Managerial Optimism and

the Market's Reaction to Dividend Changes

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Optimistic managers overestimate future earnings. If managers make dividends announcements based on their assessment of future earnings and investors cannot perfectly distinguish between optimistic and rational managers, then announcement returns are predicted to be on average higher for optimistic managers than for rational managers, controlling for the size of the dividend change. This prediction is tested using proxies for managerial optimism and found to be empirically supported. The results are not driven by agency problems, information asymmetries, or optimistic managers merely announcing bigger dividend changes. The results also provide a possible explanation for existing evidence that dividend changes generate abnormal price reactions, and yet provide little information about future earnings.

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1. Introduction

Managerial behavioral biases are receiving growing attention in corporate finance. Recent theories have illuminated how biases like overconfidence and optimism can affect various corporate decisions (e.g. Manove and Padilla, 1999; Bernardo and Welch, 2001; Heaton, 2002; Van den Steen, 2004; Coval and Thakor, 2005; and Goel and Thakor, 2008). There is also a nascent empirical literature that has exposed interesting evidence of the effects of managerial behavioral biases. Malmendier and Tate (2005) find that overconfident CEOs invest more aggressively, and Malmendier and Tate (2008) show that overconfident CEOs are more likely to engage in value-destroying mergers. Ben-David, Graham and Harvey (2007) find that firms with overconfident CFOs maintain higher debt ratios and are less likely to pay dividends or repurchase shares. Puri and Robinson (2007) document that optimistic individuals exhibit systematically different choices compared to others, such as holding less diversified portfolios. Graham, Harvey, and Puri (2007) find evidence consistent with the view that optimistic CEOs expect better future performance.[1]

This paper focuses on a new implication of managerial optimism. In particular, I examine the market's response to dividend change announcements.[2] Optimism is defined here as the manager's propensity to overestimate her firm's expected future earnings.[3] Since an optimistic manager is more bullish about her firm's earnings prospects than a rational manager, her private assessment of future earnings is more positive than the assessment of her rational counterpart when the news is good and less negative when the news is bad. This suggests that if investors cannot distinguish between rational and optimistic managers, assessment-dependent actions of optimistic managers will provide bigger positive and smaller negative surprises relative to investors' expectations (or prior beliefs).

This intuition can be captured in a simple signaling framework in which some firms are run by rational managers and some by optimistic managers who think they are rational. Investors do not know who

[1] Although not a paper on overconfidence or optimism, Bertrand and Schoar (2001) also find that top managers significantly influence firm policies: managerial fixed effects help explain acquisition and diversification decisions, and dividend policy. A recent working paper by Deshmukh, Goel and Howe (2008) examines the relationship between overconfidence and dividend policy. For a more comprehensive discussion of how managerial behavioral biases affect corporate decisions, see Baker, Ruback, and Wurgler (2006).

[2] I examine dividend changes because there is an extensive theoretical literature on dividend signaling which suggests that managers convey new information through dividends (e.g., Bhattacharya, 1979; Miller and Rock, 1985; and Ofer and Thakor, 1987); and there is a large empirical literature on announcement effects which suggests that investors do seem to associate information content with dividends (e.g., Pettit, 1972; Aharony and Swary, 1980; and Grullon, Michaely, and Swaminathan, 2002).

[3] In the clinical psychology literature, optimism is a positive attribute in the sense that optimists are documented to be happier and possibly enjoy greater longevity. This paper does not focus on such implications. The purpose here is to merely tease out and test the signaling implication of managerial optimism.

is rational and who is optimistic, but they share common prior beliefs about the likelihood of a manager being optimistic. Each manager receives a private signal about her firm's future earnings and adjusts the firm's dividend in response. While the rational manager interprets each signal correctly, the optimistic manager has an upward bias in her assessment of this private signal and thus overestimates future earnings. The optimistic manager's dividend change thus conveys to investors more positive private information about her firm's future earnings than does the dividend change of a rational manager. As a result, the market reacts more positively to a given dividend increase by an optimistic manager.

One might be tempted to think that this means optimistic managers will pay higher dividends than rational managers. However, this is only true if all firms start out with the same prior dividend level, all managers receive the same signal and investors have the same prior beliefs about all firms' future earnings. When firms are observationally heterogeneous cross-sectionally in terms of their previous dividend levels and also investors' prior beliefs about their earnings (and hence about the dividend change), then it is possible that a firm with a smaller dividend change may be conveying more positive *new* information about future earnings to the market than a firm with a larger dividend change. Nonetheless, if an optimistic manager and a rational manager both announce the *same* dividend change, there is on average more good news being communicated by the optimistic manager's dividend change than by the rational manager's dividend change. In other words, the market will associate a bigger positive surprise (or a smaller negative surprise) with the optimistic manager's dividend change. The prediction then is that, holding fixed the size of the dividend change, dividend changes announced by an optimistic manager are associated with higher announcement returns than those announced by a rational manager.[4]

To test this prediction, a proxy for managerial optimism is needed. I use the managerial overconfidence measures developed by Malmendier and Tate (2005, 2008) as managerial optimism proxies. Following the literature on self-serving attribution, Malmendier and Tate (2005, 2008) refer to an upward bias in the manager's assessment of future firm-specific outcomes within her control as "overconfidence" on the CEO's part about her own abilities or skills, something that they point out is distinct from a more pervasive sort of optimism that may be associated also with a general overestimation of outcomes outside the CEO's control (e.g. GDP growth). Elsewhere in the literature, such a behavioral bias has been called

[4] Since the size of the dividend is held fixed, this result is not driven by the optimistic manager paying a higher dividend than the rational manager, but rather by the fact that *the surprise* for investors contained in *any* dividend change is more positive in the case of the (observationally indistinguishable) optimistic manager than in the case of the rational manager.

(over)optimism (e.g., Manove and Padilla, 1999; Coval and Thakor, 2005; and Van den Steen, 2004).[5] In my paper, the only assumption that is used is that the optimistic manager overestimates future earnings. So the Malmendier and Tate (2005, 2008) notion of overconfidence is the same as the notion of optimism used in this paper.

For the empirical tests, I use the same initial sample of 477 large U.S. corporations that Malmendier and Tate (2005, 2008) used, so as to enable use of their overconfidence measures. These measures identify a CEO as overconfident based on detailed annual information on CEO option holdings. They exploit the fact that CEOs are underdiversified because they cannot freely exercise their executive options (e.g., they can only exercise those options after a so-called vesting period has elapsed), they cannot easily short-sell company stock, and their human capital and reputation are linked to company performance. As a result of this underdiversification, CEOs should rationally exercise their options right after the vesting period is over, provided the options are sufficiently in the money (see, e.g., Lambert, Larcker and Verrechia, 1991; and Hall and Murphy, 2000). Malmendier and Tate (2005, 2008) argue that the bullishness of overconfident CEOs about their own firms' prospects will cause them to exercise options later than a rational CEO would, and build measures of overconfidence based on whether the CEO ever held in-the-money options until the year of expiration, or failed to exercise in-the-money options with five years remaining duration. These are the measures of optimism used in this paper. Given the infrequent occurrence of dividend cuts, the analyses focus on dividend increases. For a variety of reasons, I exclude repurchases.[6]

The empirical results strongly support the prediction: announcement returns are significantly higher when an optimistic CEO announces a dividend change than when a rational CEO announces a dividend change. These findings hold while controlling for other factors that may affect the market's reaction, such as the size of the dividend change, payout ratio, earnings growth, earnings volatility, the firm's financial

[5] As pointed out by Goel and Thakor (2008), the terms overconfidence and overoptimism are sometimes used interchangeably, and a variety of definitions of overconfidence are used in the literature. However, the definition most commonly used for overconfidence is overestimation of the precision of a private signal received by the agent (see Daniel, Hirshleifer and Subrahmanyam, 1998; Bolton, Brunnermeier, and Veldkamp, 2007; and Goel and Thakor, 2008).

[6] Stock repurchases are excluded for three reasons. First, dividends constitute the dominant payout method over the sample period (1980 – 1994) (see Table 1 in Allen and Michaely, 2003). Second, it is easier to isolate the effect of optimism on announcement returns using frequently recurring events which constitute a true obligation to pay, such as dividends. Repurchases are generally more infrequent events and firms do not have an obligation to repurchase all of the announced shares authorized by the board of directors (see Stephens and Weisbach, 1998). Third, Ofer and Thakor (1987) and Williams (1996) show theoretically that repurchases and dividends signal fundamentally different things. This means that including both dividends and repurchases in a study like this would make the results difficult to interpret.

constrainedness, and the dividend yield. The results are also robust to calculating announcement returns using equal-weighted or value-weighted index returns, and using industry-adjusted or non-industry-adjusted control variables.

Additional robustness checks are used to explore alternative explanations for the results. One possibility is that CEOs identified as optimistic self-select themselves to work in firms with greater agency or asymmetric information problems, so the information content of their dividend changes is commensurately greater. If so, the results here may simply reflect differences in agency problems and asymmetric information across firms, rather than managerial optimism. To examine this possibility, agency proxies (including CEO stock and option ownership)[7] and asymmetric information proxies are added as control variables in the regressions. The earlier findings hold up in these estimations.

Yet another possibility is that free cash flow problems are bigger at firms led by optimists not because agency problems are worse, but because optimists mistakenly make poorer investment decisions as shown by Malmendier and Tate (2005). The previous controls in the agency analysis may not capture this effect entirely. I directly confront this free cash flow hypothesis in an additional robustness check and find that the impact of managerial optimism on announcement returns continues to survive.

An additional robustness check examines whether optimistic managers simply happened to be working at firms that were destined to experience bigger post-announcement earnings changes than firms run by rational managers, or that optimistic managers actually received more positive private signals that called for them to rationally communicate more good news in their dividend changes. If this were true, dividend changes announced by optimistic managers would be followed by greater subsequent earnings changes. In this case, greater dividend announcement returns are warranted because dividend changes by their firms are truly more informative and would not reflect optimism per se. However, I do *not* find support for this alternative explanation.

These findings may provide a possible interpretation of a puzzle in the dividend signaling literature. While all studies find that dividend increases are accompanied, on average, by positive abnormal announcement returns, evidence that such announcements are followed by increases in future earnings is at best mixed. Nissim and Ziv (2001) present supporting evidence, but other studies find little evidence that

[7] Note that my classification of a CEO as optimistic is based on the *timing* of option exercise rather than the *number* of options she owns. Therefore, a test using the number of options as a control variable is not directly related to the optimism proxies.

dividend changes predict changes in future earnings (see, e.g., Watts, 1973; Penman, 1983; DeAngelo, DeAngelo and Skinner, 1996; Benartzi, Michaely and Thaler, 1997; and Grullon, Michaely and Swaminathan, 2002).[8] According to the intuition developed here, optimism is associated with higher announcement returns to the dividend change, *not* because firms headed by optimistic managers will actually generate higher future earnings than firms led by rational CEOs, but simply because the surprise element in the announcements of optimistic CEOs contains more good news for investors. The empirical evidence provided supports this prediction. Thus, if the samples in existing studies include firms headed by optimistic managers and the market underestimates the proportion of optimistic managers, then these studies will find that dividend increases are associated with positive announcement effects but subsequent earnings do not, on average, match the information one could infer from the announcement effects.[9]

The rest of the paper is organized as follows. Section 2 develops the intuition and predicts that optimism increases the sensitivity of announcement returns to dividend changes. (A formal theoretical model that yields this prediction is in the Appendix.) Section 3 explains the empirical methodology. Section 4 describes the data and the sample. Section 5 presents the empirical results, and Section 6 addresses robustness issues. Section 7 summarizes and concludes.

