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CEO political preference and corporate tax sheltering

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CEO Political Preference and Corporate Tax Sheltering

Abstract

We show that firms led by politically partisan CEOs are associated with a higher level of corporate tax sheltering than firms led by nonpartisan CEOs. Specifically, Republican CEOs are associated with more corporate tax sheltering even when their wealth is not tied with that of shareholders and when corporate governance is weak, suggesting that their tax sheltering decisions could be driven by idiosyncratic factors such as their political ideology. We also show that Democratic CEOs are associated with more corporate tax sheltering only when their stock-based incentives are high, suggesting that their tax sheltering decisions are more likely to be driven by economic incentives. In sum, our results support the political connection hypothesis in general but highlight that the specific factors driving partisan CEOs' tax sheltering behaviors differ. Our results imply that it may cost firms more to motivate Democratic CEOs to engage in more tax sheltering activities because such decisions go against their political beliefs regarding tax policies.

Keywords: Political preference, Tax sheltering, CEO, Democrats, Republicans, Incentives

JEL classifications: G21, H26, G32, P16

1. Introduction

Since the development of the "upper echelons theory" by Hambrick and Mason (1984), many studies have examined the idiosyncratic differences among top managers in corporate decision making (e.g., Bertrand and Schoar, 2003; Bamber et al., 2010; Demerjian et al., 2013). CEOs' political preference, in particular, has been found to significantly affect various corporate decisions (e.g., Di Giuli and Kostovetsky, 2014; Hutton et al., 2014). The impact of CEO political preference on corporate tax sheltering,[1] which represents an important but relatively young stream of literature, remains unclear.[2] We elucidate this issue by examining the effect(s) of a CEO's political preference on the level of corporate tax sheltering.

Corporate tax sheltering has received increasing attention from both policy makersand academics (see the comprehensive review by Hanlon and Heitzman, 2010).[3] Despite its unquestionable importance, many issues related to taxation remain puzzling or unexplored. For example, why do people pay taxes at all (an understanding of which would facilitate predictions of tax sheltering)? In addition to economic factors (e.g., Allingham and Sandmo, 1972) that often can be used to predict too little compliance and too much tax sheltering, the literature has suggested several noneconomic factors, such as the relationship between taxpayers and

[1] Following Desai and Dharmapala (2006), we refer to tax sheltering as those transactions that have no associated business purpose. These transactions correspond to the underreporting of true profits to tax authorities. The corporate tax literature usually denotes "tax avoidance" as a continuum of tax policies from more certain tax planning measured by ETR and CETR (e.g., Rego and Wilson, 2012; Lsowsky et al., 2013) to more aggressive activities such as tax shelters. To distinguish tax sheltering from the broad definition of tax avoidance and to answer our research question, we use "tax sheltering" throughout this study by focusing on the relatively aggressive end of the tax avoidance continuum and on those measures that are specifically designed to examine the impacts of managerial discretion on tax policies (Frank et al., 2009; Desai and Dharmapala, 2006). We include detailed discussions in later sections about the choice of tax sheltering measures.

[2] Although Christensen et al. (2013) study managers' personal political orientation and corporate tax avoidance, they examine ETR and CETR only. Furthermore, their study ignores managerial economic incentives when studying managerial impacts on corporate tax policies. Given the complexity of measuring corporate tax avoidance and evidence regarding the importance of managers' economic incentives in shaping firms' tax policies (Desai and Dharmarphala, 2006), their study is not conclusive.

3 For example, a recent report in The Economist (Feb 16, 2013) indicates that an estimated $20 trillion is stashed away in tax havens. On May 21, 2013, the U.S. Senate Permanent Subcommittee on Investigations held a hearing on Apple Inc.'s billions of dollars in savings on U.S. taxes through its use of Irish subsidiaries.

governments (Spicer and Lundsedt, 1976; Smith, 1992), morale (Schwarts and Orleans, 1967; Roth et al., 1989; Torgler, 2007), fairness (Bordignon, 1993), and risk aversion (Alm et al., 1992). Such factors may have different or even opposite implications for tax sheltering, rendering predictions difficult.

The existing studies suggest that CEOs' political preference may affect corporate tax sheltering in three ways. First is the *Political Connection* hypothesis, which suggests that CEOs engage in more tax sheltering when they are politically connected because of political rents. The political economy literature shows that political connections are valuable resources to firms that affect their strategic choices (e.g., Fisman 2001; Faccio 2006; Leuz and Oberholzer-Gee 2006; Claessens et al., 2008; Goldman et al. 2009; Yu and Yu, 2011; Kim and Zhang, 2014). The economic significance as well as the direction of the impact of CEO's political preference on corporate tax sheltering, however, remain unclear and require further exploration.

Second is the *Political Ideology* hypothesis (e.g., Spicer and Lundsedt, 1976; Smith, 1992), which predicts CEOs' tax sheltering decisions based on their political beliefs regarding tax policies, such as the size and efficiency of government and the fairness and effectiveness of the wealth distribution. This hypothesis is particularly relevant in the United States because views regarding the appropriate size and role of government and the consequent tax policies significantly differ between Republicans and Democrats. The former generally advocate for tax reduction, whereas the latter generally advocate the opposite.[4] Therefore, according to the *Political Ideology* hypothesis, Republican (Democratic) CEOs engage in more (less) tax sheltering than nonpartisan CEOs, other things being equal.

[4] A Gallup Poll dated April 11, 2011, for example, considers whether the rich should be taxed more heavily. The results indicate that a substantial majority of Democrats (71%) endorse the idea of redistributing wealth by increasing taxes on the rich; by contrast, 69% of Republicans opposed tax increases on the rich.

Third is the *Risk Acceptance* hypothesis, which relates CEOs' tax sheltering decisions on their attitude about being detected. Prior studies show that tax sheltering is associated with various risks including the IRS auditing risk and managerial reputational risk (e.g., Graham et al., 2014; Hasan et al., 2014). Political preference has been applied to proxy for individuals' risk preferences (Kam and Simas, 2010; Hutton et al., 2014). In an analysis of tax sheltering behaviors, risk aversion (e.g., fear of detection) has been demonstrated to be an important factor driving "under-sheltering" behaviors by taxpayers (Alm et al., 1992; Chen et al., 2010; Badertscher et al., 2013; Chyz, 2013). Therefore, the *Risk Acceptance* hypothesis represents a competing argument that provides insights on why CEOs engage in tax sheltering by suggesting that Republican (Democratic) CEOs engage in less (more) tax sheltering than do nonpartisan CEOs.

Furthermore, it is important to control for CEO compensation when studying CEOs' idiosyncratic influence on firm policies because it has been shown to significantly affect firm policies and performance (e.g., Guay, 1999; Core and Guay, 2002; Core and Larcker, 2002; Jin, 2002; Coles et al., 2006; Dutta, 2008, among others). To the extent that shareholders enforce their preferences through the CEO compensation structure (Coles et al., 2006), investigating the effect of CEOs' political preference on corporate tax sheltering in addition to its interaction effect with their personal wealth tied to firm performance would provide interesting insights. In sum, given the existing theoretical implications and the lack of empirical evidence, what can be inferred about corporate tax sheltering from a CEO's political preference remains an open empirical question.

To test our hypotheses, following prior studies (e.g., Hong and Kostovetsky, 2012; Hutton et al., 2014), we use information on CEOs' political party donations from the Federal Election Commission (FEC) database to measure CEOs' political preferences. Because various

measures of tax sheltering exist, and each measure has limitations (Hanlon and Heitzman, 2010), we use three common measures that are suitable to addressing our research question. Because we are interested in managers' idiosyncratic impact on tax sheltering, we choose *DTAX* (a proxy for permanent tax sheltering; see Frank et al., 2009) and *DD_TA* (a proxy for total tax sheltering, excluding earnings management; see Desai and Dharmapala, 2006), both of which are proposed by the literature to measure the discretionary portion of tax planning. We also follow Wilson (2009) and estimate an extreme case of tax sheltering (*SHELTER*). [5] In summary, to address our research questions, we select measures that capture relatively more aggressive and specific corporate tax sheltering behaviors.

Consistent with the *Political Connection* hypothesis, we find that both Republican CEOs and Democratic CEOs engage in more permanent, discretionary tax sheltering and more aggressive sheltering activities than firms with nonpartisan CEOs. Furthermore, we show that this effect is exacerbated by different factors for CEOs with different political preferences. In particular, Republican CEOs engage in more tax sheltering even when their interests are not necessarily aligned with those of shareholders (measured by corporate governance and stock-based compensation), suggesting that idiosyncratic factors, such as political beliefs, drive their firms' tax sheltering decisions. Democratic CEOs' higher tax sheltering behaviors, in contrast, are significant only when their economic incentives, such as stock-based compensation, are high. The fact that Democratic CEOs' tax sheltering decisions are motivated by higher stock-based compensation suggests that it costs more for shareholders to encourage tax sheltering when CEOs are Democratic-leaning, likely because they need more incentives to outweigh the impact of their personal political beliefs on tax policies.

[5] Please see the detailed discussion on various tax avoidance measures in Hanlon et al. (2010).

