Do Managers Do Good With Other People’s Money? * 

Ing-Haw Cheng† Harrison Hong‡ Kelly Shue§

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Abstract

We test the hypothesis that corporate social responsibility is due to managerial agency problems using two identification strategies. First, we use the 2003 Dividend Tax Cut, which increased the after-tax effective firm ownership for managers. Consistent with the agency view, we find that the tax cut led to a decline in corporate goodness. We then use a difference-in-differences approach to test a prediction of the agency model that firms with intermediate managerial ownership stakes should react more strongly to the tax cut than firms with very low or high managerial ownership stakes. Second, we provide corroborating evidence using a regression discontinuity design of close votes around the 50% cut-off for passage of shareholder-initiated governance proposals. Firms in which these proposals narrowly passed experienced significantly slower growth in corporate goodness relative to firms in which the proposals narrowly failed.

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†University of Michigan, Ross School of Business, email: ingcheng@umich.edu.
‡Princeton University Department of Economics and Bendheim Center for Finance, and NBER, email: hhong@princeton.edu.
§University of Chicago, Booth School of Business, email: kelly.shue@chicagobooth.edu.
1. Introduction

Milton Friedman (1970), in a biting op-ed for the New York Times, declared that the only social responsibility of corporations is to make money. His view regarding spending on corporate social responsibility is one of agency problems, managerial perks and pet projects. In other words, managers are doing good with other people’s money. A contrasting popular view of the business case for corporate goodness is that firms do well by doing good. Firm goodness spending generates a halo effect that increases firm profits and insulates firms from risks associated with litigation or regulation.\(^1\)

Despite the many papers that have been written on this topic, it is difficult to draw causal conclusions regarding the motives for goodness spending because of a lack of a clear identification strategy. Notably, the large literature on “doing well by doing good” correlates firm profits with corporate social responsibility and concludes in favor of the profit thesis. However, Hong, Kubik, and Scheinkman (2011) show these correlations are likely due to omitted variables bias in the form of heterogeneity in firm financial constraints. Using exogenous shocks to firm constraints such as the Internet bubble, they show that firms are more likely to do good when they do well. Since firms that are less financially constrained are likely to have better financial performance because they can invest, there can be a spurious relationship between firm financial performance and goodness even if goodness did not directly lead to improvements in firm performance.

The stakes in this debate have never been higher. Anecdotal evidence suggests that some firms, especially large corporations, routinely invest hundreds of millions of dollars annually on energy conservation projects, employee and community development programs, or

\(^1\)The thesis of “doing well by doing good” has long been advanced in the management literature and is reviewed in Benabou and Tirole (2010) and Heal (2005). A number of theories implicitly rely on the idea that firms are well-positioned to deliver warm-glow feelings (Becker, 1974; Andreoni, 1989) to consumers. For instance, Besley and Ghatak (2005) models strategic complementarities involving goodness in the production function. Baron (2001) models strategic deterrence of regulation through the use of corporate goodness. Goodness may also pay by improving employee efficiency, reducing conflicts among stakeholders, mitigating litigation risk, deterring potential regulation, signalling product quality, and improving investor and consumer relations by preventing product or capital market boycotts by socially responsible consumers or investors.
other altruistic endeavors.² Many institutional investors are increasingly adopting socially responsible, or as is now known, environmental, social and governance (ESG) factors in their portfolio choices. An example is the United Nations Principles of Responsible Investing (UNPRI), which has institutions that manage around 1.5 trillion dollars globally as signatories. The ESG movement tends to make the argument for socially responsible investing on the basis of a combination of the business case for corporate goodness and moral principles.

In this paper, we provide a first attempt to identify a motive for corporate social responsibility. Namely, we test the hypothesis that corporate social responsibility or “goodness” is due to agency problems using two identification strategies. First, we follow Chetty and Saez (2005) and Chetty and Saez (2010), who argue that the Jobs and Growth Tax Relief Act of 2003 (commonly known as the 2003 Dividend Tax Cut) raised the effective ownership stakes of managers or insiders by cutting the highest statutory dividend tax rate from 35% to 15%. The 2003 Dividend Tax Cut was largely unanticipated and led to a surge of dividend payouts as insiders substituted away from perk projects to dividends after their effective ownership stakes increased. Consistent with this agency perspective, evidence from Poterba (2004), Auerbach and Hassett (2006) and Auerbach and Hassett (2007) point to higher equity prices as a result of the tax cut.

We build on this body of analysis by testing whether the Dividend Tax Cut led to a reduction in corporate goodness for the average firm to the extent that some part of goodness spending is a pet project and a manifestation of agency problems. Importantly, dividend tax cuts have a very small effect on effective managerial ownership if ex-ante managerial share ownership is low. When the insider owns close to zero percent of the firm, even a large

²In 2009, Intel allocated $100 million for global education programs and energy conservation efforts such as the purchase of renewable energy certificates. In 2007, General Electric gave $160 million to community and employee philanthropic programs and earmarked billions more for the development of eco-friendly products. Most famously, Google in the mid-2000s launched the “1% project” that would take 1% of its profits and invest it in socially responsible projects that had both philanthropic and profit interests. More subtle and difficult to measure is that firms are increasingly adopting evaluation systems and compensation programs that account for the social performance of managers (See Kaplan and Norton, 1996 for a discussion.) In addition, firms may switch to greener and more costly production processes or voluntarily choose to pay living wages to employees.
dividend tax cut will not change his incentives. At the same time, managers with high levels of ownership have incentives that are already aligned with those of shareholders. These high ownership managers spend very little on inefficient goodness to begin with, so there is little goodness to cut following a dividend tax cut. Hence, the model predicts that managers with intermediate firm ownership stakes should respond more to the dividend tax cuts than managers with very low or high ownership stakes.

We use social responsibility measures from Kinder, Lydenberg and Domini (KLD) of S&P 500 firms between 1991 and 2008 to test this prediction. These KLD goodness scores cover various attributes of corporate social responsibility behavior, including community relations, product characteristics, environmental impact, employee relations, and diversity. Firms with high KLD scores tend to have good community relations, no harmful products subject to litigation, no pollution or Environmental Protection Agency (EPA) violations, few labor strikes and a diverse workforce.

Consistent with the agency hypothesis, we find that firms’ goodness scores fell on average after the 2003 Dividend Tax Cut and that the scores of medium insider ownership firms fell by relatively more. We employ a differences-in-differences methodology that flexibly allows for the effect of the tax cut to vary through time in order to capture its long-run dynamic effects. From the end of 2002 through the end of 2004, average goodness among the medium ownership firms fell more compared to both high and low ownership firms, when splitting firms into ownership terciles based on 2001 and 2002 executive ownership data from ExecuComp. Relative to low ownership firms, medium ownership firms’ goodness scores fell more by 0.14-standard deviations of their 2002 distribution. Relative to high ownership firms, medium ownership firms’ goodness scores fell more by 0.22-standard deviations. These effects are statistically significant at the 10% and 1% levels, respectively. By the end of 2006, the difference-and-difference with high ownership firms widens to 0.35-standard deviations, although the difference-in-difference with low ownership firms attenuates to 0.10-standard deviations.
Comparing medium ownership firms to high and low ownership firms at the further extremes of the ownership distribution yields larger economic results. When dividing firms into ownership quintiles, we find that, relative to the lowest ownership firms, average goodness among medium ownership firms fell more from the end of 2002 through the end of 2004 by 0.19-standard deviations. Relative to high ownership firms, medium ownership firms’ goodness fell more by 0.25-standard deviations. These effects are statistically significant at the 10% and 1% levels, respectively. By the end of 2006, the difference-in-difference between high and medium ownership firms widens to 0.35-standard deviations; the difference-in-difference with low ownership firms holds at 0.17-standard deviations.

Our second quasi-experiment is motivated by the following approach to agency theory, which suggests that there are two substitutable ways to encourage managers to maximize firm value: (1) increase their incentives, which is the focus of our dividend tax cut analysis, or (2) increase monitoring through improved governance. Hence, we corroborate our first finding using a natural experiment with exogenous changes in firm governance. We exploit a regression-discontinuity experiment using close proxy contests regarding shareholder-initiated governance proposals. The identifying assumption is that close votes around the 50 percent cut-off are random in terms of whether a governance proposal is passed and represent plausibly exogenous shocks to the monitoring of managers. We build on earlier work, which finds that, while shareholder proposals are non-binding, close votes around the 50% cut-off lead to discontinuously substantial changes in the implementation of governance proposals (Ertimur, Ferri, and Stubben, 2010; Thomas and Cotter, 2007). Our analysis builds most closely on Cuñat, Gine, and Guadalupe (2010), which uses a vote share regression discontinuity approach to show that passage of shareholder proposals increase firm value. Cuñat, Gine, and Guadalupe (2010) also shows that the passage of shareholder proposals can improve governance through channels other than through changes in governance provisions, such as by empowering shareholders.

We find that firms in which shareholder proposals narrowly pass experience significantly
slower growth in goodness scores than firms in which the proposals narrowly fail. Indeed, the economic magnitudes are sizeable. We find that firms that just failed to pass proposals experienced greater annual growth of KLD scores in the year of the vote than those that just-passed: the difference in the change in KLD scores is around 0.8. Given that a standard deviation of the change in KLD scores is close to 2, this difference in growth rates for firms around the 50% cut-off is nearly half of a standard deviation of the dependent variable, an effect that is statistically significant at the 10 percent level. 3

Overall, improvements in managerial incentives and governance lead to a reduction in firm goodness, implying that the marginal dollar spent on goodness is a result of agency problems. We emphasize that our results apply to marginal rather than average goodness spending. Some goodness may be productivity-enhancing, but on the margin, managers over-invest in goodness due to agency problems.

Our paper proceeds as follows. We derive the main predictions in a simple agency set-up in Section II. We describe the data in Section III and present the main empirical findings in Section IV. We provide additional analysis in Section V and conclude in Section VI.

