TAXES AND THE USE OF SUBJECTIVITY IN EXECUTIVE BONUS PLANS

by

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DISSERTATION ABSTRACT

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Title: Taxes and the Use of Subjectivity in Executive Bonus Plans

In this study, I examine whether taxes influence the design of executive compensation incentives. Recently, the Tax Cuts and Jobs Act (TCJA) removed the requirement that bonus plans be tied to objective and verifiable performance measures for the bonus to be tax deductible. A potential consequence of this removal is that firms will begin to rely more heavily on subjectivity and discretion in their bonus arrangements. I find an increase, post-TCJA, in both the number of and the weight applied to performance measures with discretionary criteria. Using various cross-sectional analyses, I further connect my findings to taxes and find that the effect I document is concentrated among firms with a greater sensitivity to the loss of a tax deduction from the TCJA. Overall, the results suggest that the recent tax reform influenced the design of executive bonus plans by facilitating the inclusion of additional subjective performance measures.

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CHAPTER I

INTRODUCTION

Prior to the 2018 tax reform (the Tax Cuts and Jobs Act or TCJA), the tax code constrained firms' ability to deduct incentive payouts that were not associated with pre-established and objective measures. This constraint may have led some firms to design contracts that otherwise would have been sub-optimal in order to qualify for a tax deduction. However, the adjustments to restrictions on the deductibility of executive compensation under the TCJA eliminated the differential tax incentive to use clear objective targets over subjective ones. Consequently, firms are able to design more optimal contracts, independent of explicit tax consequences. In the Scholes-Wolfson framework, the elimination of the tax favored status of objective financial criteria allows the firm to increase the before-tax return by designing more efficient contracts (Scholes and Wolfson, 1992). This argument hinges on the assumption that firms care enough about taxes to write *otherwise* suboptimal contracts. However, I acknowledge that *some* firms may also optimize performance incentives without the consideration of tax ramifications. Accordingly, I use the TCJA as a setting to examine whether taxes influence the design of compensation incentives through the use of subjective criteria for top executives.

Introduced in the Omnibus Budget Reconciliation Act of 1993 (OBRA 93), Section 162(m) of the Internal Revenue Code generally capped tax-deductible compensation at $1 million, but allowed amounts beyond $1 million to be deducted if the compensation

qualified as performance-based.[1] To qualify compensation as performance-based, performance measures had to be objective and verifiable. Consequently, firms largely relied on metrics tied directly to financial statement information and stock returns that were easier to verify; only infrequently did firms base performance goals on metrics that are harder to objectively quantify (Ittner et al., 2003; Cardinaels and van Veen-Dirks, 2010; Armstrong et al., 2019; Guay et al., 2019).

The primary objective of Section 162(m) was to change corporate behavior by reducing the level of executive pay (Perry and Zenner, 2001; Jensen and Murphy, 2018).[2] Yet, prior research documents rising payouts from incentive compensation in recent decades, citing the policy's relative ineffectiveness in accomplishing its intended goal (Murphy, 1999; Bebchuk and Fried, 2003; Bebchuk and Fried, 2005; Bereskin and Cicero, 2013). In April 2003, Senator Charles Grassley expressed his frustration with the law, noting that "[i]t has more holes than Swiss cheese." In light of this criticism, lawmakers behind the TCJA significantly modified Section 162(m). The new requirements now designate all forms of compensation as non-deductible above $1 million and, in doing so, remove the performance-based exception. Several concurrent studies investigate whether the new provisions of 162(m) influenced the level of compensation paid to executives and find mixed evidence in support of a change. In particular, De Simone et al. (2021) examine the impact of the TCJA on total compensation, the compensation mix, and pay-for-performance sensitivity but fail to

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[1] The $1 million threshold applied to "covered employees" of the firm which the IRS defined as the CEO and each of the firm's next three most highly compensated executive officers for the taxable year, excluding the CFO.

[2] The House Ways and Means Committee explicitly stated the congressional intent behind the provision as follows: "[E]xcessive compensation will be reduced if the deduction for compensation paid to the top executives … is limited to $1 million per year." For the full quote, see: 1993 U.S. Code Congressional and Administrative News 877.

empirically document a statistically significant relation. In a related paper, Luna et al. (2020) find that salary increased while total compensation decreased among a subset of firms paying less than $1 million in salary prior to the TCJA. In a final study, Galle et al. (2021) find no evidence of significant changes to compensation payouts generally speaking, but do document a positive statistical relation among the more granular components of deferred compensation.

An important component of the 162(m)-tax change is that by eliminating the performance-based exception, the associated criteria necessary to qualify for this exception are now also removed. Consequently, the amendments to 162(m) and loss of the tax deduction for performance-based pay now provide boards with the ability to provide discretionary awards without incurring a tax penalty from doing so. Moreover, boards are no longer required to use performance measures that are pre-established or objectively determinable. As a result, the tax incentive to use metrics that are easier to objectively establish is removed and firms are now freer to incorporate alternative measures of performance aimed at achieving non-traditional goals (Balsam et al., 2018). As an example, Stryker Corporation (2019) reported the following new performance goal for their CEO, Kevin Lobo, in 2018: "Qualitative assessment of his efforts in leading the Company's multi-year cost transformation initiative, driving commercial model innovation, strengthening the [c]ompany's leadership bench strength, and driving robust product performance processes and results." Similarly, ViacomCBS Inc. (2019) included qualitative performance factors, such as reputation and diversity, as new elements of their bonus plan starting in 2018.[3] In contrast to existing studies that investigate the effect of corporate taxes on executive compensation levels, I focus on the effect of taxes through

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[3] See Appendix A for further details on these examples and others included in this study.

the selection of performance measures and the associated use of discretion tied to executive bonuses.[4]

Ideally, a performance measure should reflect managers' contribution to firm value independent of factors beyond their control (Ittner et al., 1997; Datar et al., 2001; Fan and Li, 2018). While the use of financial metrics is standard among compensation incentives, the additional use of nonfinancial metrics with discretionary criteria, has also been shown to be an important component of bonus contracts. Nonfinancial metrics with discretionary criteria often incorporate activities not fully captured by concurrent operating results or other financial statement activity (Feltham and Xie, 1994; Hemmer, 1996; Gibbs et al., 2004; Rajan and Reichelstein, 2006; Neely and Al Najjar, 2006; Grabner, 2014). Consistent with this view, prior research finds value enhancing outcomes for firms that incorporate these elements into their bonus plans; they encourage managers to follow specific strategies from the underlying incentive tied to the metric, and thus provide complementary insight to financial measures (Amir and Lev, 1996; Ittner et al., 2003; Davila and Venkatachalam, 2004; Ederhof, 2010; O'Connell and O'Sullivan, 2014; Chen et al., 2015; Maas, 2018). While the use of nonfinancial metrics in bonus contracts is not new, whether there is an increase in the use of subjectivity or discretion tied to these metrics as it relates to tax law is. I acknowledge that the use of subjectivity is also possible for financial metrics; nevertheless, I find compelling evidence that the use is far more common among nonfinancial metrics. Specifically, of the 1,320 subjective performance measures used amongst my sample, only 12 are connected to financial criteria.

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[4] Prior examples of such studies include, but are not limited to: Balsam and Ryan (1996), Halperin et al. (2001), Rose and Wolfram (2002), Reitenga et al. (2002), Harris and Livingstone (2002), and Frydman and Molloy (2011).

To test whether the TCJA impacts the performance measures used in executive bonus plans, I first gather granular detail from Incentive Lab (IL) about the metrics used to incentivize CEOs from 2010–2019. Next, I manually collect information on the subjectivity of performance measures included in CEO bonus plans. I do so by reading the relevant information disclosed in the Compensation Discussion and Analysis (CD&A) portion of proxy statements for all my sample firms. To make the determination that a metric is subjective, I apply the following criteria: (1) the performance measure is not tied to a specific numerical outcome, (2) it is unclear as to how the goal is explicitly achieved, or (3) it is subject to an ex-post discretionary assessment or review by the board.[5] Accordingly, by construction of my dataset, I can directly test whether the content of bonus plans (e.g., performance measures and criteria) and the use of discretion increases following the implementation of the TCJA. For all of my analyses, I use a difference-in-differences design to compare firms affected by the TCJA to a set of control firms whose compensation designs are unaffected by the U.S. tax reform.[6] Specifically, I use all U.S. firms in my sample or a subset of those who *do not* indicate that their pre-TCJA compensation plans qualified for a transition rule as the treatment groups. I then designate a matched set of European firms or the subset of U.S. firms in my sample that *do* indicate that their pre-TCJA compensation plans qualified for a transition rule as the control groups.[7]

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[5] Appendix A contains several examples of metrics included in bonus plans from firms' actual proxy statements (Form DEF 14A) that meet such criteria.

[6] IL includes similar data from incentive plans on European firms. Accordingly, I hand-collect information on the use of subjective or discretionary metrics in the exact process for these firms.

[7] As explained further in Section 4.1, the TCJA includes a provision that designates compensation in 2018, and beyond, as grandfathered if a certain set of requirements are satisfied, thus permitting firms to continue to be subject to prior tax law. Therefore, I use a Python programming script and identify U.S. firms as grandfathered through their disclosure of such in the CD&A and use this alternative group of firms as an additional control group.

In my first set of tests, I examine the changes in the use of nonfinancial and subjective metrics connected to the TCJA by identifying when both enter and exit a CEO's bonus plan. My initial findings indicate an on average increase in the use of nonfinancial performance measures for treated firms and that this effect is stronger for measures connected to subjective criteria (i.e., there is a notable increase in the magnitude of the use of subjective performance measures as compared to nonfinancial measures). Specifically, treated firms increase the propensity and number of nonfinancial and subjective performance metrics relative to control firms. This move towards incorporating additional subjective metrics into bonus plans is also accompanied by an increase in the weight placed on these measures, which suggests that the importance of the discretion within incentives is also growing in priority. As a second approach to the use of subjectivity within bonus plans as it relates to the tax reform, I test whether there is also an increase in discretionary pay (i.e., cash bonuses unrelated to performance) and in the use of discretionary words within the CD&A. In both analyses, I find an increase in discretionary pay and language for treated firms.

To further isolate taxes as the principal mechanism behind my main findings, I conduct various cross-sectional tests as they relate to a firm's tax status and sensitivity to the 162(m) provisional change. First, I find that firms whose fixed compensation (i.e., salary and other pay not connected to established performance metrics) in 2017 was above $1 million, and thus more sensitive to the $1 million deductibility limit, are more likely to include subjective metrics following the TCJA. Second, I use the level of net operating losses (NOLs) as firms with higher amounts are presumably less sensitive to the requirements of 162(m), and thus less sensitive to the potential loss of a tax deduction

from incompliance. I find that firms with NOLs less than or equal to the median amount in 2017 are significantly more likely to include subjective metrics into their bonus plans post-TCJA. Finally, following prior studies that document industries more likely to include nonfinancial performance measures in bonus plans, I test whether firms within these industries are less sensitive to the tax rule changes of the TCJA governing executive compensation. Across all variables on the use of subjectivity in bonus plans, I find that the inclusion of these metrics does not vary by industry affiliation. Specifically, I find that all firms appear more likely to include subjective metrics within their bonus arrangements following the relevant changes to 162(m) of the TCJA regardless of their industry affiliation. Overall, the results of these cross-sectional tests provide further validation that the findings I document are attributable to a tax effect.

I make several contributions to the literature regarding the effect of taxes on the design of executive bonus plans. My findings provide evidence of an increase in the use of subjective criteria following the passage of the TCJA. By exploiting a setting in which one potential barrier to the use of subjectivity within bonus plans is removed, the changes I document suggest that firms are increasingly moving towards compensating managers with a greater use of discretion. While I do not test initial consequences of this change, there are many potential shifts in firms' operations that may be affected; whether these shifts provide a net long-run cost or benefit to investors is an open question.

I also contribute to the literature that analyzes the impact of external institutional factors or practices that influence executive pay (Edmans and Gabaix, 2016; Murphy, 2013). In this line of research, three concurrent studies—De Simone et al. (2021), Luna et al. (2020), and Galle et al. (2021)—analyze the effect of the TCJA on executive

compensation levels and find mixed results. In an international setting, Bornemann et al. (2019) investigate a similar tax policy change in Austria and fails to find an effect of corporate taxes on executive compensation levels. In contrast to these studies, I focus on the effects of the TCJA on the structure of executive bonus plans and the reliance on discretion.

