

The Effects of Financial Reporting-Influenced State Tax Laws on Companies' Location and Compensation Decisions

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Abstract: We use states' staggered adoption of deferred tax relief deductions (DTRDs) to examine the effects of these laws on companies' location and executive compensation decisions. DTRDs provide public companies with tax relief structured to provide an immediate financial reporting benefit while delaying cash tax savings. We find that companies are less likely to relocate their subsidiaries and headquarters out of states that adopt a DTRD law, consistent with DTRDs encouraging companies to maintain their presence in a state. Additionally, tax law changes can affect executives' ability to meet after-tax performance targets. Consistent with DTRDs reducing this concern, we find that companies are more likely to use after-tax metrics in executive compensation contracts in the year of DTRD adoption. Our study contributes to ongoing discussions regarding the interplay between financial reporting and tax reporting, highlighting that financial reporting-influenced tax laws can impact companies' location and executive compensation decisions.

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I. INTRODUCTION

This study investigates the consequences of tax laws that are based on public company financial reporting, which we refer to as “financial reporting-influenced tax laws.” Specifically, we examine a unique setting in which several states adopted a tax law—deferred tax relief deductions (DTRDs)—that provides public companies operating in those states with an immediate financial reporting benefit, while delaying actual cash tax savings well into the future. Critics highlight the disconnect between financial reporting and cash tax savings by labeling these tax laws as simply a “paper” accounting adjustment (Mazerov 2019). Because states purposefully enacted DTRDs to provide a financial reporting benefit without immediate cash tax savings, they offer a unique opportunity to isolate the effects of *financial reporting* for the tax law separate from the cash tax benefits. We examine how these financial reporting-influenced tax laws affect two key company decisions. First, we examine whether DTRDs serve as a commitment mechanism, encouraging companies to maintain presence in the state. Second, because opponents of DTRDs suggest the primary beneficiaries of the law are executives who benefit from compensation tied to financial income (Bucks et al., 2022) we examine the use of after-tax performance metrics in executive compensation contracts.

Examining the effects of financial reporting-influenced tax laws is important for several reasons. First, as governments seek to adopt tax policies to achieve the revenue and investment goals in their respective jurisdictions it is critical to understand whether the financial reporting aspects of a tax law change affects companies’ location decisions. While prior research examines companies’ responses to tax rate changes and other tax policies (e.g., Klassen, Lang, and Wolfson 1993; Guenther 1994; Chow et al., 2022), survey evidence suggests that executives at publicly traded companies also seriously consider the effects of taxes on financial earnings (Graham et al.,

2014). Second, executives respond to financial reporting incentives, because reported earnings and the company stock price affect their compensation (e.g., Bartov and Mohanram 2004; Burns and Kedia 2006). Thus, it is important to understand how financial reporting-influenced tax laws affect executive compensation contracts. Third, there are concerns about the potential effects related to legislators shaping tax rules around financial reporting (Hanlon 2021). Prior research examines the natural interrelations between taxable income and financial statement income, and documents the loss of information from increasing the conformity between the two (e.g., Hanlon, LaPlante, and Shevlin 2005), and the effects of the U.S. corporate minimum tax, which ties required tax payments to financial statement income (Francis 2021; Gaertner et al. 2025; Rubin 2024; Blouin and Born 2024; Green et al., 2024). Yet, companies and trade associations continue to invest considerable resources into lobbying for tax policies while citing financial reporting effects as an important consideration (Bucks et al., 2022), and some states continue to enact tax laws specifically designed to alleviate financial reporting concerns of publicly traded companies.

We examine the implications of financial reporting-influenced tax laws using states' adoption of DTRDs as our setting. DTRDs are a clear example of a tax law designed specifically to provide public companies with a financial reporting benefit with little regard for actual cash benefits (i.e., *financial reporting-influenced* tax laws). States enacted DTRDs to alleviate the financial reporting effect of a state tax change known as combined reporting. Combined reporting requires companies to report taxable income of parents and subsidiaries as a single or "combined" group for state tax purposes. Combined reporting is often adopted to reduce tax avoidance via inter-state income shifting among related parties and is viewed as a revenue raiser for states (Cline 2008). Companies typically experience an increase in state tax burden due to combined reporting, which in turn requires a revaluation of deferred tax assets and liabilities (DTAs and DTLs,

respectively) to reflect their new value based on the tax rates that apply when the differences reverse (Schadewald 2008; Mazerov 2007, 2009). With combined reporting, as with other tax law changes that increase the state tax burden, companies record an upward (downward) revaluation of their net DTLs (DTAs) and must recognize a corresponding deferred tax expense (benefit) on their income statement.¹

DTRDs are designed to alleviate the reduction in after-tax income for companies that must record additional tax expense. Publicly-traded companies argue that this revaluation of net DTLs due to combined reporting has a negative impact on their financial statements *and* causes a drop in stock value, creating a “double hit” or “ripple effects” (e.g., McAnneny et al., 2015; Mazerov 2019; Bucks et al., 2022).² With this argument, companies and trade associations successfully lobbied five states and the District of Columbia to provide DTRDs to public companies to mitigate the negative financial reporting effects of the states’ adoption of combined reporting (Silbiger 2015; Mazerov 2019).³ The adoption of DTRDs varies by state, but in all cases they provide a tax deduction or credit which allows a company to record a deferred tax asset (DTA) equal to the amount of the revaluation of the DTL related to the state’s adoption of combined reporting, thereby offsetting the one-time negative income statement effect of the underlying tax change. The tax credit provided under the DTRD laws, which allows companies to book a DTA, is structured to

¹ Under ASC 740-10-25-47, “the effect of a change in tax laws or rates shall be recognized at the date of enactment.” Appendix A provides an illustrative example of an increase in a company’s blended state tax rate following combined reporting.

² The first adverse consequence is the negative impact of combined reporting itself, which can often increase firms’ current and future state tax liabilities. The second consequence companies claim is the shareholder reaction to negative effects on current year after-tax income reported in the financial statements (i.e., recognition of additional tax expense on the income statement stemming from the increase to net deferred tax liabilities on the balance sheet). Importantly, this occurs when a firm has a net DTL. As noted in Poterba, Rao, and Seidman (2011) variation in the extent of deferred tax positions can create substantial variation in the short-run effects of tax rate changes on reported earnings.

³ The five states are Massachusetts, Connecticut, Kentucky, New Jersey, and New Mexico. In all cases the DTRD law was adopted in conjunction with or shortly thereafter the adoption of combined reporting. To provide a sense of the potential magnitude, the Massachusetts Department of Revenue estimated that DTRD relief would be provided to 128 public companies and would total \$178.1 billion in deductions on Massachusetts state tax returns (Bal 2009).

delay the cash benefits for three or more years after enactment of the law and spread the future benefit out over a period of 7 to 30 years, such that companies receive an immediate financial reporting benefit without current cash tax savings.⁴

The objective of DTRDs is to mitigate the negative financial reporting effects of states' adoption of combined reporting, thus providing an excellent setting to examine the effects of financial reporting-influenced tax laws. Although companies do not receive a cash tax benefit from DTRD laws until well into the future, the laws allow them to avoid recognizing tax expense on the income statement. The Massachusetts Budget and Policy Center indicated that companies place greater importance on the financial reporting benefit relative to the cash tax relief provided by DTRDs:

“Corporations have said consistently that what’s most important is not the actual receipt of the tax benefit but rather the ability to carry the tax benefits on their corporate accounting records, because this, they claim, would affect their stock prices.” (Wise 2022).

Critics refer to DTRDs as a “paper” accounting adjustment due to the separation between the financial reporting benefit and actual cash tax savings (Mazerov 2019). Importantly, DTRDs are only available for publicly traded companies, which emphasizes the point that DTRDs are primarily driven by financial reporting considerations.⁵ Further, in a joint letter to Massachusetts Governor Charlie Baker urging him to veto a plan to eliminate the DTRD as part of the 2016 budget, stakeholders noted:

“An unintended consequence of combined reporting was that for some companies it caused a negative impact on financial statements, and, potentially, to stock prices. The [DTRD] is necessary to mitigate the financial harm to companies. To be clear,

⁴ Appendix A illustrates the GAAP accounting for combined reporting and DTRDs. Section 2 and Appendix B provide additional details on the enacted DTRD laws, including enactment dates.

⁵ As an additional example, in its report to the Chairmen of the Ways and Means Committees and Chairmen of the Joint Committee on Revenue, the Commissioner of the Massachusetts Department of Revenue states, “...the Act created a new tax deduction which was designed to limit the impact of combined reporting in Massachusetts on certain publicly traded corporations’ financial statements” (emphasis added; Bal 2009).

the deduction was not a tax break for business. Rather, it was a method to minimize the negative impact on the state's corporate taxpayers for the purposes of financial reporting..." (McAnney et al., 2015)

We focus our examination of the consequences of financial reporting-influenced tax law on two key company decisions: (1) location decisions and (2) the use of after-tax performance metrics in executive compensation contracts. First, prior research finds that companies' location decisions are responsive to state investment incentives (e.g., Chirinko and Wilson 2008). State tax increases are associated with a reduction in the number of establishments in the state, as well as an increase in the probability of a company relocating its headquarters (Giroud and Rauh 2019; Chow et al., 2022). Adoption of combined reporting may similarly increase a company's state tax burden and thus affect location decisions. However, adoption of combined reporting with a DTRD, under which financial reporting considerations are alleviated, may encourage companies to maintain their presence in a state. We examine whether DTRDs deter companies from relocating their subsidiaries or headquarters.

We use a staggered difference-in-differences research design to estimate the difference in the probability of a subsidiary or headquarters exiting a state following enactment of a DTRD law. We first provide evidence consistent with the parallel trends assumption. We find that companies are 35.7 percent less likely to have a subsidiary exit a state when the state adopts a DTRD law. Likewise, while headquarter relocations are infrequent events, our results indicate that the likelihood of companies relocating their headquarters declines by over 56.3 percent following adoption of a DTRD. State tax policy, and fiscal policy more broadly, often focuses on revenue generation and the facilitation of economic growth through policies that encourage business investment in the state. Our results suggest that adopting laws that consider financial statement effects provides an avenue to incentivize continued investment within the state, even with

provisions that significantly delay the costs from lost state tax revenues.

Second, critics of DTRDs suggest the primary beneficiaries are executives who avoid the negative compensation consequences of lower reported earnings (e.g., Bucks et al., 2022). After-tax performance metrics can motivate executives to consider the tax consequences of investment and operational decisions, but in turn the executives bear risk associated with tax rate increases and using after-tax performance metrics may lead to a more myopic focus on GAAP ETRs (e.g. Powers, Robinson, and Stomberg 2016). Additionally, after-tax metrics in executive compensation contracting are indicative of greater integration of tax and financial reporting (Robinson, Sikes, and Weaver 2010). We continue to use a staggered difference-in-differences research design to examine whether DTRD adoption affects the use of after-tax performance metrics in executives' equity-based compensation contracts; again, providing evidence consistent with the parallel trends assumption. We find that companies increase both the number of after-tax performance metrics and percentage of total compensation tied to after-tax metrics in the year of DTRD adoption by approximately 27 and 34 percent, respectively. Our results highlight the relevance of financial reporting-influenced tax laws to executive compensation contracting.

We perform several robustness tests to improve the validity of our results. Specifically, our results are robust to using logit models when appropriate, using changes rather than levels for control variables, dropping firms with multiple relocations, using stacked regressions to alleviate concerns related to the staggered difference-in-difference design, and removing observations with valuation allowances. Overall, these tests support our primary findings and alleviate concerns related to sample selection and research design.

Our study makes several contributions. First, this study is among the first to examine the effects of *financial reporting-influenced* tax laws on business decisions. While tax policies

generally focus on revenue generation or tax incentives to encourage business activity that benefits the economy, states enact DTRDs to alleviate financial reporting concerns. Companies and trade associations lobbied extensively for DTRDs and assert the primary benefit was to avoid the financial statement impact of combined reporting (e.g., McAnney et. al., 2015). Our study sheds light on why legislators and executives support these policies and how they affect companies' decision making. Further, with the U.S. enacting a corporate minimum tax that ties companies tax burden to the financial statement income (Williams-Alvaraz 2023), it is becoming even more relevant to consider the financial reporting effects of tax laws (Blouin and Born 2024).

Second, we contribute to the line of literature that provides robust evidence that taxes can affect investment locations (e.g., Welch 2023; Chow et al., 2022; Williams 2018; Lester 2019). Prior work does not consider whether laws that consider the financial reporting impacts of an underlying tax law affect how companies respond to tax increases. The DTRD setting allows us to separate the financial reporting effect from the cash saving effect because the financial reporting benefit is current, while the cash savings are delayed well into the future. As states and, more broadly, governments continuously evaluate and enact tax policy changes, our study suggests that considering financial statement effects of tax policy influences companies' responses.