2. Development of an Empirical Prediction

In this section, I discuss the intuition of the model presented in Appendix I and the prediction it yields.

Suppose we have an economy in which some firms are run by rational managers and some by optimistic managers who think they are rational. Investors do not know who is rational and who is optimistic, but they share common prior beliefs about the likelihood of a manager being optimistic. Each manager receives a private signal about her firm's future earnings and adjusts the firm's dividend in response, so investors attempt to infer the manager's private information from the firm's dividend change. While the rational manager interprets each signal correctly, the optimistic manager has an upward bias in her

[8] For a more extensive review of the theoretical and empirical literature on dividend signaling, see Allen and Michaely (2003). Strong empirical support for dividend signaling is provided by Bernheim and Wanz (1995) who examine changes in the tax treatment of dividends and show that the dividend announcement effect per dollar of dividends increases with the dividend tax rate, a finding that is consistent with dividend signaling, but not with many other theories of dividend preference.

[9] The theoretical model developed in the Appendix of this paper assumes that investors correctly calculate the probability that a randomly-chosen manager will be optimistic. For there to be a disconnect between the average announcement effect of dividend changes and average future earnings, investors have to underestimate the proportion of optimistic managers in the population.

assessment of this private signal and thus ends up with a higher posterior assessment of future earnings than the rational manager. The optimistic manager's dividend change consequently conveys to investors a bigger surprise in the form of more positive private information about her firm's future earnings than does the dividend change of a rational manager. As a result, the market, which is unable to distinguish optimistic managers from rational managers, reacts more positively to a given dividend increase by an optimistic manager.

As explained in the Introduction, this does not imply that optimistic managers will pay higher dividends than rational managers. What it does imply is that if both the optimistic and the rational manager announce the *same* (positive) dividend change, there is on average more good news being communicated by the rational manager's dividend change. The reason is that the optimistic manager's positive private signal is magnified relative to the rational manager's private signal in the respective posterior beliefs of these managers about their firms' future earnings.[10] This leads the market to associate a bigger positive surprise (or smaller negative surprise) with the optimistic manager's dividend change. This leads to the following empirical prediction:

Prediction: Controlling for the size of the dividend change, the announcement effect associated with a dividend change by an optimistic manager will, on average, exceed that associated with a dividend change by a rational manager.[11]

This prediction will be tested by regressing cumulative abnormal returns (CARs) around the dividend change announcement date on optimism, while controlling for other factors that may affect announcement CARs:

$$CAR_i = \beta_0 + \beta_1 OPTIMIST_i + X_i'B \quad (12)$$

The dependent variable is CAR_i, the Cumulative Abnormal Return at firm i. The key independent variable is $OPTIMIST_i$, a dummy variable that equals 1 if the firm is led by an optimistic CEO and 0 otherwise. X_i' contains a set of core control variables, which always includes the percentage change in quarterly

[10] The argument is symmetric when the manager's private signal is negative or worse than prior beliefs. In that case, the optimistic manager has a more muted view of the signal than the rational manager does, so that the optimist ends up with a higher posterior belief than the rational manager, given the *same* private signal.

[11] This prediction follows directly from Proposition 1 in the Appendix: if announcement returns for optimistic managers exceed or are no less than those of rational managers, they must be higher on average, assuming that all four cases considered in the analysis show up in the data.

dividends, $deltaDIV_i$, plus year and firm fixed effects, and may include additional control variables. All regressions are estimated with robust standard errors, clustered by firm to control for heteroskedasticity as well as possible correlation between observations of the same firm in different years. The analysis focuses on β_1, the coefficient on the optimism variable, which is predicted to be positive and significant.

Although the prediction is symmetric (i.e. it applies equally to dividend increases and cuts), the focus is on dividend increases because of the infrequent occurrence of cuts. Moreover, firms do not cut dividends unless they are severely financially constrained and need to reduce dividends simply to be able to internally finance capital expenditures while still being in compliance with debt covenants or reduce debt levels to lessen the severity of financial constraints. The dividend policies of such firms are driven by factors that are well outside the scope of this paper.

3. Methodology and Variable Description

This section first explains the identification of dividend change announcement dates and the calculation of the announcement returns. Next, the manner in which CEOs are classified as optimistic ($OPTIMIST$) and the measurement of the quarterly dividend changes ($deltaDIV$) are described. This section ends with an explanation of the set of core control variables included in *X*.

3.1. Dividend Change Announcement Dates

The determination of the dividend announcement dates has to be done with care. For example, the same type of dividend changes has to be included for all firms since the market may react differently to different types of distributions. It is also necessary to ensure that no other confounding events took place around the announcement date that could contaminate the announcement effect.

Following Nissim and Ziv (2001) and Grullon, Michaely, Benartzi and Thaler (2005), the first step is to identify all dividend announcements recorded in the CRSP monthly event file that were announced during the sample period (to be discussed in Section 4). Dividend announcements are included in the final sample if they satisfy the following criteria:[12]

- The firm paid an ordinary quarterly cash dividend in U.S. dollars (code 1232 in the CRSP monthly file) in the current and previous quarter.

[12] Similar regression results are obtained if I add the requirement that no earnings announcements are made within a five- or eleven-day window around the dividend announcement day, as in Aharony and Swary (1980).

- Other distribution events (stock splits, mergers, stock dividends, rights offerings, etc.) were not declared between the declaration of the previous dividend and four days after the declaration of the current dividend.
- There were no ex-distribution dates between the ex-distribution dates of the previous and current dividends.

3.2. Cumulative Abnormal Returns

For all the dividend change announcement dates identified in the previous subsection, the market reaction is measured using the modified market model (Brown and Warner, 1985). Daily abnormal returns for each sample firm are calculated by deducting the equal- or value-weighted index return from the firm's return: $AR_{it} = R_{it} - R_{Mt}$,

where R_{it} is firm *i*'s stock return on day *t*, and R_{Mt} is the equal- or value-weighted CRSP index return on day *t*. I calculate abnormal returns for a three-day event window around the announcement date. Cumulative abnormal returns (CARs) are obtained by summing the abnormal returns over the three-day window: $CAR_i = \sum_{t=-1}^{1} AR_{it}$.

3.3. Optimism Measures

CEOs are classified as optimistic using four of Malmendier and Tate's (2005, 2008) "overconfidence" measures, which are based on the timing of executive option exercise.

According to option pricing theory, investors should optimally hold their options until expiration (Black and Scholes, 1973; Merton, 1973).[13] This insight is based on the premise that investors can fully hedge their option positions. While this is a reasonable assumption for the typical investor, it does not adequately describe the situation of many top executives (Hall and Murphy, 2002). CEOs at large U.S. corporations are typically quite underdiversified. First, their human capital is disproportionately invested in their firms. And, second, they generally receive sizeable option grants that are non-tradable, can be exercised only after a vesting period has elapsed, and come with short-selling restrictions. Hall and Murphy (2002) show that since CEOs cannot fully hedge their positions, they should rationally exercise their options

[13] If the stock is expected to pay a dividend prior to the expiration date, it may be optimal to exercise options early to capture the cash dividend.

early.[14] Unlike rational CEOs, optimistic CEOs overestimate their firm's future earnings. Optimistic CEOs will therefore exhibit an upward bias in their assessment of their firm's future stock price, and consequently delay exercising their options. The optimism measures exploit this expected difference in the timing of option exercise between rational and optimistic CEOs. The labels I will use for the optimism measures are the same as those used by Malmendier and Tate (2005, 2008) for their overconfidence measures.

Measure 1 – Longholder: A CEO is classified as optimistic (a "Longholder") for all of her years in the sample if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. Since options in the sample typically have a duration of ten years and are fully vested (the latest) at the end of year four, a CEO who holds options until the final year of its duration has postponed exercise by at least five years.

Note that this measure treats optimism as a managerial fixed effect since it uses forward-looking information in the classification process. The other measures relax this assumption.

Measure 2 – Pre-/Post-Longholder: This measure splits the Longholder optimism measure into two parts. A CEO is classified as a "Post-Longholder" from the year after she holds an option until expiration for the first time, even though the option is at least 40% in the money at the beginning of that year. A CEO is classified as a "Pre-Longholder" for all other years during which she was classified as optimistic using the Longholder measure.

If the market cannot perfectly distinguish between rational and optimistic CEOs a priori and optimism is a managerial fixed effect, the coefficients on both Post- and Pre-Longholders will be significant. If optimism is not a fixed effect (i.e., if a CEO is only optimistic during the years after she has first displayed signs of optimism through her option exercise behavior), the coefficient on Pre-Longholder should not be significant. In contrast, if the market were able to perfectly distinguish between optimistic and rational CEOs after the CEO displays signs of optimism through exercising options late, then the coefficient on Post-Longholder will not be significant. If it were able to perfectly distinguish between both types of CEOs even before the CEO exercises options late, the coefficients on both Pre-Longholders and Post-Longholders should be insignificant, and the hypothesized prediction would be rejected.

Measure 3 – Holder 67: A CEO is classified as optimistic (a "Holder 67") from the year after she fails to exercise an option with five years remaining duration that is at least 67% in the money.[15] Rational

[14] The optimal timing depends on their wealth, degree of risk-aversion, and level of diversification.
[15] I use Malmendier and Tate's (2008) definition, which differs slightly from their (2005) definition.

CEOs are expected to exercise their options soon after the vesting period is over, provided the options are sufficiently in the money. Since most options in the sample are fully vested at the end of year four, Holder 67 CEOs have postponed exercise of 67% in-the-money options by at least a full year.

Whenever this measure is used, the sample is limited to CEOs who had options that were at least 67% in the money at some point during year five. A CEO is classified as optimistic from the moment she fails to exercise these options during that year, and she is classified as rational until that moment. Thus, unlike the Longholder measure, this measure does not treat optimism as a managerial fixed effect.[16]

Measure 4 – Holder 150: The "Holder 150" optimism measure is identical to Holder 67, except that a higher threshold (the highest threshold used in Malmendier and Tate, 2005, 2008) is applied: options have to be at least 150% in the money in order for the CEO to be classified as optimistic. A similar sample restriction is imposed: the sample only includes CEOs who had options that were at least 150% in the money at some point during year five.