CHAPTER II

BACKGROUND AND RELATED LITERATURE

Section 162(m)

Prior to the TCJA, the tax treatment of executive compensation had remained

relatively unaltered since taking effect in 1994 as part of OBRA 93. As part of this

policy, Congress capped tax-deductible compensation at $1 million for covered

employees.[8] However, performance-based compensation was exempted from this

restriction, allowing amounts beyond the $1 million limit to be deducted if they qualified

as performance-based. The requirements for qualifying incentive plans as performance-

based were the following: (1) The performance goals were determined by a compensation

committee comprised solely of two or more outside directors. (2) The compensation

committee had to determine the metrics that would be used to measure performance,

thereby limiting measures selected to be objective and verifiable. (3) The performance

goals under which the remuneration was to be paid were disclosed to the shareholders

and approved by a majority vote. (4) Shareholders approved the material terms of the

bonus plan, and the compensation committee fixed performance targets before the

ninetieth day of the fiscal year in which the plan would take effect such that the outcomes

of the performance targets were still perceived as "substantially uncertain." Any misstep

disqualified the plan and its compensation awards regardless of whether performance

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[8] Covered employees under prior law included the CEO on the last day of the fiscal year and the top four highest paid executives (in effect from 1994–2006) or the top three highest paid executives, excluding the CFO (in effect from 2007–2017). Congress expended 162(m) in 2007 to exclude CFOs from the definition of covered employees.

goals were achieved.[9] Furthermore, the Code of Federal Regulations § 1.162-27(e)(2)(i)

adds additional clarification to the procedural requirements stated above:

"A preestablished performance goal must state, in terms of an objective formula

or standard, the method for computing the amount of compensation payable to the

employee if the goal is attained. A formula or standard is objective if a third-party

having knowledge of the relevant performance results could calculate the amount to be

paid to the employee. In addition, a formula or standard must specify the individual

employees or class of employees to which it applies."

Section 162(m) was primarily established in an attempt to reduce the level of

executive pay in response to the perception that executive salaries were excessive and

unrelated to firm performance (Jensen and Murphy, 1990). Yet, as noted by many

studies, payouts from incentive compensation have continued to rise over the recent

decades. For example, Frydman and Saks (2010) find that the average compensation of

CEOs increased from just under $1 million in 1970 to over $14 million in 2000 and that

compensation was predominantly composed of performance-based awards. Moreover,

Murphy (1999) reviews the trends in pay practices for CEOs from 1970 to 1996 and

documents a considerable increase in the level of compensation around the enactment of

OBRA 93. While not explicitly connecting the level of compensation to 162(m), he

shows that the majority of executive compensation is concentrated in performance-based

pay, with stock options comprising the largest component. Finally, anecdotal evidence of

firms' awareness of and desire to utilize 162(m) as part of their compensation designs is

substantial. For example, Tech Data Corporation (2017) states in its 2017 proxy

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[9] However, the provision did allow some flexibility to adjust performance-based awards without subjecting them to 162(m) through design structures commonly referred to as "umbrella plans" (also known as a "plan within a plan").

statement that "162(m)'s deduction limit included an exception for performance-based compensation. The Company's compensation programs are generally designed to enable the Company to grant awards that qualify for this performance-based exception." Similarly, the number of shareholder lawsuits over the design, administration, and disclosure of plans that are intended to permit a company to pay fully deductible compensation have increased over the years, highlighting the importance of 162(m) even to firm shareholders.

The TCJA was signed into law in December 2017, becoming the most comprehensive tax policy reform since the Tax Reform Act of 1986. One significant provision was the introduction of adjustments to the tax treatment of executive compensation. Following 2017, the TCJA designates all forms of compensation as non-deductible above the $1 million threshold, effectively eliminating the performance-based exception and its associated requirements.[10] The House Ways and Means Committee believed that by removing the performance-based exception, firms can begin to focus on the long-term success of the company and, as a result, that this would lead to a reduction in performance pay.[11] Thus, the statutory changes have broad, immediate implications for compensation arrangements. Firms are now immediately relieved of any tax penalty in losing the deductibility of executive payouts for not satisfying the procedural steps formerly mandated for paying compensation above $1 million.

An additional important element of the new 162(m) is that it includes a transition period for which binding contracts written before November 2, 2017, can continue to

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[10] Among other things, the TCJA also greatly expanded the definition of covered employees to include the CFO and the top three highest paid executives. In addition, the provision now stipulates that once an employee is covered, they are always covered, even after leaving and death.
[11] This statement was made as part of its report in November 13, 2017.

qualify as tax deductible, unless materially modified or renewed. Such modifications include accelerated compensation, deferred compensation, increases to salary, and changes to performance goals or their award amounts. On August 21, 2018, the IRS issued guidance for clarification on how firms can qualify as exempt from the new 162(m) (Notice 2018-68). Nevertheless, considerable uncertainty remains surrounding the proper implementation of grandfathered status as the IRS continues to propose regulations regarding this transition rule.[12]

While the changes to 162(m) and the requirements regarding the use of performance metrics for a tax deduction are the main focus of this study, there are other additional modifications to the tax law that were introduced with the TCJA. Some of the more significant changes for corporations include (but are not limited to): (1) a reduced statutory corporate tax rate from 35% to 21%; (2) one-time transition tax on all previously untaxed foreign earnings; (3) new provisions intended to curb U.S tax base erosion (e.g., Base Erosion and Anti-Abuse Tax and Global Intangible Low-Taxed Income); (4) Limiting deductible interest; and (5) modifying carryback and carryforward rules for NOLs. Although none of the coinciding tax changes stemming from the TCJA appear relevant to significantly alter firms' approaches to designing executive bonus plans, I recognize that it is difficult to entirely rule out many of these confounding forces and therefore caution the findings of this study with this caveat in mind.

The Choice of Performance Measures and Use of Discretion in Executive Bonus Plans

The accounting literature generally focuses on the use of objective financial performance measures. For instance, qualitative measures or subjective evaluations

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[12] See Reg-122180-18 for more information.

introduce complicated issues regarding their contractibility and verifiability (Hemmer, 1996). Similarly, data on nonfinancial performance measures and subjective performance evaluations are scant and usually troublesome to gather as they are often not machine readable. Nevertheless, in practice, nonfinancial performance measures and subjective evaluations are important in the delivery of incentives. Feltham and Xie (1994) model the decision to incorporate additional performance measures into contracts and find that financial measures are often incomplete, which can warrant the inclusion of additional measures to achieve a greater understanding of managers' actions.

To date, the existing literature on nonfinancial performance measures has generally concluded that these measures produce positive externalities and long-term value to the firms that incorporate them into bonus plans. For example, many studies examine whether nonfinancial measures serve as leading indicators of performance and generally find evidence consistent with this idea (Amir and Lev, 1996; Ittner and Larcker, 1998; Ittner et al., 2003; O'Connell and O'Sullivan, 2014; Flammer et al., 2019). Other studies examine the implications stemming from the use of subjectivity and discretion for performance incentives. For example, Rajan and Reichelstein (2006) show that when a principal must rely on subjective information to create incentives, discretionary bonus pools, despite their additional agency cost, are optimal mechanisms. In a related study, Gibbs et al. (2004) find that subjective bonuses are used to complement perceived weaknesses in bonus awards that are based solely on quantitative performance measures. Ederhof (2010) also examines the use of discretion in bonus plans and finds that its use is related to non-contractible performance measures connected to future firm performance and not to the manipulability of the measure or power of the executive. Conversely,

Moers (2005) examines the impact of performance measure diversity and the use of subjective performance measures on performance evaluation and finds that both are related to more compressed and lenient performance ratings.

CHAPTER III

HYPOTHESIS DEVELOPMENT

Prior to the TCJA, to qualify compensation as performance-based, firms had to meet several procedural requirements. Many of those requirements included restricting metrics, by which managers were incentivized, to be objective and verifiable. This likely limited the ability of corporations to incorporate subjective or discretionary metrics without incurring a tax penalty. Firms on occasion arranged plans that did not qualify for a tax deduction, but usually made some attempt to qualify a portion under 162(m).[13] Murphy and Oyer (2003) examine the effect of the introduction of 162(m) on annual bonus plans using survey data from 1993 to 1995. They find that nearly half of the respondents (84 out of a possible 190) report making tax-related changes to comply with 162(m). Following the TCJA, corporations now have more freedom to move away from quantitatively driven metrics and incorporate performance measures that are more subjective into incentive compensation arrangements. The TCJA simplifies the formation of annual bonus plans, allowing a greater focus on subjectivity with performance measures.

Nevertheless, despite the changes to 162(m), many pundits continue to believe the TCJA will have little to no effect on the executive pay setting process. For example, David Kokell, head of U.S. Compensation Research at ISS states in an interview that ISS will continue to recommend voting against awards that are not reasonably linked to

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[13] Although 162(m) does not specifically preclude the use of subjective performance measures, the need to objectively verify metrics seemingly discouraged its use. Anecdotal evidence from proxy statement disclosures support this conjecture as firms frequently disclosed their attempts to qualify compensation payouts under 162(m).

"rigorous and transparent performance goals."[14] He expects compensation arrangements to continue to emphasize performance-based incentives and that "[i]nvestors …tend to prefer an objective payout formula with performance goals." Furthermore, firms are still required to provide detailed disclosures on executive compensation within proxy statements and to provide shareholders with say-on-pay votes as mandated under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. These restrictions may discourage firms from altering the structure of incentive compensation. Therefore, whether the TCJA provides firms an immediate opportunity to adjust bonus plans and shift to a greater subjective focus remains an empirical question.

> *H1: Firms immediately affected by the TCJA will increase the importance of subjective performance measures within executives' bonus plans relative to control firms.*

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[14] The full discussion is available at: https://www.issgovernance.com/library/u-s-tax-reform-changes-to-162m-and-implications-for-investors/

CHAPTER IV

DATA, SAMPLE SELECTION AND RESEARCH DESIGN

I first collect data on executive bonus contracts between 2010 and 2019 from Incentive Lab (IL).[15] IL provides granular detail from proxy statements (Form DEF 14A) regarding the structure of compensation contracts on the largest 750 firms by stock market value each year. Each firm is then retained in the database following its inclusion regardless of whether it persists within the top 750. IL collects specific information regarding the performance measures used and their related weights, targets, and vesting periods. Thus, the data allow me to construct variables related to different aspects of the bonus plan. I also include data from Compustat and Execucomp to supplement variable construction where necessary.

I begin my sample selection process by first limiting my analysis to CEOs. I also restrict the sample to calendar year-end firms. I make this decision because the consequences of the TCJA to non-calendar-year-end firms is not immediate upon its enactment and, as a result, the statutory changes introduced have a lagged implementation date for these firms.[16] To the contrary, the TCJA went into effect on January 1, 2018, for calendar-year-end firms, just nine days after being signed into law.

As I am interested in the composition of bonus plans, I restrict my analysis to performance metrics that receive cash-based awards and that vest within the year. Therefore, if the data do not provide this information for the CEO, the observation is

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[15] I begin my sample in 2010 to mitigate the immediate impact and changes from the great recession on executive compensation (Anderson et al., 2010).

[16] For example, firms with fiscal year-ends in March of 2018 will not be subject to the new tax law until their fiscal year of April 2018 to March 2019. In addition to the effective date-time lag, fiscal year-end firms had slight modifications added to the TCJA (e.g., a blended tax rate), introducing unique planning opportunities and strategies available to these firms.

dropped from my analysis. Next, I exclude CEOs if their total compensation in 2017 is less than $1 million. I make this empirical choice as the previous performance-based exception to 162(m) applied only to compensation payments over this threshold. Thus, if a firm paid its CEO less than $1 million, the changes introduced by the TCJA are likely to have little to no effect regarding the compensation design and its payout, as the 162(m)-limitation failed to apply to the firm.