Third, our study contributes to the literature examining the determinants and consequences of using after-tax performance metrics in executive compensation contracts (e.g., Atwood, Omer, and Shelley 1998; Phillips 2003; Robinson, Sikes, and Weaver 2010; Rego and Wilson 2012; Gaertner 2014; Powers, Robinson, Stomberg 2016). Prior research recognizes that executive compensation contracts include numerous targets or metrics based on accounting data, some of which are after tax (e.g., Chen et al., 2022). Our study provides evidence that financial reporting-influenced tax law has important effects on executive compensation contracts. Overall, our study

provides important policy relevant insights into the effects of enacting financial reporting-influenced tax policy.

II. BACKGROUND AND HYPOTHESES

Combined Reporting and Deferred Tax Relief Deductions

In an effort to curb tax planning strategies that erode corporate income tax bases, many U.S. states have enacted an important tax reform known as “combined reporting” (Schadewald 2008; Mazerov 2007, 2009; Bucks et al. 2022). Combined reporting requires companies to report taxable income of related businesses (i.e., parents and subsidiaries) as a single or “combined” group for state tax purposes. In contrast, under separate accounting each corporate entity (i.e., each parent and subsidiary) is treated as a separate taxpayer. The adoption of combined reporting is intended to curb inter-state income shifting between related parties to avoid taxes, assisting states in their goal to “preserve a strong and fair corporate income tax” (Mazerov 2007).

However, because of the different incentives and goals of state legislators, tax administrators, and corporate taxpayers, combined reporting is a controversial tax policy (Cline 2008). Proponents of combined reporting assert that treating a group of related entities as a single taxpayer will curb tax avoidance, such as shifting taxable profits within the group or strategically placing assets that earn income outside the corporate group (Mazerov 2007). Opponents, however, argue that combined reporting reduces states’ competitiveness and could increase a company’s tax liability beyond what is required based on their actual in-state activities (Cline 2008).

As with other tax changes, combined reporting requires a company to revalue its deferred tax assets and liabilities (DTAs and DTLs, respectively) to reflect their new value based on the tax rates that apply when the differences reverse. Because combined reporting often increases companies’ tax burden in the state, for companies in a net DTL position this results in an upward

revaluation of the DTL and a corresponding increase in tax expense on their income statement. Publicly traded companies and their trade organizations argue that this negative impact on their financial statements creates a “double hit” for affected companies, unduly affecting their stock prices (e.g., McAnney et al., 2015; Silbiger 2015; Mazerov 2019; Bucks et al., 2022). Interestingly, companies consistently argue that the financial reporting impact can be more important than the actual future cash tax effects because of the stock price response to reported net income (Wise 2022). Five states (Massachusetts, Connecticut, Kentucky, New Jersey, and New Mexico) and the District of Columbia adopted DTRDs in conjunction with or immediately following the adoption of combined reporting to alleviate the negative financial reporting effects of revaluing companies’ net DTLs. The size of the DTRDs are substantial. For example, the Massachusetts Department of Revenue reported that corporations intended to deduct \$178.1 billion on Massachusetts state tax returns (Bal 2009). See Appendix B for specific details on the adoption of combined reporting and DTRDs by state, including enactment dates.

Two common features of DTRD laws highlight their focus on financial reporting rather than providing actual cash tax relief for the affected companies. First, all states delayed the effective dates for the “relief” (which take the form of tax deductions or tax credit) by at least three years, allowing companies to record a financial reporting benefit immediately while not receiving “relief” or cash tax savings for several years.⁶ Second, the tax relief is provided over a period ranging from 7 years to 30 years. Further, the Massachusetts State Revenue Commissioner noted that the purpose of DTRDs was to “alleviate, for certain publicly held companies, the potential

⁶ Legislation has also pushed out the initial tax year for receipt of the cash relief (i.e., the DTRD tax relief) repeatedly in Massachusetts and most recently in Kentucky (<https://rsmus.com/insights/tax-alerts/2024/state-income-tax-law-changes-for-the-second-quarter-of-2024.html>).

financial statement impact resulting from these tax law changes.”⁷ In summary, DTRDs were enacted to alleviate companies’ concerns about financial reporting implications of revaluing DTLs, providing a unique setting to examine the effects of financial reporting-influenced tax policy.

Location Decisions (H1)

Our first hypothesis considers whether financial reporting-influenced tax laws serve as a commitment mechanism, decreasing the likelihood of companies moving their subsidiaries or headquarters out of a state. Prior research suggests state tax changes affect companies’ location decisions. For example, Giroud and Rauh (2019) document a reduction in the number of business establishments per state following state tax increases and Chow et al., (2022) provide evidence that state tax rate increases are associated with an increased likelihood that a company relocates their headquarters out of the state. In addition to changes in rates, combined reporting often significantly increases a company’s state tax burden by reducing certain tax avoidance activities (Cline 2008; Mazerov 2009). To the extent that companies view the enactment of combined reporting as an increase in state tax burden, we expect an increase in the likelihood of subsidiary or headquarter relocation, all else equal. Consistent with this notion, Welch (2023) provides evidence of a negative association between adoption of combined reporting and investment in labor.

In addition to a forward-looking increase in state tax burden from the adoption of combined reporting, companies must also revalue the related deferred tax assets and liabilities. A company’s deferred tax positions create substantial variation in the short-run effects of tax rate changes on reported earnings (Poterba, Rao, and Seidman 2011). Companies with net DTL positions on their

⁷ See Massachusetts Department of Revenue Technical Information Release 09-8, available at <https://www.mass.gov/technical-information-release/tir-09-8-claiming-the-fas-109-deduction-for-publicly-traded-companies>

balance sheet must revalue the liability upward and recognize a corresponding tax expense on their income statement at the time of enactment. DTRDs are financial reporting-influenced tax law in that they mitigate these effects by allowing companies to book a corresponding DTA for the future relief which offsets the income statement effect of the DTL revaluation.

DTRDs may serve as a commitment mechanism, encouraging companies to maintain their operations within the state, for the following reasons. First, companies and trade organizations lobbied extensively for DTRDs, suggesting companies support tax laws that mitigate the negative financial statement impact of an increase in the state tax burden. Furthermore, to qualify for the ultimate cash tax benefits of the DTRD, which are paid out over seven or more years beginning three or more years after enactment, the company must maintain its presence in the state and generate taxable income for the DTRD to offset. Second, financial reporting-influenced tax laws help to stabilize fluctuations in earnings from changes in state tax policies and reduce tax uncertainty. Prior research finds that tax policy uncertainty is negatively associated with investment (Lee and Shevlin 2023; Gallemore et al. 2025). We expect companies to be more likely to maintain investment in locations where they perceive less uncertainty and where they can rely on existing legislation. For example, as Mark Silberger notes on behalf of Tax Executives Institute, Inc. in a letter discussing DTRDs, "...taxpayers must be able to rely upon existing legislation when making business decisions about their operations and expansion opportunities" (Silbiger 2015).

Yet, there are reasons to believe financial reporting-influenced tax law may not affect companies' location decisions. First, opponents of DTRD laws argue that DTRDs are simply a "paper" benefit that does not provide real tax savings to companies (Mazerov 2019). Opponents view DTRDs as a paper benefit because the tax relief is deferred three or more years and is spread over a period of 7 to 30 years. Thus, the present value of the cash tax savings may not affect

companies' location decisions. Second, moving operations is costly. While companies are concerned about financial reporting, DTRD laws, which provide an immediate one-time financial reporting benefit, may not offset the actual tax costs of operating in a state with combined reporting on a go forward basis. This discussion leads to our first hypothesis, stated in the null:

H1: Adoption of a deferred tax relief deduction (DTRD) law is not associated with a company's location decisions.

Executive Compensation Performance Metrics (H2)

Our second hypothesis considers whether financial reporting-influenced tax laws affect the use of after-tax performance metrics in executives' equity-based compensation contracts. As discussed previously, companies voiced concerns about the effects adoption of combined reporting would have on reported tax expense and after-tax earnings. Opponents of DTRDs suggest that those most concerned about the effect on the income statement are executives whose compensation is tied to after-tax performance metrics. For example, Bucks et al., (2022) note, "...it's also quite common that CEO compensation is based on book earnings per share in addition to stock values, and so I think that's what motivating the push for this tax break." Furthermore, Bucks et al., (2022) contend that a DTRD policy "reflects dubious accounting practices and holds little benefit for anyone besides corporations' chief executives."

Prior research provides evidence that companies are more likely to use after-tax performance metrics when there are opportunities to engage in tax planning, including larger companies, firms with multinational operations, and with higher capital intensity (e.g., Newman 1989; Atwood, Omer, and Shelley 1998). Additionally, research suggests that the use of after-tax earnings targets is associated with greater tax avoidance and that when managers are incentivized to engage in greater risk taking, via equity risk incentives, they engage in more aggressive tax planning (e.g., Phillips 2003; Rego and Wilson 2012). Using after-tax performance metrics in

executive compensation contracts can motivate managers to consider the tax consequences of investment and operational decisions. Robinson, Sikes, and Weaver (2010) provide evidence that the use of after-tax metrics in executive compensation contracting is indicative of greater integration of tax and financial reporting. However, use of after-tax metrics also shifts some of the risk of tax rate increases or other law changes that increase the tax burden to executives, which can lead executives to underestimate tax reserves, and designate offshore earnings as permanently reinvested, trapping cash overseas, to get the financial reporting benefits of the designation (Powers, Robinson, and Stomberg 2016). Collectively, this research highlights the trade-offs of using after-tax performance metrics.

We assert that managers whose compensation is dependent on after-tax earnings will be concerned with how tax law changes affect book net income. An increase in the state tax burden due to a law change will create additional one-time tax expense from the revaluation of net DTLs, decreasing after-tax income. DTRDs negate this one-time decrease to after-tax income from the DTL revaluation, insulating executives in states with DTRDs from the negative financial reporting effects of a state tax increase. This could also facilitate a more favorable comparison for peer-based relative performance evaluation. Thus, in the year of DTRD adoption, executives may increase their preference for after-tax performance metrics relative to executives in states without DTRDs.

There are also reasons to believe DTRDs will not be associated with a change in the use of after-tax performance metrics. Companies already compensate executives on after-tax metrics to encourage tax planning (e.g., Gaertner 2014) and may not adjust the compensation contracts based on this one-time state tax issue. However, the anecdotal evidence discussed above and the fact that companies and trade associations lobbied extensively for DTRDs suggest that executives are concerned about the effect on net income reported in the financial statements. These arguments

lead to our second hypothesis, stated in the null:

H2: Adoption of a deferred tax relief deduction (DTRD) law is not associated with the use of after-tax performance metrics in executive compensation contracts.

III. RESEARCH DESIGN AND SAMPLE

Research Design: Location Decisions

To examine whether the adoption of a financial reporting-influenced state tax laws affect location decisions (H1), we first use a firm-state-year sample to estimate the likelihood that a firm exits a state with a linear probability model (OLS) using a difference-in-differences design:

$$Exit\ State_{t+1} = \beta_1 DTRD*POST + \beta_2 Combined*POST + Controls + Fixed\ Effects + \varepsilon \quad (1)$$

The dependent variable, *Exit State*, is an indicator variable equal to one if a firm discloses a subsidiary in the state in year *t*, but is no longer has a disclosed subsidiary presence in that state in year *t+1*, and zero otherwise.⁸ *DTRD* is an indicator variable set to one for the states that adopt a DTRD law during our sample period (i.e., observations for firm-years with disclosed subsidiaries in Connecticut, the District of Columbia, Kentucky, Massachusetts, New Jersey, or New Mexico). *POST* is an indicator variable set to one for the year of DTRD adoption and each subsequent year. The main effects of *DTRD* and *POST* are subsumed by the state and year fixed effects. Our variable of interest is the interaction, *DTRD*POST*, which captures the difference in the probability that a firm leaves a state with a DTRD law following enactment. If DTRD laws encourage companies to maintain investment in a state, then we expect to observe a decreased probability of subsidiary exit (i.e., a negative *DTRD*POST* coefficient).

All states that adopt a DTRD law, do so in conjunction with the adoption of combined reporting. Thus, equation (1) also includes *Combined*POST*, which is the interaction of the

⁸ We use Exhibit 21 subsidiary level disclosures to identify states in which a firm has a material subsidiary in year *t* and year *t+1*.

indicator variable set to one for all the states that adopt combined reporting during our sample period (i.e., observations for firm-years with disclosed subsidiaries in a state that adopted a DTRD plus the states that only adopt combined reporting without a DTRD during our sample period, which includes Michigan, New York, Rhode Island, Texas, Vermont, Wisconsin, and West Virginia) and an indicator variable set to one for the year of combined reporting adoption and each subsequent year. The main effects of *Combined* and *POST* are subsumed. Given that combined reporting is a tool to increase state revenue and is generally perceived to increase a firm's state tax burden, our expectation is that combined reporting likely increases the probability of subsidiary exit (e.g., Chow et al. 2022).