2. Model

We consider the following stylized two-period agency model following Chetty and Saez (2010). The manager can decide how to spend the firm’s cash $\Gamma$ at $t = 0$: invest $K$ in a productive project that yields $f(K)$ net profits for shareholders at $t = 1$, invest $G$ in a corporate goodness project that gives the manager private benefits of $g(G)$ at $t = 1$, or pay out dividend $D$ at $t = 0$. We assume that $f$ and $g$ are positive, strictly increasing and concave functions, with $f(0) = g(0) = 0$. 4 The function $g$ is a reduced form that captures any of the private

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3In our regression discontinuity analysis, we are implicitly assuming that the average governance shareholder proposal around the cutoff reduces agency problems. We discuss this point in Section 5.

4We follow the convention of Chetty and Saez (2010) in writing the model in terms of net profits and in assuming that the manager returns the capital $G$ used for investment in goodness during period 1. The results thus do not depend on the capital $G$ being burned up, although one may also assume that it is without changing any predictions. Details of the model are discussed in the Appendix.
benefits the manager enjoys from investing in goodness. It is worth noting at the outset that we allow for productive goodness spending to be included in $K$, whereas $G$ captures any unproductive goodness spending. If managers adjust measures of total goodness in response to shocks such as the Dividend Tax Cut or the passage of shareholder proposals in a manner consistent with the model’s comparative statics about $G$, then the marginal goodness spending is unproductive.

The fraction of insider ownership is denoted by $\alpha$ and is treated as an exogenous parameter. The manager’s ownership stake represents his claim to a fraction of the payouts from the firm, which is reduced by the dividend tax rate $\tau$. We also assume that shareholders monitor the firm by increasing the manager’s weight on firm payouts relative to private benefits by an amount $\eta$. The parameter $r$ is the discount rate (there is no uncertainty in this model). The manager maximizes a linear combination of after-tax payouts from production and his private benefits from goodness spending, subject to the constraint that his spending on capital and goodness equal his cash on hand: $\Gamma = K + G + D$. More specifically, the manager’s problem is given by:

$$\max_{K,D \geq 0} \alpha (1 - \tau) (1 + \eta) \left[ D + \frac{f(K) + \Gamma - D}{1 + r} \right] + \frac{g(\Gamma - K - D)}{1 + r}.$$  

Let $\omega = \alpha (1 - \tau)(1 + \eta)$ denote the effective ownership stake of the manager in the firm. It increases with the insider ownership stake ($\alpha$), decreases with the dividend tax rate ($\tau$) and increases with the amount of monitoring ($\eta$). Our identification strategies focus on these three parameters. Since increasing $\eta$ is the same as decreasing $\tau$, we assume for simplicity in this exposition that $\eta$ is zero. We further assume $g(G) = BG$, which simplifies the intuition, and that $B < (1 - \tau)r$, which ensures that there are both dividend and non-dividend-paying firms in equilibrium. In the Appendix, we formally derive the model under more general

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5The model assumes that production and capital stock are paid out to shareholders as dividends in period 1. However, our results remain similar if the firm instead pays out a fixed portion using dividends and the remainder through share repurchases. We also assume that the corporate tax rate is zero as it will not affect our analysis.
A lower dividend tax rate is similar to increasing the effective ownership stake of the manager in this model. This raises the marginal cost of goodness spending and hence leads to less goodness spending regardless of the level of insider ownership. The only instance where the tax cut has no effect would be for the case in which $\alpha = 0$. Overall, an increase in $\omega$ means that the manager makes better decisions for shareholders and should invest less in his pet projects—regardless of the size of the manager's ownership stake.

**Prediction 1.** A decrease in the dividend tax rate $\tau$, which is equivalent to increasing $\omega$, will lead to a drop in goodness spending $G$: $\frac{\partial G}{\partial \tau} > 0$.

We empirically test Prediction 1 by comparing corporate goodness measures before and after the 2003 Dividend Tax Cut. However, testing Prediction 1 consists of a single difference. We may be concerned that concurrent changes to firm conditions (e.g., time trends or changes in other government policies or macro conditions) may spuriously drive the relationship between the Dividend Tax Cut and the subsequent decline in corporate goodness.

Therefore, we exploit a second prediction of our agency model that delivers testable predictions using a differences-in-differences approach. The second prediction centers on how the rate at which managers cut goodness spending following the tax cut should vary according to the ex ante insider ownership level $\alpha$. The model predicts that managers who have an intermediate level of ownership will cut more goodness relative to those with higher and lower levels of ownership.

To see why, consider the following three cases. A firm with zero insider ownership, $\alpha = 0$, invests nothing at all in productive capital ($K = 0$), pays no dividends in period $t = 0$, and invests everything in goodness ($G = \Gamma$). The sensitivity of $\omega$, the effective ownership stake, to the dividend tax rate $\tau$ is proportional to $\alpha$. When $\alpha$ is zero or low, managers will be very insensitive to the tax cut and will not decrease their goodness spending by much.

Medium insider ownership firms, or those with $\alpha \in (0, \bar{\alpha})$, do not pay dividends in period $t = 0$, and have an interior solution for capital and goodness spending given by
\[ \alpha (1 - \tau) f'(K) = B \text{ and } G = \Gamma - K > 0. \] They cut goodness in response to the tax cut as it makes the after-tax marginal return on capital more attractive. In the extreme case where a discrete tax cut is large enough to induce the manager to start paying dividends in period \( t = 0 \), goodness spending is reduced to zero.

High insider ownership firms, or those with \( \alpha \in (\bar{\alpha}, 1] \) for \( \bar{\alpha} = \frac{B}{(1-\tau)^r} \), invest the first-best level of capital \( K^* \). All remaining cash is paid out as dividends in period \( t = 0 \), since the after-tax risk-free rate is higher than the return on goodness, \( B \). Firms with extremely high ownership stakes do not have a very large agency problem and are run very efficiently, so there is little scope for reducing \( G \) since \( G = 0 \) relative to firms with intermediate levels of ownership.

Therefore, medium ownership firms will always cut goodness more than high ownership and zero ownership managers. Under mild regularity conditions on \( f \), we show that medium ownership managers also cut goodness in response to a tax cut more than managers with positive yet lower ownership levels, so that the effect is not limited to a comparison to zero ownership managers who are at a corner solution. We also show that the prediction holds when considering a broader class of increasing and concave functions \( f \) and \( g \). The intuition is the same: the marginal effect of the tax cut on effective ownership is proportional to share ownership, and thus is lower for managers with lower ownership. High ownership managers have little goodness spending to cut; therefore, medium ownership managers are the most sensitive to the tax cut. We provide all details in the Appendix for the interested reader. We summarize with:

**Prediction 2.** *In response to a dividend tax cut, medium ownership managers cut goodness \( G \) more than low ownership managers and high ownership managers.*

We empirically test this prediction using a difference-in-differences approach comparing the change in goodness following the Dividend Tax Cut across firms with different ex-ante managerial ownership stakes. We exploit the non-monotonicity in the relationship between insider ownership and how aggressively firms should cut goodness in response to the dividend
When testing Prediction 2, we assume that ownership stakes $\alpha$ are exogenous in some short horizon. That is, when the Dividend Tax Cut passed, the firm did not have sufficient time to re-contract and adjust ownership levels. An additional caveat to our first and second predictions relating to the Dividend Tax Cut is that we ignore the possibility that firms can repurchase shares in lieu of paying dividends. We follow Chetty and Saez (2010) in assuming that frictions exist which lead firms to pay out at least part of their cash flows through dividends. In practice, over three-quarters of the firms in our sample do pay dividends and other firms may be affected by the tax cut because they anticipate paying dividends in the future. Investigation of why firms pay dividends when an alternative payout option exists is outside the scope of this paper.

To support the robustness of the findings from our Dividend Tax Cut identification strategy, we consider a second quasi-experiment motivated by the following implication of the model. A substitute for giving the manager a larger effective ownership stake is to engage in costly monitoring, which can be modeled with a parameter $\eta$. As monitoring $\eta$ increases, the manager puts less weight on his pet projects and more weight on profits. As such, an auxiliary implication of our model is that improvements in monitoring or governance of firms should reduce goodness spending.

**Prediction 3.** An increase in the governance parameter $\eta$ leads firms to decrease their corporate goodness $G$.

We empirically test this last prediction of our agency model using a regression discontinuity approach focusing on close governance proxy votes. The RD design allows us to estimate the effect of quasi-random changes in governance on corporate goodness.

With these predictions and caveats in hand, we turn to the empirical analysis. Note that this model is highly stylized and cannot speak to the magnitude of reactions with respect to shifts in the incentives or governance parameters. We use the model to generate qualitative directional guidance.
3. Data

Our study uses data from four sources. Both quasi-experiments rely on ratings of corporate social responsibility from the Kinder, Lydenberg, Domini, & Co. (KLD) database. Both experiments also use stock prices and shares outstanding from the Center for Research in Security Prices (CRSP) and accounting variables from CompuStat. KLD’s coverage of S&P 500 firms starts in 1991; our analysis uses KLD information for S&P 500 firms from 1991 to 2010. Following Hong, Kubik and Scheinkman (2011), we focus on five dimensions of firm goodness documented by KLD: community activities, diversity, employee relations, environmental policies, and the social benefits of their products. KLD also documents issues associated with human rights, corporate governance, and whether the business itself is controversial. Most human rights scores are only available during a select few years in the 1990’s, so we do not include them; in general, we only include scores that have been consistently rated by KLD every year. We do not include corporate governance as this may be directly related to insider ownership, which we use to form our portfolios. Whether the business is controversial is a firm fixed effect and thus not applicable to our analysis which focuses on changes in goodness over time. We construct a firm’s goodness score by aggregating the total number of CSR strengths and subtracting the total number of CSR concerns.

For the quasi-experiment using the 2003 Dividend Tax Cut, we use data on top-five executive share ownership from S&P’s ExecuComp database, with dividend data from the CRSP Monthly File (aggregated to an annual frequency) and other firm variables from CRSP or CompuStat. To be included in our sample, a firm must be in the S&P 500 in the year 2001 or 2002 and have inside share ownership data from ExecuComp. All together, we have 503 firms, which is slightly more than 500 because of turnover in the S&P 500 index.