The data also reveal various errors for identifying unique performance measures, primarily among nonfinancial metrics (see Armstrong et al., 2019; Guay et al., 2019). For example, spelling errors occur early in the sample years along with punctuation differences that would otherwise be categorized as unique measures in the bonus plan although the metric has not changed. In addition, the descriptions of performance measures may change slightly over the years while still referring to what appears to be the same goal. Examples of this are firms changing the description of customer satisfaction measures to guest satisfaction and vice versa. To mitigate any false identifications of unique measures, I first tokenize the descriptions of metrics to reduced versions of the words where possible (e.g., "discretionary" reduces to "discretion" and "strategic" to "strategy"). Next, as the average length of descriptions is just over three words (3.47 mean), I reduce all descriptions of performance measures to its first three words. Finally, I manually audit *firm-year* observations where a new metric is introduced into the bonus plan and make corrections where necessary. Nevertheless, despite my efforts to correct any errors within the data, they may continue to appear, introducing noise into my subsequent analyses. However, it is difficult to envision why this noise would manifest differently for treatment and control firms.

As a final step to the data collection, I manually hand-collect information on the subjectivity or discretionary nature of the individual performance measures included in the CEO's bonus plan over the entire sample period. To do so, I read through the CD&A portion of firms' proxy statements and use my own judgement in making the determination as to whether the metric indeed meets this condition. Accordingly, I apply the following logic when making this determination: (1) the performance measure is not tied to a specific numerical outcome, (2) it is unclear as to how the goal is explicitly achieved, or (3) it is subject to an ex-post discretionary assessment or review by the board. The following three examples are excerpts I've collected from firm-specific proxy statements from my sample: (1) "[I]ndividual discretionary goals tied to: branch productivity; safety performance; recruitment of diverse employees; customer service at our branch operations; and online digital strategy" (United Rentals, Inc., 2019); (2) "The qualitative portion of the annual cash bonus was determined…including creating a culture of integrity, the continuing management of Comcast Cable and NBCUniversal, and our continuing focus on critical diversity and inclusion and customer experience metrics" (Comcast Corporation, 2019); and (3) "Individual performance goals were established for each NEO based on… an assessment of each executive's [individual] performance relative to his objectives" (Avis Budget Group, Inc., 2019). I include the specific examples used above from actual proxy statements in Appendix A.

Table 1 summarizes my sample selection procedure. I additionally remove any observations that have missing variables. This elimination results in 1,118 unique CEOs in the sample for which I am able to identify the individual components of their bonus

plans. The number of CEOs identified then translates to a total of 4,911 *firm-year* observations.

Research Design

I use a differences-in-differences design to test the effect of the TCJA on the inclusion of subjective performance measures in executive bonus plans. Central to this design choice is the inclusion of a treatment and control group to isolate the effect of the TCJA and the changes to 162(m) across a population of firms. To do so, I use a variety of approaches in identifying adequate treatment and control groups, each entailing certain tradeoffs in their selection, in an attempt to greater triangulate my results. For the first control group, I use IL and identify all European firms with available data over the sample period as tax planning considerations for executive bonus plans for firms located in Europe should be largely unaffected by tax reform in the U.S. For the second control group, I incorporate the transition rule from the TCJA that allows firms to continue to deduct compensation agreements under prior tax law if written and the payment was legally binding before November 2, 2017. This date represents the day the bill was first introduced in the House of Representatives and the first-time adjustments to 162(m) were publicly proposed, essentially eliminating the ability of firms to preemptively self-select into qualifying for grandfather status. Thus, grandfather firms appear to constitute a valid control group as they were exogenously awarded grandfather status that they can then only lose if qualifying contracts are subsequently modified or renewed. To identify grandfathered firms, I construct a Python programming script to scrape all proxy statement disclosures (Form DEF 14A) filed with the SEC in 2018 and pinpoint instances

in which firms reference words related to the TCJA or 162(m) that also occur within references related to the transition rule or grandfather provision.[17]

Following the identification of the above control groups, I then construct my empirical analyses into the following treatment and control groups and elaborate on the associated tradeoffs. First, I select U.S. and European firms as the treatment and control groups, respectively. The advantages of this selection are that the treatment group is immediately subject to the U.S. tax reform (548 U.S. firms) and the control group is largely insulated from its effect (104 European Firms). However, the drawbacks are that (1) the treatment group also includes firms that qualify for grandfathered status, thereby introducing noise into identifying the true treatment effect, and (2) the analysis is limited to a subset of control variables of executive characteristics used in prior literature due to data constraints (see section 4.3 for specific variables). Second, I select non-grandfather U.S. firms (418 firms) as the treatment group and European firms as the control group. For this selection, the advantage is that I remove grandfather firms from the sample and the associated noise from their inclusion. The drawback is that, again, the analysis is limited to a subset of control variables of executive characteristics. Finally, I define non-grandfather firms as treated and grandfather firms (130 firms) as controls, thereby limiting my sample to only U.S. firms. The advantages of this approach are that (1) the associated noise from grandfather firms being included in the treatment group is removed and (2) all relevant control variables identified in prior literature are available for selection. However, the main drawback from this approach is that there are potential selection issues within the control sample of grandfather firms. For example, for

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[17] I provide greater detail of this process and examples of the disclosures selected indicating grandfathered status in the Online Appendix.

grandfathered plans that indicate they were likely to qualify for the transition rule, the firm would need to have a shareholder-approved plan in place with the performance criteria to be used for performance-based compensation. Thus, the comparison would be between firms that have an existing multi-year compensation plan with performance criteria in place to those that do not.

To examine whether the TCJA affected executive bonus plans, I create several dependent variables that capture the various types of performance metrics and their usage, all of which are disclosed within the proxy statement, and I estimate the following entropy-balance-weighted regression model (McMullin and Schonberger, 2020):

$$PLAN\ COMPONENT_{i,t} = \beta_0 + \beta_1 TCJA_t * TREATMENT_i + \beta_j INCENTIVE\ CONTROLS_{i,t} +$$

$$\beta_k EXECUTIVE\ CONTROLS_{i,t} + \gamma_{FE} + \delta_{FE} + \varepsilon_{i,t}$$

(1)

where *PLAN COMPONENT* entails dependent variable measurements pertaining to executives' bonus plans detailed below. The variable *TCJA* is an indicator variable equal to one for the years greater than or equal to 2018, the enactment date of the TCJA, and zero otherwise. I measure *TREATMENT* as an indicator variable equal to one for all U.S. firms, and zero otherwise. My main variable of interest is the interaction between *TCJA* and *TREATMENT*. Hypothesis 1 predicts that the new 162(m) will allow firms to place greater emphasis on subjective performance measures; I therefore expect β_1 to be positive.

Variable Measurement

I begin the construction of my dependent variables by identifying all performance

metrics as either nonfinancial and subjective. For the first set of dependent variables, I

follow prior studies and take the natural logarithm of the total number of nonfinancial and

subjective metrics used within the executive's bonus plan (the logs of *NONFIN*

MEASURES and *SUB MEASURES* plus one, respectively).

For the second set of dependent variables, I construct indicator variables equal to

one for the first year that a unique nonfinancial metric is added to the manager's bonus

plan (*ADDED NONFIN*), and zero otherwise. I then use the subjective metrics and

identify when these unique metrics enter the manager's bonus plan (*ADDED SUB*), and

zero otherwise.

As the final set of dependent variables, I construct two alternative variables that

continue to capture the construct of discretion used within the bonus plan. For the first

measure, I use the level of discretionary bonuses (i.e., bonuses paid unrelated to

performance) paid to CEOs during the year (*BONUS*). For the second variable, I scrape

the CD&A portion of all proxy statements for instances of the use of discretionary

language. Accordingly, I count all instances of when the words "discretion,"

"discretionary," "qualitative," "subjective," and "subjectivity" are used (*DISC WORDS*)

each year across my sample period. I complete the construction of both variables by

taking the log of each respective variable plus one.

Controls

I first include standard economic determinants of incentives (*INCENTIVE*

CONTROLS) to control for firm-specific attributes connected to influencing the structure

of performance metrics and compensation arrangements in general (Core et al., 2008).

These variables include firm size (*SIZE*), investment opportunities (*MTB*), free cash flow

(*FCF*), and performance (*RET* and *ROA*). Agency theory also suggests that the noise in a

performance measure and its weight are negatively related (Banker and Datar, 1989). I

therefore include measures of the noise in returns (*IDIO VOL*) and the noise in earnings

($\sigma(ROA)$), as the standard deviation of idiosyncratic stock-price returns and ROA over

the previous 60 months and previous five years, respectively.

Second, I include controls related to nonfinancial metrics as the use of

subjectivity within bonus plans is most connected to these metrics. Following Ittner et al.

(1997) and Said et al. (2003), I control for long-term incentives to address the possibility

that they complement or substitute for nonfinancial performance measures in motivating

executives. To do this, I divide each executive's equity holdings (stock and exercisable

options) by salary and bonus pay (*LONG TERM*).

Next, following Chen et al. (2015), I include controls for competition. Prior

studies document that firms with aggressive strategies are more prone to include

nonfinancial performance measures (Govindarajan and Gupta, 1985; Ittner et al., 1997).

As such, I follow Ittner et al. (1997), Said et al. (2003), and Chen et al. (2015) and

measure a firm's competitive strategy (*STRATEGY*) by factor analysis, using three firm-

level proxies: (1) R&D to sales ratio, (2) market-to-book ratio, and (3) the ratio of

employees to sales. The factor analysis results in one factor on which all three proxies

load significantly positive. Prior to the factor analysis, I set all missing values of R&D to

zero. I also include measures for competition type and intensity as Chen et al. (2015) find

that the use of nonfinancial metrics varies in the presence of competition intensity

conditional on competition type, such as price versus non-price competition. Consistent with prior literature, I use the Herfindahl-Hirschman Index (HHI) based on Fama and French (1997) 48 industry categories to measure competition intensity (*HHI SALE*). HHI is calculated by summing the squared market share of each firm in an industry into percentages. Next, I follow the economics literature and measure competition type as the ratio of advertising to sales (*ADVERT*) (Stigler, 1968; Symeonidis, 2000).[18]

The final set of control variables are directed at controlling for the contemporaneous influence of executive characteristics (*EXECUTIVE CONTROLS*), particularly that of the CEO, during the contract setting process. Prior literature has shown that the degree of CEO power can influence the compensation setting process (Hermalin and Weisbach, 1998; Bebchuk et al., 2002; Ryan and Wiggins, 2004; Mobbs, 2013; Abernethy et al., 2015). As such, I control for this effect using an indicator equal to one if the manager also serves as the chairperson of the board (*CEO CHMN*). Variables used in prior studies that capture the construct of executive power also include the executive's ownership (*OWNERSHIP*), tenure (*TENURE*), and age (*AGE*). However, I only include these variables when using the non-grandfather and grandfather firms as the treatment and control groups, respectively, due to data constraints for the set of European control firms in the IL database.[19] Finally, I include the presence of a consultant (*CONSULTANT*) to control for their influence during the contract setting process (Cadman, 2010; Murphy and Sandino, 2010, 2019).

Entropy Balancing and Final Regression Specifications

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[18] For each of the control variables listed in this section (Section 4.3) and defined within *INCENTIVE CONTROLS*, I run the analyses on lagged values at year-end and continue to find consistent results (results un-tabulated).

[19] I use Execucomp to construct these variables. As a result, I am unable to include similar measures for European firms as Execucomp does not provide data on these firms.

As the treatment (i.e., U.S. firms) and control (i.e., European firms) groups are from separate countries, this raises the concern that the results may be driven by fundamental differences between the two groups of firms. I mitigate this concern in several ways. First, as performance measures, are often highly firm-specific and difficult to compare across firms, I include firm fixed effects (γ_{FE}) to effectively remove time-invariant differences (e.g., organizational structure, industry affiliation, country specific regulation) across our treatment and control samples. Second, because the parallel trends assumption is key to the identification of the difference-in-differences estimator (Roberts and Whited, 2013), I use entropy balancing to reweight European *firm-years* based on the control variables used in Equation (1) for the years prior to the TCJA to ensure covariate balance across U.S. (treated) and European (control) samples.[20] Note, my ultimate goal is to ensure that the parallel trends assumption holds in the data and ensuring covariate balance between treatment and control firms helps achieve this goal. Third, I run several cross-sectional tests that allow me to exploit predictable within-treatment variation in the effect of the tax reform on U.S. firms' bonus plans. I also include year fixed effects (δ_{FE}) to control for unobserved heterogeneity that varies across time to address whether a common trend in bonus plan design is occurring over the sample period. All firm-level continuous variables are winsorized at the first and ninety-ninth percentiles to reduce the impact of extreme observations. Finally, I cluster standard errors by firm to address that residuals from Equation (1) may be correlated across years for a given firm.