Equation (1) includes control variables that capture firm level characteristics.⁹ We control for firm size (*Size*) using the log of total assets, cash surplus (*Cash Surplus*), leverage (*Leverage*), and capital intensity (*Capital Intensity*). We also control for growth opportunities measured by the market-to-book ratio (*MB*), sales growth (*Sales Growth*), and pretax income (*Pretax Income*). We control for growth through acquisition with an indicator variable equal to one if the firm engaged in a merger or acquisition in year t or year $t-1$ (*M&A*). We control for a firm's life cycle with indicator variables set equal to one for each of the following life cycle stages *Growth*, *Maturity*, or *Shake/Decline* (Dickinson 2011).

We also incorporate state level control variables to capture the differences in relocation probabilities based on changes in state tax laws and pro-business policies and changes in state economic conditions measured with the lagged change, from year $t-1$ to t . Specifically, we include changes in the headquarter state's corporate income tax rate (*ΔCorp Tax Rate*), given the evidence

⁹ Our results are robust to measuring the firm-level control variables as either levels or year-to-year changes. We present results using levels because they more directly capture persistent firm characteristics that may influence relocation decisions.

in Chow et al., (2022) that increases in the corporate tax rate are associated with an increase in the likelihood of a headquarter relocation. We also include controls for changes in other state tax laws where a firm is headquartered, including an indicator variable equal to one in the year a state imposes market based sourcing (ΔMBS), a variable capturing changes in a state's weighting of sales in their apportionment formula ($\Delta Sales Factor$), a variable capturing changes in a state's throwback rules for sales apportionment purposes ($\Delta Throwback$), and two variables to capture changes in the number of years a state allows for loss carrybacks and loss carryforwards ($\Delta NOLCB$ and $\Delta NOLCF$, respectively). We also control for changes in other pro-business policies, including R&D tax credits, investment tax credits, and job creation credits in a firm's headquarter state ($\Delta R\&D Credits$, $\Delta Invest Credits$, and $\Delta Job Creation Credits$).

To control for state economic conditions from year $t-1$ to t , we include the change in the state unemployment rate ($\Delta Unemployment$) and the change in real Gross State Product (ΔGSP ; Gupta and Lynch 2016). States can often favor businesses operating in certain industries. Thus, we identify the top two industries in each state based on number of firms in each industry-state-year and include an indicator variable equal to one if the firm operates in one of the identified top two industries for a given state-year (*Top Industries*). Equation (1) includes industry, year, and subsidiary state fixed effects, where we measure industry using the Fama-French 12 industry classifications. We cluster standard errors by subsidiary state. We define all variables in Appendix C.

Next, we use a firm-year sample to estimate the likelihood that a firm relocates its headquarter location to a new state with the following linear probability model (OLS) using a difference-in-differences design:

$$HQ Relocation_{t+1} = \beta_1 DTRD*POST + \beta_2 Combined*POST + Controls$$

$$+ \textit{Fixed Effects} + \varepsilon \tag{2}$$

HQ Relocation is an indicator variable equal to one if a firm relocates its headquarters to a different state in year $t+1$, zero otherwise.¹⁰ For the headquarter relocation tests *DTRD*, *Combined*, and *POST* are as previously defined. Our primary variable of interest is the interaction of *DTRD*POST*, which captures the difference in the probability that a firm relocates their headquarters out of a state with a DTRD law following enactment relative to other combined reporting states. As with equation (1), *DTRD*POST (Combined*Post)* captures the difference in the probability that a firm relocates their headquarters from a state that adopted a DTRD law (combined reporting) in each of the years following enactment. We include control variables following equation (1). Equation (2) includes industry, year, and headquarter state fixed effects, where industry is measured using Fama-French 12 industry classifications.¹¹ We cluster standard errors by headquarter state.

Research Design: Use of After-Tax Metrics in Equity-Based Compensation Contracts

To examine whether the effects of the adoption of a financial reporting-influenced state tax law is associated with the use of after-tax performance targets in executives' equity-based compensation contracts (H2), we estimate the following OLS model using a difference-in-differences design:

$$\begin{aligned} \textit{After-tax}\% = & \beta_1 \textit{DTRD*Adopt Year} + \beta_2 \textit{Combined*Adopt Year} + \textit{Controls} \\ & + \textit{Fixed Effects} + \varepsilon \end{aligned} \tag{3}$$

Where we measure the dependent variable, *After-tax%*, in two ways. First, we compute a firm's

¹⁰ We multiply our dependent variables by 100 to simplify the interpretation of coefficient magnitudes.

¹¹ Relocations are an infrequent event. Thus, we use the Fama-French 12 as the industry classification scheme. Using a more granular classification schemes would result in numerous industries not having a relocation during our sample period. However, in untabulated analyses we confirm our results are robust to including industry fixed effects using a 2-digit SIC classification scheme.

ratio of the number of performance metrics in executives' equity-based compensation contracts that are measured on an after-tax basis (e.g., net income, ROA) divided by the total number of performance metrics in the contracts based on financial metrics (*After-tax% Count*).¹² Second, we compute a firm's ratio of the value of equity-based compensation tied to after-tax metrics divided by total value of equity-based compensation as measured in stock units (*After-tax% Comp*).¹³ *DTRD* and *Combined* are consistent with equation (1). *Adopt Year* is an indicator variable set to one for the year the state adopts a DTRD or combined reporting. While relocation decisions span multiple years, the nature of the DTRD laws (combined reporting) suggest executives would benefit from the law (experience the negative effects of adoption) in the year of adoption.¹⁴ Thus, in our empirical estimation we focus on the adoption year and not the post period. For these tests, if DTRDs reduce the risk from tax rate increases that managers would otherwise bear when compensated based on after-tax metrics, then we expect to observe an increase in the use of after-tax metrics in firm's equity-based compensation contracts relative to pre-tax metrics (i.e., a positive *DTRD*Adopt Year* coefficient).

Equation (3) estimates the use of after-tax metrics among firms whose headquarters are located in states that adopted a DTRD law, in the year of adoption. Thus, equation (3) includes control variables to capture (a) factors that may affect executives' equity-based compensation contracts, (b) firm-level characteristics that may alter a firm's approach to executive compensation and a firm's incentives and opportunities to engage in tax planning, and (c) state tax rate changes

¹² We exclude from the denominator of the ratio performance metrics that are not based on financial metrics. For example, customer satisfaction, staff engagement, climate change and energy use, FDA approval, and individualized goals.

¹³ Similar to *After-tax% Count*, we exclude compensation related to non-financial metrics.

¹⁴ As discussed in Section 2, executives may also benefit in the years that the firm receives the tax relief. However, this effect would not be observed in a *POST* variable given the length of time between adoption of the DTRD law and payout of the tax credit. We leave the study of the effects of actual payment of DTRD tax relief to future research, as these potential cash tax payments are significantly delayed and have yet to occur.

at the headquarter location.

First, to control for other features of firm's executive compensation contracts, we include the sensitivity of the CEO's equity and option holdings to stock returns (*DELTA*) and the sensitivity of the CEO's equity and option holdings to stock return volatility (*VEGA*) (Core and Guay 2002; Coles, Daniel and Naveen 2006). Following Liu and Mauer (2011) we scale *DELTA* and *VEGA* by CEO compensation; thus, we do not include a separate control for total compensation. When data to compute *DELTA* and *VEGA* are missing, we set the variables equal to zero and include an indicator variable set to one if *DELTA* or *VEGA* is set to zero (*Delta/Vega Missing*). We include a control for the log of CEO tenure (*Log(Tenure)*), which is set to zero when data is missing. We also include an indicator variable set to one if *Log(Tenure)* is missing.

We also include controls for firm level characteristics that are consistent with those in equation (1) Specifically, we control for firm size (*Size*), cash surplus (*Cash Surplus*), leverage (*Leverage*), capital intensity (*Capital Intensity*), market-to-book ratio (*MB*), sales growth (*Sales Growth*), pretax income (*Pretax Income*), and mergers or acquisitions (*M&A*). Additionally, we control for a firm's life cycle with indicator variables set equal to one when a firm is in each of the following life cycle stages *Growth*, *Maturity*, or *Shake/Decline*. Lastly, we include $\Delta Corp Tax Rate$ for the firm's headquarter location given that changes in the state tax rate may affect executives' willingness to have equity-based compensation contracts that include after-tax performance metrics. Equation (3) includes industry, year, and headquarter state fixed effects and standard errors clustered by headquarter state. Variables are defined in Appendix C.

Data and Sample Selection

We use data from a variety of sources. We use financial statement data from Compustat. To determine subsidiary locations we use Exhibit 21 data available in WRDS. To determine the

location of a firm's headquarters we use data from the Notre Dame Software Repository for Accounting and Finance which compiles business addresses from firms' SEC filings. We use absolute performance goals data from Incentive Lab to compute *After-tax% Count* and *After-tax% Comp*. Incentive Lab compiles data on executives' performance goals from company proxy statements. The data includes performance goals for top executives, a description of the compensation metric, and compensation amounts tied to the goals. When Incentive Lab data necessary to compute *DELTA*, *VEGA* and CEO tenure is missing we use Compustat ExecuComp data. We use CCH Wolters Kluwer and Bloomberg Tax to collect state tax policy changes.

Our sample selection procedures begin with all U.S. incorporated firms with annual financial statement data reported in the Compustat North America database with fiscal years ending between January 1, 2003, and December 31, 2021. We end our sample with fiscal years ending on December 31, 2021, to allow for the calculation of relocations in year $t+1$ based on financial statements filed in year $t+2$. Our research design requires observations (firm-years) to have available data on total assets in Compustat for year t , as well as years $t-1$ and $t+1$, thus we require three years of consecutive data for each observation. We remove financial institutions and utilities because regulations in these industries are likely to limit tax planning, including tax motivated relocations. We also require non-missing variables in Compustat to compute the financial statement-based control variables and non-missing CIK, which is the identifier used to match Compustat data with data extracted from Form 10-K and 10-KSB filings and made publicly available in the Notre Dame Software Repository for Accounting and Finance.¹⁵ Lastly, we require non-missing subsidiary data from Exhibit 21. Our sample used to examine subsidiary location decisions includes 118,256 firm-state-year observations, which represents 35,710 firm-year

¹⁵ <https://sraf.nd.edu/>, last accessed July 22, 2024.

observations used to examine headquarter relocation decisions, both of which include 4,788 unique firms. For our tests of H2, we further require data on the performance metrics included in executives' equity-based compensation contracts and limit the observations for firms headquarters in states adopting DTRD laws or combined reporting to year of adoption and prior. Thus, our tests of H2 include 10,619 firm-year observations for 1,192 unique firms. Detailed sample selection procedures are reported in Table 1.

IV. RESULTS

Descriptive Statistics – Location Decisions

Table 2, Panel A presents descriptive statistics, by state-year, for variables capturing state tax laws, pro-business policies, and economic conditions. While we cannot model the determinations of state adoption of DTRD laws, we do note that states that adopt a DTRD law have higher average state tax rates than those adopting combined reporting only and the states that did not adopt either law during our sample period. States that adopt a DTRD law have a sales apportionment percentage that is lower than that of states adopting combined reporting but is higher than states that did not adopt either law during the sample period. States that adopt a DTRD law are also more likely to adopt investment tax credits and allow a longer carryforward period for net operating losses. These descriptive statistics highlight differences in tax policy across states, which we control for in our multivariate estimation with state fixed effects and control variables capturing changes in state tax laws, pro-business policies, and economic conditions.

Table 2, Panel B presents descriptive statistics for the sample used in tests of H1. The average firm-year has approximately 22 subsidiaries, in an average of 4 states. Subsidiary exits occur in 5.61 percent of the firm-state-year sample. The mean of *HQ Relocation* indicates that 1.44 percent of firm-years included in our sample period relocate their headquarters. This mean is

slightly lower than the mean of 2.2 percent reported in Chow et al., (2022). The mean value for *DTRD* indicates that approximately 13 percent (8 percent) of firm-years (firm-state-years) in our sample have headquarters (subsidiaries) located in one of the five DTRD states or the District of Columbia. The mean of *DTRD*POST* indicates that approximately 4.2 percent (2.6 percent) of firm-year (firm-state-year) observations are in DTRD states post-implementation. We note that the descriptive statistics for other variables are consistent with expectations and prior research (e.g., Chow et al., 2022; Welsch 2023).

Table 2, Panel C provides univariate statistics based on a firm's headquarter location separated into three subsamples: observations in a non-DTRD state, which includes observations in states that adopted combined reporting and states that did not adopt either law during our sample period (column 1, *DTRD*=0), observations in a DTRD state prior to DTRD enactment (column 2, *DTRD*=1/*POST*=0), and observations in a DTRD state post-DTRD enactment (column 3, *DTRD*=1/*POST*=1). The difference in means tests between these subsamples for *Exit State* and *HQ Relocation* provides univariate tests of H1. We do not observe significant differences in headquarter relocation rates between non-DTRD states and DTRD states *prior* to enactment (difference between columns 1 and 2), but we do observe a difference in *Exit State*. Importantly, DTRD states *after* enactment have lower relocation rates than DTRD states *before* enactment (difference in columns 2 and 3). This univariate evidence is consistent with DTRD laws reducing the likelihood of subsidiary exit from a state and the likelihood of headquarter relocations, suggesting that DTRDs can serve as a commitment mechanism that encourages companies to maintain investment in the state.