Our results so far suggest that CEOs' political preference is a necessary but not sufficient determinant for tax sheltering, especially when CEOs' (such as Democratic CEOs) political beliefs are not aligned with tax sheltering. To provide further insights into the potential mitigating factors, we add a variable to control for the influence of the local political environment (Hutton et al., 2014). Our results show that although where a firm is located does not significantly affect corporate tax sheltering, it does impact the effect of a CEO's political preference on tax sheltering. Specifically, both Republican and Democratic CEOs avoid more taxes in *Red* locations compared to *Blue* locations where the positive effect of CEOs' political preference on tax sheltering is mitigated and even disappears for firms led by Democratic CEOs. Our results thus suggest that both Republican and Democratic CEOs need to cater to the local political preference when making their tax sheltering decisions.

To mitigate endogeneity concerns (e.g., omitted variables that could affect both CEOs' political preference and corporate tax sheltering), we analyze a sample of firms with CEOs who changed their contributions to political parties during the sample period. Although changes in political ideology are uncommon, such a change is nevertheless possible. For example, Jayachandran (2006) examines the change in political preference by Senator James Jeffords and finds that it has significant effects on the market value of firms. We identify 195 CEOs who switched political preferences in different election cycles by starting (ceasing) to contribute to a particular party. These changes in contributions provide us with an opportunity to examine whether the observed differences in tax sheltering are caused by CEOs' political preference.[6]

Specifically, we run firm fixed-effects regressions for all of the firms that retained the same CEO during the sample period. The sign and significance of the coefficients on the

[6] Our test depends on the assumption that CEO's political contribution is a good proxy to measure their individual effects on corporate tax sheltering. To the extent that this measure is weak, our assumption would only weaken our results.

Republican dummy or the Democratic dummy thus indicate whether a change in a CEO's political preference causes significant changes in his/her firm's tax sheltering behavior. The results show that when CEOs start (stop) donating to Republicans, their firms are associated with significantly more (less) tax sheltering. A similar pattern, however, is not observed when CEOs start (stop) donating to Democratic parties. These results highlight that Republican CEOs' idiosyncratic preferences, such as political beliefs, determine their firms' tax sheltering decisions, other things being equal.

Finally, we conduct several robustness checks. First, following Hutton et al. (2014), we use an alternative measure to define CEOs as Republicans (Democrats) if they make more donations to the Republican (Democratic) party over the entire sample period from 1992 to 2007. Our results hold. Second, we use tax havens as an alternative measure for aggressive tax sheltering. We find that firms led by partisan CEOs, especially those measured by their long-term political contributions, are associated with a significantly higher likelihood of having at least one tax-haven country subsidiary. Third, we examine our hypotheses by using measures for broader and less risky tax sheltering (Lisowsky et al., 2013), such as the effective tax rate (*ETR*) and the cash effective tax rate (*CETR*). We find that our results do not hold for *ETR* and *CETR*. For *ETR* and *CETR*, the effect of a CEO's political preference is insignificant after we include the CEO's economic incentives and other control variables. A plausible explanation for the insignificant results for *ETR* and *CETR* could be that they capture firms' overall tax benefits including perfectly legitimate positions and accounting accruals but not directly the aggressive nature of them ((Lisowsky et al., 2013).

Our study contributes to the growing body of literature on corporate tax sheltering. Although the issue of tax compliance by individuals has been studied extensively in public economics (Slemrod and Yitzhaki, 2002), the literature on corporate tax sheltering is relatively

young. Overall, our results suggest that both economic and noneconomic factors affect CEOs' tax sheltering decisions. By studying CEOs' political preferences, our study provides interesting insight into the interactions between these factors and their effect on corporate tax policies. In sum, our results not only provides plausible explanations for the recent evidence that managerial effects are important determinants of corporate tax sheltering (Dryeng et al., 2010; Armstrong et al., 2012; Rego and Wilson, 2012), but also shed light on why, "overall, the field cannot explain the variation in tax sheltering very well" (Hanlon and Heitzman; 2010), and no single factor explains all.

Our study also complements a new stream of studies that explore how CEOs' political preference affects various corporate decisions (e.g., Hong and Kostovetsky, 2012; Hutton et al., 2014). Prior studies find that CEOs' political preference plays an important role in determining corporate investment and financing decisions. In our paper, we link CEOs' political preference and tax sheltering, an interesting yet underexplored corporate decision. Our results show that CEOs' political preference significantly affects corporate tax sheltering decisions and that both Republican and Democratic CEOs avoid more taxes than nonpartisan CEOs. The factors driving this positive relation, however, are not straightforward. Our findings indicate that the measure of CEOs' political preference may capture various individual attributes of CEOs. The implications of such characteristics for corporate policies, therefore, should be examined carefully.

The rest of the paper proceeds as follows: Section 2 reviews the relevant literature and explains our hypothesis development. Section 3 describes the summary statistics. Section 4 presents the regression results. Section 5 presents the robustness test results. Section 6 concludes.

2. Literature Review and Hypotheses Development

The literature suggests that factors such as economics (Allingham and Sandmo, 1972), morale (e.g., Roth et al., 1989; Torgler, 2007), fairness (e.g., Bordignon, 1993), risk aversion (Alm et al., 1992), and the relationship between taxpayers and the government (Spicer and Lundsedt, 1976; Smith, 1992) affect tax sheltering. The latter factor reflects taxpayers' opinions about the government. Specifically, Spicer and Lundsedt (1976) and Smith (1992) suggest that taxpayers feel cheated if they believe the government is not spending money appropriately.[7] Significant discrepancies between individuals' beliefs regarding the size and efficiency of government and their beliefs regarding the fairness and effectiveness of the wealth distribution may affect their tax sheltering decisions.

Studies of firms' tax-paying behavior have proliferated over the last decade, but we still have a limited understanding of the determinants of corporate tax sheltering (see the comprehensive review by Hanlon and Heitzman, 2010). Recent literature indicates that top managers influence firms' tax sheltering decisions (e.g., Desai and Dharmapala, 2006; Dyreng et al., 2010; Rego and Wilson, 2012; Armstrong et al., 2012). Dryeng et al. (2010), in particular, focus on CEOs and find that their individual attributes play a significant role in determining tax sheltering behavior that cannot be explained by firm characteristics or by common observable characteristics, such as education, gender, age, and tenure.

Recent studies show that managers' personal preferences are likely to influence the decisions they make at work (e.g., Hong and Kostovetsky, 2012; Chyz, 2013) and their individual performance in areas such as idea leadership and employee award subjectivity, which can also impact their annual compensation (e.g., Bushman et al., 1996). We conjecture that

[7] This viewpoint is captured in a statement made by the CEO of Bank of America, who noted that Bank of America and its wealthy banking clients were ready to pay higher taxes if the United States government used the increased revenue to put its fiscal house back in order (Reuters, October 6, 2011).

CEOs' political preferences influence their corporate sheltering decisions for the following reasons.

First is the *Political Connection* hypothesis, which suggests that CEOs engage in more tax sheltering when they are politically connected because of political rents. The political economy literature contends that political connections are valuable resources to firms that affect firms' strategic choices. Within the finance and economics literature (e.g., Fisman 2001; Faccio 2006; Leuz and Oberholzer-Gee 2006; Claessens et al., 2008; Goldman et al. 2009; Yu and Yu, 2011; Guedhami et al. 2014) find results consistent with the theoretical arguments. More pertinent to this paper, Kim and Zhang (2013) find that politically connected firms are more tax aggressive than non-connected firms.[8]

It should be noted that the extent to which individual CEO's political preference impact firms tax sheltering behavior is not obvious. This is the case because political donations by CEOs in U.S. political campaigns are relatively small (Ansolabehere et al., 2003);[9] as such, it is questionable whether meaningful political connections can be established through individual contributions. Nevertheless, there is supporting evidence that political connections are important for firms. For example, Goldman et al. (2009) show that companies connected to the Republican Party through their board members experienced significant increases in firm value, while firms connected to the Democratic Party decreased in value when the Republican candidate won the 2000 presidential election. Furthermore, the 2013 IRS targeting controversy suggests that some political groups were subjected to greater scrutiny than others.

Second is the *Political Ideology* hypothesis (e.g., Spicer and Lundsedt, 1976; Smith, 1992), which predicts that Republican (Democratic) CEOs engage in more (less) tax sheltering

[8] Mills et al. (2013) show that the degree of aggressiveness in the tax sheltering behavior of politically connected firms such as federal contractors depends on their political power.
[9] Our results show that the average donation amount is only approximately 0.03% of CEOs' annual compensation.

than nonpartisan CEOs, other things being equal. Third is the *Risk Acceptance* hypothesis, which predicts that Republican (Democratic) CEOs engage in less (more) tax sheltering than do nonpartisan CEOs. Political preference has been applied to proxy for individuals' risk preferences. For example, Kam and Simas (2010) show that Democrats are more risk accepting than Republicans. Similarly, Hutton et al. (2014) find that Republican managers who have conservative personal ideologies are associated with corporate policies that involving less risk taking. In sum, given the existing theoretical implications, what we can infer about corporate tax sheltering from a CEO's political preference remains an empirical question.

3. Data and Methodology

We integrate several databases to study the effects of CEOs' political preference on corporate tax sheltering. First, we start with the Compustat database to calculate various measures of corporate tax sheltering. We exclude firms with SIC codes between 6000 and 6999. We match these measures to the Execucomp database because of our interest in CEO-specific information. Data on CEO compensation and economic incentives are also obtained from Execucomp. After searching the records of all individual political donations from the FEC website, we identify the amount of donations CEOs made during each election cycle and the party to which CEOs donated.