3.4. Dividend Changes

The percentage change in quarterly dividends, *deltaDIV*, is calculated as follows. For each date identified in Section 3.1, I obtain the quarterly dividend that was announced on that date. The CRSP monthly event file is then used to adjust each dividend amount for stock splits and reverse splits, if any. The dividend change is then defined as the change in the split-adjusted quarterly dividend amount divided by last quarter's split-adjusted quarterly dividend amount. Since the analysis focuses on increases in dividends, only positive dividend changes are kept in the sample. Furthermore, a requirement is imposed that the change in dividends equals at least three percent to ensure that dividend changes are not caused by rounding after stock splits but constitute true changes, and are large enough so that one might expect the stock market to react.[17] Results are similar if this requirement is dropped.

[16] Splitting this measure into Pre-Holder 67 and Post-Holder 67 is not possible because of sample size issues.

[17] In 68 cases, the change in dividends is less than one percent and caused largely by rounding after stock splits. In 30 cases, the dividend change is between one and two percent, while in 91 cases, the change is between two and three percent. If substantially higher cutoffs are imposed, various regressions cannot be run: e.g., over 60% of the sample is lost if the dividend change has to equal at least 12.5% as in Grullon, Michaely and Swaminathan (2002). I do delete five observations with dividend changes exceeding 500% as in Grullon, Michaely and Swaminathan (2002).

3.5. Control Variables

Two specifications of the model are estimated. In the first specification, the set of control variables, *X*, only includes the dividend change (discussed in Section 3.4) plus time and firm fixed effects. In the second specification, other variables that may affect the market's reaction at the time of the dividend increase announcement are added. These variables include: the payout ratio, earnings growth, earnings volatility, five financial constraints measures, and the dividend yield. All of these additional control variables are measured at the end of the fiscal year before the dividend change.

The dividend payout ratio, *PAYOUT*, is measured as the annual dividend payment (COMP # 21) divided by net income before extraordinary items (COMP #18). In the spirit of Benartzi, Michaely, and Thaler (1997) and Nissim and Ziv (2001), *EARNGROW* is defined as the growth in net earnings before extraordinary items (COMP # 8) from years -2 to -1 divided by book equity in year -1.[18] Book equity is the book value of stockholders equity (COMP #216) plus balance sheet deferred taxes and investment tax credit (COMP #35) plus post-retirement benefits (COMP #330) minus the book value of preferred stock. Preferred stock is measured as the redemption value (COMP #56), liquidation value (COMP #10), or par value (COMP #130) (in that order, depending on availability). The volatility of earnings, *EARNVOL*, is calculated as in Rountree, Weston, and Allayannis (forthcoming). Since earnings are persistent and show seasonal patterns, for each firm five years of quarterly earnings (net income before extraordinary items, COMP #8) are regressed on last quarter's earnings and three quarterly dummy variables.[19] The volatility of earnings is then defined as the standard deviation of the regression residuals divided by average total assets (COMP #44).

Also included are five variables that have been used in the literature to proxy for financial constrainedness (e.g., Kaplan and Zingales, 1997). The Kaplan-Zingales financial constraints *index* is not used for two reasons. First, Kaplan and Zingales (1997) estimate their index using manufacturing firms only, which constitute a mere twelve percent of the sample. Second, one of the variables used in the Kaplan-Zingales index is dividends divided by plant, property and equipment. It seems more appropriate for the purpose of this study to use *PAYOUT* instead, since firms base their dividend payments on the payout ratio rather than on dividends as a fraction of plant, property and equipment. The following financial constraints

[18] The earnings growth measure captures historic earnings growth. However, the regressions also include Tobin's Q (part of the financial constraints measures), which can be viewed as capturing future growth options.

[19] Data are not available for all quarters for all firms. A requirement is imposed that at least twelve quarterly observations need to be available. If data are only reported on an annual or semi-annual basis, I assign ¼ or ½ of the reported dividend to each quarter. Since this does not occur frequently, this procedure does not affect the results.

variables are used: *BOOKLEV, TOBINQ, LNASSETS, CASHFLOW,* and *CASH*. *BOOKLEV* is book leverage, measured as total debt (COMP #9 + COMP #34) divided by total assets (COMP #6). *TOBINQ* is Tobin's Q, the market value of assets divided by the book value of assets (COMP #6). The market value of assets is defined as in Fama and French (1997) as total assets (COMP #6) minus book equity (as defined above) plus market equity. Market equity is the number of shares (COMP #25) times the fiscal year-end share price (COMP #199). *LNASSETS* is the log of total assets, i.e. log(COMP #6). *CASHFLOW* is the firm's cash flow as a percentage of total assets, measured as net income before extraordinary items (COMP #18) plus depreciation and amortization (COMP #14) divided by last year's total assets (COMP #6). *CASH* is cash (COMP #1) as a percentage of total assets (COMP #6). The dividend yield, *DIVYIELD*, is calculated as the annual dividend payment (COMP #21) divided by the fiscal year-end stock price (COMP #199).

Where appropriate, industry-adjusted control variables (indicated with the suffix "*indadj*"), calculated as the difference between the actual value of the control variable and the median value of all firms with the same two-digit SIC code, are used. For example, the industry-adjusted payout ratio is used since firms may be more likely to increase their dividends when their payout ratio is below the industry median, and the industry-adjusted dividend yield is used for a similar reason. I also use industry-adjusted values of *BOOKLEV*, *TOBINQ*, *CASHFLOW,* and *CASH*, because the degree of financial constrainedness will depend on the industry in which a firm is active. In Section 6.4, tests are conducted to check that the results are not driven by the use of industry-adjusted control variables.

To test for multicollinearity, variance inflation factors are computed for the regressions presented. The highest value for a variance inflation factor is 2.54, and the average variance inflation factor for the independent variables in a regression never exceeds 1.40, suggesting that multicollinearity is not a problem in the data.[20]

4. Data and Sample Description

The initial sample contains 477 publicly-traded U.S. firms that have appeared on one of the Forbes 500 lists at least four times between 1984 and 1994. The dataset, used in Malmendier and Tate (2005, 2008) and described in detail in Hall and Liebman (1998) and Yermack (1995), contains data for the period 1980 –

[20] Variance inflation factors are the diagonal elements of the inverse of the correlation matrix and range from 1 to infinity. Chatterjee, Hadi and Price (2000) suggest that multicollinearity may be a problem if the largest variance inflation factor is greater then 10 and the average variance inflation factor is considerably larger than 1.

1994.[21] The core of that dataset contains detailed annual information on the number of options, the exercise price, and the duration of options each CEO holds – information that is essential to construct the optimism measures.

For each sample firm, the CRSP monthly file is used to obtain dividend announcement dates, ex-dividend dates, current and lagged quarterly dividends, fiscal year-end stock price data, the number of shares outstanding, and information on stock splits. From the CRSP daily file, firm stock returns plus equal- and value-weighted index returns for the event window around the dividend announcement dates are obtained. In addition, quarterly and annual Compustat data plus IBES analyst forecast data are collected to construct the control variables explained in Section 3.5. All variables have been winsorized at the 1% and 99% level to reduce the impact of outliers.

Table 1 contains various summary statistics for the samples used in the regressions. As can be seen in Panel A, the Longholder sample – which is identical to the Pre-/Post-Longholder sample – is the largest: it contains 328 firms and 599 CEOs. The Holder 67 sample is substantially smaller: it has 178 firms and 211 CEOs. The Holder 150 sample is the smallest with 155 firms and 177 CEOs. Panel B gives the means and medians of the CARs and the set of core control variables. The average three-day abnormal return around a dividend-increase announcement ranges from 0.34% to 0.47% based on the equal-weighted index, and varies from 0.42% to 0.51% based on the value-weighted index. The announcement returns are smaller than those documented in the existing literature.[22] This is not surprising: the sample used here includes only large Fortune 500 firms, while the existing literature also includes smaller firms. Since large firms are less likely to suffer from information asymmetries (see, e.g., Vermaelen, 1981), one would expect that dividend-increase announcements by large firms reveal less private information to the market than similar announcements by small firms, and hence are associated with smaller CARs.

Place Table 1 here

Panel C shows dividend change and CEO-specific summary statistics for all CEOs and for CEOs that have been classified as optimistic: *deltaDIV* is the change in dividends as defined in Section 3.4, *AGE* is CEO age, *YRSASCEO* is the number of years the CEO has been active as CEO, *YRSEMPLD* gives the

[21] I am grateful to Brian Hall for providing the CEO option holdings data.

[22] E.g., Aharony and Swary (1980) find average CARs of 0.93% for firms that announce dividend increases between 1963 and 1976. Nissim and Ziv (2001) show similar average CARs of 0.87% using a far longer sample period (1963 - 1998). Using roughly the same sample period as Nissim and Ziv, Grullon, Michaely and Swaminathan (2002) find substantially higher CARs of 1.43% for firms that announce dividend increases of at least 12.5%.

number of years the CEO has been employed in the firm, *PCTOWN* is the fraction of company stock by the CEO and her family at the beginning of the year, and *PCTVESTOPT* is the number of options exercisable within 60 days from the start of the year divided by the number of shares outstanding.[23]

The dividend changes announced by CEOs are on average 13.5% to 14.9% in the different samples. Optimistic CEOs do *not* seem to announce bigger dividend changes than rational CEOs. The dividend changes are similar in the Holder 67 and Holder 150 samples, and optimistic CEOs announce somewhat smaller dividends than rational CEOs in the Longholder sample. The theory has little to say about the size of the dividend change for optimistic managers compared to the size of the dividend change for rational managers: since the size of the dividend change depends on both prior beliefs about earnings as well as private signals, optimistic managers may announce larger or smaller dividend changes than rational managers. To disentangle the effect of the size of the dividend change from that of optimism, the size of the dividend change will be controlled for in all of the empirical analyses.

The CEO-specific summary statistics are similar for optimistic and rational CEOs in each sample (the Longholder, Holder 67 and Holder 150 sample), except that optimistic CEOs hold more vested options. In Section 6.2, CEO option ownership will be explicitly controlled for. It is not surprising that CEO age, years active as CEO, and years employed in the firm are lower for Pre-Longholders than for Post-Longholders, since Pre-Longholders (Post-Longholders) contain the years before (after) the moment the CEO holds in-the-money options until the year of expiration for the first time.

5. Empirical Results: CARs of Dividend Increases by Optimistic and Rational Managers

Table 2 contains the main regression results. In Panels A through D, CEOs are classified as optimistic using the Longholder, Pre-/Post-Longholder, Holder 67, and Holder 150 measures, respectively. Each panel contains two columns: column (i) includes one of the four optimism measures, the percentage increase in dividends (*deltaDIV*), and time and firm fixed effects; column (ii) uses the entire set of core control variables (i.e. all variables included in *X*). Results are shown for CARs calculated using the equal-weighted index, but results are similar when the value-weighted index is used instead (not shown for brevity).