For the quasi-experiment involving close governance votes, our data on proxy contests for governance proposals comes from Riskmetrics, which covers all shareholder-initiated proposals at S&P 1500 firms from 1997 to 2009. The data includes detailed voting records for 4,000 governance-related proposals in areas such as anti-takeovers measures, compensation
oversight, board structure, and auditing. Riskmetrics provides data on the type of proposal, the shareholder proponent, the recommendation of the board of directors, and the percentage of votes in favor of the proposal.\textsuperscript{6}

4. Quasi-Experiment \#1: 2003 Dividend Tax Cut

To test Predictions 1 and 2, our proposed empirical methodology compares changes in corporate goodness scores before and after the 2003 Dividend Tax Cut across portfolios of firms with different tiers of managerial ownership. We focus on firms in the S&P 500 in 2001 and 2002, just before the tax cut was enacted in 2003. In both 2001 and 2002, we compute the fractional insider share ownership for the top five executives and take an average over both years in order to smooth any temporal irregularities.

We focus on share holdings rather than option holdings for a few reasons. First, many options are not dividend protected, so that the effect of the Dividend Tax Cut is ambiguous. Second, firms grant options rather than shares for a host of reasons other than to improve managerial incentives, including tax treatment, strategic management of financial constraints and even accounting manipulation. The manipulation motive is especially pronounced during the early 2000’s when we measure insider ownership in light of the number of options-related scandals during this period. A number of papers show that, during the period of 1996-2002, firms which granted large amounts of options were more likely to engage in back-dating by retroactively granting options when the firm’s stock price was at a temporary low and before a sharp reversal (Lie, 2005). Hence, option grants may not predict better alignment between managers and shareholders in the same way as insider ownership stakes of shares. Indeed, back-dating and other evidence of accounting manipulation suggests that firms with

\textsuperscript{6}The main Riskmetrics Shareholder Proposals dataset contains information on the number of votes in favor for each proposal as a percentage of all votes for and against (excluding abstentions and broker-nonvotes), rounded to the nearest percentage point. Because we are interested in votes very close to the 50 percent cutoff and would benefit from more precise vote share data, we supplement our main data with more detailed information about the exact number of votes for, against, and abstained using two additional data sources also provided by Riskmetrics: Voting Analytics and Voting Results.
more option grants might actually have less alignment between managers and shareholders, opposite to what we want to capture with the insider ownership shares.

Table 1 provides summary statistics for our firms. In Panel A, for the ranking period of 2001-2002, we report summary statistics for firms by low, medium and high ownership portfolios based on tercile breakpoints. The median fractional ownership in each portfolio is 0.001, 0.003 and 0.021, with tercile breakpoints of 0.002 and 0.006 dividing a distribution that reaches a maximum of 0.297. Unconditionally, the median fractional ownership stake was 0.3%, which translates to $27.8M in dollar ownership.

Panel B reports statistics on goodness scores for the pre-period of 1999-2002, while Panel C reports the analogous statistics for the post-period of 2003-2006. Prior to the Dividend Tax Cut, 11.7% of firms increased or initiated dividends in either 2001 or 2002. After the Dividend Tax Cut, this fraction was 21.1%. In other words, firms significantly increased dividends after the 2003 Dividend Tax Cut, consistent with Chetty and Saez (2005).7

The more interesting comparison for us is the summary statistics concerning firm goodness scores. We find strong empirical support for Prediction 1 of our agency model: a dividend tax cut should lead to a decline in goodness. The goodness score, defined as total strengths minus concerns, significantly drops on average after the 2003 Dividend Tax Cut. The mean score is 0.657 in the pre-period and is 0.333 in the post-period, which represents a drop of 14% of a standard deviation in pre-period goodness scores. Twenty-four percent of firms decreased goodness in the pre-period and 31% of firms decreased goodness in the post period. In other words, the decline in goodness comes from more firms’ cutting goodness across the board.

We then report measures of goodness by five constituent components. As pointed out by Hong, Kubik, and Scheinkman (2011), these constituent scores tend to be very correlated in factor or principal component analysis. Therefore, it is most informative to consider the total sum of the scores. Nevertheless, we look at individual components to get a sense for

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7Our dividend increase and initiation definitions follow that of Chetty and Saez (2005). For four firm-years observations with KLD scores, there was insufficient data to assess whether the firms increased dividends.
where the cuts are coming from. We find that the categories that experience the greatest declines are community activities, product benefits, and employee relations. There is no change in environmental scores and actually an increase in diversity.

While the data is strongly consistent with Prediction 1, we may be concerned that general time trends or concurrent changes in government policy and macro fundamentals may be driving the decline in goodness scores following 2003 rather than the decrease in dividend taxes per se. To address possible endogeneity, we use a difference-in-differences approach to test Prediction 2 of our agency model: the magnitude of the change in goodness in response to the Dividend Tax Cut should be largest for firms with intermediate levels of managerial ownership and smaller for firms with low or high levels of managerial ownership.

Figure 1 plots the time series of goodness scores for the three portfolios sorted by fractional managerial ownership in 2001-2002. The figure reveals that from 1999-2002, medium-ownership firms had goodness scores very similar to those of low and high-ownership firms, with slightly higher scores in the 2000-2002 period. From 2003 onwards, that gap narrows substantially, which suggests there may be an effect from the tax cut. However, the figure itself is inconclusive for two reasons. First, unobserved heterogeneity correlated with insider ownership such as size may be driving the changes rather than insider ownership itself. Second, there are strong time trends in the data, with goodness scores declining for all groups starting roughly in 1999-2000.

In order to allow our estimates to capture long-run changes in goodness, we form an annual panel of firm goodness scores from four years prior to the tax cut to four years after the tax cut, including the year of the tax cut itself, 1999-2006. We allow for the effect of the tax cut to vary each year and examine whether the cumulative effect of the tax cut for low and high ownership firms differs systematically from that of medium ownership firms. We
estimate the following specification via OLS:

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\text{goodness}_{it} = \alpha_i + \beta_t + \sum_{s \neq 2002} \gamma_s \left[ \text{LowOwn}_{it} \times 1\{t=s\} \right] + \sum_{s \neq 2002} \delta_s \left[ \text{HighOwn}_{it} \times 1\{t=s\} \right] + \sum_{s \neq 2002} \xi_s \left[ \text{LowMktCap}_{it} \times 1\{t=s\} \right] + \sum_{s \neq 2002} \lambda_s \left[ \text{HighMktCap}_{it} \times 1\{t=s\} \right] + u_{it},
\]

where \(\alpha_i\) are a series of firm fixed effects, \(\beta_t\) are a series of year effects, \(\text{LowOwn}_{it}\) (\(\text{HighOwn}_{it}\)) is an indicator for whether firm \(i\) is in the low (high) ownership tercile \(j\) during 2001-2002, \(\text{LowMktCap}_{it}\) (\(\text{HighMktCap}_{it}\)) is an indicator for whether firm \(i\) is in the low (high) market capitalization tercile \(j\) during 2001-2002, and \(1\{t=s\}\) represent indicators for whether year \(t\) equals \(s\). We include firm fixed-effects to remove time-invariant unobserved heterogeneity. We allow for the effect of the tax cut to vary heterogeneously through time by the market capitalization tercile of the firm since it is well-known that fractional insider ownership is negatively correlated with firm size, and also to soak up any potential variation associated with firms of different sizes attracting more or less scrutiny from different types of investors in response to the tax cut. We take tercile 2 (medium) as the omitted reference tercile for both ownership and market capitalization. We take 2002, the year before the tax cut, as the omitted reference year (i.e., there is no \(\beta_{2002}\) term). Note that the basic level effects for the ownership and market capitalization effects are subsumed into the firm fixed effects.\(^8\)

The coefficients \(\{\beta_t\}\) represent the difference in goodness measured at the end of year \(t\) relative to goodness measured at the end of 2002, the year just prior to the tax cut, for medium ownership firms (who are also in the medium market capitalization tercile). The coefficients \(\{\gamma_t\}\) represent the differences-in-differences of goodness at the end of year \(t\) minus goodness at the end of 2002 for low ownership firms minus medium ownership firms. Finally, the coefficients \(\{\delta_t\}\) represent the differences-in-differences of goodness at the end of year \(t\) minus goodness at the end of 2002 for high ownership firms minus medium ownership firms.

The model predicts that \(\gamma_t > 0\) and \(\delta_t > 0\) for \(t \geq 2003\). We can examine the assumption

\(^8\)Our specification is similar to that used in the literature evaluating the effect on earnings of job displacement or job training programs, for example in Jacobson, LaLonde, and Sullivan (1994).
of no pre-trend differences by testing whether $\gamma_t = \delta_t = 0$ for $t < 2002$. Our estimation identifies the coefficients of interest if the tax cut is not systematically related to other factors that affect the differential evolution of goodness across ownership portfolios captured in the error term, $u_{it}$. We cluster standard errors by firm, which allows for heteroskedasticity across firms and within-firm serial correlation.

The first set of columns in Table 2 presents the results of this regression. We find strong empirical support for Prediction 2 of our agency model. Although the immediate change in goodness in 2003 is muted, the differences become larger through time. Medium ownership firms see scores fall throughout the tax cut period, as evidenced by the negative $\beta_t$ coefficients after the tax cut. More importantly, this decrease in goodness is $\gamma_{2004} = 0.32$ more than the decrease in goodness for low ownership firms, a difference-in-difference that is statistically significant at the 10% level and represents a 0.14-standard deviation decrease in medium ownership firms’ 2002 KLD scores. High ownership firms cut $\delta_{2004} = 0.49$ goodness points less (0.22-standard deviations) over this period, an effect statistically significant at the 1% level.