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[20] Note, I do not use entropy balancing when estimating Equation (1) on the sample of non-grandfather and grandfather firms as the treatment and control groups, respectively.

CHAPTER V

EMPIRICAL RESULTS

Descriptive Statistics

Table 2 presents the descriptive statistics for the variables used in my analyses. I include statistics of the variables for treatment and control firms separately. Panel A documents the various variables created from a CEO's annual incentive plan. Sample firms use an average of 1.66 nonfinancial performance measures with an average of 0.52 dedicated to subjective metrics.[21] Because all firms operating in the U.S. are affected by the tax reform, with the exception of those that qualify for the transition rule, the use of European firms as a control sample raises the concern that any results may be driven by fundamental differences in compensation setting policies between the two groups as explained above. I mitigate this concern by using entropy balancing to identify observationally similar firms in the pre-period, consistent with Rajan and Zingales' (1998) recommendation to focus on predicted details of the theoretical mechanism.[22] Panel B of Table 2 presents the covariate balance statistics before and after entropy balancing. I balance on the first moment (means) of covariate distributions, using a default tolerance level of 0.015. The statistics show significant covariate imbalance prior to matching. In particular, U.S. firms are significantly different to European firms prior to the TCJA across nearly every control variable. Consistent with the entropy balance algorithm assigning proper weights to control observations in the pre-period,

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[21] In un-tabulated results, I find that bonus plans are comprised largely of financial measures (financial statement and market based) with over 71% of all metrics categorized as such.

[22] I use entropy balancing to achieve covariate balance following evidence that entropy balancing addresses bias when estimating treatment effects in the presence of non-linear relations between control variables and the outcome of interest (e.g., McMullin and Schonberger, 2020). Inferences from estimating only ordinary least squares (OLS) are similar (results un-tabulated but available upon request).

standardized differences in means are insignificant (near zero) after matching. Similarly,

while I do not balance on the second (variance) and third (skewness) moments of

covariate distributions, I find that the variance ratios are largely balanced after running

the algorithm (with the exception of *IDIO VOL*, *STRATEGY*, and *ADVERT*).[23]

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[23] I include descriptive statistics on the sample of non-grandfather and grandfather firms as the treatment and control groups, respectively, in the Online Appendix.

Analysis of the Effect of the TCJA on CEO Bonus Plans

I begin my multivariate analyses of H1 by first assessing the effect of the TCJA on the use of nonfinancial and subjective metrics in CEO bonus plans. Table 3 presents the results of estimating Equation (1). Panel A begins by using the natural log of the number of nonfinancial and subjective performance measures plus one (*MEASURES NONFIN* and *MEASURES SUB*, respectively). In Column 1, I use the full sample of treatment and control firms and find that the coefficient of interest, *TCJA * TREATEMENT*, is positive and significant (p-value < 0.05). This finding suggests that, for all treatment firms following the TCJA, the number of nonfinancial performance measures in the CEO's bonus plan significantly increased relative to the entropy-balanced sample of European firms. In Column 2, I re-estimate Equation (1) on the subsample of non-grandfather firms as the treated group and European firms as the control group and continue to document a statistically positive relation between the use of nonfinancial metrics and the TCJA. Finally, in Column 3, I designate the treatment and control groups as non-grandfathered and grandfathered, respectively. I then estimate Equation (1) using OLS and again find a positive and significant coefficient on the interaction term *TCJA * TREATMENT*, albeit the documented effect is attenuated within this specification.

Next, for Columns 4 through 6, I repeat the analyses of Columns 1 to 3 but use *MEASURES SUB* as the dependent variable. Across all three columns, I document positive and significant coefficients on the interaction term, *TCJA * TREATMENT*. For example, the result of Column 5 suggests that relative to the entropy-balanced sample of control firms, non-grandfathered treatment firms significantly increased the number of

subjective metrics present within bonus plans following the enactment of the TCJA. In economic terms, I find that the positive coefficient of 0.356 in Column 5 represents a 42.7% increase in the use of subjective performance metrics among non-grandfathered treatment firms.

In Panel B of Table 3, I assess whether the TCJA affects the likelihood that firms will add unique nonfinancial or subjective performance measures to CEOs' bonus plans. For this analysis, I use the dependent variables *ADDED NONFIN* and *ADDED SUB*, and estimate the entropy-balanced model of Equation (1). Columns 1 through 3 use *ADDED NONFIN* as the dependent variable. I find positive and statistically significant coefficients on *TCJA * TREATMENT* in Columns 2 and 3 but fail to document any significant relation in Column. Next, in Columns 4 through 6, I use *ADDED SUB* as the dependent variable and document a significantly positive relation across all columns and regression specifications. Specifically, the positive coefficient in Column 5 suggests that there is an increase in the likelihood of adding a metric with discretionary criteria to a non-grandfathered CEO's bonus plan relative to the entropy-balanced European control firms. This finding is consistent with treatment firms, (i.e., non-grandfathered U.S. firms) immediately subject to the new tax law are significantly more likely to add new, unique subjective performance measures into the CEO's bonus plan. In terms of economic magnitude for Column 5, the positive coefficient of 0.293 suggests that the percentage change in the probability that a treatment firm adds a subjective metric after the TCJA increased by 29.3%.

Overall, the information presented in Table 3 supports H1 in that I find evidence of firms incorporating additional discretionary criteria to performance measures

following the enactment of the TCJA and the associated changes to 162(m). Across various measurements of subjective metric use, I find consistent evidence that firms exposed to the new tax law are significantly more likely to adopt subjective measures of performance in CEO bonus plans.

Analysis of the Importance of Subjective Metrics

In this subsection, I assess the impact of the TCJA on the perceived importance that firms place on subjective performance measures. The weights attached to performance measures indicate the percentage of compensation available to the executive for achieving the specific goal. Ittner et al. (2003) explain that the relative weights placed on performance measures, other than financial results, are a function of their informativeness. Therefore, the weight attached to the performance measures communicates the importance of the metric to the executive and the perceived informativeness of the metric to the firm. To accomplish this, I first require that all performance measure weights within a CEO's bonus plan sum to 100%;[24] I drop any observation that violates this restriction. This results in a sample reduction to 4,049 *firm-year* observations with 956 unique CEOs. I then re-estimate Equation (1) using the weights firms place on subjective performance measures as the dependent variable (*WEIGHT SUB*).

Table 4 presents the results of this analysis. Consistent with subjective metrics retaining a more prominent role post-TCJA, I find a positive and significant effect on the

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[24] Instances of weights summing to more than 100% occur frequently within Incentive Lab. For example, if a company employs financial and nonfinancial metrics in a bonus plan but chooses to weight the nonfinancial metrics at 50%, the individual nonfinancial metrics within the group will then have percentages that sum to 100% but that only contribute to the 50% overall weight. Therefore, if a nonfinancial metric receives a weight of 75%, its overall weight when considering the bonus plan as a whole would be 37.5% ([0.50 * 0.75]). In addition, under prior law, firms often implemented an umbrella plan that could potentially add weights to greater than 100%.

interaction term, *TCJA * TREATMENT*, across all three columns and regression specifications. These results suggest that, on average, treatment firms increased the importance of subjective metrics to CEOs following the TCJA relative to control firms. In economic terms, the coefficient of 0.167 on the interaction term in Column 1 suggests that, in the year the TCJA came into effect, the weight on subjective metrics increased by 0.167 percentage points for treatment firms (U.S. firms), holding all other variables constant.

Alternative Components of Bonus Plans

In this final subsection, I assess whether the effects of the TCJA and the use of subjectivity extend to alternative components of CEO bonus plans. First, I examine whether the level of discretionary pay, defined as the amount of bonus compensation unrelated to performance, is affected by the changes to 162(m). To do so, I take the log of the level of bonuses (*BONUS*) plus one from IL for each CEO of my sample. I also replace all missing values to zero. I then designate treatment and control firms using the grandfathered approach described above. I make this decision as my initial control group of European firms scarcely use discretionary bonuses (e.g., only 11 of all 735 *firm-year* observations of European firms have discretionary pay greater than zero). Second, I scrape the CD&A section all proxy statements filed over my sample period for instances of the use of discretionary language when describing executive pay. Accordingly, I quantify the number of instances in which a firm uses one of the following words: "discretion," "discretionary," "qualitative," "subjective," and "subjectivity." I then construct *DISC WORDS* by taking the log of this number (*DISC WORDS*) plus one. I again only use non-grandfathered and grandfathered firms as the treatment and control

groups, respectively, as disclosures on executive pay is not accessible through EDGAR for the control group of European firms.

Table 5 presents the results of this analysis. In Column 1, I use the log of *BONUS* plus one as the dependent variable. I find evidence of a positive effect of the TCJA on the level of bonuses paid to CEOs at treatment firms, relative to grandfathered firms. Next, In Column 2, I use the log of *DISC WORDS* plus one as the dependent variable and re-estimate the effect of the TCJA on the use of discretionary language within the CD&A portion of proxy statements. I again document a positive and significant effect on the use of discretionary language within the CD&A following the enactment of the TCJA. Overall, the evidence from Table 5 continues to point to an increase in the use of discretion in bonus plans that are not only tied to performance measures. While I'm unable to estimate this relation using European firms as the control group, the evidence largely supports that of my main analyses.

CHAPTER VI

CROSS-SECTIONAL ANALYSES AND OTHER ROBUSTNESS TESTS

Sensitivity to $1 Million Deductibility Limit

To further validate that the previous results are indeed connected to the changes of 162(m), I assess whether firms more sensitive to the $1 million deductibility limit increase their use of subjective metrics relative to those that are less sensitive. To do this, I first define firms sensitive to the $1 million threshold as those whose fixed pay (e.g., salary) in 2017 exceed this threshold and partition my sample accordingly.[25] The logic behind this definition is that if firms before the TCJA were paying their CEOs fixed compensation below the $1 million limit, the decision to include subjective metrics likely did not hinge on whether the metric would qualify for a tax deduction. Conversely, I suspect that firms paying their executives above this limit would be presumably much more likely to consider the tax costs of adding metrics that failed to qualify under 162(m).

Table 6 presents this analysis. Using the log of *SUB MEASURES* plus one, *ADDED SUB*, and *WEIGHT SUB* as dependent variables, I find evidence that upon removal of the performance-based deduction of 162(m), firms paying fixed compensation above the $1 million limit (Columns 4 through 6) were significantly more likely to add subjective metrics to their CEOs' bonus plans than were those below the limit (Columns 1 through 3). I also test the equality of coefficients using a Seemingly Unrelated Regression (SUR) and find a statistically significant difference between the subsamples with the exception of Columns 3 and 6 (i.e., within the subsamples of non-grandfathered

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[25] In an untabulated analysis, I allow this definition of a firm's sensitivity to 162(m) to vary by year rather than fixing on 2017. The findings of this subsection are robust to this alternate specification.

and grandfathered firms). I interpret these results as further validation of 162(m)

influencing the use of discretionary measures of performance in executive bonus plans

both before and after the TCJA.

Presence of Net Operating Losses

Next, as an additional cross-sectional analysis of a firm's sensitivity to the

changes of 162(m), I include the presence of NOLs in the year prior to the enactment of

the TCJA. Under previous tax law, the use of NOLs for tax purposes served two roles:

firms could either (1) carryback incurred losses during the current year to offset taxable

income in the two previous years or (2) carryforward the losses to offset future taxable

income for 20 years. Thus, for purposes of this analysis, if a firm has accumulated NOL

totals from previous years, this amount can be used to offset future taxable income and

therefore mitigates the firm's reliance on or need of the tax deduction of 162(m) to

minimize their tax burden. Accordingly, I expect that the greater amount of NOLs a firm

possess, the less likely the firm conformed to the previous 162(m) rules, and thus the less

likely it is to respond to the corresponding changes of the TCJA. However, I

acknowledge that tax rules regarding NOLs were also modified as part of the tax reform.

First, all carryback rules were eliminated. Second, NOLs are now allowed to be

carryforward indefinitely. Finally, NOLs are restricted to only offset 80% of taxable

income. While it's unclear how each of these individual changes also influence the design

of CEO bonus plans, I recognize that the subsequent analysis is not free from these

contemporaneous effects and, as a result, may introduce noise.