Place Table 2 here

[23] The number of options is multiplied by 10 to ensure that the mean is comparable to mean stock ownership as in Malmendier and Tate (2005).

The results clearly support the main prediction. The coefficient on optimism is positive in all cases and significant for three out of four optimism measures (Longholders, Pre-/Post-Longholders, and Holders 150). The results in columns (i) of each panel show that when optimistic CEOs announce dividend increases, CARs are significantly higher at the 5% level for Longholders (t-statistic 2.24), Post-Longholders (t-statistic 2.03), and Holders 150 (t-statistic 2.51); significantly higher at the 10% level for Pre-Longholders (t-statistics 1.89); and insignificantly higher for Holders 67 (t-statistic 1.59).

The effect is sizeable: the coefficients on the optimism measures suggest that, ceteris paribus, the three-day cumulative abnormal returns are 0.7% to 1.7% higher when an optimistic CEO announces a dividend increase than when her rational counterpart announces such an increase.[24]

A closer examination of the results reveals two findings that are particularly noteworthy. First, recall that the Longholder measure (Panel A) views optimism as a managerial fixed effect, while the Pre-/Post-Longholder measure (Panel B) splits Longholders into observations before and after the CEO has shown signs of optimism through her option exercise behavior. The coefficients on both variables are significant. This suggests that optimism is a managerial fixed effect and the market does not know who is optimistic and who is rational. Even before CEOs have exercised options late, they display optimistic behavior in setting their dividends, and the market reacts more strongly to dividend increases announced by these CEOs. However, even after they have displayed observable signs of optimism in their option exercise behavior, investors continue to react more strongly to dividend change announcements by optimistic CEOs.

The second noteworthy finding is the following. Recall that the Holder 67 (Panel C) and Holder 150 (Panel D) measures do not view optimism as a managerial fixed effect, but instead classify a CEO as optimistic only after she has displayed signs of optimism by exercising in-the-money options late, and classify her as rational until then. I find that the coefficients on the Holder 67 measure are positive, but not significant.[25] The Pre-/Post-Longholder results suggest that this may be driven by optimism truly being a fixed effect. Since optimistic CEOs seem to display optimistic behavior in setting their dividends even before they exercise options late and the market reacts more strongly to announcements of dividend increases by these CEOs, classifying these initial observations as rational – as the Holder 67 and Holder 150 measures do – seems inappropriate and makes it harder to find significance using these measures.

[24] Since the size of the dividend change is controlled for, this effect is attributable to CEO optimism rather than a larger dividend change. Also, recall that Table 1 Panel C shows that optimistic managers announce dividend increases that are similar to those of rational CEOs.

[25] Malmendier and Tate (2008) also find weaker announcement effects using this measure.

6. Robustness Issues

In this section, several analyses are performed. The first two tests address two potential endogeneity problems. First, what if optimistic CEOs preferred firms with more asymmetric information? In this case, the dividend announcements of optimistic CEOs would convey more information simply because less is known *a priori* about these firms. Second, what if optimistic CEOs self-select themselves to work at firms that have greater agency problems? That is, if optimistic CEOs preferred firms with bigger agency problems, then the market would interpret dividend payments by these firms as resolving bigger free-cash-flow problems and hence react more strongly to these dividend announcements. This section shows that the main result still holds even when these two potential endogeneity problems are accounted for.

Free cash flow problems may also be bigger at firms led by optimistic managers, not because agency problems are worse a priori but because optimists make poorer decisions than rational managers (Malmendier and Tate, 2005, 2008). The main result survives tests that address this issue.

The robustness of the main result to using non-industry-adjusted control variables is also shown. Finally, I examine whether the market reacted more strongly to dividend changes announced by optimistic CEOs because optimistic CEOs simply happened to work at firms that were destined to experience bigger future earnings or optimistic CEOs received more precise private signals. The evidence presented below suggests that this is not the case.

In all announcement effect regressions in this section, CARs are calculated using the equal-weighted market index. Results are similar when the value-weighted index is used instead.

6.1. CARs of Dividend Increases Controlling for Asymmetric Information

This subsection examines whether the findings are driven by optimistic CEOs working at firms with more asymmetric information. If so, the results presented so far may not be driven by optimism but by differences in asymmetric information, because CARs are expected to be higher when firms with greater asymmetric information problems announce a dividend increase. Arguably, differences in asymmetric information have already been controlled for, since the full set of core control variables, *X*, includes two variables that can be interpreted as asymmetric information proxies. Vermaelen (1981) argues that information asymmetries may be more prominent in smaller firms since they are less covered by the popular press and analysts. The original regressions include two measures of firm size: *LNASSETS*, the log of total assets, and *TOBINQ*, the market value of total assets divided by the book value of assets.

To ensure that differences in asymmetric information are adequately controlled for, two additional asymmetric information proxies are used. The first asymmetric information proxy is *PSI*, a measure of firm-specific return variation. Durnev, Morck, Yeung, and Zarowin (2003) show that for stocks with greater firm-specific return variation, firm-specific information is more quickly and accurately incorporated into the stock price. Thus, a higher value of *PSI* implies less information asymmetry.[26] *PSI* is calculated as $\Psi_i = \ln((1-R)/R_i^2)$, where R_i^2 is industry i's average R^2 from regressions of firm-specific weekly stock returns on the value-weighted market index and the value-weighted industry index, where industries are based on two-digit SIC codes.[27]

The second asymmetric information proxy is *DRATING*, a dummy variable that equals one if the firm has a bond rating and 0 otherwise. A firm is assumed to have a bond rating if Standard & Poor's long-term domestic issuer rating is available in Compustat. The presence of a bond rating implies lower asymmetric information. There is little variation over time in this variable: adding *DRATING* to the regressions would cause this variable to drop out since the regressions also include firm fixed effects. To mitigate this problem, I run the regressions while including only data from 1980, 1987 and 1994.[28,29]

Table 3 contains the regression results. As before, Panels A through D classify CEOs as optimistic using the Longholder, Pre-/Post-Longholder, Holder 67 and Holder 150 measures, respectively. Each panel has two columns. Both include one of the four optimism measures and the full set of core control variables (*X*). Column (i) additionally uses the first asymmetric information proxy, *PSI*. Column (ii) instead includes the second proxy, *DRATING*. I find continued support for the theory: even controlling for differences in asymmetric information as measured by *PSI*, the coefficients on three out of four optimism measures (Longholder, Pre-/Post-Longholder, and Holder 150) are positive and significant. Results are somewhat weaker based on *DRATING*, in that only the coefficients on Longholder and Pre-Longholder are significant

[26] Some recent papers have interpreted *PSI* differently. Brown and Kapadia (forthcoming) find that newly-listed firms have significantly higher *PSI* (reported in their paper as lower R^2), even though younger firms are not expected to have more informed prices. Teoh, Yang, and Zhang (2006) find that high-*PSI* firms (reported as low-R^2 firms) are weaker than low-*PSI* firms, and conclude that *PSI* may reflect something beyond the resolution of firm-specific uncertainty.

[27] I thank Art Durnev for providing me with the data. The raw data are constructed using the methodology outlined in Durnev, Morck, Yeung, and Zarowin (2003). As suggested in Durnev, Morck and Yeung (2004), the logistic transformation is used to ensure that *PSI* is normally distributed.

[28] Results are similar if I instead include 1980, 1985, 1990 and 1994.

[29] I also constructed *ANALYST*, the average number of outstanding one-year ahead earnings per share forecasts (as reported in I/B/E/S) during the fiscal year preceding the dividend change announcement. A higher number of analysts following a particular stock implies lower asymmetric information (see, e.g., Bhushan, 1989). However, this variable is highly correlated with firm size, so it was not used.

in this case. This may be due to the fact that these regressions are run using very limited data, and also that whether a firm has a bond rating or not may be a rather noisy proxy for asymmetric information.

Place Table 3 here

6.2. CARs of Dividend Increases controlling for Agency Problems

Another possibility is that optimistic CEOs somehow self-select themselves and end up at firms with bigger agency problems. To some extent, potential agency problems have been controlled for in the analyses, since two measures of financial constraints included in the set of core control variables (*CASHFLOW*, cash flow divided by total assets, and *CASH*, cash holdings divided by total assets) can also be viewed as proxies for agency problems in that agency problems are likely to be greater when *CASHFLOW* and *CASH* are high. Nevertheless, the effect of agency is examined in four additional analyses.

Agency problems may be more severe if the CEO owns less stock and fewer options in the firm. *PCTOWN* and *VESTOPT* (as defined in Section 4) are therefore added to the regressions. Note that the summary statistics in Table 1 Panel C show that optimistic CEOs own more vested options than rational CEOs, which would actually imply that agency problems are smaller among firms led by optimistic CEOs and seems to suggest that it is unnecessary to add these two agency proxies. However, there is also a non-agency related reason to control for CEO stock and option ownership. CEOs who own more stock and options have potentially more to gain from the short-run stock price boost following the announcement of a dividend increase. In dealing with this possibility, note first that the optimism proxy is based on the *timing* of option exercise and *not* on the number of options. Further, note that the sample statistics in Table 1 Panel C show that optimistic CEOs do *not* increase dividends more than other CEOs, which suggests that the results are not driven by optimistic CEOs increasing dividends more because they have more unexercised options. Nevertheless, to provide a more formal robustness check, CEO option and stock ownership are controlled for in the regressions.

DeAngelo, DeAngelo, and Stulz (2006) observe that unlike contributed equity, retained earnings do not come with the benefit of additional monitoring, and suggest that firms in which retained earnings are high relative to common stock face potentially greater agency problems. *RETEARN_CS*, retained earnings as a fraction of common stock, is therefore added as a third agency proxy.

Agency problems tend to be more severe at firms with poorer governance. Two corporate governance proxies are included to capture this. *BOARDSIZE* is the number of directors who serve on the

board (e.g., Raheja, 2005; and Harris and Raviv, 2008). *CEOCHAIR* is a dummy that equals 1 if the CEO is also the chairman of the board, and 0 otherwise (e.g., Fama and Jensen, 1983; and Jensen 1993).

Moreover, firms with bigger agency problems are also likely to experience lower profitability. To control for this effect, *ROE*, net income divided by book equity, is added to the regressions. Results are qualitatively similar if *ROA*, net income divided by total assets, is used instead.