These effects are largely persistent. Although there is some reversion in the effect between low and medium ownership groups, the difference-in-difference (low minus medium) from the end of 2002 through the end of 2006 was still positive, with $\gamma_{2006} = 0.23$, or 0.10-standard deviations. Over this same period, the difference-in-difference for high ownership firms minus medium ownership firms was $\delta_{2006} = 0.64$, or 0.29-standard deviations, which is statistically significant at the 1% level.

The second set of columns in Table 2 examines whether our results hold across an expanded set of quintile portfolios rather than terciles. If our model’s prediction holds in the data, we should see even larger effects when comparing medium ownership firms to high and low ownership firms at further extremes. To test this, we first form portfolios based on quintiles of ownership, and then modify equation (1) so that the quintile 3 represents the

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9We compute economic significance throughout this section by scaling coefficients by the cross-sectional standard deviation of KLD scores among medium ownership firms in 2002, which is 2.22.
medium ownership portfolio, quintile 1 (the lowest) represents the low ownership portfolio, and quintile 5 (the highest) represents the high ownership portfolio. We then add a full set of interactions between year effects and indicators for portfolio 2 and portfolio 4, although we omit reporting these effects for brevity.

The differences-in-differences between low and medium ownership firms from 2002 through 2004 and 2005 were $\gamma_{2004} = 0.43$ and $\gamma_{2005} = 0.49$, or 0.19 and 0.22 standard deviations, respectively, and are significant at the 10% level. The effects between high and medium ownership were even larger, cumulating to a total difference-in-difference of $\delta_{2006} = 0.77$, or 0.35-standard deviations, from 2002 through 2006.

Table 2 also shows that there were few significant pre-trend differences between the firms. That is, the $\gamma_t$ and $\delta_t$ coefficients are insignificant before 2002. These results are highlighted in Figure 2, which plot the sequence of $\gamma_t$ and $\delta_t$ coefficients, scaled by the standard deviation of KLD scores among medium ownership firms in 2002, through time along with their 95% confidence bands. Despite the few differences before the tax cuts, significant differences emerge after the tax cuts.

We check whether our results are spurious by estimating equation (1) assuming counterfactual “placebo tax cuts” in years before 2003. In general, because our goodness scores go back to 1992 and we examine the evolution of goodness across four-year pre- and post-periods, we are able estimate equation (1) assuming different counterfactual tax cut years beginning with 1996. We estimated the results for every possible counterfactual tax cut year in our sample, and find no effects before 2003. For brevity, Table 3 reports results assuming counterfactual tax cut years in 2000 and 1997, respectively, with full results available from the authors. For each one of these counterfactual experiments, we form ownership portfolios by averaging fractional ownership in the two years before the counterfactual tax cut year and estimate equation (1).

In Table 4, we perform two further robustness checks. In Panel A, we check whether our clustered standard errors are leading to spurious rejection of the null hypothesis due to serial
correlation. Bertrand, Duflo, and Mullainathan (2004) find evidence that serial correlation leads to excessive Type I errors relative to the prescribed size of the test in difference-in-differences estimates when using traditional OLS standard errors. One potential solution recommended to handle this size distortion is the use of clustered standard errors. We follow their paper to check for whether there is any evidence of a size distortion in our tests of $\gamma_t \neq 0$ and $\delta_t \neq 0$ by estimating equation (1) with 10000 bootstrapped samples where portfolios of ownership are randomly assigned. Specifically, we form 10000 random samples by drawing random vectors of firm goodness scores, with replacement, from our observed sample, where one vector represents observed goodness scores for one firm through time. For each random sample, 503 such vectors are drawn, which corresponds with the sample size of our main analysis. We then randomly assign ownership portfolios among these vectors, estimate equation (1), and tabulate the fraction of rejections at the 5% significance level for each coefficient for our 10000 random samples. We find that our actual rejection rates are very close to 5% and conclude that the clustered standard errors have largely eliminated the size distortion.\(^{10}\)

Panel B performs a second robustness check by averaging goodness scores in the two years pre-tax-cut (2001-2002) and two years post-tax-cut (2003-2004) for each firm. Then we compare the average change across terciles of ownership. This averaging is a very conservative way to address the serial correlation problem. We find that, relative to the low and high ownership terciles, medium ownership firms reduce goodness more. Relative to high ownership firms, medium ownership firms reduce goodness by an additional 0.21 points in the two years immediately following the tax cut, with a slightly smaller magnitude of 0.16 for the difference with low ownership firms.

Overall, the results support Predictions 1 and 2 of the agency model. Corporate goodness declines on average following the Dividend Tax Cut, but goodness declines the most among

\(^{10}\)As in Bertrand, Duflo, and Mullainathan (2004), we also perform this analysis where we do not sample with replacement and thus are simply assigning portfolios randomly among the 503 firms in our sample for 10000 replications. Results are nearly identical.
medium ownership firms. Although the effects are more muted when comparing medium ownership firms with very low ownership firms, medium ownership firms typically experience both larger discrete declines in goodness and steeper declining time trends in goodness.

5. Quasi-Experiment #2: Regression Discontinuity and Close Governance Votes

We corroborate our findings in the first quasi-experiment by testing a second implication of our agency model: corporate goodness should decline following improvements in firm governance. We isolate the causal effect of changes in governance on goodness using a regression discontinuity approach focusing on close governance proxy votes. While shareholder proposals are generally non-binding, firms are sharply more likely to pass a governance measure when the vote share in favor of a proposal slightly exceeds 50 percent. We use these close votes to generate random assignment of governance among firms around the 50% vote share cut-off for passage of shareholder-initiated governance proposals. We test whether firms in which these proposals just passed experienced slower growth in goodness scores than firms in which the proposals just failed.

Implicit in our RD design is the assumption that the 50% cut-off generates meaningful exogenous variation in governance even though shareholder proposals are non-binding. This has been established empirically in previous work by Cuñat, Gine, and Guadalupe (2010), who use close votes to estimate the effect of governance on proxies for firm value. They find a small but significant effect on firm value. They further estimate that passing a proposal around the discontinuity leads to a discrete 31% increase in the probability of implementation (measured as the change in the number of anti-takeover provisions the firm has in place). Moreover, narrowly passing a proposal also leads to an increase in the probability of proposing and passing future shareholder-initiated governance proposals. Hence, passing the proposal can affect governance through more than just passing a new governance provision. For
example, shareholders seem to become more empowered and are more likely to be activist in the future.

In related work, Ertimur, Ferri, and Stubben (2010) find, using data from an earlier period, that passing a proposal increases the probability of implementation by 27% and that the effect of passing proposals on implementation has steadily increased over time, although the statistical significance of the upward trend is weak. Thomas and Cotter (2007) also look at implementation rates and show that over the 2002-2004 period, implementation rates for proposals with greater than 50% of vote share sharply increased over time.

Using these earlier studies as our backdrop, we apply this RD design to examine the relative growth rates of KLD scores around the 50% vote share cut-off. The agency perspective predicts lower growth rates to the right of the cut-off (firms with improved governance) compared to firms just to the left of the cut-off. We restrict our analysis to shareholder initiated, governance-related proposals, which have the dual advantages of being directly targeted at managerial agency problems and of being heavily contested, resulting in a higher density of vote shares close to the 50 percent vote share cutoff.\footnote{Aside from governance-related shareholder proposals, there also exists a set of shareholder proposals that directly attempt to change goodness. These proposals usually demand increases in goodness. For example, a proposal might demand that the company adopt greener production methods. In theory, we could directly estimate the effect of goodness on firm productivity using an RD focused on close votes for these types of shareholder proposals. However, shareholder proposals directly targeting goodness rarely receive substantial shareholder support (suggesting that shareholders do not favor goodness), and the mass of votes near the the 50 percent cutoff is too low to allow RD estimation.}

We also distinguish between different subcategories of governance proxy proposals, following the categorization developed by Cuñat, Gine, and Guadalupe (2010).

First, we present evidence to support the validity of our design. In Figure 3, we plot the distribution of vote shares. The x-axis represents vote share in excess of the passage cutoff of 50%. Therefore, $x = 0$ is the location of the discontinuity. The extreme ends of -50 and 50 represent 0% and 100% vote shares, respectively. The distribution of vote shares around the cut-off is smooth, suggesting that outcomes to either side of the cut-off are likely to be random as opposed to being manipulated.
In all, we have 4,065 proposals spanning the 1997-2009 time period. In our baseline analysis, we exclude proposals directly targeted at limiting managerial compensation because our model predictions with respect to these proposals are ambiguous. While improvements in governance are expected to reduce perk spending, limits on executive compensation may lead managers to increase perk spending and private benefits. Of the 2,906 non-compensation related proposals, 121 were within 1% of the 50% cutoff, 394 were within 5%, and 770 were within 10% of the cutoff. For our regression discontinuity analysis, we use an optimal bandwidth around the discontinuity point to appropriately downweight votes that are farther away from the cutoff.

In Table 5, we further support the validity of the RD design by showing that firms on either side of the regression discontinuity do not differ significantly in terms of ex-ante characteristics.\footnote{To increase power, we include all proposals (including compensation-related proposals) in our sample. The results do not change if we limit the sample to non-compensation proposals.} We use a local linear fuzzy regression discontinuity estimation in the style of Imbens and Lemieux (2007) by fitting local linear trends in vote share on either side of the regression discontinuity using the optimal bandwidth for each ex-ante outcome. We determine the optimal bandwidth around the discontinuity point using kernel methods developed in Imbens and Kalyanaraman (2009). KLD is the KLD score of firms in the year before the shareholder proposal is voted on. Change in KLD is KLD in $t - 1$ minus KLD in $t - 2$. The others ex-ante outcomes are firm characteristics measured in $t - 1$. In general, there are no significant jumps and firms appear comparable on either side of the boundary. This supports the RD assumption that firms near the vote share discontinuity point are similar on all dimensions except that firms just to the right of the discontinuity point are discretely more likely to experience improvements in governance.