Table 7 presents the results of this analysis. I identify the level of NOLs in 2017

from Compustat and partition my sample into firms with amounts less than or equal to

(Columns 1 through 3) and greater than (Columns 4 through 6) the median value for that year. Again, using the log of *SUB MEASURES* plus one, *ADDED SUB*, and *WEIGHT SUB* as dependent variables, I find evidence that firms were significantly more likely to add subjective metrics to CEO bonus plans when their pre-TCJA amounts of NOLs were below the median level than were those with amounts above. Using a SUR, I also find a statistically significant difference in coefficients for each of the models with the exception of Columns 3 and 6 (i.e., within the subsamples of non-grandfathered and grandfathered firms). These results suggest that firms possessing fewer NOLs were significantly more likely to comply to the previous version of 162(m), and thus more likely to add subjective performance measures post-TCJA.[26]

Industries More Likely to Rely on Nonfinancial Performance Measures

As a final cross-sectional analysis, I follow prior literature and identify industry affiliations that have a greater reliance on the use of nonfinancial performance measures. Again, while it is possible that firms employing nonfinancial metrics also complied with 162(m) through the use of objective and quantifiable outcomes, I find evidence that the use subjectivity is far more common among nonfinancial metrics as defined by IL. Specifically, I find a total of 1,320 subjective performance measures among my sample with only 12 connected to financial criteria.

I use the fast foods, telecommunications, utilities, airlines, and hospitality industries as industries more inclined to include nonfinancial performance metrics in

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[26] Using data provided by Graham and Mills (2008), I also assess whether marginal tax rates (MTR) moderate the effect of the change in 162(m) as NOLs are significant component of MTRs. However, one drawback of this analysis is that the data only cover U.S. firms. As a result, I'm limited to examining this effect among the non-grandfathered and grandfathered firms as the treatment and control groups, respectively. Nevertheless, I find evidence largely consistent with firms having higher MTRs as those more likely to incorporate subjectivity into bonus plans following the TCJA (results tabulated in the Online Appendix).

CEO bonus plans following prior literature (e.g., Amir and Lev, 1996; Ittner et al., 1997; Banker et al., 2000; Campbell, 2007; Riley et al., 2003). I then partition my sample into firms within these industries (Columns 1 through 3) and all other industries (Columns 4 through 6) and re-estimate Equation (1) amongst these subsamples. I expect that the more likely a firm was to include a nonfinancial metric into the CEO's bonus plan prior to the TCJA, the more likely it is to have also incorporated discretionary criteria regardless of the loss of a tax deduction. In other words, I predict that among industries with greater nonfinancial metric use, the TCJA will have less of an effect on the adoption of subjective performance measures. Table 8 presents the results of this analysis. Across all columns, I find a positive and significant effect in the likelihood of including subjective criteria in CEO bonus plans following the TCJA. I interpret these results as evidence that the change in 162(m) of the TCJA led to an increase in the adoption of subjective measures of performance regardless of industry affiliation.

Other Robustness Tests

Next, I discuss the results of several robustness tests of my main analysis. First, I conduct a parallel trends analysis to bolster the assumption that, in the absence of treatment, the change in the response variables would have been the same for both treatment and control firms. Figure 1 depicts the estimated coefficients from this analysis of both treated and control firms separately and of the incremental effect for treatment firms. I then present the regression results in Table 9 and note a positive and significant effect in only the post period. Second, I attempt to corroborate that the previous findings are not by random chance, and generate a placebo effect through two approaches: the randomization of the assignment of treatment and of treatment year. Across both

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robustness tests, I fail to document a significant association for the placebo treatment

groups and the placebo treatment period. Finally, I assess whether the adoption of

subjective measures of performance is related to the bargaining power of the CEO. To do

so, I use whether the CEO is also the chairman of the board as a proxy of bargaining

power. While I continue to find a positive effect across all subsamples for treatment

firms, I also find evidence that this relation is stronger in the presence of greater CEO

power when testing the equality of coefficients through SURs.[27]

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[27] The placebo test and analysis of CEO bargaining power are both tabulated in the Online Appendix.

CHAPTER VII

CONCLUSION

In this study, I examine a possible unintended consequence to the TCJA's reform of 162(m) on the structure of executive bonus plans. By removing the requirements for qualifying performance-based compensation for a tax deduction, the TCJA eliminates one potential barrier to the use of subjective or discretionary criteria in bonus contracts. I examine whether firms respond to this tax law change by increasing the number of and weights on subjective performance goals when incentivizing management.

I test this relation through a difference-in-difference research design using various approaches in the selection of treatment and control groups. I find evidence of an increase in the use and importance of subjective performance measures for treatment firms following the enactment of the TCJA relative to control firms. Specifically, I find that firms have increased the number of, their propensity to use, and the prominence of subjective performance criteria within bonus plans in the post-TCJA period.

These results contribute to the literature regarding the effect of taxes on the use of subjective performance measures in incentive contracts and also to the nascent literature regarding the consequences of the TCJA. My findings indicate that, absent tax constraints, firms increase their use of subjective and discretionary criteria. Based on these findings, I would expect that over the long run, the use of discretion when evaluating executive performance is likely to be associated with various consequences at the firm and investor level; however, such analyses are beyond the scope of this paper.

APPENDIX A

2018 ANNUAL INCENTIVE PLAN EXAMPLES

Panel A:

stryker

	2018 Threshold			2018 Target		
	Threshold	Threshold as Percentage Change Over 2017 Actual	Potential Payment as Percentage of Total Target Bonus	Target	Target as Percentage Change Over 2017 Actual	Potential Payment as Percentage of Total Target Bonus
Core Bonus Potential:						
Adjusted operating income	$3.124 bil.	(0.2)%	10 %	$3.471 bil.	10.9%	20%
Adjusted operating income margin	25.99%	3.3 %	10 %	26.19%	4.1%	20%
Constant currency sales	$12.460 bil.	0.1 %	20 %	$13.255 bil.	6.5%	40%
Functional goal[1]	—	—	0 %	—	—	20%
			40 %			100%
Overachievement Bonus Potential:						
Adjusted operating income	$3.471 bil.	10.9 %	0 %	$3.645 bil.	16.4%	50%
Constant currency sales	$13.255 bil.	6.5 %	0 %	$13.785 bil.	10.8%	25%
Adjusted diluted net earnings per share	$7.11	9.6 %	0 %	$7.54	16.2%	25%
			0 %			100%

- For performance measures that are qualitative in nature, the determination of performance requires subjective evaluations rather than quantifiable calculations of goal achievement. These subjective performance evaluations for 2018 were made by the Compensation Committee after considering recommendations from Mr. Lobo in the case of each of the other NEOs and by the independent directors in the case of Mr. Lobo, in each case after consideration was given to the individual's performance with respect to the goal. The threshold payment for qualitative measures is zero percent.

Name	Functional Goal
Kevin A. Lobo	Qualitative assessment of his efforts in leading the Company's multi-year cost transformation initiative, driving commercial model innovation, strengthening the Company's leadership bench strength, and driving robust product performance processes and results.

Panel B: CBS Corporation

CBS Corporation

Setting the Company-Wide Bonus Pool Performance Goal. At the beginning of each year, the Committee also establishes the financial performance goal applicable to the company-wide bonus pool, which goal is not certain of achievement at the time it is set, and the qualitative performance factors for the year. For 2018, the Committee determined to base the funding of the company-wide bonus pool on the following structure:

- 80% of the pool is based on our degree of achievement of a pre-established financial performance goal (*i.e.,* set at 100% weighted average performance of (i) the percentage of an OI Metric Target of $2.858 billion actually achieved (75% weighting) and (ii) the percentage of an FcF Metric Target of $1.187 billion actually achieved (25% weighting)); and

- 20% of the pool is based on the Committee's assessment of management's qualitative performance with regard to the following factors:

    ✓ Strengthening our financial position;

    ✓ Providing continuous flow of top-tier content;

    ✓ Continuing to drive growth through our strategic transformation;

    ✓ Maintaining and building our reputation as one of the most desirable organizations for top "talent";

    ✓ Continuing to ensure a high degree of focus on the importance of a diverse workforce; and

    ✓ Positioning us for long-term success.

Panel C: United Rentals, Inc.

United Rentals

2018 Individual Performance Adjustment

Once the initial level of incentive funding is determined based on the achievement of the adjusted EBITDA and EPI goals as described above, the Committee may adjust each NEO's funding level by 90% to 110% based on the achievement of individual performance goals. The Committee retains discretion to further adjust the award upward or downward based on its overall assessment of performance.

To assess individual performance, the Committee selected qualitative goals tied to key strategic initiatives, as well as each NEO's respective areas of responsibility. For Messrs. Kneeland, Flannery and Plummer, and Ms. Graziano, the Committee selected individual discretionary goals tied to: branch productivity; safety performance; recruitment of diverse employees; customer service at our branch operations; and online digital strategy, none of which are dispositive or individually weighted.

Panel D: Comcast Corporation

Goal	Achievement Range (in billions)	(% of target bonus)
Consolidated	≤ $29.4	0%
Adjusted EBITDA[1]	> $29.4 – $30.008	10% –< 25%
	$30.009 – $30.209	**25%**
	> $30.209 – $30.6	> 25% – 35%
	> $30.6	37.5%
Actual 2018 Achievement	$30.296	27.2%
Consolidated	≤ $12.675	0%
Free Cash Flow[1]	> $12.675 – $13.526	8% –< 20%
	$13.527 – $13.727	**20%**
	> $13.727 – $14.3	> 20% – 28%
	> $14.3	30%
Actual 2018 Achievement	$14.728	30%
Consolidated	≤ $88.7	0%
Revenue[1]	> $88.7 –$89.925	4% –< 10%
	$89.926 – $90.226	**10%**
	> $90.226 – $91.0	> 10% – 14%
	> $91.0	15%
Actual 2018 Achievement	$89.46	7.7%
Customer Experience[2]		0% – 40%
		21.7%
Actual 2018 Achievement		
Product Churn[3]		0% – 10%
Actual 2018 Achievement		5%
Wireless Phone Rollout[4]		
		0% – 10%
Actual 2018 Achievement		5%
Qualitative Goal[5]		0% – 30%
Actual 2018 Achievement		15.5%
% of Target Bonus Achieved for 2018		112%

(5) The qualitative portion of the annual cash bonus was determined based on predetermined objectives tied primarily to the contribution of each NEO to the overall management of our company, including creating a culture of integrity, the continuing management of Comcast Cable and NBCUniversal, and our continuing focus on critical diversity and inclusion and customer experience metrics.

Panel E: Avis Budget Group

The weighting for each component of the 2018 AIP is set forth below:

NEO	Component	Weighting
CEO, CFO, GC	Global Adjusted EBITDA	50%
Regional Presidents	Global/Regional Adjusted EBITDA	20%/30%
All	Global Adjusted Free Cash Flow	25%
All	Individual Performance	25%

Individual Performance Goals

Individual performance goals were established for each NEO based on key objectives. For our CEO, objectives were reviewed and approved by the Committee. For our other NEOs, objectives were reviewed with, and agreed to, by our CEO and approved by the Committee.

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APPENDIX B

VARIABLE DEFINITIONS

Variable	Description	Sources
NONFIN MEASURES	The total number of nonfinancial performance metrics used in the annual bonus plan.	Incentive Lab
SUB MEASURES	The total number of subjective performance metrics used in the annual bonus plan.	Incentive Lab
ADDED NONFIN	An indicator variable equal to one if a new unique nonfinancial performance metric is added to the CEO's bonus plan.	Incentive Lab
ADDED SUB	An indicator variable equal to one if a new unique subjective performance metric is added to the CEO's bonus plan.	Incentive Lab
WEIGHT SUB	The total amount of weight placed on subjective performance metrics.	Incentive Lab
BONUS	The level of bonus compensation paid to a CEO	Incentive Lab
DISC WORDS	The total number of words related to discretion within the CD&A portion of a firm's proxy statement.	Form DEF 14A
TREATMENT	An indicator equal to one for all U.S. Firms. Treatment equal to zero captures European firms.	Incentive Lab
TCJA	An indicator variable equal to one for *firm-years* greater than or equal to 2018.	Compustat
SIZE	Log of total assets.	Compustat
MTB	The market value of equity plus the book value of debt scaled by total assets.	Compustat
FCF	Operating cash flow minus common and preferred dividends divided by average total assets.	Compustat
IDIO VOL	Standard deviation of idiosyncratic stock-price returns over the previous 60 months.	CRSP
σ(ROA)	Standard deviation of ROA over the previous 5 years.	Compustat
RET	Annual stock return.	CRSP
ROA	Return on assets.	Compustat
LONG TERM	The market value of the executive's equity holdings (stocks and exercisable options) divided	Execucomp & Incentive Lab

	by the executive's salary and bonus.	
STRATEGY	A composite score of a firm's strategy using factor analysis of the variables R&D to sales, *MTB*, and employees to sales.	Compustat
HHI SALE	The Herfindahl-Hisrchman Index which calculates the sum of the squared percentage of a firm's market share of sales in an industry based on the Fama and French's (1997) 48 industry categories.	Compustat
ADVERT	The ratio of a firm's advertising expense to total sales	Compustat
CEO CHMN	An indicator variable equal to one if the CEO also serves as chairman.	Incentive Lab
CONSULTANT	An indicator variable equal to one if the firm uses a consultant in year *t* and zero otherwise.	Incentive Lab
OWNERSHIP	The CEO's percentage ownership in the firm scaled by common stock shares outstanding.	Execucomp
TENURE	The total number of years the CEO has been employed at a firm.	Execucomp

FIGURES AND TABLES

Fig. 1. Parallel trends assumption.

