age of the CEO of a firm.	ExecuComp
CEOTENURE	CEO tenure, measured as the number of years since a CEO has been in office.	ExecuComp
MSHARE	Managerial stock ownership, measured as the CEO shareholding percentage.	ExecuComp
VEGA	Vega, measured as change in the value of the CEO's stock options and holdings for a one percent increase in stock return volatility.	
DELTA	Option Delta, measured as change in the value of the CEO's stock options and holdings for a one percent increase in stock price.	
Panel B	**Sensitivity tests and further tests**	
Instruments for CEO severance pay		
DISTANCE	Geographic distance, measured as the geographic distance in miles between a firm and its city's largest severance payer.	
MSERPAY	Community median severance pay, measured as the city's median CEO severance pay.	

Alternative measures of corporate tax planning		
LGAAP	Long-term GAAP effective tax rate, measured as three-year sum of tax expenses over three-year sum of pre-tax book income less special items.	∑TXT/∑(PI-SPI)
LCASH	Long-term cash effective tax rate, measured as three-year sum of tax expenses over three-year sum of pre-tax book income less special items.	∑TXPD/∑(PI-SPI)
LCURR	Long-term current effective tax rate, measured as three-year sum of current tax expenses over three-year sum of pre-tax book income less special items.	∑ (TXT-TXDI)/ ∑ (PI-SPI)
SHELTER	Corporate tax sheltering, calculated as the following formula: $SHELTER = -4.30 + 6.63 \times BTD - 1.72 \times LEV + 0.66 \times SIZE + 2.26 \times ROA + 1.62 \times FOREIGN + 1.56 \times RD$, where *BTD* is total book tax difference calculated following Kim, Li, and Zhang (2011). *LEV* is leverage ratio measured as long-term debt (DLC) over total assets (AT). *SIZE* is logarithm transformed total assets (AT). *ROA* is returns on assets measured as pre-tax income (PI) over total assets (AT). *FOREIGN* is an indicator variable equal to 1 for firms with foreign income and 0 otherwise. *RD* is R&D intensity, measured as research and development expense (XRD) over sales (SALE).	Wilson (2009)
BTD	Total book tax difference, calculated following Kim, Li, and Zhang (2011). It is measured as the difference between book income and taxable income over lagged total assets. Book income is defined as the difference between pre-tax income (PI) and minority interest (MII). Taxable income is calculated using US statuary corporate income tax rates to gross up the sum of federal income tax (TXFED) and foreign income tax (TXFO) and then subtracting from this the changes in loss carry forward (ΔTLCF). If the federal tax expense is missing, it is calculated instead as total tax expense (TXT) minus the sum of deferred income tax (TXDI), state income tax (TXS) and other tax expense (TXO).	
DDBTD	Residual book-tax difference calculated following Desai and Dharmapala (2006). It is calculated by regressing total book tax difference on total accruals and taking the residuals. Total accrual is calculated using the following formula: $TACC = (DCA - DCASH) - (DCL - DCLT - ITP) - DPAM$, where *DCA* is the change in current asset (ACT). *DCASH* is the change in cash holdings (CHE). *DCL* is the change in current liability (DD1). *DCLT* is the change in income taxes payable (TXP). *DPAM* is depreciation and amortization (DP).	
Alternative measures of CEO severance pay		
SERPAYT	CEO severance pay, measured as the contracted total severance payment amount to a firm's CEO as disclosed in the 10-K report over executive total current compensation.	Hand-collected
SERPAYM	CEO severance pay, measured as the contracted total severance payment amount to a firm's CEO as disclosed in the 10-K report over the market value of equity (CSHO×PRCC_F).	Hand-collected
Components of CEO severance pay		
SERCASH	Cash-related severance pay, measured as the cash component of severance payment to a firm's CEO as disclosed in the 10-K report over total assets.	Hand-collected
SERBENEFIT	Healthcare-related severance pay, measured as the healthcare and other benefits of severance payment to a firm's CEO as disclosed in the 10-K report over total assets.	Hand-collected
SEROPTION	Equity-related severance pay, measured as the stock options and stock awards of severance payment to a firm's CEO as disclosed in the 10-K report over total assets.	Hand-collected
SERPENSION	Pension-related severance pay, measured as the pension component of severance payment to a firm's CEO as disclosed in the 10-K report over total assets.	Hand-collected
Panel C	**Cross-sectional tests**	
Managerial risk aversion		

CEO tenure	The number of years a CEO has been in office. More risk averse CEOs are defined as those that have shorter tenure.	
CEO overconfidence	It is captured by CEO option money-ness, measured as per-option realizable value divided by estimated average excise price. More risk averse CEOs are defined as those that exercise their options earlier.	
CEO political orientation	It is captured by CEO political donation, calculated as the difference between the dollar amount dominated to the Republican Party and that to the Democratic Party over the sum of the donations. More risk averse CEOs are defined as those that donate more to the Republication Party.	
Firm business risk		
Business strategy	Mile and Snow's (1978) business strategy: the prospector strategy and the defender strategy. The calculation procedure follows Bentley, Omer, and Sharp (2013). Higher business risk firms are considered as those with a prospector strategy.	
Diversification	Jacquemin and Berry's (1979) entropy measure of diversification. Higher business risk firms are those that are less diversified.	
Idiosyncratic risk	Residuals from estimating a market model which is specified below: $RET_{j,t} = a + b_1 MKTRET_{j,t-1} + b_2 MKTRET_{j,t} + b_3 INDRET_{j,t-1} + b_4 INDRET_{j,t} + \varepsilon_{i,t}$, where *RET* is weekly stock returns. *MKTRET* and *INDRET* are weekly value-weighted stock market returns and industry returns, both excluding firm *i*. Industry classification follows 2-digit SIC industry classification. Higher business risk firms are those with higher idiosyncratic risk.	
Panel D	**CEO severance pay and cost of equity capital**	
Dependent variable		
EASTON	Implied cost of equity capital, calculated based on Easton (2004).	
CT	Implied cost of equity capital, calculated based on Claus and Thomas (2001).	
GLS	Implied cost of equity capital, calculated based on Gebhardt, Lee, and Swaminathan (2001).	
GM	Implied cost of equity capital, calculated based on Gode and Mohanram (2003).	
AVGCOC	Average implied cost of equity capital, measured as the average of the four implied cost of equity capital methods.	
Focus variable		
SERPAY	CEO severance pay, measured as the contracted total severance payment amount to a firm's CEO as disclosed in the 10-K report over total assets.	Hand-collected
Control variables		
SIZE	Firm size, measured as the logarithm transformed market value of equity.	CSHO×PRCC_F
MB	Market-to-book ratio, measured as the market value of equity over the book value of equity.	(CSHO×PRCC_F)/ CEQ
BETA	Systematic risk, estimated based on the three-year rolling regressions using monthly returns.	
SIGMA	Idiosyncratic risk, measured as the residuals from estimating the three-year rolling regressions using monthly returns.	
LEV	Leverage ratio, measured as the sum of short-term debt and long-term debt over total assets.	(DLC+DLTT) /AT
ROA	Firm profitability, measured as returns on assets defined as earnings before extraordinary items over total assets.	IB/AT
LTG	Long-term growth, measured as two-year ahead analyst earnings forecast less one-year ahead analyst earnings forecast over one-year ahead analyst earnings forecast.	I/B/E/S
DISP	Analyst forecast dispersion, measured as the natural logarithm of the standard deviation of analyst estimates for next period's earnings divided by the consensus forecast for next period's earnings	I/B/E/S