3.1 Measuring CEOs' Political Preference

Following Hong and Kostovetsky (2012) and others, we use CEOs' political donations during election cycles to determine their party affiliations. Individual donation data are obtained from the FEC website. All federal contributions made by individuals are available on the FEC website

starting in 1979. Because we have detailed CEO information beginning in 1992, we search for donations starting with the election cycle of 1991-1992. The FEC provides information such as the donor's address, the donor's employer, the donation amount, and the donee. Donors can make direct donations to candidates or party committees (whose party affiliation can be identified though the FEC website). Because of the enormous size of the records for each election cycle, we first match the FEC data with the Execucomp database through donors' occupations to reduce the size of the file. We then use names to identify CEOs who make donations.

A CEO's party affiliation in a fiscal year is determined by the amount of donations that he or she makes during the recent election cycle. The majority (approximately 90%) of the CEOs in our sample donate to a single party in each election cycle. When a CEO donates to both parties, the amount determines the CEO's party preference.[10] Following the mapping techniques described above, we identify 1,468 CEOs who made donations during the sample period, of which 929 are identified as Republicans and 478 are identified as Democrats.

We find that some CEOs changed their major party donations. In all, 195 CEOs are identified as either Republicans or Democrats during the sample period in different years. As mentioned earlier, these changes in political affiliation provide us with an opportunity to examine whether the observed differences, if any, are caused by CEOs' political preference or by other unobservable CEO characteristics. Some CEOs also donate to committees without a party affiliation. We classify these CEOs as nonpartisan CEOs, which is the same classification applied to CEOs who do not make donations. CEOs who do not donate to a political party may have a political preference. Such an under-identification problem, however, can only weaken our

[10] In a robustness check, we drop CEOs who donate to both parties, and we find qualitatively unchanged results.

statistical tests. Thus, if we find a significant relationship between CEOs' political preference and tax sheltering, our results will be more robust. Our matching results of CEOs' party affiliations are comparable to those reported by Hutton et al. (2014).

3.2 Measuring Tax Sheltering

Because taxable income is not disclosed in firms' financial statements and because corporate tax returns are not publicly available, most studies on this topic rely on estimated levels of tax sheltering based on financial statement data. Researchers have used a wide range of proxies, each with its limitations. Given the relative youth of this stream of literature and the significant policy implications of research on tax sheltering, Hanlon and Heitzman (2010) conduct a thorough review of the measures of tax sheltering and highlight the importance of choosing the appropriate proxies for the intended research.

Because we are interested in the effects of CEO characteristics, we choose tax sheltering measures that capture the discretionary portion of tax sheltering. The first measure is *DD_TA*, developed by Desai and Dharmapala (2006), which measures the abnormal book-tax difference after the impacts of total accruals are removed. The second measure is *DTAX*, developed by Frank et al. (2009). These authors argue that book-tax differences have both a temporary and a permanent component, and they find that the permanent component of book-tax differences—*DTAX*—is significantly related to corporate tax sheltering. To estimate firms' use of tax shelters, we follow the model developed by Wilson (2009). This model captures a firm's likelihood of engaging in specific sheltering transactions. The selected measures either are on the aggressive end of the tax sheltering continuum (Hanlon and Heitzman, 2010; Rego and Wilson, 2012; Lisowsky et al., 2013) or are measures of more specific tax sheltering activities.

After merging the Execucomp database with Compustat for the period from 1992 to 2007 and requiring data to calculate the various tax sheltering measures, we end with 13,549 firm-year observations (2,011 unique firms) for the *DTAX* analysis, 10,310 firm-year observations (1,741 unique firms) for the *DD_TA* analysis and 20,151 firm-year observations (2,447 unique firms) for the *SHELTER* analyses. The average value of *DTAX* is 0.009, and the average value of *DD_TA* is close to zero. Finally, Panel A of Table 1 shows that the average probability of engaging in sheltering activities is 20%.

[Insert Table 1 Here]

Columns 3 to 5 of Table 1 contain results separated by CEOs' political preference. They show that firms led by Republican CEOs are associated with significantly higher *SHELTER*, *DTAX*, and *DD_TA* than firms led by nonpartisan CEOs. Specifically, approximately 25% of Republican-led firms are characterized as the most likely firms to engage in sheltering activities, whereas 18.6% of firms led by nonpartisan CEOs are characterized as such. For *DTAX* and *DD_TA*, we find similar results. Republican CEOs shelter more permanent taxes (0.011) and discretionary taxes (0.003) than their nonpartisan counterparts (0.009 and 0.000, respectively). Given that the average asset size of firms led by Republican CEOs ($8.519 billion) is nearly twice that of firms led by nonpartisan CEOs, the univariate findings regarding the differences in tax sheltering have economic significance.

The results also show that firms led by Democrats are more likely to use shelters (*SHELTER*) than firms led by nonpartisan CEOs. We find that 27.8% of Democrat-led firms are likely to engage in tax sheltering activities, compared with 18.6% of firms led by nonpartisan CEOs. Our results seem to support the *Political Connection* hypothesis, which suggests that both

Republican and Democratic CEOs engage in more tax sheltering because of their political connections.

The finding that both Republican and Democratic CEOs engage in more tax sheltering suggests that neither the *Political Ideology* nor the *Risk Acceptance* hypothesis alone fully explains CEOs' tax sheltering decisions. Specifically, Republican CEOs' aggressive tax sheltering behaviors are not consistent with the usual belief that Republican CEOs are more conservative in corporate decision making suggested by the *Risk Acceptance* hypothesis, at least not in the area of tax policies. Similarly, Democratic CEOs' aggressive tax sheltering behavior is inconsistent with the predictions of the *Political Ideology* hypothesis. Our evidence suggests that Democratic CEOs' own political ideology does not predict their firms' tax sheltering behavior.

An important question then is: Do these CEOs become involved in more tax sheltering behavior just because they are politically connected? To provide more insights on what motivates the conventionally deemed conservative Republican CEOs and liberal Democratic CEOs to engage in more tax sheltering behaviors, we examine the effects of factors such as CEOs' compensation and corporate governance.

3.3 Summary of CEO and Firm Characteristics

Panel B of Table 1 presents summary statistics regarding CEO compensation. We measure CEOs' equity-based compensation by *Delta* and *Vega*. *Delta* measures the sensitivity of a manager's wealth to the firm's stock price by measuring the dollar gain or loss in the manager's wealth for a given change in the firm's stock price. *Vega* measures the sensitivity of a manager's wealth to the firm's stock return volatility and captures risk-increasing incentives. We use the *Delta* and *Vega* calculations presented in Guay (1999) and Core and Guay (2002), who use the Black-Scholes (1973) option valuation model as modified by Merton (1973) to account for

dividends. Note that *Delta* is the total dollar sensitivity of CEOs' wealth in both stocks and options to a 1% change in stock prices. Because Guay (1999) shows that option *Vega* is many times larger than stock *Vega*, in our analysis, *Vega* is the total sensitivity of CEOs' wealth in options to a 0.01 change in the annualized standard deviation of stock returns. This measure is consistent with the literature (e.g., Knopf et al., 2002; Rajgopal and Shevlin, 2002; Coles et al., 2006).

The results show that both Republican and Democratic CEOs receive significantly higher equity-based compensation (*Delta* and *Vega*) than nonpartisan CEOs. The average total dollar sensitivity of Republican (Democratic) CEOs' wealth to a 1% change in stock price is $1.158 million ($1.376 million), which is significantly higher than the value of $0.701 million for nonpartisan CEOs. Further, *Vega* for Republican and Democratic CEOs is $0.159 million and $0.172 million, respectively, both of which are significantly higher than the value of $0.112 million for nonpartisan CEOs.

Consistent with the significantly higher equity-based compensation for partisan CEOs, the salary component of compensation is significantly lower for both Republican and Democratic CEOs than for nonpartisan CEOs, suggesting that Republican and Democratic CEOs' compensation is more performance based than that of their nonpartisan counterparts. The significantly higher performance-based compensation for Republican and Democratic CEOs than for nonpartisan CEOs highlights the importance of controlling for economic incentives in an analysis of the effects of CEOs' political preference on corporate tax sheltering.

Panel C of Table 1 presents the firm characteristics. Firms led by Republican and Democratic CEOs are significantly larger and have significantly higher permanent book-to-tax differences than firms led by nonpartisan CEOs. Following Frank et al. (2009) we measure *PERMDIFF* as the difference between the total book-to-tax differences and the temporary book-

tax differences (see the appendix for a more detailed definition). The average *PERMDIFF* of the firms led by Republican (Democratic) CEOs is 0.006 (0.007), which is significantly higher than the value of -0.003 for the firms led by nonpartisan CEOs.

Panel C also shows that Democratic CEOs seem to be less entrenched than Republican and nonpartisan CEOs. The *E-Index* is an entrenchment index developed by Bebchuk et al. (2009) that ranges from 0 to 6, with higher numbers indicating more management entrenchment and therefore worse corporate governance. The average *E-Index* of Democratic-led firms is 2.563, which is significantly lower than the value of 2.756 for Republican-led firms and the value of 2.724 for nonpartisan CEO firms. Additionally, we find that firms of partisan CEOs are larger and that they have more leverage than those of nonpartisan CEO. Overall, the results presented in Table 1 show that both Republican and Democratic CEOs are associated with significantly different economic incentives, corporate control mechanisms, and firm characteristics, which indicates the need for a multivariate analysis.