Fig. 1a. Parallel trends using Log (*SUB MEASURES* + 1) for treatment and control firms separately.
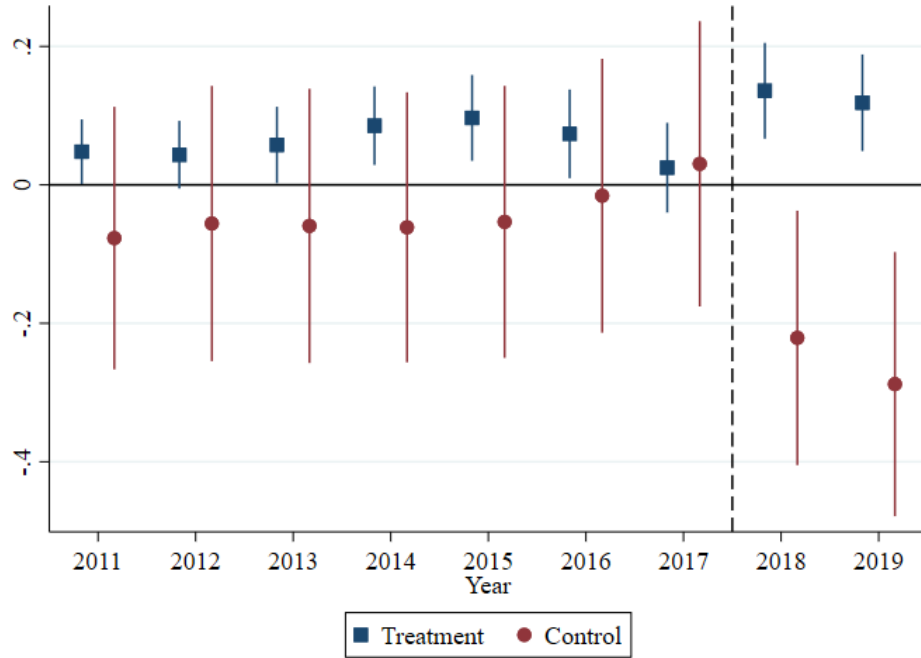
Fig. 1b. Parallel trends of the incremental effect for treatment firms using Log (*SUB MEASURES* + 1).
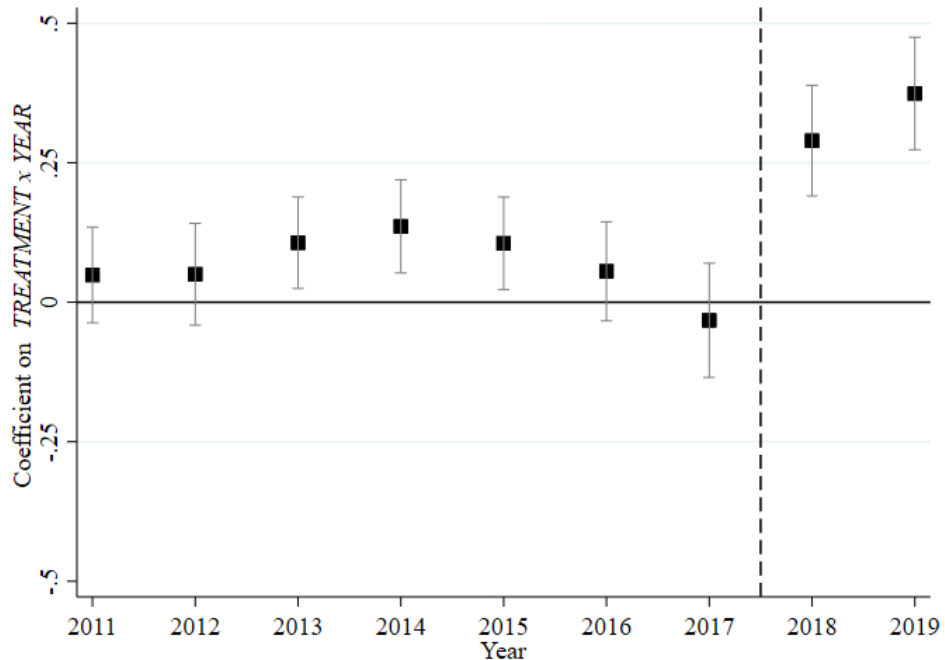
Fig. 1c. Parallel trends using *ADDED SUB* for treatment and control firms separately.
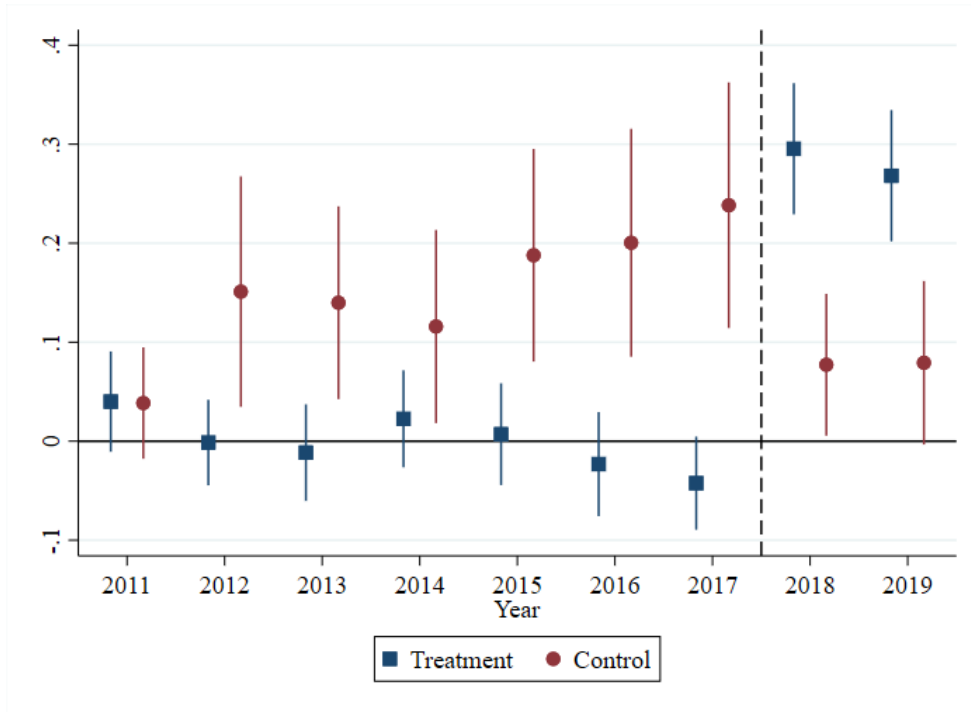
Fig. 1d. Parallel trends of the incremental effect for treatment firms using *ADDED SUB*.
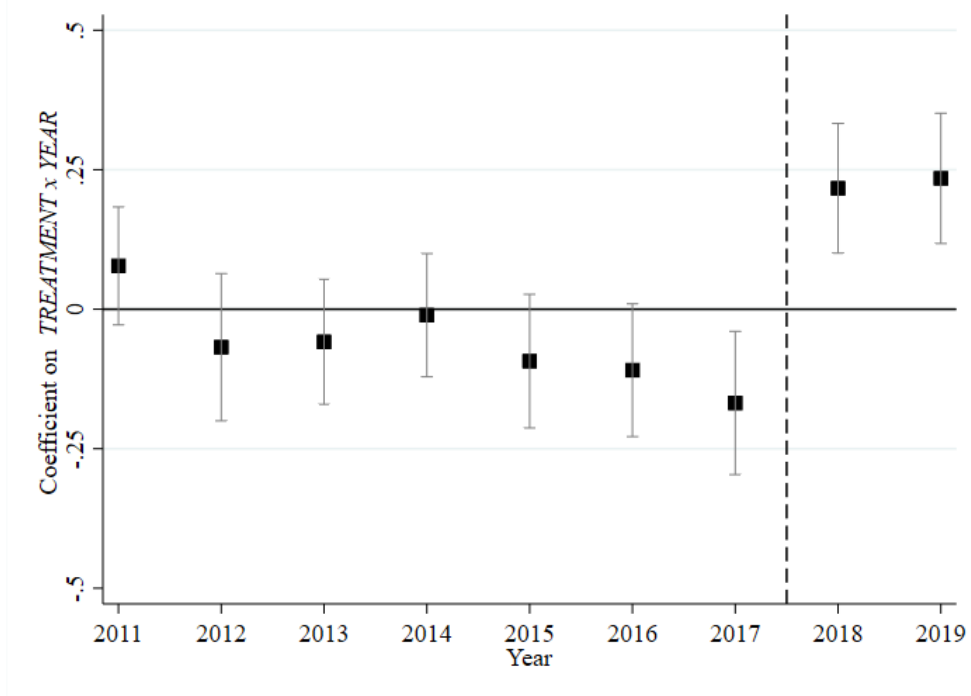
Note: This figure presents the estimated coefficients when estimating Equation (1) after including year indicators prior to the TCJA enactment interacted with treatment firms. Figures 1a and 1c plot the coefficients for each event-year estimated separately for treatment and control firms. Figures 1b and 1d plot the incremental effect for treatment firms estimated using the entire sample. The dots (lines) represent coefficient   estimates   (95%   confidence   intervals).

Table 1

Sample Selection

CEOs with cash-based incentive compensation from 2010-2019		2,420
Less:	Performance metric vests longer than a year	(10)
	Non-calendar year-end firms	(431)
	CEO's total compensation is less than $1 million in 2017	(6)
	Missing control variables	(855)
Final number of unique CEOs		1,118
Final sample of *firm-year* observations		4,911

Table 1 presents the sample selection process. The final number of CEOs translates 4,911 *firm-year* observations. We begin by identifying all CEOs covered in Incentive Lab over the sample period of 2010-2019.