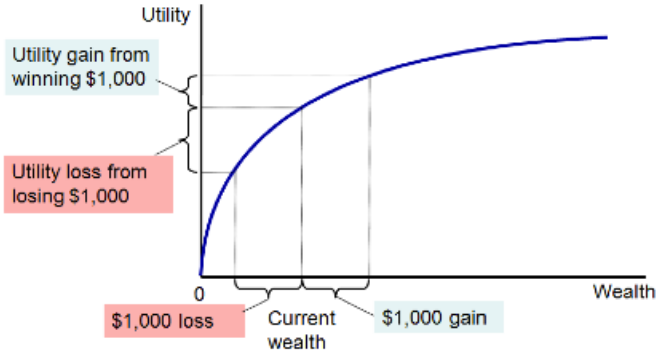

Figure 1

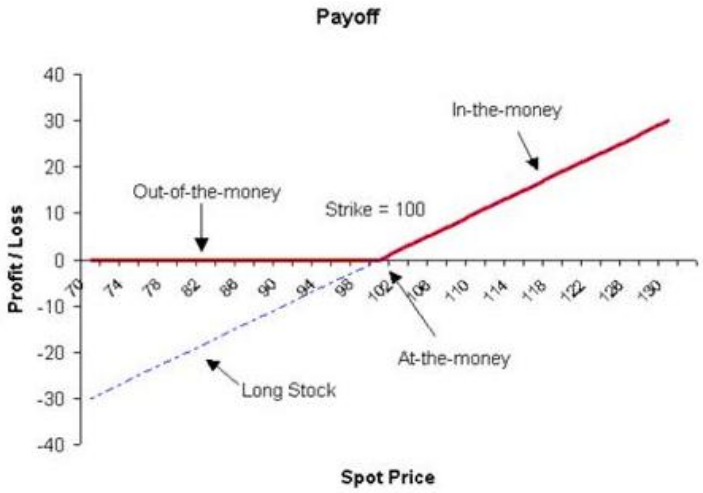

Figure 2

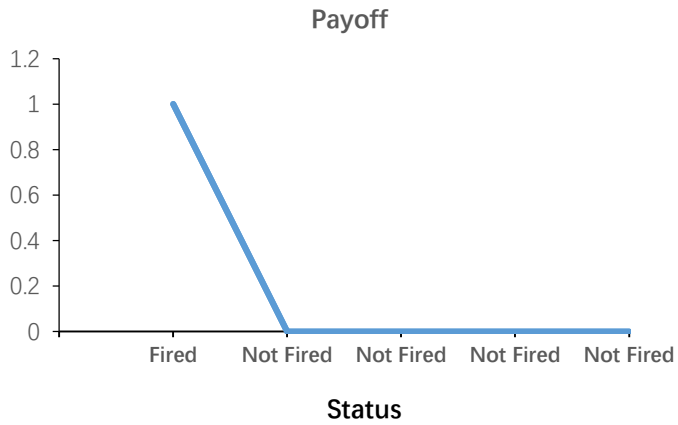

Figure 3

Table 1
Descriptive statistics

Panel A: Sample distribution by industry

	Industry	Number	Percentage
1	Consumer Nondurables	76	5.34%
2	Consumer Durables	44	3.09%
3	Manufacturing	238	16.74%
4	Oil, Gas, and Coal Extraction and Products	72	5.06%
5	Business Equipment	252	17.72%
6	Telephone and Television Transmission	29	2.04%
7	Wholesale, Retail, and Some Services	185	13.01%
8	Healthcare, Medical Equipment, and Drugs	90	6.33%
9	Utilities	84	5.91%
10	Other	352	24.75%
	Total	1,422	100%

Panel B: CEO compensation (in thousands of dollars)

	N	Mean	Median
CEO severance pay (hand-collected)			
CEO severance pay	1,422	5,954.92	1,628.38
CEO severance pay components			
Cash and bonus	1,422	2,603.82	1,000.00
Health care or related	1,422	63.88	0.00
Stock options	1,422	2,647.81	0.00
pensions	1,422	433.80	0.00
CEO severance pay (ExecuComp)			
CEO severance pay	1,422	7,129.86	1,982.48
CEO compensation components			
Salary	1,422	780.19	742.31
Bonus	1,422	1,419.78	810.00
Stock awards	1,422	1,597.67	623.24
Option awards	1,422	1,348.26	602.12

Panel C: Descriptive statistics

	N	Mean	STD	Q1	Median	Q3
GAAP	1,422	0.2968	0.1598	0.2336	0.3230	0.3694
CASH	1,422	0.2593	0.1912	0.1264	0.2604	0.3479
CURR	1,422	0.2716	0.1708	0.1631	0.2898	0.3686
SERPAY	1,422	0.0026	0.0051	0.0000	0.0007	0.0028
SIZE	1,422	7.9085	1.6116	6.7346	7.7598	8.8996
ROA	1,422	0.0553	0.0696	0.0226	0.0534	0.0912
LEV	1,422	0.2167	0.1733	0.0720	0.1992	0.3242
MB	1,422	3.0435	2.6571	1.7237	2.5500	3.7287
FIRMAGE	1,422	33.3136	17.0584	20.0000	27.5000	51.0000
MNE	1,422	0.6350	0.4816	0.0000	1.0000	1.0000
RD	1,422	0.0324	0.0717	0.0000	0.0000	0.0242
CAPX	1,422	0.2417	0.1457	0.1363	0.2074	0.3135
PPE	1,422	0.2887	0.2700	0.0775	0.2029	0.4319
INTANG	1,422	0.2080	0.2308	0.0196	0.1288	0.3274
EQINC	1,422	0.0012	0.0043	0.0000	0.0000	0.0000
NOL	1,422	0.3931	0.4886	0.0000	0.0000	1.0000
DNOL	1,422	0.0034	0.0526	0.0000	0.0000	0.0000
CEOAGE	1,422	55.7482	6.5758	51.0000	56.0000	60.0000
CEOTENURE	1,422	6.3235	6.5298	2.0000	4.0000	8.0000
MSHARE	1,422	0.1149	0.2807	0.0099	0.0273	0.0855
VEGA	1,422	0.1312	0.1719	0.0219	0.0651	0.1586
DELTA	1,422	0.6598	1.0902	0.1030	0.2854	0.7089

Panel A reports the sample distribution by industry. Industries are defined using the Fama-French 10 industry breakdown method from Ken French's website. Panel B reports CEO compensation information. Panel C reports descriptive statistics of variables used in our main analysis. Variables are defined in the Appendix.

Table 2
Correlation matrix

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
(1) *GAAP*		**0.24**	**0.47**	**-0.06**	0.03	**0.18**	**-0.05**	**0.05**	-0.02	**-0.16**	**-0.19**
(2) *CASH*	**0.32**		**0.58**	**-0.10**	**0.10**	**0.11**	-0.04	0.03	**0.08**	-0.01	**-0.15**
(3) *CURR*	**0.49**	**0.67**		**-0.06**	0.01	**0.23**	**-0.14**	**0.11**	-0.02	-0.02	**-0.13**
(4) *SERPAY*	**-0.06**	**-0.10**	**-0.08**		**-0.35**	**-0.08**	**-0.09**	**0.15**	**-0.19**	0.04	**0.08**
(5) *SIZE*	-0.03	**0.10**	-0.03	**-0.31**		-0.04	**0.24**	**-0.10**	**0.39**	-0.04	**-0.21**
(6) *ROA*	**0.17**	**0.17**	**0.26**	-0.02	**-0.14**		**-0.23**	**0.34**	0.00	**0.15**	**-0.20**
(7) *LEV*	**-0.04**	**-0.05**	**-0.15**	-0.02	**0.31**	**-0.28**		**-0.14**	**0.14**	**-0.09**	**-0.17**
(8) *MB*	**0.08**	**0.07**	**0.17**	0.02	**-0.08**	**0.53**	**-0.15**		**-0.14**	**0.08**	**0.10**
(9) *FIRMAGE*	**-0.09**	**0.08**	**-0.05**	**-0.18**	**0.39**	-0.03	**0.18**	**-0.14**		0.01	**-0.18**
(10) *MNE*	**-0.26**	-0.03	**-0.06**	**0.11**	-0.04	**0.20**	**-0.09**	**0.12**	0.01		**0.20**
(11) *RD*	**-0.31**	**-0.17**	**-0.13**	**0.07**	**-0.21**	**0.08**	**-0.18**	**0.18**	**-0.07**	**0.42**	
(12) *CAPX*	**0.09**	**-0.09**	**0.05**	**0.16**	**-0.30**	**0.25**	**-0.31**	**0.30**	**-0.31**	**0.14**	**0.14**
(13) *PPE*	**0.13**	**0.05**	-0.02	**-0.07**	0.02	**0.19**	**0.25**	**0.06**	**0.21**	**-0.07**	**-0.18**
(14) *INTANG*	-0.02	0.04	**0.05**	**0.16**	-0.01	**0.05**	**0.14**	**0.07**	**-0.09**	**0.38**	**0.23**
(15) *EQINC*	0.00	0.01	-0.01	-0.03	**0.18**	0.04	**0.10**	-0.02	**0.19**	**0.11**	-0.04
(16) *NOL*	**-0.12**	**-0.15**	**-0.15**	**0.12**	**-0.11**	-0.01	0.02	0.02	**-0.08**	**0.27**	**0.23**
(17) *DNOL*	**-0.07**	0.03	0.03	**0.06**	0.01	**-0.09**	0.03	0.01	-0.01	0.03	-0.01
(18) *CEOAGE*	0.04	**0.07**	**0.08**	**-0.07**	**0.05**	-0.04	**0.07**	**-0.11**	**0.11**	-0.03	**-0.05**
(19) CEOTENURE	**0.06**	-0.04	0.01	-0.04	**-0.08**	0.02	**0.05**	**0.06**	**-0.09**	-0.03	0.01
(20) *MSHARE*	**0.14**	0.00	**0.05**	0.04	**-0.32**	-0.02	-0.03	-0.02	**-0.24**	**-0.09**	**-0.14**
(21) *VEGA*	**-0.11**	**0.05**	0.04	**-0.07**	**0.47**	**0.11**	0.02	**0.18**	**0.16**	**0.20**	**0.18**
(22) *DELTA*	**0.05**	**0.07**	**0.11**	**-0.15**	**0.43**	**0.30**	0.00	**0.32**	**0.06**	**0.15**	**0.00**