4. Regression Analysis

To examine whether the univariate results hold after we include control variables, we first run ordinary least squares (OLS) regressions to analyze cross-sectional differences in tax sheltering, and then run firm fixed-effects models to examine whether the difference due to CEOs' political preferences is driven by any unobservable firm characteristics. We further refine our analyses by examining the moderating roles of CEO compensation, corporate governance and local political preference.

4.1 CEOs' Political Preference and Tax Sheltering

Our basic empirical specification examines whether a CEO's political preference explain cross-sectional differences in tax sheltering. We use each of three measures of tax sheltering as the dependent variables, and examine indicators of CEOs' political preference (*REP* and *DEM*) with and without control variables. OLS regressions are used for *DTAX* and *DD_TA*, while for *SHELTER*, logit models are used. Similar to Rego and Wilson (2012) and Hoi et al. (2013), we control for the following variables in the regression: CEO incentives (*Salary/TDC*, *Delta*, and *Vega*), where *Salary/TDC* refers to a CEO's salary, scaled by the CEO's total annual compensation (*TDC*), and *TDC* refers to the CEO's annual total compensation and comes from Compustat's TDC1 measure; *Size* measures the market size of the firm relative to the rest of the S&P 1500 in each observation year and takes a value of 1 if the firm is larger than 75% of the S&P 1500 firms; *MTB* is the market-to-book ratio of the firm; *Hitech* is a dummy variable that equals 1 when the firm is in the high-tech industry (1990); *REP President* is a dummy variable that equals 1 when the incumbent president is a Republican; *PICFO* is the pretax cash flow (*OANCF* - *XIDOC* + *TXPD*) divided by lagged assets (AT); *ForeignIncome* is foreign income (*PIFO*) scaled by lagged assets (*AT*); *NOLdummy* is a dummy that equals 1 if the loss carryforward (*TLCF*) is positive; *ΔNOL* is the change in the loss carryforward (*TLCF*) scaled by lagged assets (*AT*); *PPE* is property, plant, and equipment (*PPENT*) scaled by lagged assets (*AT*); *Intangible* is the intangible assets (*INTAN*) scaled by lagged assets (*AT*); *TXDI* is the deferred tax expense (income account); and *Female* is a dummy variable that equals 1 when the CEO is female.

Table 2 presents the results of the regression models. Model 1 estimates the likelihood of *SHELTER*; for Models 2 and 3 the dependent variables are *DTAX* and *DD_TA*, respectively. Year effects and industry effects are controlled for in all models. We find that in all three models

the coefficient of *REP* are positive and statistically significant, indicating that Republican CEOs avoid more taxes than nonpartisan CEOs. However, the effects for Democratic CEOs on *SHELTER* and *DD_TA* are positive and significant after including all of the control variables. The regression results shown in Table 2 are consistent with the univariate results that both Republican and Democratic CEOs are associated with higher levels of tax sheltering, thus supporting the *Political Connection* hypothesis.[11]

[Insert Table 2 Here]

The results for the control variables also yield interesting insights, confirming the important role of CEO economic incentives in tax sheltering decisions. Specifically, firms with CEOs whose compensation plans have higher salary components—and therefore, a smaller proportion of performance-based compensation—engage in significantly less *SHELTER* activities.

Vega is positive and significantly related to more *SHELTER* activities and higher *DD_TA*. The results for the effect of *Vega* on tax sheltering are consistent with the results reported in Rego and Wilson (2012), who find that option-based risk incentives are positively associated with higher tax sheltering. However, the effects of *Delta* on tax sheltering are mixed after we control for other influential factors. Specifically, all else being equal, *Delta* increases *SHELTER* but decreases *DTAX* and *DD_TA*. Because *Delta* is most affected by stock prices, the mixed results echo the mixed evidence reported in the literature on the relationship between tax

[11] When we run the baseline regressions and drop all of the nonpartisan CEOs, we find that Republican CEOs and Democratic CEOs are not different in their tax sheltering behaviors when we include all of the firm characteristic control variables and the CEO compensation variables.

sheltering and firm value (e.g., Desai and Dharmapala, 2009; Hanlon and Slemrod, 2009; Kim et al., 2011).

The rationale behind including the party affiliation of the incumbent president is to control for the national environment regarding tax policies. Consistent with their parties' political platforms, Republican presidents and Democratic presidents have distinct differences in tax policies. The effect of the incumbent president's party affiliation on corporate tax sheltering, however, is not straightforward. For example, during the years when a Republican occupies the President's office, firms may exert less effort in sheltering taxes because of the tax friendly policies. Alternatively, tax sheltering may increase during these years because of a decreased likelihood of deterrence. We find that *REP President* has a positive and significant effect on *SHELTER* and *DD_TA*, suggesting that firms shelter more taxes in years when the incumbent president is a Republican than in years when the president is a Democrat.

TXDI is positively and significantly associated with *DD_TA*. Because *DD_TA* includes both temporary and permanent tax sheltering, it is important to control for *TXDI* in an analysis of factors that determine this measure of tax sheltering. The fraction of foreign income is negatively and significantly associated with *DD_TA*. This result is obtained because *DD_TA*, by design, measures firms' domestic tax planning only. However, Rego (2003) shows that multinational firms with more foreign income have lower worldwide ETRs than other firms. Hope et al. (2013) further find that multinational firms that opt to discontinue their disclosure of the adoption of FAS 131 reduce their worldwide ETR because the nondisclosure of geographic earnings helps mask their tax sheltering behavior. Moreover, Hanlon et al. (2014) show that locked-out cash due to repatriation tax costs is associated with a higher likelihood of foreign (but not domestic) acquisitions. Our result of a negative relationship between foreign income and domestic tax sheltering therefore is not surprising. It suggests that the source of foreign income provides firms

with opportunities for tax sheltering, thus reducing firms' need for domestic tax sheltering. In contrast, firms with little foreign income have to rely more on domestic tax sheltering.

4.2 CEOs' Political Preference and Tax Sheltering by Economic Incentives

We find that both Republican and Democratic CEOs are associated with higher tax sheltering, which seems to be consistent with the *Political Connection* hypothesis. To provide further insight into the factors driving the observed positive relation between CEOs' political preference and corporate tax sheltering, we rerun our baseline model by grouping firms with similar CEO incentives together. The remaining effects after we remove the impact of economic incentives could shed more light on the role of individual attributes in corporate tax sheltering.

As such, we split the sample into subgroups based on the median value of CEOs' *Delta*; the results are reported in Table 3.[12] Models 1 to 4 in Panel A provide the results for CEOs with low *Delta*, and models 5 to 8 provide the results for CEOs with high *Delta*. The results of Models 1 to 4 show that when CEOs' *Delta* is low, the positive effects of Republican CEOs' political preference on all three measures of tax sheltering remain significant, suggesting that Republican CEOs engage in more tax sheltering even when their economic incentives for doing so are low. For the group of CEOs' with high delta, the effects of CEOs' political preferences are mitigated, except for *SHELTER*.

[Insert Table 3 Here]

[12] When we further split the results by *Vega*, our main results hold: Republican CEOs avoid significantly more taxes even when their *Delta* and *Vega* are low, and Democratic CEOs avoid significantly more taxes only when their *Delta* and *Vega* are high.

In contrast, the coefficients of Democratic CEOs are not significant when their equity-based incentives are low. Thus, when Democratic CEOs have significant wealth exposure to stock prices, they engage in significantly more tax sheltering (particularly when measured by *Shelter* and *DD_TA*). In sum, the results of the subsample analyses add more insights to the previously reported positive relationship between CEO political preference and tax sheltering. They suggest that it is *not* the economic incentives that drive (conservative) Republican CEOs' tax sheltering decisions and that it takes a relatively *high level* of economic incentives to motivate Democratic CEOs to engage in more tax sheltering. These results further suggest that political connections are a necessary but not sufficient factor for Democratic CEOs to shelter more taxes.

4.3 CEOs' Political Preference and Tax Sheltering by Corporate Governance

We further examine the extent to which corporate governance attenuates the effects of CEOs' political preference on corporate tax sheltering. Because of the separation of ownership and control in firms, the effects of CEOs' political preference on corporate tax sheltering should be examined within an agency framework (Slemrod, 2004; Chen and Chu, 2005; Crocker and Slemrod, 2005). For this purpose, we test our hypotheses by adding a control for corporate governance and by running subsample tests based on the level of corporate governance. The results are presented in Table 4. Panel A presents the regression results by adding the *E-Index*. The number of observations is reduced owing to data availability.

The results show that the positive and significant effect of Republican CEOs' political preference on corporate tax sheltering remain after we include a corporate governance measure. The coefficient of *E-Index* is negative and significant for *Shelter*, suggesting that firms with better corporate governance (less entrenched managers) are more likely to use tax shelters. This

pattern could be explained by the "quiet life" hypothesis (Hicks, 1935), in which poorly governed managers generally take fewer risks and avoid difficult decisions and costly effort. *E-Index*, however, does not significantly explain the variations in *DTAX* and *DD_TA*, which highlights the complexity of studying the variations in corporate tax sheltering (Hanlon and Heitzman, 2010).