Table 4 presents the regression results. Panels A through D identify CEOs as optimistic using the Longholder, Pre-/Post-Longholder, Holder 67 and Holder 150 measures, respectively. Each panel contains four columns: each column includes optimism and the core set of control variables. Column (i) in addition shows the first two agency proxies, *PCTOWN* and *VESTOPT*. Column (ii) instead uses the third agency proxy, *RETEARN_CS*. Column (iii) includes the two governance variables, *BOARDSIZE* and *CEOCHAIR*. Column (iv) adds *ROE*. The results are consistent with the earlier findings and support the model's empirical prediction: despite including various agency proxies, for three out of four optimism measures (Longholder, Pre-/Post-Longholder, and Holder 150), the coefficient on optimism is positive and significant. That is, despite including various agency proxies, CARs are generally significantly higher when optimistic CEOs announce a dividend increase than when an increase of the same size is announced by rational CEOs.

Place Table 4 here

6.3. Are Free Cash Flow Problems Bigger at Firms Led by Optimists?

The findings in Malmendier and Tate (2005, 2008) suggest that optimists overinvest and undertake worse acquisitions. This suggests that free cash flow problems (Jensen, 1986) may be bigger at firms led by optimists, not because agency problems are worse a priori but because optimists make poorer decisions than rational managers. The agency proxies added in Section 6.2. may not capture this effect sufficiently. To examine the merits of this free cash flow hypothesis, I first check whether free cash flow problems are indeed bigger at firms with optimists. To do so, I calculate the difference in mean industry-adjusted cash flow (*CASHFLOWindadj*) and cash (*CASHindadj)* (as defined in Section 3.5) at firms led by optimists and rational managers.

Table 5 Panel I contains the results for the four optimism measures. Panels A through D identify CEOs as optimistic using the Longholder, Pre-/Post-Longholder, Holder 67 and Holder 150 measures, respectively. The results show that *CASHFLOWindadj* is significantly higher at firms led by Longholders and Pre-Longholders than at firms headed by rational managers. The results are not significant for the other

optimism measures. *CASHindadj* is not significantly higher at firms led by optimistic managers than at those led by rational managers. Thus, the evidence weakly suggests that firms with optimists face bigger free cash flow problems.

To ensure that these differences do not drive the main result, I first regress *CASHFLOWindadj* and *CASHindadj* on optimism (and year and firm fixed effects). I then rerun the main regression (column ii in Table 2) using the residuals from these regressions instead of the actual variables.

Table 5 Panel II contains the results. The coefficients on optimism are similar to those presented before (in Table 2) and the level of significance is slightly higher for all the optimism variables. Thus, the use of orthogonalized cash flow and cash variables leaves the main results unchanged: announcement returns continue to be bigger at firms led by optimistic managers.

Place Table 5 here

6.4. Regression Results Using Non-Industry-Adjusted Control Variables

In the main specification, most control variables are industry-adjusted by subtracting the median value of all firms in the same industry (based on two-digit SIC codes). It is important to do this because firms may be less likely to increase dividends when, for example, their payout ratio or book leverage is high relative to the industry. Differences in the likelihood of increasing dividend payments may affect the announcement returns. However, to examine whether the use of industry-adjusted control variables drives the results, the regressions are rerun using non-industry-adjusted control variables.

Table 6 contains the results. As before, Panels A through D identify CEOs as optimistic using the Longholder, Pre-/Post-Longholder, Holder 67 and Holder 150 measures, respectively. Each panel contains two columns: column (i) includes one of the four optimism measures, the percentage increase in dividends (*deltaDIV*), and time and firm fixed effects; column (ii) uses the entire set of core control variables (i.e. all variables included in *X*). The results are similar to those reported in Table 2 and support the main empirical prediction: the coefficients on optimism are positive and significant, suggesting that when optimistic CEOs announce a dividend increase, three-day CARs are significantly higher than when rational CEOs announce such an increase.

Place Table 6 here

6.5. Profitability Following Dividend Increase Announcements

I now check the possibility that optimistic CEOs simply happened to work at firms that were destined to generate higher future earnings or received signals that were more informative. In both cases, announcement returns will be greater for optimistic CEOs because their dividend changes are truly more informative about future earnings. If so, the change in earnings after a particular change in dividends should be greater for optimistic CEOs.

The existing literature that investigates the effect of changes in dividends on future profitability typically regresses the change in earnings on the percentage change in dividends plus several control variables that help predict future earnings.[30] This set of control variables includes profitability (preferably ROA as argued by Grullon, Michaely, Bemartzi and Thaler (2000)), the change in earnings, and several dummy variables and squared terms designed to pick up autocorrelation and nonlinearities in the mean reversion of earnings and profitability (see, e.g., Fama and French (2000) and Grullon, Michaely, Benartzi and Thaler (2005)).[31]

To examine whether the change in earnings after a dividend change is bigger for optimists than for pessimists, I use two alternative specifications. Both are in the spirit of Fama and French (2000) and Grullon, Michaely, Benartzi and Thaler (2005). The first specification regresses the change in future earnings (one, two, three, and four years after the dividend change) divided by the change in dividends on optimism and two sets of control variables. Since the change of dividends appears on the left-hand-side of the equation, one set of control variables comprises variables that may explain changes in dividends: the set of core control variables included in X. The other set of control variables consists of the variables highlighted above that help predict future earnings. The second specification regresses the change in future earnings on optimism, the change in dividends and the control variables that help predict future earnings. Control variables that help explain the change in dividends are not included in this specification since only the change in earnings appears on the left-hand-side of the equation. An alternative specification that also

[30] Nissim and Ziv (2001) argue that normalizing the change in earnings by book equity is better than normalizing it by the stock price like Benartzi, Michaely and Thaler (1997) do since the price reflects expectations about future earnings.

[31] Fama and French (2000) build on findings by Brooks and Buckmaster (1976), who document that changes in earnings tend to reverse and that large changes reverse faster than small changes, and Elgers and Lo (1994), who provide evidence that negative changes reverse faster than positive changes. Fama and French (2000) find similar patterns for profitability, and show that autocorrelation and mean reversion of both profitability and earnings helps to predict future earnings.

includes an interaction term (optimism * change in dividends) yields similar results to the ones reported here. That is, the following two models are estimated:

$$\frac{deltaEARN_{i,T}}{deltaDIV_{i,0}} = \beta_0 + \beta_1 OPTIMIST_{i,0} + Y_i^{'} B + (\gamma_1 + \gamma_2 dummyNEGROA_{i,-1} + \gamma_3 dummyNEGROA_{i,-1} * ROA_{i,-1} + \gamma_4 dummyPOSROA_{i,-1} * ROA_{i,-1}) * ROA_{i,-1} + (\lambda_1 + \lambda_2 dummyNEGdeltaEARN_{i,0} + \lambda_3 dummyNEGdeltaEARN_{i,0} * deltaEARN_{i,0} + \lambda_4 dummyPOSdeltaEARN_{i,0} * deltaEARN_{i,0}) * deltaEARN_{i,0}$$

$$deltaEARN_{i,T} = \beta_0 + \beta_1 OPTIMIST_{i,0} + \beta_2 deltaDIV_{i,0} + (\gamma_1 + \gamma_2 dummyNEGROA_{i,-1} + \gamma_3 dummyNEGROA_{i,-1} * ROA_{i,-1} + \gamma_4 dummyPOSROA_{i,-1} * ROA_{i,-1}) * ROA_{i,-1} + (\lambda_1 + \lambda_2 dummyNEGdeltaEARN_{i,0} + \lambda_3 dummyNEGdeltaEARN_{i,0} * deltaEARN_{i,0} + \lambda_4 dummyPOSdeltaEARN_{i,0} * deltaEARN_{i,0}) * deltaEARN_{i,0}$$

where Y_i includes the core set of control variables except analyst forecast dispersion, $deltaEARN_{i,T}$ equals $(EARN_{i,T} - EARN_{i,T-1}) / BVE_{i,-1}$, where $EARN_{i,T}$ is net income before extraordinary items for firm i in year $T \in \{1,2,3,4\}$, and BVE_{-1} is the book value of equity in year -1, the year before the dividend change was announced at firm i. $ROA_{i,-1}$ is the return on assets, measured as net income divided by total assets, in year -1 at firm i. $dummyNEGROA_{i,-1}$ ($dummyPOSROA_{i,-1}$) is a dummy variable that equals 1 if $ROA_{i,-1}$ is negative (positive) and 0 otherwise. $dummyNEGdeltaEARN_{i,0}$ ($dummyPOSdeltaEARN_{i,0}$) is a dummy variable that equals 1 if $deltaEARN_{i,0}$ is negative (positive) and 0 otherwise. $OPTIMIST_{i,0}$ identifies CEOs as optimistic (using the Longholder, Pre-/Post-Longholder, Holder 67 and Holder 150 optimism measures) in year 0. If the market's stronger reaction to dividend increases announced by optimistic CEOs is followed by greater increases in future earnings, β_1, the coefficient on *OPTIMIST*, will be positive and significant in both specifications.

Table 7 Panels I and II show the results for the two regression specifications. In each panel, Panels A through D show the regression results for the four optimism measures for the four time horizons. For brevity, only the coefficients on *OPTIMIST* are shown although the regressions include all the control variables highlighted above. The findings do not seem to support the view that the market reacts more strongly because dividend changes by optimistic CEOs are truly more informative about future earnings: the coefficient on *OPTIMIST* is positive (not significant**)** in the majority of all cases, and negative (not significant) in all other cases. These results suggest that dividend increases announced by optimistic CEOs

are *not* followed by larger increases in earnings one, two, three or four years after the announcement than similar-sized dividend increases announced by rational CEOs.

Place Table 7 here

Interestingly, the findings provided here may shed light on a puzzle in the dividend signaling literature. Although the literature finds that the market reacts positively to dividend increase announcements, evidence that such announcements are followed by increases in future earnings is mixed at best. The finding in this paper that the market reacts more positively to dividend increases announced by optimistic CEOs arises not because firms led by those CEOs are expected to generate higher future earnings than firms headed by rational CEOs, but because the component of their dividend changes that surprises the market conveys more good news. The empirical evidence also suggests that investors are unable to perfectly distinguish between rational and optimistic managers, which is an assumption that underlies the prediction.[32] Thus, if existing studies use samples that include optimistic managers, they will find that dividend increases are associated with positive announcement effects but are not followed by commensurately higher post-announcement earnings.[33]

7. Conclusion

This paper examines whether announcement effects triggered by dividend changes are affected by the presence of optimistic CEOs. A simple model is developed that rests on the idea that an optimistic manager has an upward bias in her assessment of a private signal about future earnings, so her dividend change on average embeds more good news for the market than an equal-sized dividend change announced by a rational manager. Assuming that the market cannot perfectly distinguish between optimistic and rational managers, the market reacts more positively to dividend changes announced by optimistic managers (controlling for other factors, including the size of the dividend change) than to those announced by rational managers.

The prediction that optimism enhances the announcement returns to dividend changes is tested using the same initial sample of 477 large U.S. corporations that Malmendier and Tate (2005, 2008) used, and employing several of their optimism measures. The results strongly support the main prediction even after controlling for other factors that may affect the market's reaction: the size of the dividend change, the payout

[32] Recall that supporting evidence is found using an optimism measure that employs forward-looking data (Pre-Longholder) and using a measure that employs data that investors should have had at the time of the dividend announcement (Post-Longholder).