	(12)	**(13)**	**(14)**	**(15)**	**(16)**	**(17)**	**(18)**	**(19)**	**(20)**	**(21)**	**(22)**
(1) *GAAP*	0.03	**0.10**	**0.05**	0.00	**-0.08**	**-0.11**	0.04	0.01	0.01	**-0.06**	0.02
(2) *CASH*	**-0.11**	0.00	0.02	0.00	**-0.11**	-0.03	**0.07**	**-0.05**	-0.01	0.02	0.00
(3) *CURR*	0.00	**-0.08**	**0.07**	-0.01	**-0.12**	**-0.05**	**0.09**	-0.01	0.00	0.03	0.04
(4) *SERPAY*	**0.25**	**-0.10**	**0.08**	-0.04	**0.07**	**0.12**	0.00	0.04	0.03	**-0.08**	-0.04
(5) *SIZE*	**-0.31**	**0.06**	-0.03	**0.14**	**-0.12**	-0.03	**0.06**	**-0.12**	**-0.20**	**0.50**	**0.27**
(6) *ROA*	**0.11**	**0.10**	0.01	**0.11**	**-0.06**	**-0.21**	-0.02	0.00	**0.08**	**0.09**	**0.17**
(7) *LEV*	**-0.27**	**0.23**	**0.14**	0.04	0.03	0.00	**0.05**	0.03	**-0.07**	-0.01	-0.01
(8) *MB*	**0.24**	-0.01	0.02	0.02	-0.02	**0.07**	**-0.10**	0.03	**0.07**	**0.12**	**0.20**
(9) *FIRMAGE*	**-0.31**	**0.17**	**-0.13**	**0.17**	**-0.08**	-0.04	**0.11**	**-0.11**	**-0.16**	**0.18**	0.01
(10) *MNE*	**0.10**	**-0.18**	**0.29**	**0.11**	**0.27**	0.02	-0.02	-0.04	-0.02	**0.16**	**0.12**
(11) *RD*	**0.20**	**-0.24**	**0.12**	**-0.06**	**0.17**	**0.11**	**-0.07**	0.04	-0.03	**0.16**	-0.02
(12) *CAPX*		**-0.23**	**0.06**	**-0.11**	**0.10**	0.03	**-0.14**	0.01	**0.09**	-0.02	0.04
(13) *PPE*	**-0.26**		**-0.23**	**0.10**	**-0.09**	0.01	**0.07**	**0.09**	0.00	**-0.09**	-0.01
(14) *INTANG*	**0.09**	**-0.20**		-0.03	**0.17**	0.04	-0.02	0.00	**-0.08**	**0.09**	0.04
(15) *EQINC*	**-0.13**	**0.17**	-0.01		0.00	0.00	**0.03**	**-0.06**	0.03	**0.07**	**0.07**
(16) *NOL*	**0.12**	**-0.05**	**0.22**	0.00		-0.03	-0.02	-0.04	0.03	0.02	0.00
(17) *DNOL*	-0.04	0.00	0.03	0.01	**-0.12**		-0.04	0.01	-0.03	0.02	0.01
(18) *CEOAGE*	**-0.10**	**0.09**	-0.01	0.04	-0.03	**-0.06**		**0.37**	**0.10**	0.02	**0.10**
(19) CEOTENURE	0.04	**0.09**	-0.01	-0.04	-0.04	0.00	**0.29**		**0.33**	0.03	**0.23**
(20) *MSHARE*	**0.12**	**-0.05**	**-0.05**	**-0.05**	0.00	-0.02	**0.11**	**0.35**		**-0.11**	**0.40**
(21) *VEGA*	0.04	**-0.08**	**0.16**	**0.07**	0.04	0.03	-0.01	**0.08**	**-0.23**		**0.39**
(22) *DELTA*	**0.11**	-0.02	**0.11**	**0.09**	-0.01	-0.03	**0.10**	**0.30**	**0.18**	**0.60**	

This table reports Pearson (below diagonal) and Spearman (above diagonal) correlation. Coefficients in bold indicate significance below the 10% level.

Table 3
CEO severance pay and corporate tax planning

	(1)	(2)	(3)
	GAAP	*CASH*	*CURR*
Intercept	0.2592***	0.1239*	0.1717***
	(4.51)	(1.75)	(2.68)
SERPAY	-1.6810**	-2.5424**	-2.4015**
	(-1.99)	(-2.41)	(-2.45)
SIZE	0.0030	0.0072	0.0003
	(0.72)	(1.37)	(0.06)
ROA	0.2859***	0.1974*	0.3898***
	(2.89)	(1.76)	(4.00)
LEV	-0.0895***	-0.0739**	-0.1212***
	(-3.05)	(-1.99)	(-4.07)
MB	0.0014	0.0039	0.0040**
	(0.84)	(1.63)	(2.23)
FIRMAGE	-0.0004	0.0002	-0.0007**
	(-1.41)	(0.52)	(-2.15)
MNE	-0.0452***	0.0148	-0.0102
	(-4.15)	(1.07)	(-0.85)
RD	-0.1742	-0.2109*	-0.1874
	(-1.46)	(-1.67)	(-1.61)
CAPX	0.0718**	-0.1007***	-0.0120
	(2.24)	(-2.62)	(-0.32)
PPE	0.0330	-0.0358	-0.0475**
	(1.48)	(-1.36)	(-1.99)
INTANG	0.1165***	0.0568**	0.0889***
	(4.70)	(2.01)	(3.49)
EQINC	0.0527	-1.2141	-0.1916
	(0.06)	(-1.15)	(-0.20)
NOL	-0.0013	-0.0257**	-0.0261***
	(-0.14)	(-2.25)	(-2.64)
DNOL	-0.2079**	-0.0074	-0.0321
	(-2.28)	(-0.06)	(-0.34)
CEOAGE	0.0010	0.0023**	0.0028***
	(1.36)	(2.54)	(3.56)
CEOTENUR	0.0001	-0.0016*	-0.0007
	(0.14)	(-1.75)	(-0.76)
MSHARE	-0.0127	0.0161	-0.0144
	(-0.79)	(0.86)	(-0.79)
VEGA	-0.0429*	-0.0085	0.0154
	(-1.66)	(-0.24)	(0.51)
DELTA	0.0016	-0.0068	0.0005
	(0.45)	(-1.61)	(0.11)
YEAR	YES	YES	YES
INDUSTRY	YES	YES	YES
Adj. R^2	0.11	0.08	0.13
N	1,422	1,422	1,422

This table reports our baseline regression results examining the impact of CEO severance pay on corporate tax planning. In Columns (1), (2) and (3), the dependent variables are corporate tax planning measured as GAAP effective tax rate (*GAAP*), cash effective tax rate (*CASH*), and current effective tax rate (*CURR*). The main independent variable is CEO severance pay (*SERPAY*), measured as the contracted total severance payment amount to a firm's CEO divided by total assets. Other variables are defined in Appendix. Regressions include year and industry fixed effects. Standard errors are clustered by firm. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% levels.

Table 4
Propensity score matching

	First-stage Probit regression		Second-stage baseline regression			Second-stage baseline regression		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Pre-matching	Post-matching	*GAAP*	*CASH*	*CURR*	*GAAP*	*CASH*	*CURR*
Intercept	5.3760***	-0.6641	0.3371***	0.3102**	0.2170*	0.3316***	0.2918**	0.2093*
	(5.33)	(-0.46)	(2.86)	(2.41)	(1.75)	(2.83)	(2.24)	(1.69)
SERPAY			-2.4258*	-3.4673**	-3.3128**	-0.0270*	-0.0083	-0.0363**
			(-1.96)	(-2.16)	(-2.01)	(-1.92)	(-0.47)	(-2.27)
SIZE	-0.6892***	0.0358	0.0043	-0.0017	0.0073	0.0065	0.0011	0.0102
	(-8.35)	(0.29)	(0.38)	(-0.15)	(0.70)	(0.58)	(0.10)	(0.98)
ROA	-4.8788***	2.0806	0.3129	-0.0151	0.2645	0.3224	-0.0166	0.2771
	(-3.61)	(1.06)	(1.46)	(-0.06)	(1.31)	(1.51)	(-0.06)	(1.38)
LEV	0.8435	-0.3463	-0.0526	-0.0783	-0.1300**	-0.0567	-0.0817	-0.1356***
	(1.63)	(-0.44)	(-1.00)	(-1.35)	(-2.51)	(-1.08)	(-1.41)	(-2.61)
MB	0.0176	0.0306	-0.0002	0.0040	0.0027	-0.0006	0.0033	0.0022
	(0.56)	(0.72)	(-0.08)	(0.85)	(0.78)	(-0.20)	(0.70)	(0.63)
FIRMAGE	-0.0130**	-0.0022	-0.0007	0.0004	-0.0009*	-0.0006	0.0004	-0.0009
	(-2.35)	(-0.27)	(-1.35)	(0.60)	(-1.67)	(-1.32)	(0.66)	(-1.64)
MNE	0.5989***	-0.0300	-0.0274	0.0330	0.0003	-0.0274	0.0333	0.0004
	(3.17)	(-0.11)	(-1.40)	(1.41)	(0.02)	(-1.41)	(1.40)	(0.02)
RD	-3.7284***	0.1569	-0.0734	-0.3294	-0.2571	-0.0520	-0.3000	-0.2279
	(-2.61)	(0.08)	(-0.30)	(-1.45)	(-1.05)	(-0.21)	(-1.32)	(-0.93)
CAPX	1.3649**	-0.2594	0.0327	-0.1270*	-0.0559	0.0256	-0.1352**	-0.0656
	(2.26)	(-0.30)	(0.46)	(-1.88)	(-0.72)	(0.37)	(-2.02)	(-0.86)
PPE	-0.4336	-0.1953	-0.0393	-0.0467	-0.0792**	-0.0386	-0.0441	-0.0781**
	(-1.11)	(-0.34)	(-1.09)	(-1.00)	(-2.11)	(-1.07)	(-0.94)	(-2.10)
INTANG	1.3281***	0.2275	0.1114***	0.0437	0.0435	0.1089***	0.0385	0.0401
	(3.56)	(0.45)	(3.49)	(1.23)	(1.29)	(3.39)	(1.09)	(1.22)
EQINC	-0.6140	-2.9814	1.5829	-2.7814	-0.3868	1.4577	-2.9370	-0.5574
	(-0.03)	(-0.12)	(0.89)	(-1.34)	(-0.23)	(0.84)	(-1.43)	(-0.34)
NOL	0.2118	-0.0619	-0.0509***	-0.0370**	-0.0448***	-0.0508***	-0.0364*	-0.0447***
	(1.31)	(-0.27)	(-3.31)	(-1.99)	(-2.75)	(-3.29)	(-1.95)	(-2.72)
DNOL	0.8691	1.8624	-0.2738*	-0.0851	-0.1421	-0.2929*	-0.1258	-0.1685
	(0.58)	(0.83)	(-1.86)	(-0.64)	(-0.84)	(-1.96)	(-0.87)	(-0.99)
CEOAGE	-0.0132	0.0076	0.0005	0.0005	0.0016	0.0004	0.0003	0.0014
	(-1.06)	(0.41)	(0.37)	(0.33)	(1.02)	(0.26)	(0.16)	(0.88)
CEOTENURE	-0.0146	-0.0014	-0.0007	-0.0007	-0.0015	-0.0008	-0.0010	-0.0017
	(-1.14)	(-0.08)	(-0.53)	(-0.50)	(-0.98)	(-0.68)	(-0.67)	(-1.16)
MSHARE	-1.0013***	0.1302	-0.0381	-0.0171	-0.0135	-0.0341	-0.0122	-0.0080
	(-3.07)	(0.26)	(-1.21)	(-0.52)	(-0.43)	(-1.13)	(-0.37)	(-0.27)
VEGA	1.8694***	0.6212	-0.0637	0.0426	0.0136	-0.0599	0.0436	0.0187
	(2.94)	(0.70)	(-0.93)	(0.51)	(0.19)	(-0.86)	(0.52)	(0.26)
DELTA	-0.0458	-0.2531*	-0.0007	-0.0101	-0.0076	-0.0017	-0.0097	-0.0089
	(-0.50)	(-1.70)	(-0.09)	(-1.15)	(-0.85)	(-0.22)	(-1.11)	(-1.02)
YEAR	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES	YES	YES
Pseudo R^2	0.20	0.02	0.12	0.09	0.13	0.12	0.08	0.13
N	949	374	374	374	374	374	374	374