Multivariate Results – Location Decisions

Table 3 presents the results of estimating the likelihood of subsidiaries exiting states following enactment of a DTRD law using a sample at the firm-year-state level (H1). Columns 1 and 2 report the results of a linear probability model (OLS) using a difference-in-differences estimation, without and with control variables, respectively. In both columns we observe a negative and statistically significant coefficient on the first interaction term, *DTRD*POST* (p-value < 0.01). Further, in both columns we do not observe a statistically significant coefficient on the second interaction term, *Combined*POST*. The results suggest that the adoption of combined reporting without a DTRD did not significantly affect firms' location decisions, which is inconsistent with ex-ante expectations that DTRDs were intended to offset the potential for a loss of business investment following the adoption of combined reporting. Nonetheless, states adopting a DTRD law experienced a decreased probability of subsidiary exit. The column 2 coefficient estimate indicates a 2.0 percentage point decrease in the probability of a subsidiary exiting a state that adopted a DTRD law. With 5.6 percent of the observations in our sample exiting a state during our sample period, this 2.0 percentage point decrease is 35.7 percent of the conditional mean, suggesting that DTRD laws have a meaningful impact on a firm's decision to leave a state.

Table 4 presents the results of estimating equation (2) when *HQ Relocation* is the dependent variable. Columns 1 and 2 report the results of a linear probability model (OLS) using a difference-in-differences estimation, without and with control variables, respectively. In both columns we observe a negative and statistically significant coefficient on the interaction term (*DTRD*POST*). The coefficient estimate in column 2 indicates a 0.81 percentage point decrease in the probability of a headquarter relocation out of a state that adopted a DTRD law. With 1.44 percent of firm-years in our sample relocating their headquarters during our sample period, this 0.81 percentage

point decrease is 56.3 percent of the conditional mean, suggesting that DTRD laws have a meaningful impact on a firm's decision to maintain headquarters in the state. Additionally, in column 2 we observe a positive and significant coefficient on *Combined*POST*, suggesting an increased likely of firm's relocating their headquarters out of a state following the adoption of combined reporting. An F-test indicates that the sum of the coefficients *DTRD*Post* + *Combined*Post* is indistinguishable from zero, suggesting that the enactment of a DTRD law fully attenuates the positive association between combined reporting and headquarter re-location (untabulated p-value = 0.15). Overall, the univariate and multivariate analyses highlight a potential benefit of financial reporting-influenced tax laws, as they suggest DTRDs adopted in conjunction with laws increasing a firm's state tax burden can serve as a commitment mechanism, helping to ensure continued activity with the state.

We perform a series of untabulated robustness tests to improve the validity of our H1 results. First, we re-estimate equations (1) and (2) using a logit model, without and with control variables. Consistent with the results reported in Table 3 and Table 4, using a logit model we continue to observe negative and statistically significant coefficients on *DTRD*POST*. Second, we evaluate the sensitivity of our results to a few important research design choices. The headquarter relocation analysis includes firms that relocate their headquarters more than once during our sample period. We confirm that results are robust to dropping firms after their first HQ relocation during the sample period. We also confirm our HQ results are robust to using stacked regressions, which alleviates concerns related to staggered difference-in-difference forbidden comparisons (Baker et al. 2022). We also continue to observe negative and statistically significant coefficients of interest when all firm-level controls are measured as changes rather than levels (e.g., $\Delta Size$ rather than *Size*). We also confirm our results are not influenced by the choice of industry

classification. We measure industry at the two-digit SIC value and continue to observe negative and statistically significant coefficients on $DTRD*POST$. Finally, we remove observations that likely have a valuation allowance in place for deferred tax assets (Dhaliwal, Kaplan, Laux, and Weisbrod 2013; Edwards 2018) and continue to find results consistent with our tabulated analyses. Overall, these additional specifications suggest that our main results are not influenced by research design choices. Collectively, the evidence presented in Table 3 and Table 4 suggests that DTRD laws can significantly influence a firm's subsidiary and headquarter location decisions.

We also examine the parallel trends assumption in the pre-period for the subsidiary exit and headquarter relocation tests (Roberts and Whited 2013). To examine this assumption, we first establish time relative to treatment for the treated and control observations. For treated observations year zero is the year of DTRD adoption. For control observations we use combined reporting states that did not implement a DTRD along with the associated time to treatment. We then re-estimate a modified Equation (1) and (2) using only combined reporting state observations with the same controls, fixed effects, and clustering, including indicator variables for the number of years relative to treatment and the interaction of each relative year with DTRD. We use year $t-1$, the year before DTRD adoption, as the base year (Barrios 2022). The coefficients and confidence intervals for the interaction of DTRD and time in the pre-period relative to treatment from this estimation are presented in Figure 1. Figure 1 Panel A displays the pre-trends for our subsidiary analysis, and Panel B shows pre-trends for the headquarter relocation tests. The coefficients on the interaction terms in all the pre-treatment years are not statistically significant at conventional levels, except for time $t-5$ in Panel A. These results suggest no meaningful pre-trends, providing evidence in support of the parallel trends assumption.

Descriptive Statistics – Compensation Contracts

Table 5, Panel A presents descriptive statistics for the sample used in tests of H2. Equity-based compensation contracts often use a combination of pre-tax and after-tax performance metrics, with the firms in our sample using after-tax performance metrics approximately 26 percent of the time. Additionally, we observe that the ratio of the number of after-tax performance metrics to total financial metrics (*After-tax% Count*) is relatively similar to the ratio of the value of compensation tied to after-tax performance metrics relative to total equity-based compensation tied to financial metrics (*After-tax% Comp*). The mean of *DTRD*Adopt Year* indicates that approximately 1 percent of firm-year observations are located in DTRD states in the year of implementation. Lastly, we note our tenure and compensation variables are consistent with prior research (Chen et al., 2022). The mean tenure for CEOs of our sample firms is 5.7 years.¹⁶

Table 5, Panel B provides descriptive statistics for three subsamples: firm-years located in a non-DTRD state (column 1, *DTRD=0*), firm-years located in a DTRD state prior to DTRD enactment (column 2, *DTRD=1/Adopt Year=0*), firm-years located in a DTRD state in the year of enactment (column 3, *DTRD=1/Adopt Year=1*). The difference in means tests between these subsamples for *After-tax% Count* and *After-tax% Comp* provide univariate support for H2. We do not observe significant differences in the use of after-tax performance metrics between firms in non-DTRD states and DTRD states *prior* to enactment (difference in columns 1 and 2; p-value > 0.10). However, firms in DTRD states use more after-tax performance metrics, on average, in equity-based compensation contracts in the year of DTRD adoption than both firms in non-DTRD states (difference in columns 1 and 3; p-value < 0.10) and firms in DTRD states *before* enactment (difference in columns 2 and 3; p-value < 0.05). This univariate evidence is consistent with

¹⁶ We compute the mean tenure excluding observations set to zero when missing. The mean including firm-years where tenure is set to zero is 4.5 years.

executives in states with DTRD laws increasing their willingness to tie equity-based compensation to after-tax metrics. Yet, we note differences between the subsamples for several other variables, highlighting the importance of multivariate analysis.

Multivariate Results – Compensation Contracts

Table 6 presents the results of estimating the difference in the use of after-tax performance metrics in equity-based compensation contracts following enactment of a DTRD law (H2) using equation (3). Columns 1 and 2 report the results where the dependent variable is *After-tax% Count*, without and with control variables, respectively. We observe a positive and statistically significant coefficient on the interaction term (*DTRD*Adopt Year*). The *DTRD*Adopt Year* coefficient in column 2 indicates a 7.0 percentage point increase in the use of after-tax performance metrics for executives of companies in states that adopted a DTRD law. This represents a 26.8 percent increase relative to the conditional mean. Columns 3 and 4 report the results where the dependent variable is *After-tax% Comp*, without and with control variables, respectively. Again, we observe a positive and statistically significant coefficient on the interaction term. The *DTRD*Adopt Year* coefficient in column 4 suggests a 8.9 percentage point increase (i.e., 34.2 percent increase relative to the conditional mean) in the amount of equity-based compensation tied to after-tax performance metrics. Collectively, these analyses suggest that financial reporting-influenced tax policy affect the use of after-tax performance targets.

We perform a series of untabulated robustness tests to provide further evidence on H2. First, we re-estimate equation (3) and include all state tax law change variables and state economic condition variables from equation (2).¹⁷ We continue to observe a positive and statistically significant *DTRD*Adopt Year* coefficient when either *After-tax% Count* or *After-tax% Comp* is the

¹⁷ Specifically, the additional control variables we include are ΔMBS , $\Delta Sales\ Factor$, $\Delta Throwback$, $\Delta NOLCB$, $\Delta NOLCF$, $\Delta R\&D\ Credits$, $\Delta Invest\ Credits$, $\Delta Job\ Creation\ Credits$, $\Delta Unemployment$, ΔGSP , and *Top Industries*.

dependent variable (both p-values < 0.05). We confirm our results are robust to using stacked regressions (Baker et al. 2022). We also confirm our results are not influenced by the choice of industry classification. We change the industry measure from Fama-French 12 to two-digit SIC value and continue to observe a negative and statistically significant $DTRD*Adopt\ Year$ coefficient (p-value < 0.10). Overall, these additional specifications suggest that our main results are not an artifact of research design choices.

We also examine the parallel trends assumption (Roberts and Whited 2013). To examine parallel trends, we first establish time relative to treatment for the treated and control observations. For treated observations year zero is the year of DTRD adoption and for control observations we use the year around combined reporting adoption in states with no DTRD. We then re-estimate equation (3) on a sample of just combined reporting states including indicator variables for the number of years relative to treatment and the interaction of each relative year with DTRD, with year $t-1$ as the base year. The coefficients and confidence intervals for the interaction of DTRD and time relative to treatment from this estimation are presented in Figure 2, Panels A and B. The coefficients on the interaction terms in all the pre-treatment years are not statistically significant at conventional levels providing evidence consistent with the parallel trends assumption.

V. CONCLUSION

This study examines the consequences of financial reporting-influenced tax laws, using states' staggered adoption of DTRD laws. DTRD laws are unique because the primary purpose is to mitigate the negative financial reporting effects of states' adoption of combined reporting without current cash tax savings. Critics of DTRD laws highlight that while future state tax credit provided by DTRDs occurs in the future and is spread over multiple years, DTRDs will lead to a decline in state revenues from public companies in the future. Yet, without a DTRD law, an

increase in tax burden may lead companies to shift the location of business activity, also reducing state revenues. We find a reduced likelihood that companies relocate headquarters out of state or have subsidiaries exit a state following adoption of DTRD laws. Our results suggest that adopting policies that consider the effects on companies' financial statements and that provide relief for the actual or perceived financial reporting costs of an increase in a company's state tax burden may serve as a commitment mechanism, helping to ensure continued economic activity within the state. These analyses contribute to the literature on how taxes affect investment decisions (e.g., Williams 2018; Lester 2019; Chow et al., 2022; Welch 2023), highlighting the implications of considering the financial reporting implications of changes in tax law.

Because critics of DTRDs raise concerns that the laws primarily to benefit executives who want to avoid the negative compensation ramifications of missing after-tax performance goals, we also examine how DTRDs affect the use of after-tax metrics in executive compensation contracts. Our results indicate that companies increase the use of after-tax metrics in executives' equity-based compensation contracts in the year DTRD laws are adopted, consistent with executives' increased willingness tie compensation to after-tax performance metrics when headquartered in a state that adopted a DTRD law. Our results contribute to research on the determinants and consequences of using after-tax performance metrics in executive compensation contracting (e.g., Atwood, Omer, and Shelley 1998; Phillips 2003; Robinson, Sikes, and Weaver 2010; Rego and Wilson 2012; Gaertner 2014; Powers, Robinson, Stomberg 2016).

Our examination of a financial reporting-influenced tax law sheds light on why legislators and executives support these policies and how they affect companies' decision making. Additionally, our paper contributes evidence to the ongoing debate around increasing the interdependencies between taxable income and financial reporting income and the effects of

legislators shaping tax rules around financial reporting (e.g., Hanlon, LaPlante, Shevlin 2005; Hanlon 2021; Francis 2021; Blouin and Born 2024; Green et al., 2024; Rubin 2024).