[33] As indicated earlier, this requires that investors underestimate the proportion of optimistic managers in the population.

ratio, earnings growth, earnings volatility, the firm's financial constrainedness, and the dividend yield. The results are also robust to calculating announcement returns using equal-weighted or value-weighted index returns, and using industry-adjusted or non-industry-adjusted control variables. Furthermore, alternative explanations based on differences in asymmetric information or agency / free cash flow problems among firms do not seem to drive the results. The higher announcement effect notwithstanding, the dividend changes of optimistic CEOs are not followed by greater earnings changes than those of rational CEOs. This may provide a new interpretation of the puzzling result in the existing literature that even though the market reacts significantly positively to dividend increase announcements, such announcements do not appear to be followed by significant increases in future earnings.

This paper adds to a growing literature that shows how managerial behavioral biases affect corporate decisions and financial policies. The findings suggest that managerial optimism affects not only the financial policy choices of corporations, as documented in the existing literature, but also the reaction of the market to these choices.

Appendix

This Appendix is divided into three subsections. Section A.1 develops the basic model. Sections A.2 and A.3 contain the analysis.

In the basic model in Section A.1, it is assumed that there are rational and optimistic managers, whose existence investors are aware of but they cannot tell them apart. In that section, I calculate the announcement returns associated with different dividend announcements when investors have the same prior beliefs about future earnings.

Section A.2 analyzes the dividend levels that will be announced by optimistic and rational managers, and the associated announcement returns. It is shown that when investors have the same prior beliefs about future earnings at all firms, the announcement returns are the same for optimistic and rational managers. A result is derived about these returns that recognizes that a dividend announcement conveys to investors information about future earnings, and that this announcement effect is tempered by the fact that investors know that rational and optimistic managers exist in the population and they react differently to their private signals. However, with uniform prior beliefs on the part of investors about future earnings and the inability of investors to distinguish between optimistic and rational managers, any particular dividend announcement elicits the same stock return response for optimistic and rational managers.

In Section A.3, the analysis is expanded to permit two groups of observationally distinct firms, with investors associating higher prior beliefs about earnings with one group. This extension of the analysis is important to derive the key result of this section: conditional on announcing a similar-sized dividend change, the announcement returns are higher for optimistic managers than for rational managers. This result requires that there are firms that can be distinguished based on different prior beliefs about earnings, and that within each group of firms there are rational as well as optimistic managers.

A.1. The Basic Model

Suppose we have an economy in which everybody is risk neutral. There is one time period with two dates: $t = 0$ and $t = 1$. The common prior belief at $t = 0$ about the firm's earnings, E, at $t = 1$ is that it will be E_h with probability 0.5 and E_l with probability 0.5, with $E_h > E_l$. Define $0.5E_h + 0.5E_l \equiv E_0$. At $t = 0$, the firm's manager also receives a private signal $S \in \{-1,0,+1\}$ about the firm's earnings at $t = 1$. The signal is informative about E and its conditional probability distribution is as follows:

$$\Pr(S = +1|E = E_h) = Pr(S = -1|E = E_l) = p \in (0,1)$$

$$\Pr(S = \ \ 0|E = E_h) = Pr(S = \ \ 0|E = E_l) = 1 - p$$

$$\Pr(S = +1|E = E_l) = Pr(S = -1|E = E_h) = 0$$

All managers think they are rational. However, investors believe that there are also optimistic managers in the population who mistakenly interpret S more favorably that they should. That is, whereas a rational manager interprets the value of S correctly, an optimistic manager interprets only $S = +1$ correctly (because no higher signal can be observed) but interprets $S = 0$ as $S = +1$ and interprets $S = -1$ as $S = 0$. This induces an upward bias in her posterior assessment of future earnings.[34] Investors believe that the probability of a randomly chosen manager being rational is $\theta \in (0,1)$, so there is a $1 - \theta$ probability that the manager is optimistic.

The riskless interest rate is zero and firms have no assets in place. So, the value of each firm is simply the investors' prior belief about the earnings at $t = 1$. It is assumed that the manager's compensation at $t = 0$ is tied to the firm's stock price at $t = 0$ as well as its earnings at $t = 1$ in such a way that each manager is induced to signal her firm's value truthfully in a perfectly separating signaling equilibrium that satisfies the usual incentive compatibility conditions. The signal used is dividends and the manager chooses the dividend D to be some fraction $\delta \in (0,1)$ of her posterior mean of the earnings at $t = 1$.[35]

At $t = 0$, prior to the dividend signal, each firm is valued at

$$P(E_0) = E_0 = 0.5E_h + 0.5E_l \tag{1}$$

Moreover,

$$\Pr(S = +1) = Pr(S = +1|E_h)Pr(E_h) + Pr(S = +1|E_l)Pr(E_l)$$
$$= \frac{p}{2}$$

$$\Pr(S = \ \ 0) = 1 - p$$

$$\Pr(S = -1) = \frac{p}{2}.$$

After this, the manager receives her private signal S, arrives at her posterior mean of the earnings at $t = 1$ and announces a dividend that communicates her interpretation of her private signal to the market.

[34] This result obtains even if the optimistic manager interprets *all* signals too optimistically. However, it is important that the support of the probability distribution for the signal interpretations for the optimistic manager coincides with that for the rational manager, or else in the area in which these two supports do not overlap the optimistic manager is unambiguously revealed to all, which is inconsistent with the assumption that the optimistic manager thinks she is rational. After all, the awareness that one is irrational should eliminate the irrationality.

[35] It is easy to show that such a linear payout rule can satisfy the conditions of a dividend signaling equilibrium. Details are available upon request.

Based on that, a new market price emerges. Since there are only three possible private signals, there are only three possible values of the dividend signal: D_{-1}, D_0, D_{+1} corresponding respectively to $S = -1$, $S = 0$ and $S = +1$. There are thus three post-signal market prices: P_{-1}, P_0 and P_{+1} corresponding to D_{-1}, D_0 and D_{+1} respectively. The announcement returns (which will be abnormal returns in the empirical analysis) corresponding to these three cases are:

$$R_{-1} = \frac{P_{-1} - E_0}{E_0} \tag{2}$$

$$R_0 = \frac{P_0 - E_0}{E_0} \tag{3}$$

$$R_{+1} = \frac{P_{+1} - E_0}{E_0} \tag{4}$$

A.2. Analysis

Suppose the manager receives signal $S = +1$. Both the optimistic and rational managers interpret it as $S = +1$ and arrive at their posterior mean of earnings as follows:

$$\Pr(E = E_h | S = +1) = \frac{Pr(S=+1|E=E_h)Pr(E=E_h)}{Pr(S=+1|E=E_h)Pr(E=E_h)+Pr(S=+1|E=E_l)Pr(E=E_l)} = 1$$

Thus, each manager assesses the posterior mean of earnings as $E_{+1} = E_h$ and announces a dividend $D_{+1} = \delta E_h$.

Next, suppose the manager receives a signal $S = 0$. The rational manager revises her beliefs as follows:

$$\Pr(E = E_h | S = 0) = \frac{Pr(S=0|E=E_h)Pr(E=E_h)}{Pr(S=0|E=E_h)Pr(E=E_h)+Pr(S=0|E=E_l)Pr(E=E_l)}$$

$$= 0.5$$

$$\Pr(E = E_l | S = 0) = 0.5$$

Thus, the rational manager's posterior mean of earnings is $0.5E_h + 0.5E_l = E_0$. She announces a dividend of $D_0 = \delta E_0$. The optimistic manager interprets $S = 0$ as $S = +1$ and thus announces a dividend of $D_{+1} = \delta E_h$.

Consider finally $S = -1$. The rational manager revises her beliefs as follows:

$$Pr(E = E_h | S = -1) = 0,$$

so she sets $E_{-1} = E_l$ and announces a dividend of $D_{-1} = \delta E_l$. Since the market realizes there are no optimistic managers in this group, the post-signal price is $P_{-1} = E_l$ and the announcement return (using (2)) is:

$$R_{-1} = \frac{E_l - E_0}{E_0} \tag{5}$$

The following results can now be proved.

Lemma 1: If prior beliefs about earnings are the same for all firms and the manager announces a dividend level of D_{+1}, D_0, or D_{-1}, respectively, the firm will experience the following corresponding announcement returns:

$$R_{+1} = \frac{P_{+1}-E_0}{E_0} \text{ where}$$

$$P_{+1} = \left[\frac{[1-\theta][1-p]}{[1-\theta][1-p]+\left[\frac{p}{2}\right]}\right]E_0 + \left[\frac{\frac{p}{2}}{[1-\theta][1-p]+\left[\frac{p}{2}\right]}\right]E_h \tag{6}$$

$$R_0 = \frac{P_0-E_0}{E_0} \text{ where}$$

$$P_0 = \left[\frac{\theta[1-p]}{\theta[1-p]+[1-\theta]\left[\frac{p}{2}\right]}\right]E_0 + \left[\frac{[1-\theta]\left[\frac{p}{2}\right]}{\theta[1-p]+[1-\theta]\left[\frac{p}{2}\right]}\right]E_l \tag{7}$$

and

$$R_{-1} = \frac{E_l-E_0}{E_0}$$

Proof: Consider first the case in which the market observes D_{+1}. It knows that there are two possibilities: either the manager is rational and saw $S = +1$, or the manager is optimistic and saw $S = +1$ or $S = 0$. In the first case, the true posterior earnings mean is E_h and in the second case, it could be either E_h or E_0. Thus, the true value of the stock is either E_0 or E_h. The probability it is E_0 is given by:

$$\begin{aligned}\Pr(true\ value\ is\ E_0) &= Pr(manager\ is\ optimistic\ and\ saw\ S=0)\\ &= [1-\theta][1-p]\end{aligned}$$

$$\begin{aligned}\Pr(true\ value\ is\ E_h) &= Pr(manager\ is\ rational\ and\ saw\ S=+1)\\ &\quad + Pr(manager\ is\ optimistic\ and\ saw\ S=+1)\\ &= \frac{\theta p}{2} + \frac{[1-\theta]p}{2} = \frac{p}{2}\end{aligned}$$

Thus,

$$Pr(true\ value\ is\ E_0|D_{+1}) = \frac{[1-\theta][1-p]}{[1-\theta][1-p]+\left[\frac{p}{2}\right]} \tag{8}$$

$$Pr(true\ value\ is\ E_h|D_{+1}) = \frac{\frac{p}{2}}{[1-\theta][1-p]+\left[\frac{p}{2}\right]} \tag{9}$$

Combining (8) and (9) yields (6).