This table reports our baseline results using a matched sample. Standard errors are clustered by firm. *Z*-statistics are in the parentheses in Columns (1)-(2) and *T*-statistics in Columns (3)-(8). ***, **, and * represent significance at 1%, 5% and 10% levels.

Table 5
Instrumental variable approach

	First-Stage	Second-Stage		
	(1)	(2)	(3)	(4)
	SERPAY	*GAAP*	*CASH*	*CURR*
Intercept	0.0029**	0.255***	0.123*	0.171***
	(2.46)	(4.40)	(1.73)	(2.65)
DISTANCE	-0.0003***			
	(-4.64)			
MSERPAY	0.9676***			
	(15.32)			
SERPAY		-2.216*	-3.906***	-2.969**
		(-1.81)	(-2.59)	(-2.19)
SIZE	-0.0006***	0.003	0.006	0.000
	(-5.77)	(0.70)	(1.20)	(0.01)
ROA	-0.0069**	0.283***	0.205*	0.398***
	(-2.57)	(2.86)	(1.84)	(4.10)
LEV	-0.0001	-0.090***	-0.063*	-0.119***
	(-0.19)	(-3.04)	(-1.70)	(-3.98)
MB	0.0002***	0.002	0.004*	0.004**
	(2.97)	(0.92)	(1.78)	(2.29)
FIRMAGE	0.0000*	-0.000	0.000	-0.001**
	(-1.78)	(-1.54)	(0.41)	(-2.36)
NNE	0.0003	-0.046***	0.015	-0.011
	(1.07)	(-4.21)	(1.11)	(-0.90)
RD	-0.0045**	-0.165	-0.203	-0.173
	(-2.13)	(-1.39)	(-1.60)	(-1.50)
CAPX	0.0023***	0.082**	-0.093**	-0.011
	(2.59)	(2.55)	(-2.40)	(-0.29)
PPE	-0.0006	0.030	-0.045*	-0.056**
	(-1.33)	(1.35)	(-1.68)	(-2.40)
INTANG	0.0001	0.117***	0.057**	0.090***
	(0.16)	(4.71)	(2.04)	(3.54)
EQINC	0.0037	0.109	-1.406	-0.214
	(0.24)	(0.12)	(-1.34)	(-0.22)
NOL	0.0002	-0.001	-0.024**	-0.027***
	(0.79)	(-0.15)	(-2.16)	(-2.73)
DNOL	0.0075**	-0.179**	0.026	-0.005
	(2.40)	(-1.98)	(0.23)	(-0.05)
CEOAGE	0.0000*	0.001	0.002***	0.003***
	(1.79)	(1.46)	(2.67)	(3.68)
CEOTENURE	0.0000	0.000	-0.002*	-0.001
	(-0.93)	(0.10)	(-1.71)	(-0.81)
MSHARE	-0.0005	-0.012	0.017	-0.013
	(-1.16)	(-0.74)	(0.89)	(-0.71)
VEGA	0.0013	-0.037	-0.001	0.024
	(1.60)	(-1.43)	(-0.02)	(0.80)
DELTA	0.0001	0.001	-0.008*	-0.001
	(0.86)	(0.29)	(-1.79)	(-0.14)
YEAR	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES
R^2	0.61	0.11	0.07	0.13
N	1,406	1,406	1,406	1,406

This table reports our baseline results using an instrumental variable approach. Column (1) reports first-stage regression results with variables *DISTANCE* and *MSERPAY* as instruments. Columns (2)-(4) report second-stage results. Standard errors are clustered by firm. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% levels.

Table 6
Alternative measures of corporate tax planning

	(1)	(2)	(3)	(4)	(5)	(6)
	LGAAP	*LCASH*	*LCURR*	*SHELTER*	*BTD*	*DDBTD*
Intercept	0.2924***	0.2045***	0.2126***	-0.8319***	0.0827***	0.1860***
	(4.70)	(3.08)	(3.57)	(-11.79)	(3.00)	(4.64)
SERPAY	-2.4986***	-2.3076**	-2.7075***	2.8052**	2.6731***	2.1784**
	(-2.72)	(-2.46)	(-2.59)	(2.01)	(3.87)	(2.31)
SIZE	0.0062	0.0004	-0.0029	0.1387***	-0.0069***	-0.0084***
	(1.48)	(0.07)	(-0.68)	(28.99)	(-3.37)	(-3.13)
ROA	0.2150*	0.0890	0.2968***	1.0024***	-0.3516***	-0.1040
	(1.83)	(0.88)	(3.09)	(9.16)	(-4.69)	(-1.26)
LEV	-0.0428	-0.0213	-0.0539*	-0.2370***	0.0243	-0.0008
	(-1.20)	(-0.59)	(-1.81)	(-7.32)	(1.34)	(-0.04)
MB	0.0013	0.0020	0.0030*	-0.0011	0.0031**	0.0059***
	(0.63)	(1.11)	(1.74)	(-0.42)	(2.19)	(3.40)
FIRMAGE	-0.0004	0.0003	-0.0002	0.0007**	0.0003**	-0.0001
	(-1.22)	(0.92)	(-0.75)	(2.00)	(2.22)	(-0.57)
FI	-0.0132	0.0201	0.0063	0.2042***	0.0026	-0.0212***
	(-1.23)	(1.61)	(0.56)	(15.27)	(0.52)	(-2.89)
PPE	-0.2154*	-0.2583***	0.0063	0.2093	0.1996***	0.2575***
	(-1.76)	(-2.86)	(0.05)	(1.57)	(3.22)	(2.98)
RD	0.0432	-0.0008	0.0522	0.0347	0.0616***	0.1292***
	(1.11)	(-0.02)	(1.35)	(0.96)	(3.31)	(4.61)
CAPX	0.0019	-0.0399	-0.0572**	-0.0094	0.0154	0.1481***
	(0.08)	(-1.60)	(-2.39)	(-0.34)	(1.34)	(10.28)
INTANG	0.0600***	0.0310	0.0669***	-0.0453*	-0.0447***	0.0226
	(2.82)	(1.44)	(3.25)	(-1.95)	(-3.49)	(1.61)
EQINC	-0.9283	-0.9702	-0.4117	-1.3854	0.0743	-1.0378*
	(-1.13)	(-1.00)	(-0.48)	(-1.13)	(0.16)	(-1.86)
NOL	0.0038	-0.0263**	-0.0278***	0.0326***	0.0244***	0.0179***
	(0.38)	(-2.55)	(-2.84)	(3.07)	(5.48)	(3.06)
DNOL	0.0381	-0.0128	0.0085	0.9479***	0.1686	-0.5647***
	(0.31)	(-0.14)	(0.09)	(7.33)	(1.56)	(-5.32)
CEOAGE	-0.0004	0.0016*	0.0023***	-0.0000	-0.0006	-0.0008
	(-0.60)	(1.96)	(3.19)	(-0.04)	(-1.27)	(-1.46)
CEOTENURE	0.0010	0.0001	-0.0006	-0.0001	-0.0002	-0.0007
	(1.28)	(0.10)	(-0.65)	(-0.07)	(-0.50)	(-1.36)
MSHARE	0.0167	0.0042	0.0106	0.0308	0.0105	0.0089
	(0.97)	(0.24)	(0.64)	(1.16)	(0.52)	(0.56)
VEGA	-0.0215	0.0189	0.0396	-0.0006	-0.0080	0.0166
	(-0.83)	(0.53)	(1.36)	(-0.02)	(-0.58)	(0.87)
DELTA	0.0027	-0.0057	-0.0024	-0.0068	0.0017	0.0071**
	(0.71)	(-1.45)	(-0.64)	(-1.29)	(0.90)	(2.27)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES
R^2	0.08	0.10	0.13	0.75	0.33	0.32
N	1,422	1,422	1,422	1,421	1,422	1,422

This table reports our baseline regression results using alternative measures of key variables. Standard errors are clustered by firm. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% level.