REFERENCES

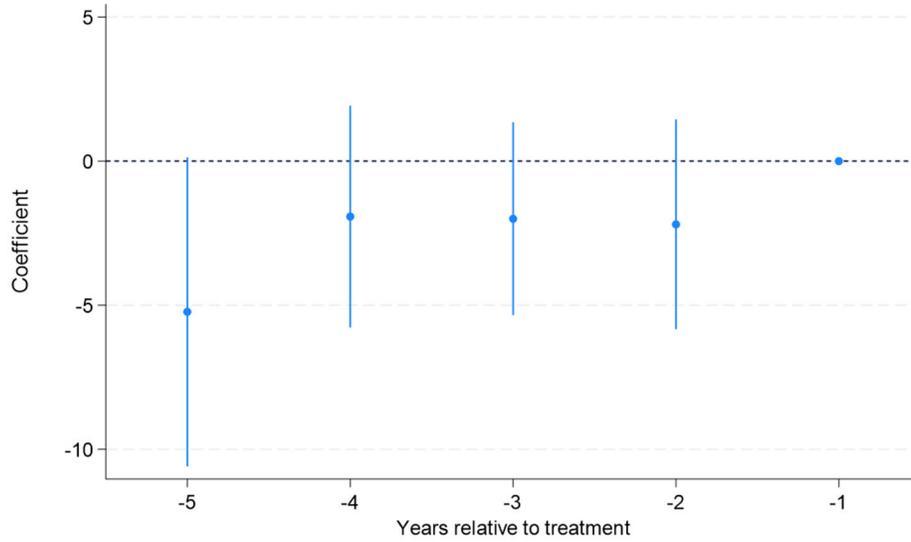
- Atwood, T.J., Omer, T.C. and M.K. Shelley, M.K. 1998. Before-tax versus after-tax earnings as performance measures in compensation contracts. *Managerial Finance* 24(11): 29-43.
- Baker, A. C., D. F. Larcker, and C. Y. Wang. 2022. How much should we trust staggered difference-in-differences estimates? *Journal of Financial Economics* 144 (2): 370-395.
- Bal, Navjeet K. 2009. Massachusetts Department of Revenue Report on FAS 109 Tax Deductions. September 23, 2009.
- Barrios, J. M. (2022). Staggeringly problematic: A primer on staggered DiD for accounting researchers. *Available at SSRN 3794859*.
- Bartov, E. and Mohanram, P., 2004. Private information, earnings manipulations, and executive stock-option exercises. *The Accounting Review*, 79(4), pp.889-920.
- Blouin, J. and Born, N., 2024. The Corporate Alternative Minimum Tax: A Congressional Folly. *National Tax Journal*, 77(2), pp.413-447.
- Bucks, D. R., P. D. Enrich, M. Mazerov, D. Shanske, and D. Sheppard. 2022. Deferred Corporate Tax Relief: Bad Policy Based on Unsupported Assertions. *Tax Notes State*. May 16.
- Burns, N. and Kedia, S., 2006. The impact of performance-based compensation on misreporting. *Journal of Financial Economics*, 79(1), pp.35-67.
- Chen, C.X., Kim, M., Li, L.Y. and Zhu, W., 2022. Accounting performance goals in CEO compensation contracts and corporate risk taking. *Management Science*, 68(8), pp.6039-6058.
- Chirinko, R.S. and Wilson, D.J., 2008. State investment tax incentives: A zero-sum game?. *Journal of Public Economics*, 92(12), pp.2362-2384.
- Chow, T., S. Huang, K. J. Klassen, and J. Ng. 2022. The Influence of Corporate Income Taxes on Investment Location: Evidence from Corporate Headquarters Relocations. *Management Science* 68 (2): 1404-1425.
- Cline, R. 2008. Understanding the revenue and competitive effects of combined reporting. *Council on State Taxation*.
- Coles, J.L., Daniel, N.D., and Naveen, L., 2006. Managerial Incentives and Risk-Taking. *Journal of Financial Economics* 79, 431-468.
- Core, J., Guay, W., 2002. Estimating the value of employee stock option portfolios and their sensitivities to price and volatility. *Journal of Accounting Research* 40, 613-630
- Dhaliwal, D. S., Kaplan, S. E., Laux, R. C., & Weisbrod, E. (2013). The information content of tax expense for firms reporting losses. *Journal of Accounting Research*, 51(1), 135-164.
- Dickinson, V. 2011. Cash flow patterns as a proxy for firm life cycle. *The Accounting Review* 86 (6): 1969-1994.
- Edwards, A. (2018). The deferred tax asset valuation allowance and firm creditworthiness. *The Journal of the American Taxation Association*, 40(1), 57-80.
- Francis, T. 2021. Accounting Experts Ask Congress to Change Proposal on Minimum Corporate Tax, *The Wall Street Journal*, 5 November. Available at: <https://www.wsj.com/articles/accounting-experts-ask-congress-to-change-proposal-on-minimum-corporate-tax-11636157095> (Accessed: 3 August 2024).
- Gaertner, F.B., 2014. CEO after-tax compensation incentives and corporate tax avoidance. *Contemporary Accounting Research*, 31(4), pp.1077-1102.
- Gaertner, F. B., Hoopes, J. L., Kelley, S. O., & Pflitsch, M. 2025. Investor Perceptions of the Corporate Alternative Minimum Tax. *Management Science*.

- Gallemore, J., S. Hollander, M. Jacob, and X. Zheng. 2025. Tax Policy Expectations and Investment. *Journal of Accounting Research* 63 (1): 363-412.
- Giroud, X. and Rauh, J., 2019. State taxation and the reallocation of business activity: Evidence from establishment-level data. *Journal of Political Economy*, 127(3), pp.1262-1316.
- Graham, J.R., M. Hanlon, T. Shevlin, and N. Shroff. 2014. Incentives for tax planning and avoidance: Evidence from the field. *The Accounting Review*, 89 (3): 991-1023.
- Green, D.H., Henry, E., McGovern, C. and Plesko, G.A., 2024. The Demographics of the CAMT: Insights from Tax Return Data. *National Tax Journal*, 77(2), pp.383-411.
- Guenther, D.A., 1994. Earnings management in response to corporate tax rate changes: Evidence from the 1986 Tax Reform Act. *The Accounting Review*: 230-243.
- Gupta, S., & Lynch, D. P. 2016. The effects of changes in state tax enforcement on corporate income tax collections. *The Journal of the American Taxation Association*, 38(1), 125-143.
- Hanlon, M. 2021. The possible weakening of financial accounting from tax reforms. *The Accounting Review* 96 (5): 389-401.
- Hanlon, M., S. Kelley LaPlante, and T. Shevlin. 2005. Evidence for the possible information loss of conforming book income and taxable income. *The Journal of Law and Economics* 48 (2), 407-442.
- Klassen, K., M. Lang, and M. Wolfson. 1993. Geographic income shifting by multinational corporations in response to tax rate changes. *Journal of Accounting Research*, 31: 141-173.
- Lee, C., & Shevlin, T. J. (2023). Do Increases in Tax Policy Uncertainty Affect Tax Planning and Other Investments?. Available at SSRN 4390298.
- Lester, R., 2019. Made in the USA? A study of firm responses to domestic production incentives. *Journal of Accounting Research*, 57(4), pp.1059-1114.
- Liu, Y. and Mauer, D.C., 2011. Corporate cash holdings and CEO compensation incentives. *Journal of Financial Economics*, 102(1), pp.183-198.
- Mazerov, M. 2007. State Corporate Tax Shelters and the Need for “Combined Reporting.” *Tax Notes State*. October 26.
- Mazerov, M. 2009. A Majority of States Have Now Adopted a Key Corporate Tax Reform – “Combined Reporting.” *Center on Budget and Policy Priorities*. April 3.
- Mazerov, M. 2019. States Should Reject Corporate Demands for “Deferred Tax” Deductions. *Tax Notes State*. June 17.
- McAnneny, E., R. Lord, J. E. Rooney, JD Chesloff. 2015. Joint Letter to His Excellency Charlie Baker, Governor of the Commonwealth of Massachusetts. July 8. Available at: https://www.masstaxpayers.org/sites/default/files/publications/2020-04/Joint%20Letter%20to%20Gov_FAS%20109%20deduction_July%202015.pdf
- Newman, H.A., 1989. Selection of short-term accounting-based bonus plans. *Accounting Review*, pp.758-772.
- Phillips, J.D., 2003. Corporate tax-planning effectiveness: The role of compensation-based incentives. *The Accounting Review*, 78(3), pp.847-874.
- Poterba, J.M., Rao, N.S. and Seidman, J.K., 2011. Deferred tax positions and incentives for corporate behavior around corporate tax changes. *National Tax Journal*, 64(1), pp.27-57.
- Powers, K., Robinson, J.R. and Stomberg, B., 2016. How do CEO incentives affect corporate tax planning and financial reporting of income taxes? *Review of Accounting Studies*, 21, pp.672-710.
- Rego, S.O. and Wilson, R., 2012. Equity risk incentives and corporate tax aggressiveness. *Journal of Accounting Research*, 50(3), pp.775-810.

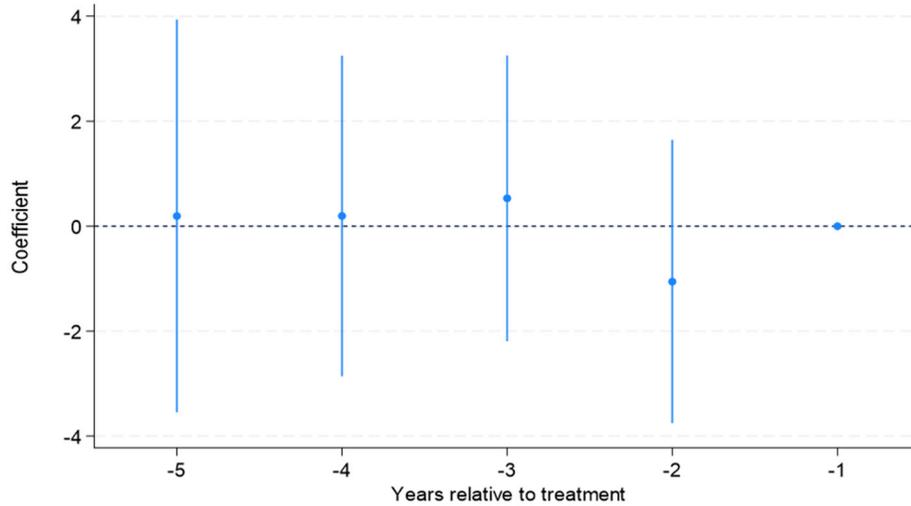
- Roberts, M. R., and T. M. Whited. 2013. Chapter 7 – Endogeneity in empirical corporate finance. *Handbook of the Economics of Finance 2 (A)*: 493-572.
- Robinson, J. R., Sikes, S. A., and Weaver, C. D. 2010. Performance measurement of corporate tax departments. *The Accounting Review*, 85(3), 1035-1064.
- Rubin, R. 2024. Biden’s 15% Corporate Minimum Tax Hits KKR, Blackstone, Whirlpool in First Year, *The Wall Street Journal*, 13 March 2024. Available at: <https://www.wsj.com/politics/policy/bidens-15-corporate-minimum-tax-hits-krk-blackstone-whirlpool-in-first-year-de37376f> (Accessed: 15 August 2024).
- Schadewald, M. 2008. More States Require Combined Reporting. *Journal of State Taxation* (March-April).
- Silbiger, M. C. 2015. “Tax Executives Institute Opposes the Repeal of Massachusetts FAS 109 Deduction.” *Tax Executives Institute* available at: https://www.tei.org/sites/default/files/advocacy_pdfs/MA-Letter-re-Elimination-of-FAS-109-Deduction-FINAL.pdf
- Welsch, A. 2023. The effect of market-based sourcing on labor outcomes. *Journal of Public Economics* 225: 104966.
- Williams, B. M., 2018. Multinational tax incentives and offshored US jobs. *The Accounting Review*, 93 (5), pp.293-324.
- Williams-Alvaraz, J. 2022. Companies Seek Guidance on New U.S. Minimum Tax as Launch Date Nears. *The Wall Street Journal*. Available at: <https://www.wsj.com/articles/companies-seek-guidance-on-new-u-s-minimum-tax-as-launch-date-nears-11666776601>. Accessed on 1 September 2024.
- Wise, K. 2022. FAS 109, single sales factor apportionment, and deferred corporate tax deductions. *Massachusetts Budget & Policy Center*, June 23.