[Insert Table 4 Here]

When we split the sample based on the median value of the *E-Index*, as Panel B shows, the positive effects of Republican CEOs' political preference on corporate tax sheltering are particularly significant when their firm's corporate governance is relatively weak and their firm's management is more entrenched. The effects of CEOs' political preference disappear for firms with strong corporate governance, suggesting that in such firms, Republican, Democratic, and nonpartisan CEOs make similar tax sheltering decisions, all else being equal. These results suggest that Republican CEOs engage in more tax sheltering even when their interests are not necessarily aligned with those of the shareholders and when they usually would have avoided risky firm policies, as suggested by the "quiet life" hypothesis.

4.4 CEOs' Political Preference and Tax Sheltering by Local Political Preference

Hutton et al. (2014) argue that the local political environment may affect firm policies because firms need to cater to the local political preferences (Rubin, 2008; Becker et al., 2010). To control for the influence of the local political environment, we add a control variable that measures the overall political preference of the location in which the firm's headquarters is located. Specifically, we collect all the donations residents make during each election cycle and

sort them by five-digit zip codes. We code the local political environment as *Red* if the donations made to Republican parties during an election cycle are higher than the donations made to other parties and *Blue* otherwise.

We first rerun the baseline regressions by adding the *Red* variable. The results are reported in Columns 1 to 3 of Table 5. The control variables are the same as in Table 3, and we include year and industry effects. The results show that the positive effects of Republican CEOs' political preference on corporate tax sheltering remain for all three measures of tax sheltering and that the positive effects of Democratic CEOs' political preference remain for *Shelter* and *DD_TA*.

[Insert Table 5 Here]

We then split the sample into *Red* and *Blue* subgroups. We find that the local political preference of the firm's location significantly affects the tax sheltering decisions made by both Republican and Democratic CEOs. Specifically, the results presented in Columns 5 to 8 show that both Republican and Democratic CEOs engage in more tax sheltering activities when their firm is located in *Red* states. By contrast, the tax sheltering behavior by partisan CEOs is mitigated in *Blue* states, and this mitigating effect is particularly pronounced for Democratic CEOs, as shown in Columns 7 to 9. Specifically, the results show that Democratic CEOs do not make significantly different tax sheltering decisions from nonpartisan CEOs in *Blue* states. For Republican CEOs, the positive effects of CEOs' political preference on tax sheltering remain only for *SHELTER* in *Blue* states. These results are consistent with studies (Rubin, 2008; Becker et al., 2010) showing that firms need to cater to the local environment when making firm policies.

In sum, our results suggest that although both Republican and Democratic CEOs engage in more tax sheltering than nonpartisan CEOs, their tax sheltering behaviors are driven by different factors. Specifically, because Republican CEOs' political ideology favors tax reduction in general, we find that they engage in more tax sheltering even when their wealth is not tied to firm performance and shareholders' value and when they are entrenched and could have enjoyed a "quiet life" without engaging in risky and complex firm policies such as tax shelters. Our results also suggest that even though our results support the *Political Connection* hypothesis, it is not a sufficient factor for Democratic CEOs to engage in tax sheltering. The results show that for Democratic CEOs, they only engage in more tax sheltering when their wealth is tied with that of shareholders, implying that it would cost shareholders more to motivate Democratic CEOs' tax sheltering decisions because such activities are not in line with their political ideology regarding tax policies.

4.5 CEOs' Political Preference and Tax Sheltering: Fixed-Effects Regressions

To control for unobservable firm or CEO characteristics, we run firm fixed-effects regressions for all firms that do not change CEOs during the sample period. Accordingly, the sign and significance of the coefficients on *REP* or *DEM* indicate whether a change in a CEO's political preference causes a significant change in the firm's tax sheltering behavior. In all, 195 of 1,468 CEOs in our sample changed their political preference in different election cycles. These changes in political affiliation provide us with an opportunity to examine whether the observed differences are caused by CEOs' political beliefs or by other unobservable CEO characteristics. The results are presented in Table 6. Note that to capture more changes in the likelihood that firms engage tax sheltering activities, we replace *SHELTER* with the probability of sheltering.

[Insert Table 6 Here]

The results in Table 6 show that when CEOs start (stop) donating to Republican candidates or party-related committees (changing from Democratic or nonpartisan candidates or committees), their firms experience significantly more (less) permanent tax sheltering *(DTAX)* and discretionary tax sheltering (*DD_TA*). A similar pattern, however, is not observed when CEOs start (stop) donating to Democratic candidates or party-related committees. These results further confirm our earlier findings that Republican CEOs' political ideology plays a significant role in their firms' tax sheltering decisions.

The fact that we find significant results for *DTAX* and *DD_TA* but not for *SHELTER* is not surprising because of the design of these measures. As explained earlier, both *DTAX* and *DD_TA* measure discretionary tax sheltering and therefore suit our research questions better than *SHELTER*, which measures tax aggressiveness at the transaction level but not necessarily at the firm level and definitely has no implications for discretionary tax policies.

5. Robustness Tests

5.1 Alternative Measures of CEOs' Political Preference

We measure CEOs' political preference by the amount of the donations that they make in each election cycle. This measurement approach allows us to analyze the change in CEOs' political preference to mitigate concerns regarding the identification of CEOs' political preference. Studies in the literature also measure CEOs' political preference by the total amount that they donate over the whole sample period to identify their political preference (e.g., Hutton et al., 2014).

We use this alternative measure of CEOs' political preference to render our results comparable to the literature. Specifically, *REP9210* is a dummy variable that equals 1 when incumbent CEOs make more donations to Republican parties during the whole sample period from 1992 to 2010. CEOs are not required to donate every election cycle to be included in this table. Their political preference is determined by the total amount of donations to each party during the whole period. We rerun our baseline regression analysis with this alternative measure; the results are reported in Table 7.

[Insert Table 7 Here]

Panel A includes all observations, and the results show that when we use this alternative measure of CEOs' political preference, the positive effects of CEOs' political preference on tax sheltering remain, especially for Republican CEOs. Panel B shows that the positive relationship between Republican CEOs' political preference and tax sheltering is particularly pronounced when CEOs' economic incentives are low, which is consistent with the results reported earlier. In contrast, Democratic CEOs' political preference does not significantly affect any of the tax sheltering measures except for *DD_TA*. However, the positive effect for this measure is driven by the CEOs with higher *Delta*, highlighting the effects of economic incentives in motivating Democratic CEOs' tax sheltering decisions.

5.3 Alternative Measures of Tax Sheltering

A wide range of proxies have been developed for tax sheltering; however, it is possible that different proxies are only suitable for a certain type of research question (see a detailed survey by

Hanlon and Heitzman, 2010). For robustness tests, we use alternative tax sheltering measures such as *Tax Haven* (Dyreng and Lindsay, 2009), *ETR*, and *CETR*.

First, following Dyreng and Lindsay (2009), we identify whether firms have operations in countries that are identified as tax havens. The results are reported in Table 8. We find that both Republican CEOs and Democratic CEOs have a significantly higher likelihood of having foreign operations in tax-haven countries than nonpartisan CEOs, although the significance disappears after we control for CEOs' economic incentives. However, the positive and significant effect of CEOs' political preference on operations in tax havens remain when we use the alternative measure of political preference, *REP9210* and *DEM9210*. In summary, there is some support for the arguments outlined above.

[Insert Table 8 Here]

Second, we rerun our regression analysis by using *ETR* and *CETR* as proxies of tax sheltering. The results are reported in Table 9. We find that although Republican CEOs seem to be associated with more *ETR* and Democratic CEOs seem to be associated with less *CETR*, the significance disappears after we include CEOs' economic incentives and other control variables, regardless of which method we use to measure CEOs' political preference. Lisowsky et al. (2013) place *ETR* and *CETR* near the end of the tax sheltering continuum. Rego and Wilson (2012) also argue that *CETR* diverges further from the construct of aggressive tax sheltering than both *SHELTER* and *DTAX*—the tax sheltering measures that we use in our main tests. Thus, a plausible explanation of the insignificant results could be that because *ETR* and *CETR* capture more certain tax planning (e.g., municipal bond investments) involving less managerial discretion, CEOs' political preference does not significantly affect *ETR* and *CETR*.

[Insert Table 9 Here]

Although the significance of our main variables for CEO political preference disappears in the models for *ETR* and *CETR*, our results still have meaningful implications for studies of corporate tax sheltering. First, it is crucial to control for CEO compensation when studying the effects of CEO attributes on firm policies. Second, it is important to choose the appropriate tax measures for the research questions. In this study, the tax measures of interest are apparently more discretionary and/or aggressive. General tax planning measures such as *ETR* and *CETR* may not yield insightful results on the effects of CEOs' political preference on tax sheltering.

6. Conclusion

Corporate tax sheltering is an important research topic, and there has been a surge in studies examining the determinants of corporate tax sheltering. However, many issues remain unexplored. We attempt to shed light on this stream of literature by examining the effects of CEOs' political preference on corporate tax sheltering policies. We find that CEOs' political preference significantly affects tax sheltering. Specifically, partisan (Republican or Democratic) CEOs are associated with significantly more tax sheltering than nonpartisan CEOs. Partisan CEOs nevertheless engage in tax sheltering activities for different reasons.

In summary, our results suggest that both economic and noneconomic factors affect CEOs' tax sheltering decisions. We show that when economic compensation is not the only motivation for corporate decision making, the factors that determine tax sheltering may vary among individuals. For example, our results suggest that political ideology drives Republican CEOs' tax sheltering, while Democratic CEOs engage in more tax sheltering when the economic compensation is high. Our results therefore shed light on why researchers cannot explain the variation in tax sheltering very well (Hanlon and Heitzman; 2010), especially when the idiosyncratic differences in decision makers are introduced.