Next, we estimate the effect of governance changes on measures of firm goodness using the same local linear fuzzy regression discontinuity estimation method. Table 6 estimates our dependent variable of interest - the change in KLD scores $(t + 1) - (t)$ around the regression discontinuity. We again follow Imbens and Lemieux and estimate the jump by
fitting local linear trends in vote share on either side of the regression discontinuity using the optimal bandwidth. The first column represents our baseline estimate, which excludes compensation-related proposals. We find that improvements in governance lead firms to reduce their annual growth in corporate goodness by 0.8. Given that the standard deviation of the growth rate in corporate goodness is 1.6, this represents an economically significant decline of one-half of a standard deviation.

This discontinuity can be seen in Figure 4, where we plot the smoothed values for these changes around the cut-off. We look at votes between 40% (bounded by -10 on the x-axis) and 60% (bounded by the +10 on the x-axis). Indeed, there is an apparent jump in the KLD change to the left of the cut-off compared to the right. The magnitude is comparable to the one estimated in Table 6.

In the other columns of Table 6, we look at how the effect of narrowly passing a proposal varies depending on the type of proposal. As previously discussed, compensation-related proposals seek to limit or better monitor managerial pay. Board-related proposals target the membership and committee roles of the board of directors, for example, mandating an increase in the number of independent directors. G-Index related proposals describe a set of governance provisions categorized by Riskmetrics and used in Gompers, Ishii, and Metrick (2003). G-Index proposals target the removal of existing anti-takeover defenses. Voting-related proposals seek to increase the voting rights of shareholders, e.g., by requiring a majority vote for the election of board members. Of the 1062 proposal votes which are within 10% of the cutoff, 27% are compensation-related, 6% were board-related, 49% were G-Index proposals, 15% were voting-related, and the remainder were other types of votes.

In general, because of the small sample size near the vote share discontinuity, analyses using sub-categories of proposals lead to noisy estimates that are not significant. Nevertheless, the results are suggestive that our baseline results are not driven by only one particular kind of governance proposal. We find that narrowly passing board, G-Index, and voting related proposals leads to substantial, albeit noisily estimated, declines in the growth rate of
goodness (all estimates exceed one-half of a standard deviation the growth rate of the goodness score). Other miscellaneous proposals have near-zero effects on goodness. Meanwhile, narrowly passing compensation-related proposals lead to increases in goodness, consistent with the idea that managers may substitute toward goodness as a form of perk spending when their compensation is cut.

In Table 7, we support the robustness of our baseline results. The sample consists of all non-compensation related shareholder proposals. In columns (1) and (2) of the first row, we estimate the regression discontinuity using 1/2x optimal bandwidth and 2x optimal bandwidth to show that our results are robust to using alternative bandwidths. Tightening the bandwidth increases the point estimate of the drop in goodness from 0.8 to 1.1. However, we are left with marginal insignificance because the smaller bandwidth reduces the number of observations included on either side of the discontinuity. Widening the bandwidth leads to an estimate of 0.55, which is significant at the ten percent level.

In the second row, for columns (1) and (2), we consider two placebo tests for discontinuities in changes in goodness scores: at a placebo cutoff equal to the median of vote shares conditional on the vote share being less than the true cutoff and greater than the true cutoff, respectively. These placebo tests are standard in the regression discontinuity literature. Reassuringly, we find no significant effects at these placebo cutoffs. We estimate that goodness increases by approximately 0.1 points around each placebo cutoff. Both of these placebo estimates are insignificant and close to zero in comparison to the estimated 0.8 point decline in goodness estimated using the true voteshare cutoff.

In this analysis, we are implicitly assuming that the average governance-related shareholder proposal around the cutoff is intended to reduce agency problems. In reality, some of these proposals may actually support actions such as unproductive goodness at a cost to firm value. However, this would bias against our findings. Our finding that these shareholder proposals leads to less goodness is consistent with Tirole (2001), who argues that CSR and governance might be incompatible goals to the extent that goodness might be due to agency
issues. Nevertheless, we caution readers that we are measuring a local average treatment effect which may mask heterogeneity in the goals of specific shareholder proposals.

6. Conclusion

We investigate the hypothesis that corporate social responsibility is the result of managerial agency problems. We use the 2003 Dividend Tax Cut as a quasi-experiment that increased the effective firm ownership stakes of managers. If corporate goodness is indeed a result of agency problems, goodness scores should decline after the tax cut and the scores of medium insider ownership firms should decline by more than the decline for low or high ownership firms. We verify that this is indeed the case. To further corroborate our findings, we examine a regression discontinuity design to see if close votes for the passage of shareholder-initiated governance proposals, which effectively improves governance, led to slower growth of firm goodness scores. We find strong evidence for this.

Our analysis shows that the marginal dollar spent on corporate social responsibility is likely to be a result of managerial agency problems. In other words, managers overspend on goodness because they wish to do good with other people’s money. However, some forms of goodness investment, not on the margin, may increase firm value. For example, goodness may increase consumer demand or insulate the firm from regulatory interference. We leave the important question of how the average investment in goodness affects shareholder value to future research.
References


Appendix

We start with the manager’s problem as in Chetty and Saez (2010):

$$\max_{K,D \geq 0} \alpha (1 - \tau)(1 + \eta) \left[ D + \frac{f(K) + \Gamma - D}{1 + r} \right] + \frac{g(\Gamma - K - D)}{1 + r},$$

where $\eta$ is the monitoring parameter, $\tau$ is the dividend tax rate, $\alpha$ is the ownership of the manager, $\Gamma$ is total cash in the firm, $K$ is productive capital spending, $D$ is the dividend paid, and $r$ is the discount rate (there is no uncertainty in this model). For simplicity, assume $\eta = 0$ for now. The function $f$ represents the net profits of the firm; gross production may be thought of as $F(K) = f(K) + K$. Suppose that both $f$ and $g$ are strictly increasing and concave, with $f(0) = g(0) = 0$. Following Chetty and Saez (2010), the capital $G$ used for investment in goodness at period 0 is returned to shareholders at period 1. One may assume that $G$ is burned up without changing any predictions by writing the model in terms of gross production and simply replacing the second term in brackets with $\frac{F(K)}{1 + r}$ and assuming that $F$ is strictly increasing and concave, with $F(0) = 0$.

The generic first-order condition for this problem is:

$$\alpha (1 - \tau) f'(K) = g' (\Gamma - K - D),$$

$$\alpha (1 - \tau) r \leq g' (\Gamma - K - D) \text{ with strict equality if and only if } D > 0.$$  

Define $\bar{\alpha}$ to be the critical ownership level at which managers start paying dividends:

$$\bar{\alpha} = \frac{g' (\Gamma - K^*)}{r (1 - \tau)},$$

where $K^*$ is the first-best investment, determined by $f'(K^*) = r$.

Let $\alpha_1$ be the ownership level of any high ownership manager ($\alpha_1 > \bar{\alpha}$) and let $\alpha_2$ be the ownership level of any low ownership manager ($\alpha_2 < \bar{\alpha}$). Using a subscript of “1” to denote the investment of the high ownership manager and “2” for the low ownership manager, we can re-write the optimal investment and goodness spending for the high ownership manager as:

$$f'(K_1) = r,$$

$$\alpha (1 - \tau) r = g'(G_1),$$

$$D > 0, \Gamma = D + K_1 + G_1,$$

and:

$$\alpha (1 - \tau) f'(K_2) = g'(G_2),$$

$$g'(G_2) > \alpha (1 - \tau) r,$$

$$D = 0, G_2 = \Gamma - K_2,$$

for the low ownership manager.
For Prediction 1, we are interested in how goodness spending $G$ responds to changes in the tax rate, $\tau$. Applying the implicit function theorem reveals that:

$$\frac{\partial G_1}{\partial \tau} = -\alpha r \frac{g''(G_1)}{g''(G_1)} > 0,$$

$$\frac{\partial G_2}{\partial \tau} = -\alpha f'(K_2) \frac{g''(G_2) + \alpha (1 - \tau) f''(K_2)}{g''(G_2) + \alpha (1 - \tau) f''(K_2)} > 0,$$

for $\alpha = 0$,

which shows Prediction 1. Since $\frac{\partial G}{\partial \eta} = -\frac{\partial G}{\partial \tau} < 0$, this shows Prediction 3 as well.

For Prediction 2, we are interested in the comparative response of goodness spending to the tax cut across high and low ownership managers, $\frac{\partial G_i}{\partial \tau}$ across $i \in \{1, 2\}$. We are also interested in whether there is heterogeneity within each group, $\frac{\partial^2 G_i}{\partial \tau \partial \alpha}$ within $i \in \{1, 2\}$. We show that the prediction holds for a broad class of smooth concave production and goodness functions $f$ and $g$. For intuition, we begin with the simple case where $g$ is linear.

**Linear $g$ case.** First consider the simple case where $g(G) = BG$, maintaining the assumption that $f$ is strictly increasing and concave. Suppose $B < (1 - \tau) r$ so that $\bar{\alpha} < 1$.

For the moment, rename firms with $\alpha \in (0, \bar{\alpha})$ medium ownership firms (subscripted with 2), while still calling firms with $\alpha \in (\bar{\alpha}, 1]$ high ownership firms (subscripted with 1). The case where $\alpha = 0$ gives rise to a corner solution; call this firm the zero-ownership firm, subscripted with 0.

For high ownership firms, productive capital $K$ is the first best given by the solution to $f'(K) = r$, and anything left over is paid out as dividends since $\alpha (1 - \tau) r > B$. Nothing is invested in goodness, and the firm’s goodness spending does not respond to the tax cut at all.

The zero ownership firm is a corner solution who invests nothing in productive capital ($K_0 = 0$), pays no dividends and invests everything in goodness ($G_0 = \Gamma$). This firm’s goodness spending does not respond to the tax cut at all either.

For medium ownership firms, no dividends are paid, and there is an interior solution for capital and goodness spending given by $\alpha (1 - \tau) f'(K_2) = B$ and $G_2 = \Gamma - K_2 > 0$. Applying the implicit function theorem reveals that:

$$\frac{\partial K_2}{\partial \alpha} = -\frac{f'}{\alpha f''} > 0,$$

$$\frac{\partial K_2}{\partial \tau} = \frac{f'}{(1 - \tau) f''} < 0.$$

This implies:

**Lemma 1.** [Prediction 2, Zero Ownership.] Suppose $B < (1 - \tau) r$. Then managers with medium ownership cut goodness more than managers with zero ownership and also more than high ownership in response to the dividend tax cut.