Figure 1: Difference in the Probability of Subsidiary Exits and Headquarter Relocations for Treated and Control Firms in the Pre-Period

Panel A: Exit State



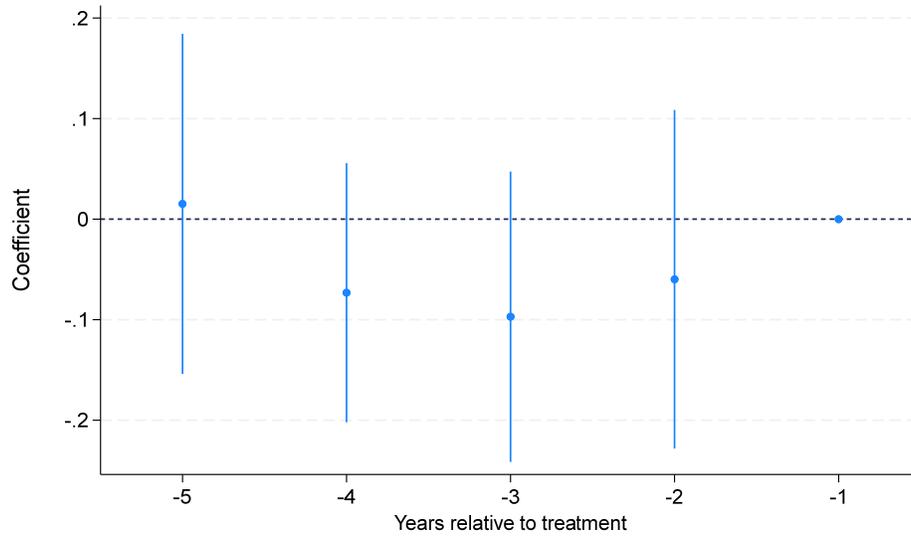
Panel B: HQ Relocation



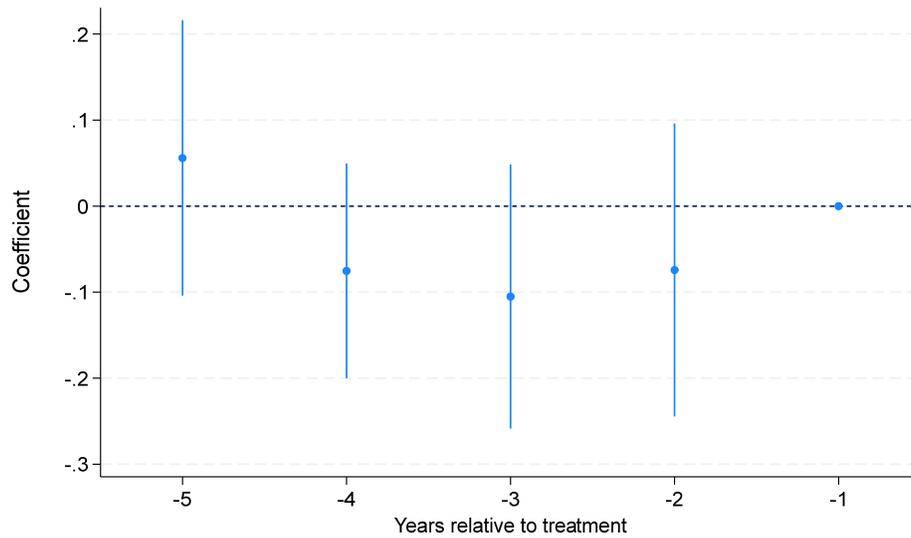
Notes: Figure 1 Panels A and B report the results of re-estimating equation (1) and (2), respectively, replacing *POST* with an indicator for each year, relative to the year of treatment (i.e., year 0). The year before treatment (i.e., year t-1) serves as the benchmark. For treated firms year 0 is the year of DTRD adoption. Control firms are those that enacted combined reporting without a DTRD. In Panel A, the sample is at the firm-state-year level and the dependent variable is an indicator equal to one if the firm’s subsidiaries leave a particular state. In Panel B, the sample is at the firm-year level and the dependent variable is an indicator variable equal to one if a firm moves the location of its headquarters to a different state in year $t+1$, zero otherwise. This figure reports the coefficient on the interaction of *DTRD x Relative Year* and the 95 percent confidence intervals for the interaction terms.

Figure 2: Difference in the Use of After-Tax Performance Metrics in Equity-Based Compensation Contracts for Treated and Control firms in the Pre-Period

Panel A: Difference in After-tax% Count



Panel B: Difference in After-tax% Comp



Notes: Figure 2 reports the results of re-estimating equation (3) without controls, adding an indicator for each year, prior to the year of DTRD adoption (i.e., year 0). The year before treatment (i.e. year -1) serves as the benchmark year. For treated firms, year 0 is the year of DTRD adoption. Control firms are those that enacted combined reporting without a DTRD. In Panel A the dependent variable, *After-tax% Count*, is the ratio of the number of performance metrics in executive’s equity-based compensation contracts that are measured on an after-tax basis (e.g., net income, ROA) divided by the total number of performance metrics in the contracts based on financial metrics. In Panel B the dependent variable, *After-tax% Comp*, is the ratio of the value of equity-based compensation tied to after-tax metrics divided by total value of equity-based compensation. This figure reports the coefficient on the interaction of *DTRD x Relative Year* and the 95 percent confidence intervals for the interaction terms.

Table 1: Sample Selection

Criteria	Firm-State- Years	Firm-Years	Unique Firms
Firm-years (unique firms) in Compustat North America incorporated in the U.S., with non-missing assets for years $t-1$, t , and $t+1$ and with fiscal years ending between January 1, 2003 and December 31, 2021.		100,719	11,487
<i>Less:</i> financial firms (SIC 6000-6999) and utilities (SIC 4900-4999)		(28,390)	(2,642)
<i>Less:</i> firm-years missing data for the control variables included in equation (1).		(10,216)	(6,592)
<i>Less:</i> firm-years with missing CIK and firm-years for which we are not able to match a Form 10-K or Form 10-KSB filing in year t or $t+1$.		(5,220)	(4,867)
<i>Less:</i> firm-years with missing subsidiary data from Exhibit 21		(21,183)	(2,332)
Primary Sample for tests of H1	118,256	35,710	4,788
<i>Less:</i> firm-years missing data for executives' equity-based compensation contracts in Incentive Lab		(23,213)	(3,570)
<i>Less:</i> firm-years after the initial adoption year of combined reporting laws		(1,878)	(26)
Primary Sample for tests of H2		10,619	1,192

Notes: This table outlines our sample selection process for the samples used to evaluate companies' location decisions (H1) and companies' use of after-tax performance metrics in executive compensation contracts (H2).

Table 2: Descriptive Statistics

Panel A: Descriptive Statistics on States that Adopt DTRD Laws and Combine Reporting

	(1)		(2)		(3)	
	DTRD Adopting States		Combined Reporting Adopting States (no DTRD)		Other States	
	Mean	Diff. in Means (1) vs (2)	Mean	Diff. in Means (2) vs (3)	Mean	Diff. in Means (1) vs (3)
<i>Corp Tax Rate</i>	0.081	***	0.066		0.063	***
<i>MBS</i>	0.263		0.323		0.299	
<i>Sales Factor</i>	0.550	***	0.737	***	0.489	*
<i>Throwback</i>	0.500	**	0.368	**	0.479	
<i>NOLCB</i>	0.053	***	0.677		0.706	***
<i>NOLCF</i>	16.947	***	11.729	***	14.929	***
<i>R&D Credits</i>	0.051		0.046	***	0.060	*
<i>Invest Credits</i>	0.150	***	0.021	*	0.028	***
<i>Job Creation Credits</i>	0.465		0.504		0.569	**
<i>Unemployment</i>	0.063		0.060		0.057	***
<i>GSP</i>	12.277		12.290	*	12.110	*

Continued on next page

Table 2 Cont.

Panel B: Sample Used in Tests of Location Decisions, H1

Variable	Mean	Std. Dev.	Q1	Median	Q3
<u>Firm-State-Year Sample (N=118,256)</u>					
<i>Exit State_{t+1}</i>	5.609	23.010	0.000	0.000	0.000
<i>DTRD</i>	0.077	0.266	0.000	0.000	0.000
<i>DTRD*Post</i>	0.026	0.158	0.000	0.000	0.000
<i>Combined</i>	0.226	0.418	0.000	0.000	0.000
<i>Combined*Post</i>	0.126	0.332	0.000	0.000	0.000
<u>Firm-Year Sample (N=35,710)</u>					
<i>Total Sub Count</i>	21.959	58.141	3.000	8.000	19.000
<i>Total State Count</i>	4.103	4.905	1.000	2.000	5.000
<i>HQ Relocation_{t+1}</i>	1.442	11.922	0.000	0.000	0.000
<i>DTRD</i>	0.129	0.336	0.000	0.000	0.000
<i>DTRD*POST</i>	0.042	0.200	0.000	0.000	0.000
<i>Combined</i>	0.363	0.481	0.000	0.000	1.000
<i>Combined*Post</i>	0.146	0.353	0.000	0.000	0.000
<i>Size</i>	6.591	2.193	5.273	6.701	8.007
<i>Cash Surplus</i>	0.002	0.750	0.013	0.079	0.146
<i>Leverage</i>	0.222	0.238	0.012	0.173	0.339
<i>Capital Intensity</i>	0.267	0.265	0.077	0.174	0.369
<i>MB</i>	3.146	8.666	1.211	2.128	3.786
<i>Sales Growth</i>	0.141	0.563	-0.024	0.064	0.181
<i>Pretax Income</i>	-0.070	1.042	-0.015	0.058	0.120
<i>M&A</i>	0.336	0.472	0.000	0.000	1.000
<i>Growth</i>	0.258	0.437	0.000	0.000	1.000
<i>Maturity</i>	0.473	0.499	0.000	0.000	1.000
<i>Shake/Decline</i>	0.165	0.371	0.000	0.000	0.000
<i>ΔCorp Tax Rate</i>	-0.034	0.160	0.000	0.000	0.000
<i>ΔMBS</i>	0.032	0.177	0.000	0.000	0.000
<i>ΔSales Factor</i>	0.014	0.098	0.000	0.000	0.000
<i>ΔThrowback</i>	-0.008	0.092	0.000	0.000	0.000
<i>ΔNOLCB</i>	0.024	0.207	0.000	0.000	0.000
<i>ΔNOLCF</i>	0.181	1.304	0.000	0.000	0.000
<i>ΔR&D Credits</i>	0.001	0.014	0.000	0.000	0.000
<i>ΔInvest Credits</i>	0.000	0.016	0.000	0.000	0.000
<i>ΔJob Creation Credits</i>	-0.003	0.126	0.000	0.000	0.000
<i>ΔUnemployment</i>	0.030	1.643	-0.700	-0.400	0.200
<i>ΔGSP</i>	1.966	2.482	0.845	2.095	3.476
<i>Top Industries</i>	0.364	0.481	0.000	0.000	1.000

Continued on next page

Table 2 Cont.

Panel C: Differences in Means for Tests of Headquarter Relocation Decisions, H1

	(1) <i>DTRD=0</i> (N=31,087)		(2) <i>DTRD=1/POST=0</i> (N=3,129)		(3) <i>DTRD=1/POST=1</i> (N=1,494)	
	Mean	Diff. in Means (1) vs (2)	Mean	Diff. in Means (2) vs (3)	Mean	Diff. in Means (1) vs (3)
<i>Exit State</i> _{t+1} ‡	5.60	**	6.13	***	4.61	***
<i>HQ Relocation</i> _{t+1}	1.44		1.69	*	1.00	
<i>Size</i>	6.64	***	6.12	***	6.52	**
<i>Cash Surplus</i>	0.00	**	0.03		-0.01	
<i>Leverage</i>	0.23	***	0.19		0.20	***
<i>Capital Intensity</i>	0.28	***	0.19		0.18	***
<i>MB</i>	3.09		3.34	*	3.86	***
<i>Sales Growth</i>	0.14	***	0.21	***	0.12	
<i>Pretax Income</i>	-0.06	**	-0.11		-0.12	**
<i>M&A</i>	0.33	***	0.26	***	0.55	***
<i>Growth</i>	0.26	**	0.24		0.26	
<i>Maturity</i>	0.48	***	0.38	***	0.45	**
<i>Shake/Decline</i>	0.16	***	0.22	***	0.19	***
<i>ΔCorp Tax Rate</i>	-0.03	***	-0.02	***	-0.10	***
<i>ΔMBS</i>	0.03	***	0.02	***	0.12	***
<i>ΔSales Factor</i>	0.01		0.01		0.02	
<i>ΔThrowback</i>	-0.01	***	0.00		0.00	***
<i>ΔNOLCB</i>	0.03	***	0.00		0.00	***
<i>ΔNOLCF</i>	0.15	***	0.26	***	0.62	***
<i>ΔR&D Credits</i>	0.00	***	0.00		0.00	***
<i>ΔInvest Credits</i>	0.00		0.00		0.00	
<i>ΔJob Creation Credits</i>	-0.01	***	0.02	***	0.00	
<i>ΔUnemployment</i>	0.02		0.05	**	0.19	***
<i>ΔGSP</i>	2.04	***	1.45		1.56	***
<i>Top Industries</i>	0.35	***	0.45		0.44	***

Notes: Panel A reports descriptive statistics for the states that adopt a DTRD law during our sample period (Column 1), states that adopt combined reporting without a DTRD law during our sample period (Column 2), and states that adopt neither (Column 3), with accompanying differences in means between these columns. Panel B reports descriptive statistics for the sample used in tests of headquarter relocation decisions, H1. Panel C reports descriptive statistics for subsamples where *DTRD* = 0 and *POST* = 0 (Column 1), *DTRD* = 1 and *POST* = 0 (Column 2), and *DTRD* = 1 and *POST* = 1 (Column 3) and tests of differences in means between these columns. *, **, and *** indicate significance at $p < 0.10$, 0.05, and 0.01, respectively. ‡ The number of observations for *Exit State*, which is reported for a firm-year-subsidary state sample are 103,716 in Column 1, 10,462 in Column 2, and 4,078 in Column 3. Appendix C provides all variable definitions.