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Table 1

Summary Statistics by CEOs' Political Preferences

This table presents summary statistics for the sample, sorted by CEOs' political preferences. Panel A presents the summary of tax sheltering by political preference. *SHELTER*, *DTAX*, and *DD_TA* are defined in the appendix. We measure CEOs' political preferences in each year by their contributions to the political parties during the nearest election cycle. When a CEO donates to both parties, the amount determines party preference. The CEOs without obvious political preferences include those who donate to non-party-affiliated PACs or organizations and those who do not make donations at all during the nearest election cycle. *REP* refers to CEOs who prefer Republican parties; *DEM* refers to CEOs who prefer Democratic parties; *Neutral* refers to CEOs without obvious political preferences, including those who donate to non-party-affiliated PACs or organizations and those who do not make donations at all during the nearest election cycle. Panel B presents the summary of CEO compensation. *Salary/TDC* refers to CEO salary, scaled by total annual compensation (*TDC*). *TDC* refers to total annual compensation and is derived from Compustat's TDC1 data item. *Delta* is the sensitivity of the CEO's wealth (including both options and common stock holdings) to a 1% change in the firm's stock price. *Vega* is the sensitivity of the CEO's wealth (options) to a 0.01 change in the annualized standard deviation of the firm's stock returns. Panel C shows the summary statistics of firm characteristics. *LEV* is the percentage of long-term debt of lagged total assets. *E Index* is the entrenchment index developed by Bebchuk, Cohen, and Ferrell (2009). The index ranges from 0 to 6, with higher numbers indicating higher managerial entrenchment and therefore worse corporate governance. *PERMDIFF* equals the difference between the total book-tax differences and the temporary book-tax differences. For details, see the appendix. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	All_Mean	All_Median	*REP*	*DEM*	*Neutral*	DIFF.		
	(1)	(2)	(3)	(4)	(5)	(3)-(5)	(4)-(5)	(3)-(4)
Panel A: Tax Sheltering								
DTAX	0.009	0.004	0.011	0.010	0.009	0.002**	0.001	0.001
DD_TA	0.000	0.000	0.003	0.003	0.000	0.003**	0.003	0.000
SHELTER	0.200	0.000	0.250	0.278	0.186	0.064***	0.092***	-0.028**
Panel B: CEO Incentives								
Salary/TDC	0.334	0.267	0.317	0.314	0.338	-0.021***	-0.024***	0.021***
Delta ($mil.)	0.799	0.228	1.158	1.376	0.701	0.457***	0.675***	-0.218***
Vega ($mil.)	0.122	0.043	0.159	0.172	0.112	0.047***	0.060***	-0.013*
Panel C: Firm Characteristics								
Total Assets ($mil.)	5,495.867	1,140.137	8,519.847	8,742.790	4,789.831	3,730.016***	3,952.959***	-222.943
LEV	0.190	0.179	0.205	0.193	0.187	0.018***	0.006	0.012**
E Index	2.718	3	2.756	2.563	2.724	0.032	-0.161***	0.193***
PERMDIFF	-0.001	0.005	0.006	0.007	-0.003	0.009***	0.010***	-0.001

Table 2
Results of Regressions for Measures of Tax Sheltering on CEOs' Political Preferences

This table presents the results for the regression analysis of the effects of CEOs' political preferences on the three measures of tax sheltering. All regressions except for model 2 are conducted by using OLS regressions. *Size* measures the market size of the firm relative to the rest of the S&P 1500 in each observation year. *Size* equals 1 if the firm is larger than 75% of the S&P 1500 firms. *MTB* is the market-to-book ratio of the firm's equity. *Hitech* is a dummy variable that equals 1 when the firm is in the high-tech industry as defined by Chan et al. (1990). *REP President* is a dummy variable that equals 1 when the incumbent president is a Republican. *PICFO* is the pretax cash flow (*OANCF - XIDOC + TXPD*) divided by lagged total assets (AT). *ForeignIncome* is foreign income (*PIFO*) scaled by lagged assets (*AT*). *NOLdummy* is a dummy variable that equals 1 if the loss carryforward (*TLCF*) is positive. *ΔNOL* is the change in the loss carryforward (*TLCF*) scaled by lagged assets (*AT*). *PPE* is the property, plant, and equipment (*PPENT*) scaled by lagged assets (*AT*). *Intangible* is intangible assets (*INTAN*) scaled by lagged assets (*AT*). *Female* is a dummy variable that equals 1 when the CEO is female. All other variables are defined previously. Year and two-digit SIC industry effects are included in all models. The reported p-values in parentheses reflect White's heteroskedasticity correction. The symbols *, **, and, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	SHELTER	*DTAX*	*DD_TA*
	(Logit)	*(OLS)*	*(OLS)*
	1	2	3
REP	0.243***	0.002*	0.002*
	(0.002)	(0.066)	(0.091)
DEM	0.202*	0.001	0.004**
	(0.053)	(0.773)	(0.021)
Salary/TDC	-1.080***	-0.001	0.002
	(0.000)	(0.773)	(0.465)
LnDelta	0.177***	-0.001***	-0.001***
	(0.000)	(0.002)	(0.006)
LnVega	0.035***	0.001	0.001***
	(0.000)	(0.297)	(0.000)
Size	2.092***	0.002	-0.002*
	(0.000)	(0.117)	(0.057)
MTB	-0.079***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.008)
Hitech	0.155*	0.005**	0.003
	(0.080)	(0.026)	(0.142)
REP	0.436*	0.001	0.011***
President	(0.053)	(0.937)	(0.004)
PICFO	-3.897***	0.020**	0.090***
	(0.000)	(0.017)	(0.000)

FOREIGNIncome	5.475***	-0.002	-0.005***
	(0.000)	(0.196)	(0.000)
LEV	-2.951***	0.028***	0.025***
	(0.000)	(0.000)	(0.000)
ROA	12.387***	0.110***	0.174***
	(0.000)	(0.000)	(0.000)
NOLdummy	0.128**	0.009***	0.002*
	(0.030)	(0.000)	(0.089)
ΔNOL	-17.340***	0.002	0.018
	(0.000)	(0.877)	(0.685)
PPE	-2.447*	0.015	0.072***
	(0.093)	(0.431)	(0.004)
Intangible	-0.484***	0.005	0.002
	(0.000)	(0.277)	(0.459)
TXDI	18.317***	-0.433***	0.793***
	(0.000)	(0.000)	(0.000)
Female	0.031	0.008*	-0.002
	(0.885)	(0.073)	(0.583)
Year & Ind. effects	Yes	Yes	Yes
Obs.	20,151	13,549	10,310
Adj. R^2	0.521	0.155	0.395
Prob>F	0.000	0.000	0.000

Table 3
Results of Regressions for Tax Sheltering by Equity-Based Incentives

This table presents the results for the regression analysis of CEOs' political preferences on the three measures of tax sheltering. *Low Delta* refers to CEOs whose deltas are lower than the median value of the sample; *High Delta* refers to those whose deltas are equal to or higher than the median value of the sample. Control variables, when included, are the same as those in Table 2. Year and two-digit SIC industry effects are included in all models. The reported p-values in parentheses reflect White's heteroskedasticity correction. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Low Delta			High Delta		
	SHELTER	*DTAX*	*DD_TA*	*SHELTER*	*DTAX*	*DD_TA*
	(Logit)	*(OLS)*	*(OLS)*	(Logit)	*(OLS)*	*(OLS)*
	1	2	3	4	5	6
REP	0.426***	0.005***	0.003**	0.220**	-0.001	0.001
	(0.003)	(0.000)	(0.049)	(0.015)	(0.790)	(0.712)
DEM	0.214	0.001	-0.003	0.202*	-0.001	0.007***
	(0.361)	(0.676)	(0.276)	(0.088)	(0.711)	(0.003)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year & Ind. effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	9,780	6,190	3,166	10,371	7,359	7,144
Adj. R^2	0.634	0.219	0.489	0.155	0.079	0.395
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000

Table 4

Results of Regressions for Tax Sheltering by Corporate Governance

This table presents the results for the regression analysis of CEOs' political preferences on the three measures of tax sheltering by adding a corporate governance measure, *E Index*. The number of observations falls because of the missing values for *E Index*. Year and two-digit SIC industry effects are included in all models. All other variables are defined previously. Control variables, when included, are the same as those in table 2. The reported p-values in parentheses reflect White's heteroskedasticity correction for the OLS analysis. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Including Corporate Governance Control

	SHELTER	*DTAX*	*DD_TA*
	(Logit)	*(OLS)*	*(OLS)*
	1	2	3
REP	0.238***	0.003**	0.002*
	(0.004)	(0.050)	(0.089)
DEM	0.141	0.001	0.004**
	(0.217)	(0.838)	(0.025)
E Index	-0.044*	-0.001	0.001
	(0.086)	(0.255)	(0.657)
Control Variables	Yes	Yes	Yes
Year & Ind. effects	Yes	Yes	Yes
Obs.	16,102	10,649	6,254
Adj. R^2	0.521	0.145	0.435
Prob>F	0.000	0.000	0.000

Panel B. Subsamples

	More Entrenched Management (Weak Corporate Governance)			Less Entrenched Management (Strong Corporate Governance)		
	SHELTER	*DTAX*	*DD_TA*	*SHELTER*	*DTAX*	*DD_TA*
	(Logit)	*(OLS)*	*(OLS)*	(Logit)	*(OLS)*	*(OLS)*
	1	2	3	4	5	6
REP	0.293***	0.003*	0.004***	0.115	0.002	-0.003
	(0.009)	(0.100)	(0.007)	(0.369)	(0.425)	(0.136)
DEM	0.100	0.001	0.003	0.120	0.001	0.003
	(0.526)	(0.956)	(0.307)	(0.448)	(0.880)	(0.194)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year & Ind. effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	8,414	5,447	3,166	7,688	5,202	3,088
Adj. R^2	0.508	0.137	0.452	0.540	0.181	0.488
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000

Table 5

Results of Regressions for Tax Sheltering by Controlling Local Political Preferences

This table presents the results for the regression analysis of CEOs' political preferences on the three measures of tax sheltering by adding a variable for local political preference. *Red* is a dummy variable equals 1 when the total donations to the Republican Party in the location where the firm is incorporated are higher than to other parties in each year of the nearest election cycle and *Blue* otherwise. Location is classified by five-digit zip code. All other variables are defined previously. Control variables, when included, are the same as those in table 2. Year effects are included in all models. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Within group R^2 with firm-clustered standard errors are reported.