Table 7
Alternative measures of CEO severance pay

	(1)	(2)	(3)	(4)	(5)	(6)
	GAAP	*CASH*	*CURR*	*GAAP*	*CASH*	*CURR*
Intercept	0.2516***	0.1119	0.1688***	0.2532***	0.1212*	0.1692***
	(4.26)	(1.56)	(2.61)	(4.36)	(1.70)	(2.64)
SERPAYT	-0.6998	-1.5123**	-1.5518***			
	(-1.53)	(-2.35)	(-2.70)			
SERPAYM				-0.9323	-2.6051*	-2.2051*
				(-0.59)	(-1.88)	(-1.86)
SIZE	0.0045	0.0095*	0.0029	0.0037	0.0075	0.0011
	(1.09)	(1.81)	(0.64)	(0.88)	(1.41)	(0.25)
ROA	0.2995***	0.2219**	0.4134***	0.2860***	0.1874	0.3822***
	(2.97)	(1.98)	(4.21)	(2.80)	(1.62)	(3.75)
LEV	-0.0878***	-0.0643*	-0.1142***	-0.0841***	-0.0620*	-0.1146***
	(-2.91)	(-1.70)	(-3.75)	(-2.95)	(-1.67)	(-3.85)
MB	0.0009	0.0039	0.0038**	0.0009	0.0032	0.0035*
	(0.56)	(1.61)	(2.04)	(0.51)	(1.34)	(1.88)
FIRMAGE	-0.0005	0.0001	-0.0007**	-0.0005	0.0002	-0.0007**
	(-1.47)	(0.38)	(-2.24)	(-1.47)	(0.41)	(-2.17)
MNE	-0.0441***	0.0138	-0.0122	-0.0450***	0.0160	-0.0094
	(-3.93)	(0.99)	(-1.00)	(-4.16)	(1.15)	(-0.78)
RD	-0.1726	-0.2084	-0.1878	-0.1771	-0.2375*	-0.1983*
	(-1.41)	(-1.63)	(-1.58)	(-1.45)	(-1.83)	(-1.65)
CAPX	0.0628*	-0.1137***	-0.0268	0.0657**	-0.1061***	-0.0192
	(1.92)	(-2.97)	(-0.72)	(2.05)	(-2.77)	(-0.52)
PPE	0.0335	-0.0349	-0.0475**	0.0331	-0.0387	-0.0494**
	(1.49)	(-1.33)	(-1.99)	(1.46)	(-1.47)	(-2.06)
INTANG	0.1152***	0.0589**	0.0920***	0.1128***	0.0497*	0.0858***
	(4.46)	(2.07)	(3.55)	(4.53)	(1.77)	(3.35)
EQINC	-0.0657	-1.0951	-0.2481	0.0047	-1.2674	-0.2457
	(-0.07)	(-1.00)	(-0.25)	(0.01)	(-1.20)	(-0.26)
NOL	-0.0024	-0.0265**	-0.0263***	-0.0019	-0.0262**	-0.0260***
	(-0.24)	(-2.31)	(-2.65)	(-0.20)	(-2.30)	(-2.63)
DNOL	-0.2121**	-0.0167	-0.0576	-0.2106**	0.0075	-0.0333
	(-2.24)	(-0.14)	(-0.59)	(-2.27)	(0.06)	(-0.34)
CEOAGE	0.0009	0.0022**	0.0026***	0.0010	0.0023***	0.0028***
	(1.23)	(2.40)	(3.15)	(1.37)	(2.62)	(3.48)
CEOTENURE	0.0001	-0.0018*	-0.0007	0.0001	-0.0016*	-0.0006
	(0.10)	(-1.88)	(-0.74)	(0.10)	(-1.72)	(-0.70)
MSHARE	-0.0112	0.0154	-0.0118	-0.0108	0.0177	-0.0126
	(-0.67)	(0.78)	(-0.63)	(-0.67)	(0.94)	(-0.70)
VEGA	-0.0336	0.0016	0.0204	-0.0401	-0.0068	0.0129
	(-1.24)	(0.04)	(0.65)	(-1.53)	(-0.19)	(0.41)
DELTA	0.0010	-0.0076*	-0.0006	0.0014	-0.0071*	0.0002
	(0.28)	(-1.76)	(-0.14)	(0.41)	(-1.66)	(0.04)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES
R^2	0.10	0.08	0.13	0.11	0.08	0.13
N	1,385	1,385	1,385	1,420	1,420	1,420

This table reports our baseline regression results using alternative measures of CEO severance pay. In Columns (1)-(3), we scale CEO severance pay by CEO total current compensation (*SERPAYT*) and, in Columns (4)-(6), by the market value of equity (*SERPAYM*). Other variables are defined in the Appendix. Regressions include year and industry fixed effects. Standard errors are clustered by firm. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% level.

Table 8
Components of CEO severance pay and corporate tax planning

	(1)	(2)	(3)
	GAAP	*CASH*	*CURR*
Intercept	0.2590***	0.1080	0.1700***
	(4.52)	(1.53)	(2.67)
SERCASH	-0.0184*	-0.0138	-0.0286**
	(-1.83)	(-1.03)	(-2.54)
SERBENEFIT	-0.2120	0.0393	-0.0390
	(-1.41)	(0.18)	(-0.17)
SEROPTION	-0.0052	-0.0326*	-0.0482***
	(-0.35)	(-1.77)	(-3.09)
SERPENSION	-0.0308	-0.0379	-0.0468
	(-1.00)	(-0.82)	(-1.12)
SIZE	0.0044	0.0110**	0.0036
	(1.11)	(2.14)	(0.82)
ROA	0.2882***	0.2178*	0.3961***
	(2.87)	(1.95)	(4.06)
LEV	-0.0890***	-0.0731*	-0.1193***
	(-3.01)	(-1.95)	(-3.97)
MB	0.0008	0.0034	0.0035*
	(0.50)	(1.41)	(1.90)
FIRMAGE	-0.0005	0.0002	-0.0007**
	(-1.50)	(0.46)	(-2.40)
MNE	-0.0455***	0.0163	-0.0079
	(-4.19)	(1.17)	(-0.67)
RD	-0.1729	-0.1952	-0.1812
	(-1.44)	(-1.54)	(-1.57)
CAPX	0.0650**	-0.1070***	-0.0149
	(2.02)	(-2.82)	(-0.41)
PPE	0.0311	-0.0341	-0.0475**
	(1.40)	(-1.31)	(-2.01)
INTANG	0.1164***	0.0571**	0.0909***
	(4.67)	(2.03)	(3.60)
EQINC	-0.0021	-1.3196	-0.2930
	(-0.00)	(-1.23)	(-0.30)
NOL	-0.0012	-0.0252**	-0.0252**
	(-0.13)	(-2.21)	(-2.57)
DNOL	-0.2122**	-0.0199	-0.0405
	(-2.27)	(-0.17)	(-0.42)
CEOAGE	0.0010	0.0021**	0.0027***
	(1.33)	(2.39)	(3.37)
CEOTENURE	0.0000	-0.0017*	-0.0008
	(0.07)	(-1.82)	(-0.95)
MSHARE	-0.0145	0.0175	-0.0156
	(-0.89)	(0.93)	(-0.85)
VEGA	-0.0447*	-0.0151	0.0116
	(-1.72)	(-0.43)	(0.38)
DELTA	0.0015	-0.0079*	-0.0008
	(0.40)	(-1.82)	(-0.19)
YEAR	YES	YES	YES
INDUSTRY	YES	YES	YES
Adj. R^2	0.11	0.07	0.14
N	1,422	1,422	1,422
SERCASH – *SEROPTION* = 0			1.34
			(*p*=0.2466)

This table reports results on CEO severance pay components and corporate tax planning. The dependent variables are three effective tax rates (*GAAP*, *CASH*, *CURR*). The focus variables are the components of CEO severance pay in the form of cash (*SERCASH*), continuation of healthcare and other benefits (*SERBENEFIT*), stock options and awards (*SEROPTION*), and incremental pension benefits (*SERPENSION*). These components are scaled by total amount of CEO severance pay to capture their relative importance. Standard errors are clustered by firm. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% level.