Table 3: Likelihood of Subsidiary Exits from States with DTRD Laws

DV =		(1) <i>Exit State</i>	(2) <i>Exit State</i>
<i>DTRD*POST</i>	Pred. (-)	-1.976*** (-3.426)	-2.029*** (-3.474)
<i>Combined*POST</i>	Pred. (+)	0.262 (0.558)	0.411 (0.880)
<i>Size</i>			0.362*** (3.848)
<i>Cash Surplus</i>			0.471** (2.403)
<i>Leverage</i>			-1.142*** (-3.498)
<i>Capital Intensity</i>			-2.380*** (-4.211)
<i>MB</i>			0.003 (0.303)
<i>Sales Growth</i>			0.008 (0.051)
<i>Pretax Income</i>			-0.712*** (-2.867)
<i>M&A</i>			0.925*** (4.917)
<i>Growth</i>			0.289 (0.864)
<i>Maturity</i>			-0.758*** (-2.712)
<i>Shake/Decline</i>			1.461** (2.674)
<i>ΔCorp Tax Rate</i>			-0.487 (-1.008)
<i>ΔMBS</i>			-0.604 (-1.506)
<i>ΔSales Factor</i>			1.358 (1.484)
<i>ΔThrowback</i>			0.026 (0.038)
<i>ΔNOLCB</i>			0.411* (1.874)
<i>ΔNOLCF</i>			-0.002 (-0.012)
<i>ΔR&D Credits</i>			-2.812 (-0.407)

Continued on next page

Table 3 Cont.

DV =	(1) <i>Exit State</i>	(2) <i>Exit State</i>
<i>ΔInvest Credits</i>		2.424 (1.207)
<i>ΔJob Creation Credits</i>		1.244** (2.373)
<i>ΔUnemployment</i>		0.174 (1.127)
<i>ΔGSP</i>		0.059** (2.231)
<i>Top Industries</i>		-0.325 (-1.327)
Fixed Effects	Industry, Year, Subsidiary State	Industry, Year, Subsidiary State
Observations	118,256	118,256
R-squared	0.013	0.016

Notes: This table presents the results of estimating the probability of a firm's subsidiary(ies) leaving a state following enactment of a DTRD law, using equation (1). *Exit State* an indicator variable equal to one if a firm leaves state in year $t+1$, zero otherwise. *DTRD* is an indicator variable set to one for the states that adopt a DTRD law during our sample period, CT, DC, KY, MA, NJ, NM. *Combined* is an indicator variable set to one for the 13 states that adopted combined reporting during our sample period, including the 6 states that adopted a DTRD. *Post* is an indicator variable set to one for the year the state adopts combined reporting or combined reporting with a DTRD law, and each subsequent year. Standard errors are in parentheses and are clustered at state level. *, **, and *** indicate statistical significance at the $p < 0.10$, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix C.

Table 4: Likelihood of Headquarter Relocations from States with DTRD Laws

DV=		(1) <i>HQ Relocation</i>	(2) <i>HQ Relocation</i>
<i>DTRD*POST</i>	Pred. (-)	-0.673** (-2.149)	-0.812** (-2.298)
<i>Combined*POST</i>	Pred. (+)	0.039 (0.267)	0.290** (2.419)
<i>Size</i>			-0.189*** (-6.711)
<i>Cash Surplus</i>			-0.372 (-1.603)
<i>Leverage</i>			0.422 (1.294)
<i>Capital Intensity</i>			-0.237 (-0.660)
<i>MB</i>			-0.009 (-1.196)
<i>Sales Growth</i>			0.329 (1.434)
<i>Pretax Income</i>			-0.167 (-1.433)
<i>M&A</i>			0.661*** (4.279)
<i>Growth</i>			-0.646 (-1.500)
<i>Maturity</i>			-0.627 (-1.458)
<i>Shake/Decline</i>			0.030 (0.099)
<i>ΔCorp Tax Rate</i>			0.100 (0.281)
<i>ΔMBS</i>			0.178 (0.406)
<i>ΔSales Factor</i>			-0.950 (-1.185)
<i>ΔThrowback</i>			0.039 (0.085)
<i>ΔNOLCB</i>			-0.159 (-0.610)
<i>ΔNOLCF</i>			0.001 (0.033)

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Table 4 (cont.)

DV=	(1) <i>HQ Relocation</i>	(2) <i>HQ Relocation</i>
<i>ΔR&D Credits</i>		3.467 (0.853)
<i>ΔInvest Credits</i>		-1.817 (-0.725)
<i>ΔJob Creation Credits</i>		-0.522** (-2.649)
<i>ΔUnemployment</i>		0.333 (1.173)
<i>ΔGSP</i>		-0.061 (-0.995)
<i>Top Industries</i>		-0.323 (-1.539)
Fixed Effects	Industry, Year, State	Industry, Year, State
Observations	35,710	35,710
R-Squared	0.006	0.012

Notes: This table presents the results of estimating the probability of a firm relocating its headquarters from a state following enactment of a DTRD law, using equation (2). *HQ Relocation* an indicator variable equal to one if a firm relocates its headquarters in year $t+1$, zero otherwise. *DTRD* is an indicator variable set to one for the states that adopt a DTRD law during our sample period, CT, DC, KY, MA, NJ, NM. *Combined* is an indicator variable set to one for the 13 states that adopted combined reporting during our sample period, including the 6 states that adopted a DTRD. *Post* is an indicator variable set to one for the year the state adopts combined reporting or combined reporting with a DTRD law, and each subsequent year. Standard errors are in parentheses and are clustered at state level. *, **, and *** indicate statistical significance at the $p < 0.10$, 0.05, and 0.01 levels, respectively. All variables are defined in Appendix C.

Table 5: Descriptive Statistics**Panel A: Sample Used in Tests of After-Tax Performance Metrics in Equity-Based Compensation Contracts, H2 (N=10,619)**

Variable	Mean	Std. Dev.	Q1	Median	Q3
<i>After-tax% Count</i>	0.261	0.405	0.000	0.000	0.500
<i>After-tax% Comp</i>	0.260	0.406	0.000	0.000	0.500
<i>DTRD</i>	0.084	0.277	0.000	0.000	0.000
<i>DTRD*Adopt Year</i>	0.007	0.085	0.000	0.000	0.000
<i>Combined</i>	0.209	0.407	0.000	0.000	0.000
<i>Combined*Adopt Year</i>	0.021	0.142	0.000	0.000	0.000
<i>DELTA</i>	0.079	0.142	0.002	0.029	0.078
<i>VEGA</i>	0.017	0.021	0.000	0.007	0.027
<i>DELTA/VEGA Missing</i>	0.138	0.345	0.000	0.000	0.000
<i>Log(Tenure)</i>	1.507	0.834	1.099	1.609	2.197
<i>Tenure Missing</i>	0.018	0.132	0.000	0.000	0.000
<i>Size</i>	8.375	1.414	7.506	8.303	9.207
<i>Cash Surplus</i>	0.110	0.114	0.052	0.102	0.168
<i>Leverage</i>	0.252	0.207	0.104	0.223	0.355
<i>Capital Intensity</i>	0.276	0.245	0.097	0.192	0.385
<i>MB</i>	4.066	9.439	1.678	2.819	4.794
<i>Sales Growth</i>	0.101	0.324	-0.006	0.066	0.155
<i>Pretax Income</i>	0.097	0.113	0.043	0.092	0.151
<i>M&A</i>	0.398	0.490	0.000	0.000	1.000
<i>Growth</i>	0.243	0.429	0.000	0.000	0.000
<i>Maturity</i>	0.613	0.487	0.000	1.000	1.000
<i>Shake/Decline</i>	0.116	0.321	0.000	0.000	0.000
<i>ΔCorp Tax Rate</i>	-0.028	0.145	0.000	0.000	0.000

(continued on next page)

Table 5, continued

Panel B: Differences in Means for the Sample Used After-Tax Performance Metrics in Equity-Based Compensation Contracts

	(1) <i>DTRD=0</i> (N=9,730)		(2) <i>DTRD=1/Adopt</i> <i>Year=0</i> (N=812)		(3) <i>DTRD=1/Adopt</i> <i>Year=1</i> (N=77)	
	Mean	Diff. in Means (1) vs (2)	Mean	Diff. in Means (2) vs (3)	Mean	Diff. in Means (1) vs (3)
<i>After-tax% Count</i>	0.26		0.25	**	0.34	*
<i>After-tax% Comp</i>	0.26		0.24	**	0.35	*
<i>DELTA</i>	0.08		0.08		0.10	
<i>VEGA</i>	0.02	***	0.02	*	0.02	***
<i>DELTA/VEGA Missing</i>	0.14		0.13		0.09	
<i>Log(Tenure)</i>	1.50		1.54		1.63	
<i>Tenure Missing</i>	0.02		0.02		0.03	
<i>Size</i>	8.37		8.38		8.42	
<i>Cash Surplus</i>	0.11		0.11		0.12	
<i>Leverage</i>	0.25		0.25		0.25	
<i>Capital Intensity</i>	0.28	***	0.22		0.21	**
<i>MB</i>	4.01	**	4.75		4.09	
<i>Sales Growth</i>	0.10	***	0.14	*	0.05	
<i>Pretax Income</i>	0.10	*	0.10		0.08	
<i>M&A</i>	0.40		0.38	**	0.52	**
<i>Growth</i>	0.24		0.23		0.22	
<i>Maturity</i>	0.61		0.60		0.65	
<i>Shake/Decline</i>	0.11	***	0.15		0.10	
<i>ΔCorp Tax Rate</i>	-0.03		-0.02		0.00	*

Notes: Panel A reports descriptive statistics for after-tax performance metrics in equity-based compensation contracts. Panel B reports descriptive statistics for subsamples where *DTRD* = 0 and *Adopt Year* = 0 (Column 1), *DTRD* = 1 and *Adopt Year* = 0 (Column 2), and *DTRD* = 1 and *Adopt Year* = 1 (Column 3) and tests of differences in means between these columns. *, **, and *** indicate significance at $p < 0.10$, 0.05 , and 0.01 , respectively. Appendix C provides all variable definitions.

Table 6: Differences in the Use of After-Tax Performance Metrics in Equity-Based Compensation Contracts for Companies Located in States with DTRD Laws, following Enactment

DV=	(1) <i>After-tax%</i> <i>Count</i>	(2) <i>After-tax%</i> <i>Count</i>	(3) <i>After-tax%</i> <i>Comp</i>	(4) <i>After-tax%</i> <i>Comp</i>
<i>DTRD*Adopt Year</i>	0.062* (1.810)	0.070** (2.691)	0.081** (2.676)	0.089*** (3.715)
<i>Combined*Adopt Year</i>	0.044 (1.428)	0.024 (1.020)	0.033 (1.154)	0.013 (0.595)
<i>Delta</i>		-0.261*** (-4.445)		-0.267*** (-4.532)
<i>Vega</i>		-0.395 (-1.018)		-0.347 (-0.898)
<i>Delta/Vega Missing</i>		-0.077*** (-3.785)		-0.078*** (-3.787)
<i>Log(Tenure)</i>		-0.007 (-1.489)		-0.006 (-1.154)
<i>Tenure Missing</i>		-0.093*** (-4.057)		-0.086*** (-3.528)
<i>Size</i>		0.047*** (5.955)		0.046*** (5.900)
<i>Cash Surplus</i>		-0.198** (-2.073)		-0.200* (-1.997)
<i>Leverage</i>		-0.078** (-2.058)		-0.075** (-2.037)
<i>Capital Intensity</i>		0.049 (0.953)		0.046 (0.903)
<i>MB</i>		-0.000 (-0.055)		-0.000 (-0.001)
<i>Sales Growth</i>		-0.028** (-2.583)		-0.028** (-2.515)
<i>Pretax Income</i>		0.151** (2.577)		0.141** (2.334)
<i>M&A</i>		0.022* (1.728)		0.022* (1.858)
<i>Growth</i>		0.049*** (3.016)		0.051*** (3.016)
<i>Maturity</i>		0.090*** (4.307)		0.091*** (4.212)

Continued on next page

Table 6 (cont.)	(1)	(2)	(3)	(4)
<i>Shake/Decline</i>		0.024 (1.413)		0.021 (1.251)
<i>ΔCorp Tax Rate</i>		0.070** (2.469)		0.071** (2.630)
Constant	0.260*** (606.327)	-0.140* (-1.817)	0.259*** (661.625)	-0.141* (-1.811)
Fixed Effects	Industry, Year, HQ State	Industry, Year, HQ State	Industry, Year, HQ State	Industry, Year, HQ State
Observations	10,619	10,619	10,619	10,619
R-Squared	0.078	0.131	0.075	0.127

Notes: This table presents the results of estimating the use of after-tax performance metrics in equity-based compensation contracts in the year of enactment of a DTRD law, using a difference in differences research design (equation 3). In columns 1 and 2 the dependent variable, *After-tax% Count*, is the ratio of the number of performance metrics in executive's equity-based compensation contracts that are measured on an after-tax basis (i.e., net income, ROA) divided by the total number of performance metrics in the contracts based on financial metrics. In columns 3 and 4 the dependent variable, *After-tax% Comp*, is the ratio of the value of equity-based compensation tied to after-tax metrics divided by total value of equity-based compensation. *DTRD* is an indicator variable set to one for the states that adopt a DTRD law during our sample period, CT, DC, KY, MA, NJ, NM. *Combined* is an indicator variable set to one for the 13 states that adopted combined reporting during our sample period, including the 6 states that adopted a DTRD. *Adopt Year* is an indicator variable set to one for the year the state adopts combined reporting or combined reporting with a DTRD law. Standard errors are in parentheses and are clustered at state level. *, **, and *** indicate statistical significance at the p < 0.10, 0.05, and 0.01 levels, respectively. Standard errors are in parentheses and are clustered at the headquarter state level. All variables are defined in Appendix C.