Table 2

Descriptive statistics and covariate balance statistics before and after entropy balancing

Panel A: Descriptive Statistics					TREATMENT = 1				TREATMENT = 0			
	N	Mean	Median	S.D.	N	Mean	Median	S.D.	N	Mean	Median	S.D.
NONFIN MEASURES	4,911	1.66	1.00	2.36	4,176	1.62	1.00	2.44	735	1.87	1.00	1.80
SUB MEASURES	4,911	0.52	0.00	0.98	4,176	0.49	0.00	1.01	735	0.75	0.00	0.77
ADDED NONFIN	4,911	0.27	0.00	0.45	4,176	0.24	0.00	0.42	735	0.48	0.00	0.50
ADDED SUB	4,911	0.15	0.00	0.36	4,176	0.17	0.00	0.37	735	0.09	0.00	0.28
WEIGHT SUB	4,049	0.08	0.00	0.49	4,176	0.07	0.00	0.48	735	0.12	0.16	0.55
BONUS	4,176	0.12	0.00	0.84	3,110	0.12	0.00	0.90	1,066	0.10	0.00	0.64
DISC WORDS	4,107	0.99	0.00	1.66	3,048	0.98	0.00	1.66	1,063	1.02	0.00	1.67

Panel B: Covariate Balance Statistics Before and After Entropy Balancing								
Prior to balancing:	**Treatment Firms (4,176 Obs.)**			**Control Firms (735 Obs.)**			**Balance Stats**	
Covariate	Mean	Variance	Skewness	Mean	Variance	Skewness	Std Diff	Variance Ratio
SIZE	8.983	2.135	0.360	10.909	2.728	0.301	-1.318†	0.783†
MTB	2.026	1.824	2.522	1.679	1.320	3.413	0.257†	1.382†
FCF	0.083	0.004	0.683	0.058	0.003	0.706	0.377†	1.588†
IDIO VOL	0.402	0.221	5.011	0.313	0.040	2.535	0.190†	5.557†
$\sigma(ROA)$	0.040	0.002	2.288	0.026	0.001	3.393	0.300†	2.207†
RET	0.122	0.113	0.654	0.034	0.090	0.544	0.265†	1.249†
ROA	0.059	0.006	0.368	0.048	0.004	1.860	0.143†	1.548†
LONG TERM	5.105	16.406	2.424	1.600	8.508	5.394	0.865†	1.928†
STRATEGY	0.005	0.673	2.532	-0.199	0.361	2.607	0.248†	1.864†
HHI SALE	0.019	0.000	2.439	0.020	0.000	2.252	-0.081	0.706†
ADVERT	0.010	0.001	3.359	0.006	0.000	4.928	0.182†	1.356†
CEO_CHMN	0.503	0.250	-0.011	0.193	0.156	1.554	0.619†	1.602†
CONSULTANT	0.947	0.051	-3.973	0.418	0.244	0.334	2.352†	0.208†

After balancing:

Covariate	Mean	Variance	Skewness	Mean	Variance	Skewness	Std Diff	Variance Ratio
SIZE	8.983	2.135	0.360	8.983	1.113	0.515	0.000	0.812
MTB	2.026	1.824	2.522	2.026	1.597	1.447	0.000	1.142
FCF	0.083	0.004	0.683	0.083	0.003	0.287	0.000	1.199
IDIO VOL	0.402	0.221	5.011	0.402	0.060	1.508	0.000	3.686†
σ(ROA)	0.040	0.002	2.288	0.040	0.003	1.590	0.000	0.846
RET	0.122	0.113	0.654	0.122	0.109	0.301	0.000	1.037
ROA	0.059	0.006	0.368	0.059	0.004	1.845	0.000	1.186
LONG TERM	5.105	16.406	2.424	5.104	77.110	1.953	0.000	0.213†
STRATEGY	0.005	0.673	2.532	0.005	0.287	0.832	0.000	2.346†
HHI SALE	0.019	0.000	2.439	0.019	0.000	2.948	0.000	0.833
ADVERT	0.010	0.001	3.359	0.010	0.001	3.217	0.000	0.470†
CEO_CHMN	0.503	0.250	-0.011	0.503	0.250	-0.010	0.000	0.999
CONSULTANT	0.947	0.051	-3.973	0.941	0.056	-3.744	0.025	0.911

† Indicates covariates with standardized differences (variance ratios) outside of the +/- 0.1 (4/5 and 5/4) bounds suggested by Rubin (2001) as indicating a balanced covariate.

This table presents summary statistics and covariate distributions before and after entropy balancing (EB) for all U.S. firms (treated firms) and remaining cross-listed European firms (weighted control sample). Standardized differences are calculated as the difference in means between treated and control samples divided by the standard deviation of the treated sample for each covariate. The standardized difference will approach zero when the distribution for a particular covariate is more similar between treated and control samples. Variance ratios are calculated as the ratio of the variance of each covariate in the treatment sample scaled by variance for the control sample. Refer to Appendix B for detailed variable definitions.

Table 3

Annual Bonus Plan Changes

Panel A: Performance Measures

Dependent Variables:	(1) Log (*NONFIN MEASURES* + 1)	(2) Log (*NONFIN MEASURES* + 1)	(3) Log (*NONFIN MEASURES* + 1)	(4) Log (*SUB MEASURES* + 1)	(5) Log (*SUB MEASURES* + 1)	(6) Log (*SUB MEASURES* + 1)
*TCJA * TREATMENT*	0.265**	0.286*	0.067**	0.334***	0.356***	0.090**
	(0.096)	(0.151)	(0.027)	(0.057)	(0.057)	(0.036)
SIZE	-0.143***	-0.177***	-0.066**	-0.082	-0.117**	-0.009
	(0.021)	(0.067)	(0.021)	(0.050)	(0.056)	(0.025)
MTB	0.017	-0.003	0.016	-0.029	-0.064	-0.020
	(0.047)	(0.043)	(0.014)	(0.040)	(0.043)	(0.019)
FCF	0.103	0.153	-0.287*	0.161	0.142	0.161
	(0.230)	(0.192)	(0.154)	(0.175)	(0.188)	(0.178)
IDIO VOL	0.004	-0.002	0.007	0.021	0.013	0.025
	(0.020)	(0.027)	(0.010)	(0.022)	(0.024)	(0.019)
$\sigma(ROA)$	0.363	0.436	0.198	-0.270	-0.234	-0.093
	(0.262)	(0.337)	(0.208)	(0.372)	(0.378)	(0.241)
RET	-0.002	0.001	-0.026	0.049*	0.063*	0.010
	(0.080)	(0.021)	(0.016)	(0.029)	(0.032)	(0.016)
ROA	0.007	-0.017	0.022	0.330**	0.401***	0.031
	(0.248)	(0.216)	(0.191)	(0.136)	(0.146)	(0.116)
LONG TERM	-0.000	0.000	-0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
STRATEGY	-0.066	-0.028	-0.063	-0.027	0.024	-0.015
	(0.105)	(0.101)	(0.042)	(0.075)	(0.083)	(0.037)
HHI SALE	3.461*	4.613*	2.752*	-0.280	0.452	0.111
	(1.750)	(2.652)	(1.492)	(3.044)	(3.650)	(1.813)
ADVERT	2.478**	1.821	2.025*	-0.016	-0.634	1.406*
	(0.895)	(1.587)	(0.995)	(1.067)	(1.137)	(0.754)
CEO CHMN	-0.025	-0.021	-0.020	-0.075***	-0.082***	-0.021
	(0.039)	(0.025)	(0.023)	(0.028)	(0.031)	(0.020)
CONSULTANT	0.022	0.010	-0.037*	-0.003	-0.018	-0.037
	(0.030)	(0.046)	(0.019)	(0.029)	(0.034)	(0.040)
Constant	1.837***	2.175***	1.258***	1.197***	1.585***	0.539**
	(0.218)	(0.543)	(0.186)	(0.395)	(0.451)	(0.247)

Observations	4,911	3,845	4,176	4,911	3,845	4,176
R-squared	0.727	0.728	0.769	0.642	0.649	0.677
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
Treatment Group	U.S. Firms	Non-Grandfathered U.S. Firms	Non-Grandfathered U.S. Firms	U.S. Firms	Non-Grandfathered U.S. Firms	Non-Grandfathered U.S. Firms
Control Group	European Firms	European Firms	Grandfathered U.S. Firms	European Firms	European Firms	Grandfathered U.S. Firms

Panel B: Added Measures

Dependent Variables:	(1) ADDED NONFIN	(2) ADDED NONFIN	(3) ADDED NONFIN	(4) ADDED SUB	(5) ADDED SUB	(6) ADDED SUB
TCJA * TREATMENT	0.179	0.252*	0.235***	0.222***	0.293***	0.248***
	(0.155)	(0.152)	(0.038)	(0.054)	(0.056)	(0.037)
SIZE	-0.105*	-0.131**	-0.039	-0.009	-0.015	-0.023
	(0.055)	(0.063)	(0.026)	(0.021)	(0.024)	(0.025)
MTB	-0.053	-0.063	0.006	-0.050*	-0.056	-0.023
	(0.041)	-0.052	(0.018)	(0.028)	(0.037)	(0.015)
FCF	0.806	0.926	-0.436**	-0.002	0.016	-0.110
	(0.549)	(0.580)	(0.180)	(0.105)	(0.115)	(0.154)
IDIO VOL	0.019	0.019	0.012	0.008	0.013	0.018
	(0.033)	(0.035)	(0.019)	(0.021)	(0.023)	(0.016)
$\sigma(ROA)$	0.920	0.976	-0.015	0.203	0.180	-0.058
	(0.694)	(0.735)	(0.273)	(0.176)	(0.184)	(0.237)
RET	0.028	0.031	0.023	0.025	0.032	0.024
	(0.049)	(0.056)	(0.022)	(0.031)	(0.034)	(0.019)
ROA	-0.526	-0.645*	-0.100	0.026	0.031	-0.087
	(0.323)	(0.370)	(0.136)	(0.149)	(0.166)	(0.123)
LONG TERM	0.000*	0.000*	0.000	-0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
STRATEGY	0.062	0.078	-0.027	0.082	0.086	0.014
	(0.101)	(0.129)	(0.031)	(0.068)	(0.089)	(0.027)
HHI SALE	-2.717	-2.183	0.092	-3.569**	-3.547**	-0.762
	(4.717)	(4.962)	(2.595)	(1.461)	(1.584)	(2.082)
ADVERT	4.782***	4.795***	2.497***	1.986***	1.752**	2.407***
	(1.565)	(1.789)	(0.743)	(0.648)	(0.681)	(0.760)
CEO CHMN	-0.039	-0.024	-0.035	-0.065**	-0.059	-0.038**
	(0.026)	(0.031)	(0.022)	(0.032)	(0.038)	(0.019)
CONSULTANT	0.171**	0.175**	0.020	0.019	0.011	0.016
	(0.068)	(0.075)	(0.041)	(0.029)	(0.036)	(0.039)
Constant	1.223**	1.476**	0.539**	0.324	0.380	0.375
	(0.526)	(0.611)	(0.250)	(0.199)	(0.244)	(0.241)
Observations	4,911	3,845	4,176	4,911	3,845	4,176
R-squared	0.727	0.728	0.769	0.642	0.649	0.677
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
Treatment Group	U.S. Firms	Non-Grandfathered U.S. Firms	Non-Grandfathered U.S. Firms	U.S. Firms	Non-Grandfathered U.S. Firms	Non-Grandfathered U.S. Firms
Control Group	European Firms	European Firms	Grandfathered U.S. Firms	European Firms	European Firms	Grandfathered U.S. Firms

Table 3 presents the results of the difference-in-differences analysis of the effect of the TCJA on performance measures using an entropy-balanced-weighted regression model. Panel A uses the log of the number of nonfinancial (*NONFIN MEASURES*) and subjective metrics (*SUB MEASURES*) plus one as the dependent variables. Panel B assesses whether firms added new performance metrics to their annual incentive plans. *ADDED NONFIN* and *ADDED SUB* represent indicator variables equal to one for whether a firm has added any new nonfinancial or subjective metric, respectively, during the year. The variable *TCJA* is measured as an indicator equal to one for years greater than or equal to 2018 and zero otherwise. The variable *TREATMENT* is an indicator variable equal to one for all U.S. firms and zero otherwise. Columns 3 and 6 of each panel also include the control variables *OWNERSHIP*, *AGE*, and *TENURE*. In each analysis, I winsorize all continuous variables to the first and ninety-ninth percentiles and cluster standard errors by firm presented in parentheses. The symbols *, **, and *** denote significance at the 0.10, 0.05, and 0.01 p-value level, respectively.