Table 9
The effect of managerial risk aversion

Panel A: The impact of CEO tenure

	GAAP		*CASH*		*CURR*	
	Long tenure	Short tenure	Long tenure	Short tenure	Long tenure	Short tenure
Intercept	0.3576**	0.1619	-0.1471	-0.2109	0.1287	0.0505
	(2.16)	(0.85)	(-0.85)	(-0.93)	(0.81)	(0.19)
SERPAY	-0.7079	-2.4378*	-1.8660	-2.7364*	-1.7092	-2.3421
	(-0.41)	(-1.89)	(-0.97)	(-1.79)	(-1.03)	(-1.38)
SIZE	0.0027	0.0042	0.0155	0.0273**	-0.0035	0.0232**
	(0.32)	(0.45)	(1.52)	(2.43)	(-0.42)	(2.10)
ROA	0.2952**	0.4601**	0.3608**	0.2204	0.4090***	0.4347**
	(2.06)	(2.36)	(2.16)	(1.12)	(2.80)	(2.09)
LEV	-0.1728***	-0.0784	-0.0724	-0.0103	-0.1313***	-0.0804
	(-3.56)	(-1.07)	(-1.24)	(-0.12)	(-2.72)	(-1.02)
MB	0.0029	0.0048	0.0020	0.0076*	0.0035	0.0057
	(1.21)	(1.15)	(0.54)	(1.84)	(1.16)	(1.42)
FIRMAGE	-0.0007	-0.0004	-0.0008	-0.0004	-0.0009	-0.0011
	(-1.10)	(-0.57)	(-1.00)	(-0.62)	(-1.44)	(-1.59)
-MNE	-0.0426**	-0.0302	-0.0574**	0.0837***	-0.0382*	0.0385
	(-2.33)	(-1.24)	(-2.52)	(3.11)	(-1.87)	(1.52)
RD	0.1844	-0.2406	0.1374	-0.3464*	0.1178	-0.4011**
	(0.93)	(-0.93)	(0.56)	(-1.85)	(0.52)	(-2.25)
CAPX	0.0688	0.0470	0.0078	-0.2434**	0.0959*	-0.1201
	(1.44)	(0.63)	(0.12)	(-2.44)	(1.79)	(-1.28)
PPE	0.1076***	0.0012	0.0567	-0.0290	0.0635	-0.0568
	(2.77)	(0.03)	(1.24)	(-0.57)	(1.47)	(-1.19)
INTANG	0.2356***	0.0163	0.1214**	0.0248	0.1345***	0.0058
	(4.60)	(0.44)	(2.23)	(0.45)	(2.74)	(0.11)
EQINC	-0.5233	-1.1154	-3.6378**	-3.1996	-3.1018**	-3.2892
	(-0.22)	(-0.53)	(-2.17)	(-1.27)	(-1.98)	(-1.52)
NOL	-0.0013	-0.0004	-0.0054	-0.0441**	-0.0140	-0.0443**
	(-0.07)	(-0.02)	(-0.27)	(-2.16)	(-0.80)	(-2.07)
DNOL	-0.6802***	-0.0737	-0.0803	-0.0683	-0.3645**	0.0632
	(-4.94)	(-0.46)	(-0.33)	(-0.39)	(-2.24)	(0.33)
CEOAGE	-0.0017	0.0027	0.0049	0.0054**	0.0027	0.0026
	(-0.59)	(1.17)	(1.55)	(2.00)	(0.94)	(0.86)
CEOTENURE	0.0007	-0.0012	-0.0052*	-0.0014	-0.0040	-0.0009
	(0.35)	(-1.17)	(-1.73)	(-1.26)	(-1.52)	(-0.70)
MSHARE	-0.0226	-0.0012	0.0566	0.0500	-0.0399	0.0263
	(-0.64)	(-0.05)	(1.14)	(1.61)	(-0.97)	(0.99)
VEGA	-0.0465	-0.0256	0.0100	-0.0463	0.0482	-0.0267
	(-0.95)	(-0.54)	(0.13)	(-0.73)	(0.84)	(-0.46)
DELTA	-0.0040	-0.0029	-0.0151	-0.0114	0.0036	-0.0065
	(-0.41)	(-0.53)	(-1.17)	(-1.53)	(0.33)	(-0.89)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES
Adj. R^2	0.22	0.08	0.10	0.14	0.23	0.13
N	361	372	361	372	361	372

Panel B: The impact of CEO overconfidence

	GAAP		*CASH*		*CURR*	
	Overconfident CEO	Non-overconfident CEO	Overconfident CEO	Non-overconfident CEO	Overconfident CEO	Non-overconfident CEO
Intercept	0.4357***	0.2138	0.0902	0.1605	0.1474	0.3364**
	(5.04)	(1.55)	(0.62)	(1.18)	(1.29)	(2.37)
SERPAY	-1.2087	-7.2670***	-0.1971	-9.4396***	-0.7241	-11.1395***
	(-1.38)	(-3.11)	(-0.12)	(-3.70)	(-0.55)	(-4.27)
SIZE	-0.0101	0.0018	0.0119	-0.0021	-0.0054	-0.0116
	(-1.37)	(0.18)	(1.05)	(-0.19)	(-0.56)	(-1.16)
ROA	-0.2030	0.3472*	0.0609	0.0877	0.0494	0.3145
	(-1.12)	(1.95)	(0.27)	(0.39)	(0.22)	(1.51)
LEV	-0.1854***	-0.0192	0.0037	-0.1387**	-0.1431***	-0.1432**
	(-4.51)	(-0.28)	(0.05)	(-2.27)	(-2.67)	(-2.44)
MB	0.0003	0.0049	-0.0028	0.0077	0.0008	0.0044
	(0.14)	(1.19)	(-0.81)	(1.62)	(0.28)	(1.10)
FIRMAGE	-0.0006	-0.0006	-0.0001	0.0006	-0.0004	-0.0007
	(-1.35)	(-0.67)	(-0.21)	(0.70)	(-0.67)	(-1.03)
MNE	-0.0240*	-0.0928***	0.0329	0.0174	0.0199	-0.0217
	(-1.81)	(-3.05)	(1.53)	(0.50)	(1.01)	(-0.72)
RD	-0.4466**	0.1032	0.0509	-0.1093	-0.2727	0.0130
	(-2.12)	(0.50)	(0.16)	(-0.43)	(-1.02)	(0.06)
CAPX	0.0159	0.1256	-0.0953	-0.0569	-0.0121	0.0385
	(0.33)	(1.59)	(-1.37)	(-0.73)	(-0.20)	(0.47)
PPE	-0.0038	0.0423	-0.0985**	0.0426	-0.0453	-0.0498
	(-0.15)	(0.82)	(-2.14)	(0.70)	(-1.08)	(-1.01)
INTANG	0.0551**	0.2420***	0.0526	0.1301*	0.0849*	0.0937
	(2.14)	(3.24)	(1.01)	(1.77)	(1.86)	(1.52)
EQINC	1.7043	-0.1293	-2.3512	-1.1040	-0.2262	-1.4808
	(1.37)	(-0.05)	(-1.03)	(-0.52)	(-0.11)	(-0.70)
NOL	0.0186	-0.0078	-0.0409**	-0.0127	-0.0296*	-0.0336
	(1.58)	(-0.33)	(-2.16)	(-0.45)	(-1.85)	(-1.50)
DNOL	-0.1728	-0.1509	-0.1072	-0.0420	-0.0629	-0.0514
	(-1.29)	(-0.87)	(-0.53)	(-0.16)	(-0.30)	(-0.30)
CEOAGE	0.0010	0.0012	0.0036**	0.0020	0.0044***	0.0014
	(1.08)	(0.65)	(2.46)	(1.04)	(3.67)	(0.78)
CEOTENURE	0.0003	-0.0006	-0.0038***	-0.0014	-0.0030**	0.0001
	(0.36)	(-0.32)	(-2.94)	(-0.73)	(-2.30)	(0.03)
MSHARE	-0.0290	0.0047	-0.0217	0.0644*	-0.0431*	0.0115
	(-1.59)	(0.14)	(-0.86)	(1.96)	(-1.95)	(0.35)
VEGA	-0.0232	-0.0708	-0.0235	-0.0062	0.0926	-0.0084
	(-0.47)	(-0.99)	(-0.29)	(-0.08)	(1.22)	(-0.13)
DELTA	0.0117**	-0.0014	-0.0022	-0.0014	0.0052	0.0007
	(2.39)	(-0.17)	(-0.35)	(-0.16)	(0.81)	(0.08)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES
Adj. R^2	0.14	0.12	0.09	0.08	0.18	0.15
N	355	357	355	357	355	357