APPENDIX A

Example Computation of DTL Revaluation Under Combined Reporting and the Impact of a DTRDs

Step 1: Adoption of Combined Reporting

Suppose Company 1 has a parent entity and two subsidiary entities. Company 1 operates in multiple jurisdictions, including State A. State A has a 5% tax rate and separate reporting for income tax purposes. All other states the company operates in have a 1% state tax rate and separate reporting for income tax purposes. Sub 1 and Sub 2 each have property that has benefited from immediate expensing for tax purposes and thus Sub 1 and Sub 2 each have a difference in the book basis and tax basis of their assets equal to \$100. To compute the State DTL we multiply the difference in the asset basis by the applicable state tax rate for each entity.

Company 1						
Entities:	Nexus in State A	State A Apportionment Factor	Everywhere Else Apportionment Factor	Applicable State Rate	Difference between Book and Tax Basis of Assets	State DTL
Parent	Yes	25% (100/400)	75% (300/400)	$(0.25*0.05) + (0.75*0.01) = 2\%$	\$0	
Sub 1	Yes	10% (10/100)	90% (90/100)	$(0.10*0.05) + (0.90*0.01) = 1.4\%$	\$100	\$1.4
Sub 2	No	0% (0/100)	100% (100/100)	$(0.0*0.05) + (1.0*0.01) = 1\%$	\$100	\$1
TOTAL STATE DTL						\$2.4

If State A adopts combined reporting, Company 1 will need to compute the revised applicable state tax rate for the combined group and revalue their state DTL accordingly.

Company 1						
Entities:	Nexus in State A	State A Apportionment Factor	Everywhere Else Apportionment Factor	Applicable State Rate	Difference between Book and Tax Basis of Assets	State DTL
Parent	Yes		75% (300/400)	$0.75*0.01 = 0.75\%$	\$0	
Sub 1	Yes		90% (90/100)	$0.90*0.01 = 0.9\%$	\$100	\$0.9
Sub 2	No		100% (100/100)	$1.0*0.01 = 1\%$	\$100	\$1
Combined		18.33% (110/600)		$18.33*0.05 = 0.9\%$	\$200	\$1.8
TOTAL STATE DTL						\$3.7

APPENDIX A, Continued

Step 2A: Journal Entry for Adoption of Combined Reporting

Company 1's journal entries for State A's adoption of combined reporting are as follows:

Dr. Tax Expense	\$1.3	
Cr. DTL		\$1.3

Step 2B: Journal Entry for Adoption of Combined Reporting with a DTRD

If State A adopted combined reporting with a DTRD, not only would Company 1 revalue the DTL but it would also record a deferred tax asset (DTA) for the future state tax credit. Company 1's journal entries for State A's adoption of combined reporting ***with a DTRD*** are as follows:

Dr. Tax Expense	\$1.3	
Cr. DTL		\$1.3
Dr. DTA	\$1.3	
Cr. Tax Expense		\$1.3

Given that the entries to tax expense are offsetting, we can simplify the journal entry to:

Dr. DTA	\$1.3	
Cr. DTL		\$1.3

APPENDIX B

Overview of Deferred tax relief deductions (DTRDs)

Details around the adoption of DTRDs, including the year relief can be taken.

State	Combined Reporting Legislation Passed	DTRD Legislation Passed	Initial Year of Tax Relief	Modified Year of Tax Relief	Claiming DTRD
Connecticut	June 30, 2015 (for years beginning on or after January 1, 2016)	June 30, 2015	Taxable year beginning in 2021	n/a	Deduction claimed over a 30-year period.
District of Columbia	September 14, 2011 (for years beginning on or after January 1, 2011)	September 14, 2012	Taxable year beginning in 2015	n/a	Deduction claimed over a 7-year period.
Kentucky	April, 2018 (for years beginning on or after January 1, 2019)	April 9, 2019	Taxable year beginning in 2024	n/a	Deduction claimed over a 10-year period.
Massachusetts	May 28, 2009	May 28, 2009	Taxable year beginning in 2012	Taxable year beginning in 2021	Deduction claimed over the 7-year period.
New Jersey	July 1, 2018	July 1, 2018	Taxable year beginning in 2022	Taken in two parts: (1) Taxable year beginning in 2023, (2) Taxable year beginning in 2030	Deduction claimed over a minimum of 27-years (originally 10 years).
New Mexico	April 4, 2019	April 4, 2019	Taxable year beginning in 2026	n/a	Deduction claimed over a 10-year period.

APPENDIX C
Variable Definitions

Dependent Variables	Definition
<i>HQ Relocation_{t+1}</i>	An indicator variable equal to one if firm <i>i</i> relocates its headquarters to new state in year <i>t + 1</i> as indicated by a change in the business address reported on the firm's annual report, zero otherwise. We multiply this variable by one hundred to simplify interpretation of coefficient magnitudes. We identify the business address of a firm's headquarters using the Notre Dame Software Repository for Accounting and Finance of SEC/EDGAR Data. Data is publicly available at: https://sraf.nd.edu/sec-edgar-data/
<i>Exit State</i>	An indicator variable equal to one if firm <i>i</i> has a subsidiary in a given State in year <i>t</i> , but ceases to list a subsidiary in the State in year <i>t+1</i> , zero otherwise. We multiply this variable by one hundred to simplify interpretation of coefficient magnitudes. Subsidiary location data is from Exhibit 21, as provided by WRDS.
<i>After-tax% Count</i>	The ratio of the number of performance metrics in executives' equity-based compensation contracts measured on an after-tax basis (e.g., net income, ROA) divided by the total number of performance metrics in the contracts based on financial metrics. Data is obtained from Incentive Lab.
<i>After-tax% Comp</i>	The ratio of the value of equity-based compensation tied to after-tax metrics divided by total value of equity-based compensation (measured in stock units). Data is obtained from Incentive Lab.
Independent Variables	Definition
<i>DTRD</i>	An indicator variable equal to one if the state of firm <i>i</i> 's headquarter location in year <i>t</i> adopts a DTRD law during the sample period (i.e., an indicator variable set to one if firm <i>i</i> 's headquarter location in year <i>t</i> is in CT, DC, KY, MA, NJ, or NM), zero otherwise.
<i>Combined</i>	An indicator variable set to one for the 13 states that adopted combined reporting during our sample period, including the 6 states that adopted a DTRD (CT, DC, KY, MA, MI, NJ, NM, NY, RI, TX, VT, WI, WV).
<i>POST</i>	An indicator variable set to one for the year the state adopts combined reporting or combined reporting with a DTRD law, and each subsequent year.
<i>Adopt Year</i>	An indicator variable set to one for the year the state adopts combined reporting.
Control Variables	Definition
<i>Size</i>	The log of total assets (AT).
<i>Cash Surplus</i>	Cash flows from operations (OANCF) less depreciation and amortization (DPC) plus research and design expense (XRD) scaled by lagged total assets (AT) following Welsch (2023).
<i>Leverage</i>	The change in long term debt (DLTT) scaled by total assets (AT).
<i>Capital Intensity</i>	Net property, plant, and equipment (PPENT) scaled by lagged total assets (AT).

<i>MB</i>	Market value (PRCC F*CSHO) divided by book equity (CEQ).
<i>Sales Growth</i>	The change in firm <i>i</i> 's total sales (SALE) measured as (sales in year <i>t</i> minus sales in year <i>t-1</i>) divided by sales in year <i>t-1</i> . Missing SALE set to zero.
<i>Pretax Income</i>	Pretax income (PI) less special items (SPI) scaled by lagged assets (AT)
<i>M&A</i>	An indicator variable set to one if a firm has non-zero and non-missing acquisition expenses (AQP) in year <i>t</i> or <i>t-1</i> .
<i>Growth</i>	An indicator variable equal to one if firm <i>i</i> is in the <i>Growth Stage</i> in year <i>t</i> , as defined by Dickinson (2011), and zero otherwise.
<i>Mature</i>	An indicator variable equal to one if firm <i>i</i> is in the <i>Mature Stage</i> in year <i>t</i> , as defined by Dickinson (2011), and zero otherwise.
<i>Shake/Decline</i>	An indicator variable equal to one if firm <i>i</i> is in the <i>Decline Stage</i> or <i>Shake-Out Stage</i> in year <i>t</i> , as defined by Dickinson (2011), and zero otherwise.
$\Delta Corp Tax Rate$	The change in a state's corporate income tax rate from year <i>t-1</i> to <i>t</i> .
ΔMBS	An indicator variable equal to one if a state adopts market-based sourcing for sales apportionment purposes in year <i>t</i> , and zero otherwise.
$\Delta Sales Factor$	The change in a state's sales factor apportionment rate from year <i>t-1</i> to <i>t</i> .
$\Delta Throwback$	The change in a state's throwback rules for sales apportionment purposes in year <i>t</i> , taking the value of -1, 0, or 1. The level is an indicator variable.
$\Delta NOLCB$	The change in a state's net operating loss carryback period (in number of years) from year <i>t-1</i> to <i>t</i> .
$\Delta NOLCF$	The change in a state's net operating loss carryforward period (in number of years) from year <i>t-1</i> to <i>t</i> .
$\Delta R\&D Credit$	The change in a state's R&D tax credit rate from year <i>t-1</i> to <i>t</i> .
$\Delta Invest Credit$	The change in a state's investment tax credit from year <i>t-1</i> to <i>t</i> .
$\Delta Job Creation Credit$	The change in whether a state offers a job creation credit, taking the value of -1, 0, or 1. The level is an indicator variable.
$\Delta Unemployment$	The change in a state's unemployment rate from year <i>t-1</i> to <i>t</i> .
ΔGSP	The percentage change (multiplied by 100) in a state real gross state product from year <i>t-1</i> to <i>t</i> . Data collected from the Bureau of Economic Analysis. We take the natural log of GSP when displaying it as a level variable.
<i>Top Industries</i>	An indicator variable set to one if a firm operates in a <i>major industry</i> of the state, and zero otherwise. <i>Major industry</i> is defined as the first or second ranked industry (2-digit SIC) by observation count in each state <i>j</i> in year <i>t</i> .
<i>DELTA</i>	CEO pay-for-performance sensitivity, which captures the slope of the relationship between a manager's wealth and stock price. Calculated as 1% x (share price) x (number of options held) + 1% x (share price) x (option delta) x (number of options held); see Core and Guay (2002) for calculation of option delta. We scale by CEO

	compensation (in thousands) following Liu and Mauer (2011). Set to zero if missing. Data obtained from ExecuComp and Incentive Lab.
<i>VEGA</i>	CEO equity risk incentives, which capture the convexity of the relationship between stock prices and executives' personal wealth. Equal to the sensitivity of the change in the Black-Sholes option value for a 1% change in stock return volatility, multiplied by the number of options in the CEO's portfolio (see Core and Guay 2002). We scale by CEO compensation (in thousands) following Liu and Mauer (2011). Set to zero if missing. Data obtained from ExecuComp and Incentive Lab.
<i>DELTA/VEGA Missing</i>	An indicator variable set to one if <i>DELTA</i> or <i>VEGA</i> is missing, zero otherwise.
<i>Log(Tenure)</i>	Natural logarithm of the CEO's tenure at the end of year <i>t</i> . Data obtained from Incentive Lab.
<i>Log(Tenure)Missing</i>	An indicator variable set to one if <i>Log(Tenure)</i> is missing, zero otherwise.

Note: Estimations of equations (1) and (2) include variables capturing changes in state tax laws, pro-business policies, and economic conditions, as such the variable definitions are reported in changes. However, in Table 2, we report state-year descriptive statistics for state tax laws, pro-business policies and economic conditions using current year levels. All non-bounded/non-logged continuous variables are winsorized at the 1 and 99 percentiles.