	All			Red			Blue		
	SHELTER	*DTAX*	*DD_TA*	*SHELTER*	*DTAX*	*DD_TA*	*SHELTER*	*DTAX*	*DD_TA*
	(Logit)	*(OLS)*	*(OLS)*	(Logit)	*(OLS)*	*(OLS)*	(Logit)	*(OLS)*	*(OLS)*
	1	2	3	4	5	6	7	8	9
REP	0.261***	0.002*	0.002*	0.185*	0.003**	0.002*	0.365***	0.001	0.001
	(0.001)	(0.095)	(0.090)	(0.065)	(0.031)	(0.086)	(0.008)	(0.832)	(0.617)
DEM	0.186*	0.001	0.004**	0.355**	0.002	0.006**	0.009	-0.002	0.002
	(0.082)	(0.927)	(0.041)	(0.031)	(0.457)	(0.042)	(0.952)	(0.475)	(0.568)
Red	-0.080	-0.002*	0.001						
	(0.169)	(0.079)	(0.996)						
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year & Ind. Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	18,821	12,418	7,516	12,349	8,260	4,871	6,472	4,158	2,645
Adj. R^2	0.520	0.161	0.419	0.528	0.145	0.436	0.511	0.203	0.424
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Table 6

Results of Firm Fixed Effects for CEOs' Political Preferences on Tax Sheltering

This table presents results for the fixed effects of CEOs' political preferences on firms' tax sheltering. The sample includes firms that did not change CEOs during the sample period. Note that to capture more changes in the likelihood of using tax shelters, we replace *SHELTER* with the probability of sheltering, which is calculated based on the prediction score obtained in equation 2. All other variables are defined previously. Control variables, when included, are defined earlier. Year effects are included in all models. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Within group R^2 with firm-clustered standard errors are reported.

	SHELTERProb		*DTAX*		*DD_TA*	
	(XTREG)		*(XTREG)*		(*XTREG*)	
	1	2	3	4	5	6
REP	0.019		0.008**		0.005*	
	(0.592)		(0.013)		(0.099)	
DEM		0.037		-0.003		-0.001
		(0.426)		(0.552)		(0.953)
Size	0.087	0.085	0.005	0.005	0.002	0.002
	(0.208)	(0.217)	(0.255)	(0.289)	(0.509)	(0.574)
MTB	-0.038***	-0.038***	-0.001	-0.002	-0.001	-0.001
	(0.000)	(0.000)	(0.747)	(0.760)	(0.161)	(0.152)
REP	-0.138	-0.142	-0.023***	-0.023***	0.006	0.007
President	(0.161)	(0.144)	(0.001)	(0.001)	(0.548)	(0.509)
Foreignincome	1.682***	1.682***	-0.003	-0.003	-0.001	-0.002
	(0.000)	(0.000)	(0.480)	(0.472)	(0.982)	(0.970)

LEV	-1.282***	-1.283***	0.038**	0.037**	0.043***	0.043***
	(0.000)	(0.000)	(0.014)	(0.015)	(0.002)	(0.002)
ROA	5.628***	5.628***	0.125***	0.125***	0.317***	0.318***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PPE	-0.372	-0.366	0.035	0.032	-0.005	-0.006
	(0.447)	(0.453)	(0.362)	(0.408)	(0.938)	(0.913)
Intangible	-0.324**	-0.323**	-0.001	0.001	0.007	0.007
	(0.033)	(0.033)	(0.999)	(0.966)	(0.338)	(0.327)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	7,114	7,114	4,652	4,652	2,740	2,740
Within R^2	0.556	0.556	0.095	0.094	0.258	0.257

Table 7

Results of the Alternative Measures of CEO's Political Preference

This table presents the results for the regression of CEOs' political preferences on the three measures of tax sheltering by using alternative measures of political preference. *REP9210* is a dummy variable that equals 1 when the incumbent CEOs make more donations to the Republican party over the entire sample period of 1992 to 2010. CEOs are not required to donate in every election cycle to be included in this table. Their political preference is determined by the total amount of donations to each party during the entire period. All other variables are defined previously. Control variables, when included, are the same as those in table 2. Year effects are included in all models. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. The reported p-values in parentheses reflect White's heteroskedasticity correction.

Panel A. Full sample

	SHELTER	*DTAX*	*DD_TA*
	(Logit)	*(OLS)*	*(OLS)*
	2	3	4
REP9210	0.103*	0.002**	0.002*
	(0.099)	(0.040)	(0.094)
DEM9210	0.073	0.002	0.004***
	(0.407)	(0.332)	(0.006)
Control Variables	Yes	Yes	Yes
Year & Ind. effects	Yes	Yes	Yes
Obs.	20,151	13,549	10,310
Adj. R^2	0.521	0.155	0.395
Prob>F	0.000	0.000	0.000

Panel B. By CEOs' Delta

	Low Delta			High Delta		
	SHELTER	*DTAX*	*DD_TA*	*SHELTER*	*DTAX*	*DD_TA*
	(Logit)	*(OLS)*	*(OLS)*	(Logit)	*(OLS)*	*(OLS)*
	1	2	3	4	5	6
REP9210	0.265**	0.003*	0.003**	0.086	0.001	0.001
	(0.022)	(0.091)	(0.045)	(0.256)	(0.544)	(0.371)
DEM9210	0.071	0.004	-0.001	0.102	-0.001	0.005***
	(0.710)	(0.202)	(0.814)	(0.315)	(0.866)	(0.005)
Control Variables	Yes	Yes	Yes	Yes	Yes	Yes
Year & Ind. effects	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	9,780	6,183	3,166	9,691	7,359	4,673
Adj. R^2	0.441	0.214	0.490	0.507	0.124	0.370
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000

Table 8

Results for Regressions of Tax Sheltering by Tax Haven

This table presents the results for the regression analysis of CEOs' political preferences on alternative measures of tax sheltering. *TAX Haven* equals 1 if a firm has at least one tax-haven country subsidiary and 0 otherwise. We obtain tax-haven data from Scott Dyreng's personal webpage. Scott Dyreng provides data on the number of haven countries reported in firms' exhibit 21 in their 10-Ks. Exhibit 21 is a required element of the 10-K and includes a listing of all subsidiaries with material operations. The tax-haven countries are defined in table 1 in Dyreng and Lindsay (2009). *ETR* is total tax expense (*TXT*) divided by pretax income, which is measured as the difference between pre-tax book income (*PI*) before special items (*SPI*). *ETR* is set as missing when the denominator is zero or negative. We truncate *ETR* to the range [0,1]. *CETR* is defined as cash tax paid (*TXPD*) divided by pretax income, which is measured as the difference between pre-tax book income (*PI*) before special items (*SPI*). *CETR* is set as missing when the denominator is zero or negative. We truncate *CETR* to the range [0,1]. All other variables are defined previously. Control variables, when included, are the same as those used in table 2. Year effects are included in all models. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Within group R^2 with firm-clustered standard errors are reported.

	TAX Haven (Logit)			
	1	2	3	4
REP	0.161***	0.005	0.048	
	(0.001)	(0.582)	(0.370)	
DEM	0.277***	0.012	-0.025	
	(0.000)	(0.394)	(0.749)	
REP9210				0.111***
				(0.010)
DEM9210				0.162**
				(0.019)
Salary/TDC		-0.180***	-0.632***	-0.630***
		(0.000)	(0.000)	(0.000)

LnDelta		0.027***	0.075***	0.070***
		(0.000)	(0.000)	(0.000)
LnVega		0.009***	0.020***	0.020***
		(0.000)	(0.002)	(0.000)
Control	No	No	Yes	Yes
Variables				
Year & Ind. effects	Yes	Yes	Yes	Yes
Obs.	20,151	20,151	20,151	20,151
Adj. R^2	0.130	0.159	0.232	0.232
Prob>F	0.000	0.000	0.000	0.000

Table 9

Results for Regressions of Tax Sheltering measured by ETR and CETR

This table presents the results for the regression analysis of the effects of CEOs' political preferences on alternative measures of firms' tax sheltering. *ETR* is total tax expense (*TXT*) divided by pretax income, which is measured as the difference between pre-tax book income (*PI*) before special items (*SPI*). *ETR* is set as missing when the denominator is zero or negative. We truncate *ETR* to the range [0, 1]. *CETR* is defined as cash tax paid (*TXPD*) divided by pretax income, which is measured as the difference between pre-tax book income (*PI*) before special items (*SPI*). *CETR* is set as missing when the denominator is zero or negative. We truncate *CETR* to the range [0, 1]. All other variables are defined previously. Control variables, when included, are the same as those in table 2. Year effects are included in all models. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Within group R^2 with firm-clustered standard errors are reported.