Panel C: The impact of CEO political orientation

	GAAP		*CASH*		*CURR*	
	Republican CEO	Democratic CEO	Republican CEO	Democratic CEO	Republican CEO	Democratic CEO
Intercept	0.2021	0.1733	0.6358***	-0.2665	0.3882***	-0.0221
	(1.52)	(1.09)	(3.63)	(-1.18)	(2.93)	(-0.11)
SERPAY	-0.0416	0.7148	-5.7746**	2.1106	-3.8150*	0.2388
	(-0.03)	(0.17)	(-1.98)	(0.45)	(-1.96)	(0.05)
SIZE	0.0129	-0.0027	-0.0146	0.0078	-0.0111	-0.0085
	(1.30)	(-0.24)	(-1.10)	(0.47)	(-1.06)	(-0.55)
ROA	0.1097	0.1705	-0.5210	0.4423	0.2690	0.4942
	(0.32)	(0.58)	(-1.13)	(1.44)	(0.87)	(1.45)
LEV	-0.0672	-0.2151***	-0.1428	-0.0413	-0.2085**	-0.1207
	(-0.84)	(-2.66)	(-1.38)	(-0.31)	(-2.27)	(-1.20)
MB	0.0101*	0.0006	0.0116	0.0116**	0.0119**	0.0010
	(1.83)	(0.14)	(1.58)	(2.02)	(2.34)	(0.21)
FIRMAGE	-0.0007	0.0003	-0.0007	0.0007	-0.0002	-0.0003
	(-0.95)	(0.30)	(-0.64)	(0.55)	(-0.22)	(-0.33)
-MNE	-0.0645**	-0.0650*	-0.0627*	0.0637	-0.0727***	0.0383
	(-2.53)	(-1.72)	(-1.66)	(1.31)	(-3.24)	(0.85)
RD	0.0277	-0.8277***	-0.1799	-0.1985	0.1954	-0.0955
	(0.11)	(-3.39)	(-0.38)	(-0.50)	(0.70)	(-0.27)
CAPX	0.0871	-0.0328	-0.3075***	-0.3004**	-0.1393	-0.0657
	(1.11)	(-0.31)	(-2.69)	(-2.36)	(-1.48)	(-0.54)
PPE	0.0449	0.0400	0.0032	-0.1598**	-0.0497	-0.1025
	(1.08)	(0.47)	(0.05)	(-2.07)	(-1.02)	(-1.37)
INTANG	-0.0280	0.2202***	-0.0366	-0.0493	0.0336	0.0466
	(-0.39)	(2.70)	(-0.40)	(-0.78)	(0.56)	(0.81)
EQINC	2.2647	0.2826	3.9720**	-5.9324**	1.3890	-4.8833**
	(1.48)	(0.10)	(2.01)	(-2.41)	(0.77)	(-2.04)
NOL	0.0164	0.0408	-0.0007	0.0469	-0.0497**	0.0137
	(0.67)	(1.33)	(-0.02)	(1.34)	(-2.59)	(0.42)
DNOL	-0.7462**	-0.2314	0.2258	-0.2764	-0.3345	-0.0778
	(-2.02)	(-0.92)	(0.54)	(-0.98)	(-1.44)	(-0.27)
CEOAGE	0.0008	0.0025	-0.0005	0.0096***	0.0015	0.0077***
	(0.50)	(1.26)	(-0.19)	(3.55)	(0.92)	(2.93)
CEOTENURE	0.0018	0.0000	-0.0024	-0.0020	-0.0005	-0.0018
	(1.01)	(0.01)	(-0.65)	(-0.82)	(-0.24)	(-0.67)
MSHARE	-0.0743	-0.0109	-0.0822	-0.0180	-0.0559	-0.0317
	(-1.49)	(-0.28)	(-1.46)	(-0.32)	(-1.18)	(-0.81)
VEGA	-0.0762	0.0053	-0.0073	0.0626	-0.0317	0.0006
	(-1.14)	(0.07)	(-0.08)	(0.51)	(-0.47)	(0.01)
DELTA	0.0029	0.0162	0.0131	-0.0236	0.0213*	0.0138
	(0.24)	(1.09)	(0.95)	(-1.36)	(1.75)	(0.87)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES
Adj. R^2	0.07	0.10	0.08	0.08	0.20	0.08
N	196	194	196	194	196	194

This table compares the impact of CEO severance pay on corporate tax planning between risk-averse and risk-tolerant managers. Panels A-C correspond to alternative measures of CEO risk aversion: CEO tenure, CEO overconfidence, and CEO political orientation. Standard errors are clustered by firm. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% levels.

Table 10
The effect of firm business risk

Panel A: The impact of firm business strategy

	GAAP		*CASH*		*CURR*	
	Prospectors	Defenders	Prospectors	Defenders	Prospectors	Defenders
Intercept	0.1848	0.4427**	0.1772	0.0951	0.0806	0.1349
	(1.28)	(2.48)	(1.19)	(0.72)	(0.54)	(0.89)
SERPAY	-3.1321	0.0052	-5.9786***	-0.3097	-4.9287**	0.8278
	(-1.60)	(0.00)	(-2.95)	(-0.11)	(-2.17)	(0.36)
SIZE	0.0045	-0.0077	0.0155	0.0290**	0.0104	0.0004
	(0.36)	(-0.63)	(1.28)	(2.16)	(0.89)	(0.03)
ROA	0.2740	0.2743	-0.0185	0.2545	0.3343**	0.3837
	(1.56)	(0.99)	(-0.10)	(0.85)	(2.11)	(1.31)
LEV	0.0005	-0.1278**	0.0395	-0.1146**	-0.0386	-0.1716***
	(0.01)	(-2.00)	(0.45)	(-1.98)	(-0.60)	(-3.10)
MB	0.0023	0.0007	0.0055	0.0069*	0.0042	0.0072*
	(0.71)	(0.14)	(1.34)	(1.79)	(1.27)	(1.88)
FIRMAGE	0.0001	0.0002	0.0007	-0.0006	0.0001	-0.0016**
	(0.16)	(0.23)	(0.90)	(-0.78)	(0.11)	(-2.35)
MNE	-0.0574*	-0.0217	0.0007	-0.0271	-0.0302	-0.0000
	(-1.83)	(-0.60)	(0.02)	(-0.79)	(-1.02)	(-0.00)
RD	-0.1887	0.4617	-0.4232	-1.4069*	-0.3189	-0.4646
	(-0.66)	(0.62)	(-1.64)	(-1.93)	(-1.28)	(-0.69)
CAPX	0.1377	-0.0367	-0.0886	-0.1501*	-0.0620	-0.0381
	(1.58)	(-0.37)	(-1.12)	(-1.69)	(-0.71)	(-0.43)
PPE	0.1026	-0.0181	-0.0758	0.0254	-0.0641	-0.0759
	(1.29)	(-0.37)	(-1.09)	(0.46)	(-0.89)	(-1.56)
INTANG	0.1461***	0.0797	0.0332	-0.0624	0.0847	0.0207
	(2.65)	(1.23)	(0.59)	(-0.98)	(1.64)	(0.41)
EQINC	-1.2924	1.7011	-0.4971	-4.9878**	-3.1411	-1.5899
	(-0.63)	(0.49)	(-0.21)	(-2.42)	(-1.32)	(-0.75)
NOL	-0.0236	-0.0224	-0.0126	-0.0430*	-0.0223	-0.0588**
	(-1.02)	(-0.92)	(-0.49)	(-1.66)	(-0.93)	(-2.57)
DNOL	-0.1756	-0.1737	0.2412	0.0909	0.0837	0.0323
	(-0.94)	(-0.73)	(0.97)	(0.31)	(0.42)	(0.16)
CEOAGE	0.0011	-0.0004	0.0007	-0.0005	0.0027	0.0039*
	(0.53)	(-0.18)	(0.41)	(-0.21)	(1.33)	(1.84)
CEOTENU	-0.0009	0.0030*	0.0005	0.0006	-0.0010	0.0008
	(-0.51)	(1.77)	(0.26)	(0.29)	(-0.54)	(0.43)
MSHARE	0.0697*	-0.0777**	0.0190	-0.0010	0.0196	-0.0544
	(1.77)	(-1.99)	(0.44)	(-0.02)	(0.39)	(-1.56)
VEGA	-0.0639	0.0227	0.0604	0.0010	0.0133	0.0666
	(-0.80)	(0.25)	(0.64)	(0.01)	(0.16)	(0.83)
DELTA	0.0028	-0.0015	-0.0334**	-0.0302*	-0.0104	-0.0079
	(0.20)	(-0.11)	(-2.50)	(-1.85)	(-0.68)	(-0.57)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTR	YES	YES	YES	YES	YES	YES
Adj. R^2	0.10	0.02	0.10	0.06	0.11	0.16
N	282	258	282	258	282	258