Now suppose the market observes D_0. Then it is known this is either because the manager is rational and saw $S = 0$ or because she is optimistic and saw $S = -1$ but interpreted it as $S = 0$. Proceeding as before, we see that

$$Pr(manager\ is\ rational\ and\ saw\ S = 0) = \theta[1 - p]$$
$$Pr(manager\ is\ optimistic\ and\ saw\ S = -1) = [1 - \theta]\left[\frac{p}{2}\right]$$

Thus,

$$Pr(true\ value\ is\ E_0|D_0) = \frac{\theta[1-p]}{\theta[1-p]+[1-\theta]\left[\frac{p}{2}\right]} \quad (10)$$

$$Pr(true\ value\ is\ E_{-1}|D_0) = \frac{[1-\theta]\left[\frac{p}{2}\right]}{\theta[1-p]+[1-\theta]\left[\frac{p}{2}\right]} \quad (11)$$

Combining (10) and (11) yields (7). Q.E.D.

This lemma provides the expressions for the announcement returns corresponding to different dividend levels that will be useful in the analysis that follows. As explained earlier, if all firms look identical to investors in terms of their prior beliefs about future earnings, then there can be only one announcement effect associated with any dividend announcement, regardless of whether the manager is rational or optimistic.

A.3. Further Analysis for Extended Model

Now suppose there are two sets of firms that investors can distinguish between at $t = 0$. A fraction $\gamma \in (0,1)$ of the firms have a prior earnings mean of E_0, as described in the previous section. The remaining $1 - \gamma$ of the firms have a prior earnings mean of $\hat{E}_0 > E_0$. For the $\hat{E}_0$ firms, $\hat{E}_h > E_h$, but $\hat{E}_l = E_l$.[36] The signals and the conditional probability distributions of signals are the same for both sets of firms. Thus, $\hat{E}_0 = 0.5\hat{E}_h + 0.5\hat{E}_l > E_0$. Although investors can distinguish between E_0 and $\hat{E}_0$ firms based on their prior beliefs, as an empiricist I cannot observe these prior beliefs in the available data and thus will be unable to distinguish between E_0 and $\hat{E}_0$ firms directly.

Because the structure of the model is the same for the $\hat{E}_0$ firms as it is for the E_0 firms, we can write:

$$\hat{P}_{+1} = \alpha\hat{E}_0 + [1 - \alpha]\hat{E}_h \quad (12)$$

$$\hat{P}_0 = \beta\hat{E}_0 + [1 - \beta]\hat{E}_l \quad (13)$$

where $\alpha \equiv \frac{[1-\theta][1-p]}{[1-\theta][1-p]+\left[\frac{p}{2}\right]}$, $\beta \equiv \frac{\theta[1-p]}{\theta[1-p]+[1-\theta]\left[\frac{p}{2}\right]}$

[36] Assuming that $\hat{E}_l > E_l$ does nothing to alter the analysis, so $\hat{E}_l = E_l$ is assumed in order to simplify.

That is, (12) and (13) are similar to (6) and (7), respectively. Let the posterior means of earnings that a rational manager arrives at based on S be $\hat{E}_l$, $\hat{E}_0$ and $\hat{E}_h$. To bring out the intuition most clearly, assume $\hat{E}_0 = E_h$. This creates an "overlap" region in the valuations associated with the E_0 and $\hat{E}_0$ firms. In reality, priors about observationally different firms will lie in a continuum, so such overlap regions will always exist.

Now consider the optimistic managers of the $\hat{E}_0$ firms. When they receive a signal $S = +1$ or $S = 0$, they infer a posterior mean of $\hat{E}_h$ and choose $\hat{D}_{+1}$ as their dividend. When they receive a signal $S = -1$, they interpret it as $S = 0$ and infer a posterior mean of $\hat{E}_0$, so they choose a dividend of $\hat{D}_0 = D_{+1}$.

The stock market now observes the following dividend announcements**:** (i) $\hat{D}_{-1} = D_{-1} = \delta E_l$; (ii) $D_0 = \delta E_0$; (iii) $\hat{D}_0 = \delta \hat{E}_0 = \delta E_h = D_{+1}$; and (iv) $\hat{D}_{+1} = \delta \hat{E}_h$. That is, there is one more dividend level ($\hat{D}_{+1}$) to consider relative to the case in which only the E_0 firms exist. Let us consider each of these cases in turn:

Case (i): $\hat{D}_{-1} = D_{-1} = \delta E_l$

This case consists of only rational managers, some from E_0 firms and others from $\hat{E}_0$ firms. The dividend announcement return for the E_0 firms is given by Lemma 1 as:

$$R_{-1} = \frac{E_l - E_0}{E_0} < 0$$

Hence, rational managers of both E_0 and $\hat{E}_0$ firms experience negative returns for this dividend announcement. Since optimistic managers do not choose this dividend, no optimistic manager experiences this return.

Case (ii): $D_0 = \delta E_0$

Only the E_0 managers choose this dividend. The announcement return is given by

$$R_0 = \frac{P_0 - E_0}{E_0}$$

where P_0 is given by (7). This group consists of rational managers who observed $S = 0$ and optimistic managers who observed $S = -1$ but interpreted it as $S = 0$. But all optimistic managers experience the same announcement returns, and these are the same as those experienced by all the rational managers. Thus, there is no difference in the announcement returns across optimistic and rational managers.

Case (iii): $\widehat{D}_0 = \delta\widehat{E}_0 = \delta E_h = D_{+1}$

For this dividend level, among the rational managers there are E_0 firms' managers who observed $S = +1$ and experienced announcement returns of R_{+1} and there are also $\hat{E}_0$ firms' managers who observed $S = 0$ and experienced returns of $\frac{\hat{P}_0 - \hat{E}_0}{\hat{E}_0} = \hat{R}_0$. Among the optimistic managers announcing this dividend level, there are E_0 firms' managers who observed $S = +1$ or $S = 0$, as well as $\hat{E}_0$ firms' managers who observed $S = -1$ and interpreted it as $S = 0$.

Consider rational managers first. Within this group, we expect the probability of managers who are from E_0 firms and observed $S = +1$ to be $\frac{\gamma p}{2}$, and the probability of managers who are from $\hat{E}_0$ firms and have observed $S = 0$ to be $[1-\gamma][1-p]$. Thus, the E_0 managers represent a fraction $\omega_A = \frac{\left[\frac{\gamma p}{2}\right]}{\left[\frac{\gamma p}{2}\right]+[1-\gamma][1-p]}$ of the population of rational managers announcing $D_{+1} = \widehat{D}_0$ and the $\hat{E}_0$ managers represent a fraction $1 - \omega_A$ of this group.

Similarly, among the optimistic managers announcing this dividend level, we expect the probability of those from E_0 firms who observed $S = +1$ to be $\frac{\gamma p}{2}$, the probability of those who are from E_0 firms and observed $S = 0$ to be $\gamma[1-p]$, and the probability of those who are from $\hat{E}_0$ firms and observed $S = -1$ to be $[1-\gamma]\left[\frac{p}{2}\right]$. Thus, the relative fractions of these managers among the optimistic managers are: ω_B (those from E_0 firms who observe $S = +1$ or $S = 0$) $= \frac{\left[\frac{\gamma p}{2}\right]+\gamma[1-p]}{\gamma\left[1-\left(\frac{p}{2}\right)\right]+[1-\gamma]\left[\frac{p}{2}\right]}$, and $1 - \omega_B$ (those from $\hat{E}_0$ firms who observed $S = -1$) $= \frac{[1-\gamma]\left[\frac{p}{2}\right]}{\gamma\left[1-\left(\frac{p}{2}\right)\right]+[1-\gamma]\left[\frac{p}{2}\right]}$.

The weighted average announcement returns for the rational managers announcing this dividend level is:

$$\omega_A R_{+1} + [1-\omega_A]\hat{R}_0 \tag{14}$$

The weighted average announcement returns for the optimistic managers announcing this dividend level is:

$$\omega_B R_{+1} + [1-\omega_B]\hat{R}_0 \tag{15}$$

The question of which weighted average announcement return is higher therefore comes down to a comparison of ω_A and ω_B, since $R_{+1} > 0$ and $\hat{R}_0 < 0$.

Case (iv): $\widehat{\mathbf{D}}_{+1} = \delta\hat{\mathbf{E}}_{\mathbf{h}}$

This dividend level involves only $\hat{E}_0$ firms. There are rational managers who have observed $S = +1$ and optimistic managers who have observed either $S = +1$ or $S = 0$. Announcement returns for rational

managers are the same as those for optimistic managers, and the analysis is the same as that when we have only E_0 firms announcing D_{+1}.

This discussion leads to the following result.

Proposition 1: If investors have priors about firms' future earnings described by E_0 and $\hat{E}_0$ for *any* given dividend announcement, the announcement returns for optimistic managers either exceed or are no less than the announcement returns for rational managers.

Proof: The only case that needs to be analyzed is case (iii). It is easy to verify that $\omega_B > \omega_A$, which implies that the expression in (15) exceeds the expression in (14). For all the other cases, the optimistic manager either experiences the same announcement returns as the rational manager (cases (ii) and (iv)) or a higher return (in case (i) where the optimistic manager is absent while the rational manager experiences a negative return). Q.E.D.

The intuition behind this proposition is as follows. In Section A.2, investors had the same priors about future earnings at all firms, so announcement returns were the same for rational and optimistic managers. In this section, investors have different priors about future earnings. Since investors know that there is a non-zero probability of the manager being optimistic, the announced dividend conveys information to the market about both the firm's future earnings and the manager's type (rational or optimistic). There are four dividend levels examined in the analysis leading up to this proposition.

In case (i), investors recognize that the dividend announcement could come only from rational managers and react accordingly. The reaction reflects only the information about future earnings contained in the dividend announcement.

In case (ii), investors recognize that the dividend announcement could have come from either the rational or the optimistic manager. So, even though the dividend announcement is "neutral" – an announcement a rational manager would choose when future earnings are expected to equal investors' prior beliefs – there is a negative stock price reaction. This is caused by investors being aware of the possible presence of optimistic managers in this group whose private signal is actually negative. There is, however,

no difference between the announcement returns experienced by rational and optimistic managers in this case.

Case (iii) is the most interesting in that both rational and optimistic managers make this dividend announcement and the stock price reactions differ based on whether the announcement came from a rational or an optimistic manager. The intuition for this result in case (iii) is as follows. Within the group of rational managers as well as within the group of optimistic managers, there are those from firms where earnings priors were E_0 and there are those from firms where earnings priors were $\hat{E}_0 > E_0$. Because the optimistic manager overestimates future earnings, the fractional representation of managers from the E_0 group is higher for the optimistic managers than for the rational managers. This is because in the case of the optimistic managers announcing this dividend change, there are E_0 firms' managers who observed $S = +1$ or $S = 0$, whereas in the case of the rational managers announcing this dividend change, there are only those managers from E_0 firms who observed $S = +1$. Consequently, there is a larger proportion of managers from E_0 firms in the case of optimistic managers than in the case of rational managers. Since both types announce the same dividend and investors' prior beliefs about earnings are lower for E_0 firms (recall: $E_0 < \hat{E}_0$), the dividend of optimistic managers constitutes a bigger positive surprise to the market and hence the announcement returns are higher for these managers.