**Proof.** This immediately follows from the fact that zero and high ownership managers spend $G_0 = \Gamma$ and $G_1 = 0$, that this does not respond to the tax cut, and that $\frac{\partial G_2}{\partial \tau} = -\frac{\partial K_2}{\partial \tau} > 0$. If the tax cut is discrete and large such that a medium ownership firm becomes a high
ownership firm, goodness spending falls to zero from a positive number and the proposition is also true.

Suppose the production function $f$ satisfies the regularity condition that $f'/f''$ is differentiable and a monotone decreasing function. As an example, any $f(K) = AK^\gamma$ with $\gamma \in (0, 1)$ and $A > 0$ satisfies this property.

**Lemma 2.** Suppose $f'/f''$ is differentiable and a monotone decreasing function. Then $\frac{\partial K^2}{\partial \alpha \partial \tau} < 0$ for $\alpha \in (0, \bar{\alpha})$.

**Proof.** Applying the implicit function theorem to $\frac{\partial K^2}{\partial \tau}$ reveals that:

$$\frac{\partial K^2}{\partial \alpha \partial \tau} = \frac{f'}{\alpha (1 - \tau) f''} \left[ \frac{f' f''}{(f'')^2} - 1 \right],$$

which is negative, since $\frac{\partial}{\partial K} \left[ \frac{f'}{f''} \right] = 1 - \frac{f' f''}{(f'')^2} < 0$.

Now consider any $\alpha_L \in (0, \bar{\alpha})$ and re-define medium ownership managers to be those with $\alpha \in (\alpha_L, \bar{\alpha})$. Define low managers to be those with $\alpha \in (0, \alpha_L)$.

**Proposition 1.** [Prediction 2, Linear $g$.] Suppose $B < (1 - \tau) r$ and that $f'/f''$ is differentiable and a monotone decreasing function. In response to a tax cut, medium ownership managers cut more than low ownership managers, high ownership managers, and zero ownership managers.

**Proof.** Follows directly from the previous two lemmas and the observation that $\frac{\partial G^2}{\partial \tau} = -\frac{\partial K^2}{\partial \tau} > 0$ and $\frac{\partial G^2}{\partial \alpha \partial \tau} = -\frac{\partial K^2}{\partial \alpha \partial \tau} > 0$.

**Broader Production Functions.** Returning to the general case, the trade-off between spending on $K$ and $G$ depends on the relative concavity of $f$ and $g$. For tractability, we impose more structure within the class of increasing and concave functions. Let:

$$f(K) = AK^\gamma, \quad g(G) = BG^\gamma,$$

where $\gamma < 1$. The parameters $A$ and $B$ control the relative concavity of the two functions.\(^\text{13}\)

The first-best investment and critical ownership level $\bar{\alpha}$ in this problem are:

$$K^* = \left( \frac{A \gamma}{r} \right)^{\frac{1}{1-\gamma}},$$

$$\bar{\alpha} = \frac{B}{A (1 - \tau)} (\bar{\Gamma} - 1)^{\gamma^{-1}}.$$

where for convenience we denote $\bar{\Gamma} \equiv \Gamma/K^*$. To make the problem non-trivial, assume $\bar{\Gamma} > 1$, and that $B$ is small enough such that $\frac{B}{A (1 - \tau)} (\bar{\Gamma} - 1)^{\gamma^{-1}} \in (0, 1)$. This ensures the firm will

\(^{13}\)If one were to assume that $G$ is burned up in the process of investing in goodness, replacing the assumption of $f(K) = AK^\gamma$ with $F(K) = AK^\gamma$ yields identical predictions. One would replace $r$ in all subsequent calculations with $1 + r$. 29
have enough cash on hand to make the first-best investment if it chooses to do so, and for there to be both dividend and non-dividend-paying managers.

The high ownership ($\alpha > \bar{\alpha}$) firm’s optimal investment, goodness spending, and dividends are given by:

$$K_1 = K^* = \left( \frac{A\gamma}{r} \right)^{\frac{1}{1-\gamma}},$$

$$G_1 = \left( \frac{B\gamma}{r(1-\tau)\alpha_1} \right)^{\frac{1}{1-\gamma}},$$

$$D_1 = \Gamma - G_1 - K_1.$$ 

Direct computation yields:

$$\frac{\partial G_1}{\partial \alpha} = \frac{1 - \tau}{\gamma - 1} \left( \frac{B\gamma}{r(1-\tau)\alpha_1} \right)^{\frac{2-\gamma}{1-\gamma}} \frac{r}{B\gamma} < 0,$$

$$\frac{\partial G_1}{\partial \tau} = \frac{1}{\gamma - 1} \left( \frac{B\gamma}{r(1-\tau)\alpha_1} \right)^{\frac{2-\gamma}{1-\gamma}} \frac{-r\alpha_1}{B\gamma} > 0,$$

$$\frac{\partial G_1}{\partial \tau \partial \alpha} = -\left( \frac{\alpha_1 (1-\tau) r}{B\gamma} \right)^{\frac{2-\gamma}{1-\gamma}} \left[ \left( \frac{1}{1-\gamma} \right)^2 \frac{r}{B\gamma} \right] < 0.$$

For the low ownership ($\alpha < \bar{\alpha}$) firm, the capital-to-goodness spending ratio is fixed:

$$\frac{K_2}{G_2} = \left[ \frac{A}{B} \alpha_2 (1-\tau) \right]^{\frac{1}{1-\gamma}} = C.$$

This implies:

$$G_2 = \frac{\Gamma}{1+C}, \quad K_2 = \frac{C\Gamma}{1+C}.$$
Direct computation yields:

\[
\frac{\partial G_2}{\partial \alpha} = -\frac{\Gamma \frac{\partial C}{\partial \alpha_2}}{(1 + C)^2} = -\frac{\Gamma \left( \frac{1 - \gamma}{1 - \gamma} B \left( \frac{a_2(1 - \gamma)}{B} \right) \right)}{(1 + C)^2}
\]

< 0 for \( \alpha_2 > 0 \), = 0 for \( \alpha_2 = 0 \),

\[
\frac{\partial G_2}{\partial \tau} = -\frac{\Gamma \frac{\partial C}{\partial \alpha_2}}{(1 + C)^2} = -\frac{\Gamma \left( \left[ \frac{1}{1 - \gamma} - \frac{A \alpha_2}{B} \left( \frac{a_2(1 - \gamma)}{B} \right) \right] \right)}{(1 + C)^2}
\]

> 0 for \( \alpha_2 > 0 \), = 0 for \( \alpha_2 = 0 \),

\[
\frac{\partial G}{\partial \alpha \partial \tau} = \frac{(1 + C)^2 \left( \frac{1}{1 - \gamma} A \right) \left( \frac{1 - \gamma}{1 - \gamma} \right) \left( \frac{a_2(1 - \gamma)}{B} \right) \left( \frac{-A \alpha_2}{B} \right) - \left( \frac{a_2(1 - \gamma)}{B} \right) \right)}}{(1 + C)^4}
\]

< 0 if and only if \( \alpha > \frac{B}{(1 - \gamma) A} \).

**Proposition 2.** [Within High and Within Low Ownership Firms.] Within high-ownership firms, \( \frac{\partial G_2}{\partial \alpha} \) is positive and monotonically decreasing in \( \alpha \). Within low ownership firms, \( \frac{\partial G_2}{\partial \tau} > 0 \) for \( \alpha_2 > 0 \) and \( \frac{\partial G_2}{\partial \tau} = 0 \) for \( \alpha_2 = 0 \). If \( \bar{\Gamma} \geq 2 \), then \( \frac{\partial G_2}{\partial \tau} \) is monotone increasing in \( \alpha \) for \( \alpha_2 \in (0, \bar{\alpha}) \); if \( \bar{\Gamma} < 2 \), then \( \frac{\partial G_2}{\partial \tau} \) is non-monotone in \( \alpha \): \( \frac{\partial G_2}{\partial \tau} \) increases for \( \alpha_2 \in \left( 0, \frac{B}{(1 - \gamma) A} \right) \), achieves a maximum at \( \frac{B}{(1 - \gamma) A} \), and decreases for \( \alpha_2 \in \left( \frac{B}{(1 - \gamma) A}, \bar{\alpha} \right) \).

**Proof.** Direct algebraic manipulation yields the result. Note that if \( \bar{\Gamma} \in (1, 2) \) then \( \frac{B}{(1 - \gamma) A} < \bar{\alpha} \).