	ETR (OLS)				*CETR* (OLS)			
	1	2	3	4	5	6	7	8
REP	0.007**	0.004	0.003		0.002	0.005	0.005	
	(0.018)	(0.171)	(0.248)		(0.536)	(0.182)	(0.191)	
DEM	0.006	0.003	0.005		-0.010*	-0.009	-0.006	
	(0.163)	(0.490)	(0.237)		(0.069)	(0.114)	(0.244)	
REP9210				0.003				0.003
				(0.154)				(0.350)
DEM9210				0.001				0.001
				(0.734)				(0.933)
Salary/TDC		0.007	0.011*	0.011*		0.036***	0.032***	0.032***
		(0.219)	(0.063)	(0.063)		(0.000)	(0.000)	(0.000)
LnDelta		0.004***	0.003***	0.003***		-0.001*	-0.002**	-0.002**
		(0.000)	(0.001)	(0.001)		(0.100)	(0.016)	(0.015)

LnVega		-0.001***	-0.001*	-0.001*		-0.001***	-0.001***	-0.001***
		(0.000)	(0.097)	(0.098)		(0.000)	(0.003)	(0.004)
Control	No	No	Yes	Yes	No	No	Yes	Yes
Variables								
Year &	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ind. effects								
Obs.	20,151	20,151	20,151	20,151	20,151	20,151	20,151	20,151
Adj. R^2	0.066	0.070	0.140	0.141	0.079	0.083	0.127	0.127
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Appendix

Variable Names	Description
BTD	Following Wilson (2009), *BTD* is the total book-tax difference, which equals book income less taxable income, scaled by lagged assets. Book income is pretax income (*PI*) in year *t*. Taxable income is calculated by summing the current federal tax expense (*TXFED*) and current foreign tax expense (*TXFO*), dividing by the statutory tax rate (0.35), and then subtracting the change in NOL carryforwards (*TLCF*) in year *t*. $BTD_{it}=(PI_{it}-((TXFED+TXFO)/0.35)-\Delta TLCF_{it})/AT_{i\ t-1}$
SHELTER	Tax shelters refer to specific transactions firms use to reduce taxes. In 2006, the IRS Commissioner stated that there had been an increase in the use of tax arbitrage strategies (Drucker, 2006), and the estimated dollar amount of taxes saved through tax shelters could be as high as $10 billion annually (Bankman, 1999). However, it is difficult to identify whether a firm is actively participating in a tax shelter. Using a sample of firms that are identified as corporate tax shelter participants, Wilson (2009) develops a model to predict the likelihood of sheltering activities. The model is as follows: $SHELTERScore_{it}=-4.86 + 5.20 \times BTD_{it} + 4.08 \times DAP_{it} - 1.41 \times LEV_{it} + 0.76 \times AT_{it} + 3.51 \times ROA + 1.72 \times FOREIGN\ INCOME + 2.43 \times R\&D$ where *BTD* is defined above; *DAP* is the discretionary accruals from the performance-adjusted modified cross-sectional Jones model; *LEV* is long-term debt (*DLTT*) divided by total assets (*AT*); *AT* is the log of total assets (*AT*); *ROA* is pretax earnings (*PI*) divided by total assets; *FOREIGN INCOME* is an indicator variable that equals 1 for firm observations reporting foreign income and zero otherwise; and *R&D* is research and development expense (*XRD*) divided by total assets. Following Rego and Wilson (2012), *SHELTER* equals 1 for firm-years in the top quintile of the tax shelter prediction scores.

DTAX *DTAX* is the residual from the following regressions estimated by year and two-digit SIC code based on the model from Frank et al. (2009):

$$PERMDIFF_{it} = \alpha_0 + \alpha_1 INTANG_{it} + \alpha_2\ UNCON_{it} + \alpha_3 MI_{it} + \alpha_4 CSTE_{it} + \alpha_5 \Delta NOL_{it} + \alpha_6 LAGPERM_{it} + \varepsilon_{it}$$

where *PERMDIFF* equals the difference between the total book-tax differences and the temporary book-tax differences *([{PI – [(TXFED + TXFO) / STR]} – (TXDI /STR)])*; *TXFED* is the current federal tax expense; *TXFO* is the current foreign tax expense; *TXDI* is the deferred tax expense (income account); and *STR* is the statutory tax rate, which equals 0.35; *INTANG* is goodwill and other intangibles (*INTAN*); *UNCON* is the income (loss) reported under the equity method (*ESUB*); *MI* is the income (loss) attributable to minority interests (*MII*); *CSTE* is the current state tax expense (*TXS*); *ΔNOL* is the change in net operating loss carryforwards (*TLCF*); and *LAGPERM* is *PERMDIFF* at year *t*-1. All the variables including the intercept are scaled by lagged assets.

We run this model by year and two-digit SIC code using the entire Compustat database when the required information is available. The estimated coefficients are then used in the matched Execucomp firm-years to calculate the predicted value of *PERMDIFF*. Residuals therefore are the differences between the actual value of *PERMDIFF* and the estimated value of *PERMDIFF* for each firm-year observation. *DTAX* could be used to measure the intentional portion of tax avoidance, which is similar to the Jones (1991) model of discretionary accruals.

DD_TA All the tax avoidance measures described earlier include both domestic income and foreign income in the estimations. Because our hypothesis on the effects of CEOs' political preferences on tax avoidance relies on the argument that the relationship between taxpayers and the government shapes their tax policies, we add a measure that is not complicated by foreign income and taxes. Following Desai and Dharmapala (2006), we estimate *DD_TA*, the residual book-tax difference, which equals the residual from the following firm fixed-effects regression*:*

$$BT_{it} = \beta_1 TA_{it} + \mu_i + \varepsilon_{it}$$

where *BT* is the book-tax difference, which equals the domestic U.S. taxable income (estimated by federal tax expense and progressive tax rate) subtracted from the firm's domestic U.S. financial statement income; *TA* is total accruals measured using the cash flow method, which equals income before extraordinary items (*IB*) minus net cash flow from operating activities (*OANCF*), adjusted for extraordinary items and discontinued operations (*XIDOC*). Both variables are scaled by lagged total assets. Desai and Dharmapala (2006) suggest that this is a more precise measure of tax avoidance because it takes out the component that is attributable to earnings management. Because it is estimated as a residual, *DD_TA* is constrained to sum to zero overall for all firms and all years.

$TACC/TA_{n-1}$ The total accrual using a cash flow approach, which is income before extraordinary items minus cash flow from operating activities adjusted for extraordinary items and discontinued operations. We estimate the following cross-sectional regressions for each two-digit SIC code and year for the entire Compustat sample*:*

$$TACC_{jt}/TA_{jt-1} = \alpha 1/ TA_{jt-1} + \beta_1(\Delta Sale_{jt} - \Delta REC_{jt})/ TA_{jt-1} + \beta_2 PPE_{jt}/ TA_{jt-1}$$

where $\Delta SALE_{jt}$ is the change in sales for firm *j* in year *t*; ΔREC_{jt} is the change in accounts receivable; and PPE_{jt} is property, plant, and equipment for firm *j*

at the end of year *t*.

DAP — The estimated discretionary accruals. Specifically, we apply the modified Jones model (Dechow et al., 1995) to estimate discretionary accruals. The estimated coefficients from the $TACC_{jt}/TA_{jt-1}$ equation are used to compute discretionary accruals *DAP:*

$$DAP_{jt} = TACC_{jt}/TA_{jt-1} - \hat{\alpha}1/TA_{jt-1} - \hat{\beta}_1(\Delta Sale_{jt} - \Delta REC_{jt})/TA_{jt-1} - \hat{\beta}_2 PPE_{jt}/TA_{jt-1}$$

Tax Haven — An indicator variable that equals 1 if a firm has at least one tax-haven country subsidiary and zero otherwise. We obtain tax-haven data from Scott Dyreng's personal webpage. Scott Dyreng provides data on the number of haven countries reported in firms' exhibit 21 of their 10-Ks. Exhibit 21 is a required element of the 10-K and includes a listing of all subsidiaries with material operations. The tax-haven countries are defined in table 1 in Dyreng and Lindsay (2009).

ETR — Effective tax rate (*ETR*) is total tax expense (*TXT*) divided by pretax income, which is the difference between pre-tax book income (*PI*) before special items (*SPI*). *ETR* is set as missing when the denominator is zero or negative. We truncate *ETR* to the range [0, 1].

CETR — Cash effective tax rate (*CETR*) is defined as cash tax paid (*TXPD*) divided by pretax income, which is the difference between pre-tax book income (*PI*) before special items (*SPI*). *CETR* is set as missing when the denominator is zero or negative. We truncate *CETR* to the range [0, 1].

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