Panel B: The impact of firm diversification

	GAAP		*CASH*		*CURR*	
	More diversified	Less diversified	More diversified	Less diversified	More diversified	Less diversified
Intercept	0.2156**	0.2378	0.1280	-0.0566	0.1130	-0.1146
	(2.13)	(1.62)	(1.01)	(-0.32)	(1.02)	(-0.77)
SERPAY	-2.8992	-0.4322	-1.2148	-5.9653***	-1.5172	-5.7786***
	(-1.40)	(-0.25)	(-0.58)	(-2.71)	(-0.86)	(-3.07)
SIZE	0.0012	0.0057	0.0115	-0.0108	0.0053	0.0005
	(0.13)	(0.62)	(1.04)	(-0.84)	(0.57)	(0.05)
ROA	0.2443	0.1988	-0.0563	0.0869	0.3136*	0.4131*
	(1.41)	(0.69)	(-0.29)	(0.30)	(1.89)	(1.78)
LEV	-0.1330***	-0.0827	-0.0914	-0.0445	-0.1535***	-0.0262
	(-2.83)	(-1.35)	(-1.42)	(-0.53)	(-2.74)	(-0.36)
MB	0.0007	-0.0001	0.0068**	-0.0054	0.0034	0.0021
	(0.25)	(-0.02)	(2.06)	(-0.86)	(1.13)	(0.42)
FIRMAGE	-0.0013**	0.0003	0.0002	0.0012	-0.0013*	0.0002
	(-1.99)	(0.42)	(0.20)	(1.47)	(-1.84)	(0.32)
MNE	-0.0291*	-0.0534	0.0325	0.0267	0.0075	0.0177
	(-1.68)	(-1.54)	(1.23)	(0.60)	(0.38)	(0.48)
RD	-0.0385	-0.5218*	-0.2979	-0.3718	-0.1529	-0.4902*
	(-0.20)	(-1.83)	(-1.48)	(-1.14)	(-0.86)	(-1.65)
CAPX	0.1371**	0.0348	-0.0881	0.0065	0.0359	0.1852*
	(2.18)	(0.34)	(-1.28)	(0.06)	(0.51)	(1.83)
PPE	0.0970***	0.0350	0.0392	-0.0312	-0.0136	-0.0684
	(2.68)	(0.41)	(0.79)	(-0.42)	(-0.32)	(-1.13)
INTANG	0.1615***	0.1532**	0.0458	0.0582	0.0952*	0.1064**
	(3.21)	(2.46)	(0.79)	(1.07)	(1.85)	(2.12)
EQINC	-0.7670	-2.6975**	-0.0062	-2.9834**	-1.5807	-1.0274
	(-0.40)	(-2.07)	(-0.00)	(-2.07)	(-0.85)	(-0.71)
NOL	-0.0220	0.0293	-0.0181	-0.0005	-0.0279	-0.0099
	(-1.06)	(1.34)	(-0.80)	(-0.02)	(-1.48)	(-0.40)
DNOL	-0.1976	-0.3199	-0.2821*	0.3144	-0.1238	-0.0857
	(-1.08)	(-1.63)	(-1.68)	(0.93)	(-0.72)	(-0.46)
CEOAGE	0.0016	0.0011	0.0012	0.0078***	0.0029**	0.0061***
	(1.11)	(0.54)	(0.75)	(2.90)	(2.09)	(2.97)
CEOTENURE	-0.0012	-0.0004	-0.0023	-0.0051**	-0.0003	0.0001
	(-0.88)	(-0.24)	(-1.47)	(-2.09)	(-0.17)	(0.06)
MSHARE	-0.0044	0.0312	0.0234	0.0392	0.0014	0.0057
	(-0.20)	(1.20)	(0.79)	(1.20)	(0.05)	(0.18)
VEGA	-0.0289	-0.0394	-0.0561	0.0817	-0.0023	0.0420
	(-0.54)	(-0.74)	(-0.86)	(1.16)	(-0.04)	(0.71)
DELTA	0.0077	-0.0069	0.0011	-0.0138	0.0098	-0.0148
	(1.35)	(-0.92)	(0.13)	(-1.30)	(1.37)	(-1.33)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES
Adj. R^2	0.11	0.09	0.16	0.05	0.20	0.06
N	408	297	408	297	408	297

Panel C: The impact of firm idiosyncratic risk

	GAAP		*CASH*		*CURR*	
	High risk	Low risk	High risk	Low risk	High risk	Low risk
Intercept	0.2710*	0.2545***	0.1737	-0.1266	0.3219**	0.0720
	(1.83)	(3.30)	(1.09)	(-0.81)	(2.15)	(0.62)
SERPAY	-4.0954**	-2.3095	-3.2284*	3.0084	-5.2394***	2.9724
	(-2.14)	(-0.88)	(-1.74)	(0.55)	(-3.08)	(0.89)
SIZE	0.0173	0.0001	0.0184	0.0086	0.0001	0.0097
	(1.27)	(0.01)	(1.12)	(0.77)	(0.01)	(1.07)
ROA	0.3099	0.2159	0.1521	0.1247	0.3852**	0.5026**
	(1.60)	(0.82)	(0.69)	(0.45)	(2.00)	(2.48)
LEV	-0.1775**	-0.0622	-0.1366*	0.0324	-0.2001***	-0.0498
	(-2.36)	(-1.09)	(-1.79)	(0.30)	(-2.80)	(-0.70)
MB	-0.0020	0.0032	0.0033	0.0027	0.0024	0.0020
	(-0.54)	(0.84)	(0.59)	(0.59)	(0.54)	(0.64)
FIRMAGE	-0.0012	-0.0002	0.0009	0.0008	-0.0012	-0.0000
	(-1.05)	(-0.38)	(0.88)	(0.84)	(-1.23)	(-0.00)
MNE	-0.0611**	-0.0374**	0.0032	0.0136	-0.0253	-0.0056
	(-2.22)	(-2.54)	(0.10)	(0.42)	(-0.85)	(-0.19)
RD	-0.0200	-0.5057*	-0.1610	-0.3748	-0.1957	-0.1854
	(-0.09)	(-1.93)	(-0.77)	(-1.50)	(-0.95)	(-1.07)
CAPX	0.1215	0.0388	-0.1153	0.0672	-0.0298	0.0950
	(1.60)	(0.76)	(-1.58)	(0.62)	(-0.36)	(1.23)
PPE	0.0339	-0.0102	0.1143	-0.0994**	0.0434	-0.0880*
	(0.47)	(-0.22)	(1.49)	(-2.01)	(0.66)	(-1.91)
INTANG	0.1420**	0.1072**	0.1252*	0.0139	0.1713**	0.0439
	(2.29)	(2.18)	(1.85)	(0.23)	(2.51)	(0.99)
EQINC	-2.8214	-0.2610	-3.0269	-1.9465	-1.1422	-1.1809
	(-0.96)	(-0.27)	(-1.54)	(-1.05)	(-0.47)	(-0.90)
NOL	-0.0014	0.0024	-0.0020	-0.0193	-0.0156	-0.0119
	(-0.05)	(0.18)	(-0.07)	(-0.76)	(-0.63)	(-0.68)
DNOL	-0.1420	-0.0377	0.0252	-0.2655	0.0583	-0.1174
	(-0.92)	(-0.20)	(0.14)	(-0.63)	(0.42)	(-0.33)
CEOAGE	0.0011	0.0009	-0.0005	0.0052**	0.0007	0.0020
	(0.49)	(0.92)	(-0.23)	(2.38)	(0.35)	(1.36)
CEOTENURE	-0.0005	0.0002	-0.0010	0.0006	0.0006	0.0009
	(-0.22)	(0.17)	(-0.45)	(0.22)	(0.24)	(0.55)
MSHARE	0.0242	-0.0032	0.0229	-0.0080	-0.0295	0.0089
	(0.63)	(-0.10)	(0.57)	(-0.12)	(-0.62)	(0.19)
VEGA	-0.1108	-0.0261	-0.1291	-0.0092	-0.1100	-0.0274
	(-0.97)	(-0.89)	(-1.00)	(-0.18)	(-0.93)	(-0.67)
DELTA	-0.0058	0.0037	0.0009	-0.0132	0.0123	-0.0024
	(-0.34)	(0.69)	(0.05)	(-1.26)	(0.53)	(-0.32)
YEAR	YES	YES	YES	YES	YES	YES
INDUSTRY	YES	YES	YES	YES	YES	YES
Adj. R^2	0.06	0.12	0.05	0.01	0.08	0.01
N	355	355	355	355	355	355

This table compares the impact of CEO severance pay on corporate tax planning between firms with high business risk and low business risk. Panels A-C correspond to alternative measures of firm business risk: business strategy, diversification, and idiosyncratic risk. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% levels.

Table 11
CEO severance pay and cost of equity capital

	(1)	(2)	(3)	(4)	(5)
	EASTON	*CT*	*GLS*	*GM*	*AVGCOC*
Intercept	0.1161***	0.0204	0.0343***	0.0548***	0.0564***
	(6.39)	(1.57)	(2.71)	(3.33)	(4.57)
SERPAY	-1.6614*	-1.3970***	-1.4057***	-1.1010**	-1.3913***
	(-1.95)	(-2.69)	(-2.86)	(-2.01)	(-2.62)
SIZE	-0.0025**	-0.0002	-0.0002	-0.0003	-0.0008
	(-2.08)	(-0.21)	(-0.21)	(-0.28)	(-0.98)
MB	-0.0024	-0.0065***	-0.0075***	-0.0046***	-0.0052***
	(-1.57)	(-4.40)	(-5.31)	(-3.50)	(-4.10)
BETA	0.0024	0.0013	0.0004	0.0009	0.0012
	(0.75)	(0.54)	(0.20)	(0.32)	(0.61)
SIGMA	0.0891	0.1102	0.2116***	0.1085	0.1299*
	(0.76)	(1.49)	(3.07)	(1.18)	(1.83)
LEV	0.0024	0.0280**	0.0126	0.0090	0.0130
	(0.16)	(2.51)	(1.15)	(0.68)	(1.27)
ROA	-0.0279	0.1088*	0.0517	0.0891	0.0554
	(-0.43)	(1.92)	(1.00)	(1.54)	(1.12)
LTG	0.0763***	-0.0145**	-0.0102	-0.0220**	0.0074
	(3.12)	(-2.29)	(-1.36)	(-2.54)	(0.84)
DISP	1.0961	1.8236***	1.6149***	1.4352**	1.4924***
	(1.57)	(2.92)	(2.82)	(1.98)	(2.81)
Year	YES	YES	YES	YES	YES
Industry	YES	YES	YES	YES	YES
Adj. R^2	0.39	0.32	0.45	0.20	0.35
N	327	327	327	327	327

This table presents results on the association between CEO severance pay and cost of equity capital. The dependent variable is implied cost of equity capital based on Easton (2004), Claus and Thomas (2001), Gebhardt, Lee, and Swaminathan (2001), and Gode and Mohanram (2003). The focus variable is CEO severance pay (*SERPAY*), measured as the contracted total severance payment amount to a firm's CEO divided by total assets. Other variables are defined in the Appendix. Standard errors are clustered by firm. *T*-statistics are in the parentheses. ***, **, and * represent significance at 1%, 5% and 10% levels.