Comparing across the two different regions, a general necessary and sufficient condition for \( \partial G_2(\alpha_2) / \partial \tau > \partial G_1(\alpha_1) / \partial \tau \) is then

\[
-\Gamma \left( \left[ \frac{1}{1 - \gamma} - \frac{A \alpha_2}{B} \left( \frac{a_2(1 - \gamma)}{B} \right) \right] \right) \geq \frac{1}{\gamma - 1} \left( \frac{a_1(1 - \gamma)}{B \gamma} \right) \frac{2 - \gamma}{1 - \gamma} - \frac{r \alpha_1}{B \gamma}.
\]

**Lemma 3.** Let \( \alpha_1 > \bar{\alpha} \) and \( \alpha_2 < \bar{\alpha} \) be given. We have \( \partial G_2(\alpha_2) / \partial \tau > \partial G_1(\alpha_1) / \partial \tau \) if and only if

\[
\alpha_2 \frac{1}{\gamma} + \alpha_2 \frac{1}{\gamma} \left[ \frac{A(1 - \gamma)}{B} \right]^2 \left( \frac{\alpha_1 r A}{\gamma} \right)^{\frac{1}{\gamma}} \Gamma \left( \frac{1 - \gamma}{B} \right)^{-\gamma} - 2 \left[ \frac{A(1 - \gamma)}{B} \right]^{\frac{1}{\gamma}}.
\]

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and \( \partial G_2(\bar{\alpha})/\partial \tau > \partial G_1(\alpha_1)/\partial \tau \) if and only if

\[
\alpha_1 > \left( \frac{B}{A(1-\tau)} \right) \left( \frac{\bar{\Gamma}}{\Gamma - 1} \right)^{1-\gamma} \equiv \hat{\alpha}.
\]  

(4)

**Proof.** The first part follows directly from manipulation of the necessary and sufficient condition, equation (2). Substituting \( \Gamma = \bar{\Gamma} K^* \), replacing \( K^* = \left( \frac{\alpha_1}{\Gamma} \right)^{1-\gamma} \) and the definition of \( \hat{\alpha} \) reveals that

\[
\frac{\partial G_2(\bar{\alpha})}{\partial \tau} > \frac{\partial G_1(\alpha_1)}{\partial \tau} \text{ if and only if } \bar{\Gamma} < \left( \frac{B}{A(1-\tau)} \right) \left( \frac{\bar{\Gamma}}{\Gamma - 1} \right)^{1-\gamma},
\]

from which the conclusion follows. \( \square \)

**Proposition 3.** [Prediction 2.] Suppose \( \frac{B}{A(1-\tau)} < (1 - \frac{1}{\Gamma})^{1-\gamma} \). There exist cut-offs \( \alpha_L \) and \( \alpha_H \) with \( 0 < \alpha_L < \bar{\alpha} < \alpha_H < 1 \) such that medium ownership firms with \( \alpha \in (\alpha_L, \bar{\alpha}) \) have \( \partial G_2(\alpha)/\partial \tau > \partial G(\bar{\alpha})/\partial \tau \) for any \( \bar{\alpha} \in (0, \alpha_L) \cup (\alpha_H, 1) \) and those with \( \alpha \in (\bar{\alpha}, \alpha_H) \) have \( \partial G_1(\alpha)/\partial \tau > \partial G(\bar{\alpha})/\partial \tau \) for any \( \bar{\alpha} \) similarly given, where \( \partial G(\bar{\alpha})/\partial \tau \) is defined as:

\[
\partial G(\bar{\alpha})/\partial \tau = \partial G_2(\bar{\alpha})/\partial \tau \text{ if } \bar{\alpha} < \hat{\alpha},
\]

\[
= \partial G_1(\bar{\alpha})/\partial \tau \text{ if } \bar{\alpha} > \hat{\alpha}.
\]

The cut-off \( \alpha_H \) may be chosen to be arbitrarily close to \( \hat{\alpha} \equiv \left( \frac{B}{A(1-\tau)} \right) \left( \frac{\bar{\Gamma}}{\Gamma - 1} \right)^{1-\gamma} \) on the right-side.

**Proof.** Suppose \( \frac{B}{A(1-\tau)} < (1 - \frac{1}{\Gamma})^{1-\gamma} \). First note that \( \bar{\alpha} < \hat{\alpha} < 1 \). The first inequality follows since, by the definition of \( \bar{\alpha} \),

\[
\bar{\alpha} = \frac{B}{A(1-\tau)} \left( \bar{\Gamma} - 1 \right)^{1-\gamma} = \frac{B}{A(1-\tau)} \left( \frac{1}{\Gamma - 1} \right)^{1-\gamma} < \hat{\alpha},
\]

since \( \Gamma^{1-\gamma} > 1 \). The second inequality follows by supposition.

Take any \( \alpha_H \in (\hat{\alpha}, 1) \). By Lemma 3 (note the strict inequalities):

\[
\frac{\partial G_2(\bar{\alpha})}{\partial \tau} > \frac{\partial G_1(\alpha_H)}{\partial \tau} > 0.
\]

Recall that \( \frac{\partial G_2(0)}{\partial \tau} = 0 \).

Consider the case where \( \bar{\Gamma} > 2 \). By the Intermediate Value Theorem, there exists an \( \alpha_L \in (0, \bar{\alpha}) \) such that \( \frac{\partial G_2(\alpha_L)}{\partial \tau} = \frac{\partial G_1(\alpha_H)}{\partial \tau} \equiv D \). Furthermore, this \( \alpha_L \) must be unique in \( (0, \bar{\alpha}) \) (given any choice of \( \alpha_H > \bar{\alpha} \)) since \( \partial G_2/\partial \tau \) is monotonically increasing between 0 and \( \bar{\alpha} \), by Proposition 2. Note that there is no \( \alpha \in (\bar{\alpha}, \alpha_H) \) such that \( \partial G_1(\alpha)/\partial \tau = D \) since \( \partial G_1/\partial \tau \)}
is monotonic, so $\alpha_L$ is unique in $(0, \alpha_H)$. By construction,

$$\frac{\partial G_2(\alpha)}{\partial \tau} > D \text{ for } \alpha \in (\alpha_L, \bar{\alpha}), \quad D > \frac{\partial G_2(\bar{\alpha})}{\partial \tau} \text{ for } \bar{\alpha} \in (0, \alpha_L),$$

$$\frac{\partial G_1(\alpha)}{\partial \tau} > D \text{ for } \alpha \in (\bar{\alpha}, \alpha_H), \quad D > \frac{\partial G_1(\bar{\alpha})}{\partial \tau} \text{ for } \bar{\alpha} \in (\alpha_H, 1),$$

where the inequalities in the first row follow since $\frac{\partial G_2}{\partial \tau}$ is monotonically increasing on $(0, \bar{\alpha})$ and the inequalities in the second row follow since $\frac{\partial G_1}{\partial \tau}$ is monotonically decreasing, from Proposition 2. Therefore,

$$\frac{\partial G_2(\alpha)}{\partial \tau} > D > \frac{\partial G_1(\bar{\alpha})}{\partial \tau} \text{ for } (\alpha, \bar{\alpha}) \in ([0, \alpha_L) \cup (\alpha_H, 1]) \times (\alpha_L, \bar{\alpha}),$$

For $\Gamma < 2$, note that for $\alpha \in (0, \bar{\alpha})$, $\frac{\partial G_2}{\partial \tau}$ increases for $\alpha_2 \in \left(0, \frac{B}{(1-\tau)A}\right)$, achieves a maximum at $\frac{B}{(1-\tau)A}$, and decreases for $\alpha_2 \in \left(\frac{B}{(1-\tau)A}, \bar{\alpha}\right)$. Since $\frac{\partial G_2}{\partial \tau}$ has one maximum in the interval $(0, \bar{\alpha})$ at $\frac{B}{(1-\tau)A} < \bar{\alpha}$ with $\frac{\partial G_2}{\partial \tau} > \frac{\partial G_1}{\partial \tau}$, it must be by the Intermediate Value Theorem that there is an $\alpha_L \in \left(0, \frac{B}{(1-\tau)A}\right)$ such that $\frac{\partial G_2(\alpha_L)}{\partial \tau} = \frac{\partial G_1(\alpha_H)}{\partial \tau} \equiv D$. Furthermore, we must have $\frac{\partial G_2(\alpha)}{\partial \tau} > D$ for $\alpha \in (\alpha_L, \bar{\alpha})$ and $\frac{\partial G_2(\bar{\alpha})}{\partial \tau} < D$ for $\bar{\alpha} \in (0, \alpha_L)$, by construction. Finally, since $\frac{\partial G_2}{\partial \tau} > \frac{\partial G_1}{\partial \tau}$, this $\alpha_L$ is unique given any choice of $\alpha_H > \bar{\alpha}$. The rest of the proof follows similarly. ■
Table 1: Summary Statistics

Panel A provides summary statistics for the cross-section of S&P 500 firms in 2001-2002 used in our analysis. For each variable, we first average over the two years 2001-2002 for each firm when possible and then report summary statistics by terciles of average insider ownership in the cross-section. Panels B and C provide summary statistics in an annual panel of these firms.

Table 1: Summary Statistics

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<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>Skew</th>
<th>Min.</th>
<th>Max.</th>
<th>Median</th>
<th>IQR</th>
<th>N</th>
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<td>0.000</td>
<td>0.077</td>
<td>0.000</td>
<td>0.002</td>
<td>0.001</td>
<td>0.001</td>
<td>168</td>
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<td>0.006</td>
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<td><strong>Panel B: Pre-Period (1999-2002)</strong></td>
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<td><strong>Panel C: Post-Period (2003-2006)</strong></td>
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Table 2: Dividend Tax Cut Difference-in-Differences

This table reports the results from a difference-in-differences estimation in the annual panel where the dependent variable is the level of the goodness score. The right-hand side variables are firm-specific fixed effects, year-specific effects, and interaction effects between year effects and indicators for all ownership portfolios. The first set of columns report results where we group ownership by terciles while the second set of columns report results where we group ownership by quintiles. Ownership portfolios are formed based on average ownership in the two-years prior to the shock year. The omitted category is always the medium ownership portfolio (tercile 2 or quintile 3), and we include a set of market capitalization portfolio indicators (tercile or quintile) fully interacted with all year effects. The omitted year among market capitalization portfolios is the middle portfolio. The omitted year is the year before the shock year, and the coefficients are cumulative changes from the end of 2002 through the end of year $t$. In the quintile results, we do not report the interaction effects for ownership portfolios 2 and 4 for brevity. Standard errors clustered by firm are presented in brackets. */**/*** indicates significant at the 10%, 5% and 1% levels, respectively.