Table 4

Analysis of the Importance of Subjective Metrics

Dependent Variables:	(1) *WEIGHT SUB*	(2) *WEIGHT SUB*	(3) *WEIGHT SUB*
*TCJA * TREATMENT*	0.167***	0.172***	0.017*
	(0.040)	(0.041)	(0.010)
SIZE	-0.035	-0.046*	-0.018
	(0.024)	(0.027)	(0.013)
MTB	-0.005	-0.011	-0.012*
	(0.019)	(0.020)	(0.007)
FCF	0.012	0.004	-0.019
	(0.079)	(0.088)	(0.085)
IDIO VOL	-0.002	-0.003	0.003
	(0.009)	(0.009)	(0.004)
$\sigma(ROA)$	-0.234	-0.205	-0.147
	(0.145)	(0.154)	(0.109)
RET	0.009	0.016	0.000
	(0.009)	(0.010)	(0.009)
ROA	0.124*	0.133*	0.126**
	(0.071)	(0.080)	(0.060)
LONG TERM	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
STRATEGY	-0.031	-0.031	0.007
	(0.041)	(0.044)	(0.012)
HHI SALE	-0.235	0.105	-0.027
	(0.815)	(0.983)	(0.719)
ADVERT	-1.038	-1.374	0.527
	(1.603)	(1.889)	(0.523)
CEO CHMN	-0.020*	-0.021	-0.001
	(0.011)	(0.013)	(0.010)
CONSULTANT	-0.033*	-0.044**	-0.037
	(0.018)	(0.022)	(0.025)
Constant	0.531***	0.658***	0.338***
	(0.203)	(0.234)	(0.105)
Observations	4,049	3,160	3,564
R-squared	0.816	0.824	0.675
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Cluster	Firm	Firm	Firm
Treatment Group	U.S. Firms	Non-Grandfathered U.S. Firms	Non-Grandfathered U.S. Firms
Control Group	European Firms	European Firms	Grandfathered U.S. Firms

Table 4 presents the results of the difference-in-differences analysis of the effect of the TCJA on the importance of subjective performance measures using an entropy-balanced-weighted regression model. I use the total amount of weight placed on subjective metrics (*WEIGHT SUB*) as the dependent variable. The variable *TCJA* is measured as an indicator equal to one for years greater than or equal to 2018 and zero otherwise. The variable *TREATMENT* is an indicator variable equal to one for all U.S. firms and zero otherwise. Column 3 also includes the control variables *OWNERSHIP*, *AGE*, and *TENURE*. See Appendix B for all variable definitions. I winsorize all continuous variables to the first and ninety-ninth percentiles and cluster standard errors by firm presented in parentheses. The symbols *, **, and *** denote significance at the 0.10, 0.05, and 0.01 p-value level, respectively.

Table 5

Analysis of the Use of Discretion

Dependent Variables:	(1) Log (*BONUS* + 1)	(2) Log (*DISC WORDS* + 1)
*TCJA * TREATMENT*	0.021**	0.040*
	(0.009)	(0.024)
SIZE	0.002	0.067***
	(0.019)	(0.018)
MTB	0.009	-0.009
	(0.008)	(0.015)
FCF	-0.043	0.114
	(0.087)	(0.137)
IDIO VOL	0.014	0.004
	(0.013)	(0.014)
σ(ROA)	-0.030	0.035
	(0.164)	(0.183)
RET	0.009	-0.009
	(0.010)	(0.017)
ROA	-0.086	-0.226**
	(0.075)	(0.105)
LONG TERM	-0.000***	0.000
	(0.000)	(0.000)
STRATEGY	0.015	-0.007
	(0.021)	(0.030)
HHI SALE	-0.590	2.782*
	(0.563)	(1.677)
ADVERT	-0.232	0.056
	(0.386)	(0.645)
CEO CHMN	0.005	-0.019
	(0.010)	(0.016)
CONSULTANT	0.018	0.042
	(0.021)	(0.034)
OWNERSHIP	0.025*	-0.005
	(0.013)	(0.006)
AGE	0.001	-0.001
	(0.001)	(0.003)
TENURE	-0.001	-0.002
	(0.002)	(0.003)
Constant	0.043	4.909***
	(0.171)	(0.173)
Observations	4,176	4,107
R-squared	0.480	0.726
Firm FE	Yes	Yes
Year FE	Yes	Yes
Cluster	Firm	Firm
Treatment Group	Non-Grandfathered U.S. Firms	Non-Grandfathered U.S. Firms
Control Group	Grandfathered U.S. Firms	Grandfathered U.S. Firms

Table 5 presents the results on the use of discretion following the TCJA on additional components of bonus plans. I use the logs of the level of bonus compensation (*BONUS*) and number of discretionary words used in the CD&A (*DISC WORDS*) plus one as the dependent variables. The variable *TCJA* is measured as an indicator equal to one for years greater than or equal to 2018 and zero otherwise. The variable *TREATMENT* is an indicator variable equal to one for all U.S. firms and zero otherwise. See Appendix B for variable definitions

Table 6

Analysis of Firms' Sensitivity to $1 Million Deduction Limit

Dependent Variable:	(1)	(2)	(3)	(5)	(4)	(6)
	Salary in 2017 is Less than $1 Million			Salary in 2017 is Greater than or Equal to $1 Million		
	Log (*SUB MEASURES* + 1)	*ADDED SUB*	*WEIGHT SUB*	Log (*SUB MEASURES* + 1)	*ADDED SUB*	*WEIGHT SUB*
*TCJA * TREATMENT*	0.270	0.005	0.100***	0.317***	0.295***	0.100**
	(0.157)	(0.092)	(0.034)	(0.117)	(0.044)	(0.040)
Observations	2,825	2,825	2,372	2,086	2,086	1,677
R-squared	0.685	0.390	0.871	0.699	0.437	0.706
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
Treatment Group	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms
Control Group	European Firms	European Firms	European Firms	European Firms	European Firms	European Firms
χ^2 Statistic	5.00	7.48	0.00			
(*p*-value)	(0.025)	(0.006)	(0.997)			

Table 6 presents the results on the use of subjective performance measures around the $1 million threshold. I partition the sample based on the value of the CEO's base salary (non-performance related compensation) above and below the $1 million threshold in 2017. I use the log of subjective metrics (*SUB MEASURES*) plus one, an indicator variable equal to one for whether a firm has added a new unique subjective metric (*ADDED SUB*), and the total amount of weight placed on subjective metrics (*WEIGHT SUB*) as the dependent variables. The variable *TCJA* is measured as an indicator equal to one for years greater than or equal to 2018 and zero otherwise. The variable *TREATMENT* is an indicator variable equal to one for all U.S. firms and zero otherwise. See Appendix B for all variable definitions. Control variables are omitted for brevity. In each analysis, I winsorize all continuous variables to the first and ninety-ninth percentiles and cluster standard errors by firm presented in parentheses. The symbols *, **, and *** denote significance at the 0.10, 0.05, and 0.01 p-value level, respectively.

Table 7

Analysis of Firms' Sensitivity to Net Operation Losses (NOLs)

Dependent Variable:	(1)	(2)	(3)	(5)	(4)	(6)
	NOLs in 2017 are Less than or Equal to Median			NOLs in 2017 are greater than Median		
	Log (*SUB MEASURES* + 1)	*ADDED SUB*	*WEIGHT SUB*	Log (*SUB MEASURES* + 1)	*ADDED SUB*	*WEIGHT SUB*
*TCJA * TREATMENT*	0.293***	0.324***	0.112***	0.173**	0.105	0.095
	(0.090)	(0.049)	(0.031)	(0.073)	(0.087)	(0.058)
Observations	3,510	3,510	2,947	1,401	1,401	1,102
R-squared	0.656	0.355	0.856	0.628	0.409	0.621
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
Treatment Group	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms
Control Group	European Firms	European Firms	European Firms	European Firms	European Firms	European Firms
χ^2 Statistic	3.60	3.52	0.26			
(*p*-value)	(0.058)	(0.061)	(0.607)			

Table 7 presents the results on the use of subjective performance measures conditional on the level of NOLs at the firm. I partition the sample based on the median value of NOLs in 2017. I use the log of subjective metrics (*SUB MEASURES*) plus one, an indicator variable equal to one for whether a firm has added a new unique subjective metric (*ADDED SUB*), and the total amount of weight placed on subjective metrics (*WEIGHT SUB*) as the dependent variables. The variable *TCJA* is measured as an indicator equal to one for years greater than or equal to 2018 and zero otherwise. The variable *TREATMENT* is an indicator variable equal to one for all U.S. firms and zero otherwise. See Appendix B for all variable definitions. Control variables are omitted for brevity. In each analysis, I winsorize all continuous variables to the first and ninety-ninth percentiles and cluster standard errors by firm presented in parentheses. The symbols *, **, and *** denote significance at the 0.10, 0.05, and 0.01 p-value level, respectively.

Table 8

Analysis of Industries More Likely to Rely on Nonfinancial Performance Measures

Dependent Variable:	(1) Log (SUB MEASURES + 1)	(2) ADDED SUB	(3) WEIGHT SUB	(5) Log (SUB MEASURES + 1)	(4) ADDED SUB	(6) WEIGHT SUB
	Nonfinancial Metric Industries			All Other Industries		
TCJA * TREATMENT	0.272***	0.231***	0.070*	0.285***	0.149*	0.112***
	(0.092)	(0.062)	(0.041)	(0.073)	(0.085)	(0.031)
Observations	674	674	599	4,237	4,237	3,450
R-squared	0.680	0.485	0.709	0.637	0.350	0.832
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster	Firm	Firm	Firm	Firm	Firm	Firm
Treatment Group	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms	U.S. Firms
Control Group	European Firms	European Firms	European Firms	European Firms	European Firms	European Firms
χ^2 Statistic	1.23	0.62	0.71			
(p-value)	(0.268)	(0.431)	(0.400)			

Table 8 presents the results on the use of subjective performance measures conditional on the likelihood of employing nonfinancial metrics. Following prior literature, I partition the sample based on industry affiliation for firms in the fast foods, telecommunications, utilities, airlines, and hospitality industries (e.g., Amir and Lev, 1996; Ittner et al., 1997; Banker et al., 2000; Campbell, 2007; Riley et al., 2003). I use the log of subjective metrics (SUB MEASURES) plus one, an indicator variable equal to one for whether a firm has added a new unique subjective metric (ADDED SUB), and the total amount of weight placed on subjective metrics (WEIGHT SUB) as the dependent variables. The variable TCJA is measured as an indicator equal to one for years greater than or equal to 2018 and zero otherwise. The variable TREATMENT is an indicator variable equal to one for all U.S. firms and zero otherwise. See Appendix B for all variable definitions. Control variables are omitted for brevity. In each analysis, I winsorize all continuous variables to the first and ninety-ninth percentiles and cluster standard errors by firm presented in parentheses. The symbols *, **, and *** denote significance at the 0.10, 0.05, and 0.01 p-value level, respectively.

Table 9

Parallel Trends Analysis

Dependent Variables:	(1) Log (*SUB MEASURES* + 1)	(2) *ADDED SUB*	(3) *WEIGHT SUB*
$TCJA_{t-7}$ * TREATMENT	0.026	0.078	-0.136
	(0.045)	(0.054)	(0.089)
$TCJA_{t-6}$ * TREATMENT	0.019	-0.068	-0.102
	(0.048)	(0.067)	(0.092)
$TCJA_{t-5}$ * TREATMENT	0.064	-0.058	-0.079
	(0.043)	(0.057)	(0.100)
$TCJA_{t-4}$ * TREATMENT	0.100**	-0.011	-0.073
	(0.043)	(0.056)	(0.094)
$TCJA_{t-3}$ * TREATMENT	0.068	-0.093	-0.079
	(0.043)	(0.061)	(0.095)
$TCJA_{t-2}$ * TREATMENT	0.019	-0.109*	-0.114
	(0.046)	(0.061)	(0.099)
$TCJA_{t-1}$ * TREATMENT	-0.082	-0.168**	-0.092
	(0.052)	(0.065)	(0.100)
$TCJA_{t}$ * TREATMENT	0.172***	0.232***	0.167***
	(0.055)	(0.035)	(0.041)
$TCJA_{t-1}$ * TREATMENT	0.250***	0.249***	0.191***
	(0.052)	(0.036)	(0.042)
Observations	4,911	4,911	4,049
R-squared	0.657	0.349	0.672
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Cluster	Firm	Firm	Firm
Treatment Group	U.S. Firms	U.S. Firms	U.S. Firms
Control Group	European Firms	European Firms	European Firms

This table reports the results of the analysis examining the effect of the TCJA and the years surrounding its enactment on the use and importance of subjective performance measures. Columns 1 through 3 use the log of *SUB MEASURES* plus one, *ADDED SUB*, and *WEIGHT SUB* as dependent variables, respectively. I create separate indicators for the nine event years surrounding the TCJA ($TCJA_{t-7}$, $TCJA_{t-6}$, $TCJA_{t-5}$, $TCJA_{t-4}$, $TCJA_{t-3}$, $TCJA_{t-2}$, $TCJA_{t-1}$, $TCJA_{t}$, and $TCJA_{t+1}$) and include their interactions with *TREATMENT*. See Appendix B for all variable definitions. Control variables are omitted for brevity. In each analysis, I winsorize all continuous variables to the first and ninety-ninth percentiles and cluster standard errors by firm presented in parentheses. The symbols *, **, and *** denote significance at the 0.10, 0.05, and 0.01 p-value level, respectively.

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