<table>
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<tr>
<th>Year $t$:</th>
<th>Terciles</th>
<th></th>
<th></th>
<th>Quintiles</th>
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<th></th>
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<td>Interaction Effects</td>
<td>Year</td>
<td>Interaction Effects</td>
<td>Year</td>
<td>Interaction Effects</td>
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<tr>
<td></td>
<td>$\beta(t)$</td>
<td>$\gamma(t)$</td>
<td>$\delta(t)$</td>
<td>$\beta(t)$</td>
<td>$\gamma(t)$</td>
<td>$\delta(t)$</td>
</tr>
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<td>0.336</td>
<td>0.113</td>
<td>0.0207</td>
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<td>[1.90]*</td>
<td>[0.50]</td>
<td>[0.079]</td>
<td>[1.78]*</td>
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<td>0.261</td>
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<td>0.114</td>
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<td>[0.79]</td>
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<td>[1.07]</td>
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<td>[-3.52]***</td>
<td>[1.14]</td>
<td>[2.74]***</td>
</tr>
</tbody>
</table>

| N    | 3671 | 3671 |
| R-Squared | 0.054 | 0.058 |
| Firms | 503  | 503  |
Table 3: Placebo Difference-in-Differences

This table reports the results from a difference-in-differences estimation in the annual panel where the dependent variable is the level of the goodness score, but where we analyze two shock years, 2000 and 1997. The right-hand side variables are firm-specific fixed effects, year-specific effects, and interaction effects between year effects and indicators for ownership tercile portfolios. Ownership terciles are formed based on average ownership in the two-years prior to the shock year. The omitted category is always the medium ownership portfolio, tercile 2, and we include a set of market capitalization portfolio indicators (tercile or quintile) fully interacted with all year effects. The omitted year among market capitalization portfolios is the middle portfolio. The omitted year is the year before the shock year, and the coefficients are cumulative changes from the end of the omitted year through the end of year \( t \). Standard errors clustered by firm are presented in brackets. */*** indicates significant at the 10%, 5% and 1% levels, respectively.

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<th></th>
<th></th>
<th>Placebo 2</th>
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<th></th>
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<td>Year Effects</td>
<td>Interaction Effects</td>
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<td>Year Effects</td>
<td>Interaction Effects</td>
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</tr>
<tr>
<td></td>
<td>( \beta(t) )</td>
<td>( \gamma(t) )</td>
<td>( \delta(t) )</td>
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<td>( \beta(t) )</td>
<td>( \gamma(t) )</td>
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<td>N</td>
<td>3418</td>
<td></td>
<td></td>
<td>3468</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td></td>
<td>0.040</td>
<td>0.018</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms</td>
<td></td>
<td>493</td>
<td>484</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Panel A presents rejection rates where we repeat our experiment with 2003 as the shock year but bootstrap placebo treatment portfolios as follows. For each replication, we form a random sample by first drawing random vectors of firm goodness scores from our primary sample with replacement, where one vector represents observed goodness scores for one firm through time. For each replication, 503 such vectors are drawn. We then assign ownership portfolios randomly among these vectors, estimate equation (1), and tabulate the fraction of rejections at the 5% significance level for each coefficient for 10000 such replications. Panel B presents the change in goodness scores for firms in ownership Terciles 1 and 3 relative to Tercile 2. For each firm, we average scores in the 2003-2004 period and 2001-2002 period before computing the change in this average. We then project these changes in the cross-section onto indicators for low and high ownership portfolios. The coefficients represent the average difference in these changes relative to Tercile 2, the omitted category. White-heteroskedasticity robust standard errors are presented in brackets. */**/*** indicates significant at the 10%, 5% and 1% levels, respectively.

**Panel A: Rejection Rates for Random Placebo Treatment Groups**

<table>
<thead>
<tr>
<th>Year t:</th>
<th>Terciles</th>
<th>Quintiles</th>
<th>Interaction Effects</th>
<th>Interaction Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Low</td>
<td>High</td>
<td>Quintile</td>
</tr>
<tr>
<td>-3</td>
<td>0.0507</td>
<td>0.0508</td>
<td>0.0515</td>
<td>0.0528</td>
</tr>
<tr>
<td>-2</td>
<td>0.0502</td>
<td>0.0516</td>
<td>0.0473</td>
<td>0.0509</td>
</tr>
<tr>
<td>-1</td>
<td>0.0488</td>
<td>0.0506</td>
<td>0.0453</td>
<td>0.0508</td>
</tr>
<tr>
<td>+1</td>
<td>0.0469</td>
<td>0.0466</td>
<td>0.0518</td>
<td>0.05</td>
</tr>
<tr>
<td>+2</td>
<td>0.0518</td>
<td>0.0471</td>
<td>0.0504</td>
<td>0.0475</td>
</tr>
<tr>
<td>+3</td>
<td>0.0478</td>
<td>0.0496</td>
<td>0.0492</td>
<td>0.0529</td>
</tr>
<tr>
<td>+4</td>
<td>0.0508</td>
<td>0.0507</td>
<td>0.0513</td>
<td>0.0496</td>
</tr>
</tbody>
</table>

Replications | 10000 | 10000

**Panel B: Average Change in Average Scores, 2001-2002 through 2003-2004**

<table>
<thead>
<tr>
<th>Ownership:</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>0.161</td>
<td>[1.14]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>0.212</td>
<td>[1.67]*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>-0.209</td>
<td>[-2.22]**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>482</td>
<td></td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.006</td>
<td></td>
</tr>
</tbody>
</table>
Table 5: Regression Discontinuity Validity Analysis

This table supports the validity of the RD design by showing that firms on either side of the regression discontinuity do not differ significantly in terms of ex-ante characteristics. For each outcome, we use local linear methods with an optimal bandwidth to estimate the discontinuous jump in the ex-ante outcome. KLD is the goodness score of firms in the year before the shareholder proposal is voted on. Change in KLD is the goodness score in t-1 minus the goodness score in t-2. The others are firm characteristics measured in t-1. In general, there are no significant jumps and firms appear comparable on either side of the boundary.

<table>
<thead>
<tr>
<th></th>
<th>KLD</th>
<th>Change in KLD</th>
<th>Log Assets</th>
<th>Log Market Cap</th>
<th>Firmreturn</th>
<th>Log Total Compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>-0.189</td>
<td>-0.159</td>
<td>-0.448</td>
<td>-0.184</td>
<td>0.101</td>
<td>0.037</td>
</tr>
<tr>
<td></td>
<td>(0.439)</td>
<td>(0.214)</td>
<td>(0.402)</td>
<td>(0.338)</td>
<td>(0.081)</td>
<td>(0.174)</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>5.14</td>
<td>4.22</td>
<td>3.76</td>
<td>4.50</td>
<td>2.02</td>
<td>3.84</td>
</tr>
<tr>
<td>Obs</td>
<td>4170</td>
<td>4081</td>
<td>4468</td>
<td>4541</td>
<td>4533</td>
<td>4238</td>
</tr>
</tbody>
</table>
Table 6: Baseline Regression Discontinuity Analysis

This table estimates the change in KLD scores \((t+1) - (t)\) around the regression discontinuity. We again follow Imbens and Lemieux (2010) and estimate the jump by fitting local linear trends in vote share on either side of the regression discontinuity using the optimal bandwidth. We then present estimates by subcategories of types of proposals following Cunat, Gine, and Guadalupe (2011).

<table>
<thead>
<tr>
<th>Proposal Type:</th>
<th>All Non-Compensation</th>
<th>Compensation</th>
<th>Board</th>
<th>G-Index</th>
<th>Voting</th>
<th>All Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pass</td>
<td>-0.797*</td>
<td>0.895</td>
<td>-1.340</td>
<td>-0.743</td>
<td>-0.703</td>
<td>0.082</td>
</tr>
<tr>
<td></td>
<td>(0.449)</td>
<td>(0.838)</td>
<td>(1.401)</td>
<td>(0.545)</td>
<td>(0.519)</td>
<td>(0.258)</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>4.024</td>
<td>5.194</td>
<td>5.611</td>
<td>4.384</td>
<td>5.906</td>
<td>8.183</td>
</tr>
<tr>
<td>Obs</td>
<td>2906</td>
<td>1159</td>
<td>573</td>
<td>1544</td>
<td>320</td>
<td>469</td>
</tr>
</tbody>
</table>
This table supports the robustness of our baseline results. The sample consists of all non-compensation related shareholder proposals. 1/2 and 2x bandwidth presents results using one half and double the optimal bandwidth, respectively. The two placebo cutoffs test for jumps in changes in KLD scores \((t+1) - (t)\), at a placebo cutoff equal to the median of vote shares conditional on vote share being less than the true cutoff and greater than the true cutoff, respectively.

<table>
<thead>
<tr>
<th>Pass</th>
<th>1/2 Optimal Bandwidth</th>
<th>2X Optimal Bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.057</td>
<td>-0.546*</td>
</tr>
<tr>
<td></td>
<td>(0.686)</td>
<td>(0.298)</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>2.012</td>
<td>8.048</td>
</tr>
<tr>
<td>Obs</td>
<td>2906</td>
<td>2906</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pass</th>
<th>Placebo: Cutoff at Lower Median</th>
<th>Placebo: Cutoff at Upper Median</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.127</td>
<td>0.102</td>
</tr>
<tr>
<td></td>
<td>(0.450)</td>
<td>(0.315)</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>4.781</td>
<td>4.641</td>
</tr>
<tr>
<td>Obs</td>
<td>2906</td>
<td>2906</td>
</tr>
</tbody>
</table>
Figure 1: KLD Scores

This figure plots the average KLD score in each tercile portfolio for each year 1991-2009 for our main sample of firms in the S&P 500 during 2001-2002.
Figure 2: Dividend Tax Cut Differences-in-Differences

This figure plots the cumulative difference-in-differences of goodness scores for the low ownership portfolio minus the medium ownership portfolio in blue, and high ownership minus medium ownership in red, from Table 2. The coefficients are scaled by the standard deviation of medium ownership KLD scores in 2002. 95% confidence bands based on clustered standard errors are plotted as dashed lines. 2002 is taken as the base reference year (t=0) and 2003 is taken as the shock year (t=+1).

Panel A: Tercile Ownership Portfolios

Panel B: Quintile Ownership Portfolios
Figure 3: Distribution of Vote shares for Shareholder Proposals
Figure 4: Change in KLD Scores at 50% Vote share Discontinuity

All Non-Compensation Related Shareholder Proposals

KLDT(t+1) - KLDT(t)

Voteshare % in Excess of Pass Cutoff

-10  -5   0   5    10

-5    0    1    1.5  2