In case (iv), the dividend announcement involves only $\hat{E}_0$ firms. As a result, the announcement returns are identical across rational and optimistic managers.

Proposition 1 follows from these observations. The announcement returns for optimistic managers *at any given dividend level* are either the same as or greater than the announcement returns for rational managers at that dividend level.[37] Note that the size of the firm's *past* dividend and earnings are both common knowledge and thus irrelevant to the analysis, so nothing is lost by normalizing them to zero.[38] Hence, the dividends and earnings in the model can be interpreted as dividend *changes* and earnings *changes*.

[37] Given the fact that as an empiricist I cannot observe the market's prior beliefs (E_0 and $\hat{E}_0$), this is the cleanest way to generate a testable prediction about the differences in announcements across rational and optimistic managers.

[38] If one wants to consider past earnings and dividends, then the dividends discussed in the four cases in this section will have constants added to them to represent past dividends. This has no effect on the analysis.

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Table 1: Summary Statistics

This table shows various summary statistics for the samples used in the regressions: Longholder Sample, Pre-/Post-Longholder Sample, and the Holder 67 Sample. Panel A shows the number of firms and the number of CEOs for each sample. Panel B contains summary statistics for each sample. Panel C displays CEO and dividend change summary statistics for each sample. In the Longholder Sample, a CEO is classified as optimistic (for all of her years in the sample) if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. In the Pre-/Post-Longholder Sample, a CEO is classified as a Post-Longholder (Pre-Longholder) for the years after (up until) she has held options that are at least 40% in the money until the year of expiration for the first time. In the Holder 67 (150) Sample, a CEO is classified as optimistic from the year after she fails to exercise an option with five years remaining duration that is at least 67% (150%) in the money. This sample only includes CEO-years of CEOs who had options that were at least 67% (150%) in the money at some point during year five.

CAR is the three-day cumulative abnormal return. *deltaDIV* is the change in the split-adjusted quarterly dividend divided by last quarter's split-adjusted quarterly dividend. *PAYOUT* is the annual dividend payment divided by net income before extraordinary items. *EARNGROW* is earnings growth divided by last year's book equity. *EARNVOL* is the standard deviation of the regression residuals from a regression of five years of quarterly earnings on last quarter's earnings and three quarterly dummy variables, divided by average total assets. *BOOKLEV* is total debt divided by total assets. *TOBINQ* is the market value of assets divided by the book value of assets. *LNASSETS* is the log of total assets. *CASHFLOW* is cash flow divided by total assets. *CASH* is cash divided by total assets. *DIVYIELD* is the annual dividend payment divided by the fiscal year-end stock price. *AGE* is CEO age. *YRSASCEO* is the number of years the CEO has been the CEO of the firm. *YRSEMPLD* is the number of years the CEO has been employed in the firm. *PCTOWN* is the fraction of company stock owned by the CEO and her family at the beginning of the year. *PCTVESTOPT* is the number of options exercisable within 60 days from the start of the year (multiplied by 10) divided by the number of shares outstanding. The suffix "*indadj*" indicates that a variable was industry-adjusted by taking the difference between the actual value of the control variable and the median value of all firms with the same 2-digit SIC code.

Panel A: Number of Firms and Number of CEOs

	Longholder Sample*	**Holder 67 Sample**	**Holder 150 Sample**
Number of firms	328	178	155
Number of CEOs	599	211	177

Panel B: Sample Summary Statistics

	Longholder Sample*			**Holder 67 Sample**			**Holder 150 Sample**		
	Obs	**Mean**	**Median**	**Obs**	**Mean**	**Median**	**Obs**	**Mean**	**Median**
CAR (Equal-Weighted)	2364	0.47%	0.30%	728	0.34%	0.19%	658	0.36%	0.26%
CAR (Value-Weighted)	2364	0.51%	0.34%	728	0.42%	0.27%	658	0.43%	0.35%
deltaDIV	2364	14.9%	11.1%	728	13.8%	10.7%	658	13.5%	10.7%
PAYOUT	2364	2.5%	2.1%	728	2.4%	2.2%	658	2.3%	2.2%
PAYOUTindadj	2362	39.8%	33.4%	728	40.7%	33.8%	658	41.4%	33.6%
EARNGROW	2364	18.4%	11.8%	728	23.3%	17.9%	658	23.6%	17.9%
EARNVOL	2201	0.43%	0.25%	713	0.43%	0.23%	644	0.43%	0.23%
BOOKLEV	2357	20.4%	18.5%	726	20.2%	18.5%	656	20.2%	18.3%
BOOKLEVindadj	2364	-0.46%	-0.45%	728	0.93%	0.58%	658	0.75%	0.33%
TOBINQ	2364	1.41	1.07	728	1.48	1.15	658	1.50	1.16
TOBINQindadj	2364	0.31	0.04	728	0.33	0.05	658	0.34	0.06
LNASSETS	2364	8.08	8.05	728	8.30	8.26	658	8.26	8.23
CASHFLOW	2356	9.67%	9.79%	728	9.34%	9.75%	658	9.54%	9.84%
CASHFLOWindadj	2364	2.97%	1.17%	728	2.84%	1.00%	658	3.03%	1.11%
CASH	2357	9.68%	6.32%	726	8.94%	6.44%	656	9.11%	6.71%
CASHindadj	2364	1.82%	0.00%	728	0.85%	-0.35%	658	0.93%	-0.29%
DIVYIELD	2361	3.68%	3.26%	728	3.12%	2.93%	658	3.14%	2.96%
DIVYIELDindadj	2364	1.05%	0.98%	728	1.17%	1.17%	658	1.12%	1.13%

* The Longholder Sample is identical to the Pre-/Post-Longholder Sample and therefore not shown separately.

Table 1: Summary Statistics – continued

Panel C: CEO and Dividend Change Summary Statistics

	Longholder Sample			Holder 67 Sample			Holder 150 Sample		
	Obs	**Mean**	**Median**	**Obs**	**Mean**	**Median**	**Obs**	**Mean**	**Median**
All CEOs:									
deltaDIV	2364	14.9%	11.1%	728	13.8%	10.7%	658	13.5%	10.7%
AGE	2361	57.9	58.0	728	60.3	60.0	658	60.4	60.5
YRSASCEO	2341	8.4	6.0	721	12.3	11.0	651	12.6	11.0
YRSEMPLD	2312	24.9	26.0	712	27.5	29.0	642	27.4	29.0
PCTOWN	2350	1.67%	0.15%	726	1.14%	0.23%	656	1.23%	0.25%
PCTVESTOPT	2173	1.72%	0.58%	680	3.10%	1.53%	610	3.21%	1.54%
Optimistic CEOs:									
deltaDIV	489	13.2%	10.7%	667	13.4%	10.5%	606	13.2%	10.5%
AGE	489	58.4	59.0	667	60.3	60.0	606	60.5	60.0
YRSASCEO	476	10.8	10.0	660	12.6	11.0	599	12.9	12.0
YRSEMPLD	463	26.0	27.0	651	27.5	29.0	590	27.7	30.0
PCTOWN	487	1.32%	0.24%	665	1.21%	0.24%	604	1.30%	0.26%
PCTVESTOPT	445	3.33%	1.42%	621	3.28%	1.57%	560	3.39%	1.59%
Longholders split into:									
Pre-Longholders:									
deltaDIV	253	13.0%	11.1%						
AGE	242	7.6	6.0						
YRSASCEO	234	23.5	24.5						
YRSEMPLD	233	24.1	25.0						
PCTOWN	251	1.31%	0.16%						
PCTVESTOPT	218	2.50%	1.03%						
Post-Longholders:									
deltaDIV	236	13.5%	10.0%						
AGE	236	60.8	61.0						
YRSASCEO	234	14.2	13.5						
YRSEMPLD	229	28.5	30.0						
PCTOWN	236	1.34%	0.33%						
PCTVESTOPT	227	4.12%	1.85%						

Table 2: CARs of Dividend Increases Announced by Optimistic and Rational CEOs

This table contains results of OLS regressions of CARs, measured over a three-day window around the day on which the firm announces a dividend increase, on optimism and a core set of control variables. Results are shown for CARs calculated using the CRSP equal-weighted index. (Results are similar using the value-weighted index.) The results show that CARs are significantly higher when optimistic managers announce a dividend change than when rational managers announce a similar-sized dividend change.

In Panel A, a CEO is classified as optimistic, a Longholder, for all of her years in the sample if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. In Panel B, a CEO is classified as a Post-Longholder (Pre-Longholder) for the years after (up until) she has held options that are at least 40% in the money until the year of expiration for the first time. In Panels C and D, a CEO is classified as optimistic from the year after she fails to exercise an option with five years remaining duration that is at least 67% (150%) in the money. This sample only includes CEO-years of CEOs who had options that were at least 67% (150%) in the money at some point during year five.

deltaDIV is the change in quarterly dividends divided by last quarter's quarterly dividends. *PAYOUT* is the annual dividend divided by net income before extraordinary items. *EARNGROW* is earnings growth divided by last year's book equity. *EARNVOL* is the standard deviation of regression residuals (from regressing quarterly earnings on last quarter's earnings and quarterly dummy variables) divided by average total assets. *BOOKLEV* is total debt divided by total assets. *TOBINQ* is the market value of assets divided by the book value of assets. *LNASSETS* is the log of total assets. *CASHFLOW* and *CASH* are cash flow and cash divided by total assets, respectively. *DIVYIELD* is the annual dividend payment divided by the fiscal year-end stock price. "*indadj*" indicates that a variable was industry-adjusted by deducting the median value of all firms with the same 2-digit SIC code. All regressions include a constant, year and firm fixed effects.

t-statistics based on robust standard errors clustered by firm are in parentheses. Superscripts a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

	A: Longholder Sample		**B: Pre-/Post-Longholder Sample**		**C: Holder 67 Sample**		**D: Holder 150 Sample**	
	(i)	***(ii)***	***(i)***	***(ii)***	***(i)***	***(ii)***	***(i)***	***(ii)***
LONGHOLDER	0.008	0.008						
	(2.24)[b]	*(2.13)*[b]						
PRE-LONGHOLDER			0.007	0.007				
			(1.89)[c]	*(1.83)*[c]				
POST-LONGHOLDER			0.008	0.008				
			(2.03)[b]	*(1.91)*[c]				
HOLDER 67					0.013	0.011		
					(1.59)	*(1.19)*		
HOLDER 150							0.017	0.016
							(2.51)[b]	*(2.15)*[b]
deltaDIV	0.010	0.019	0.010	0.019	0.035	0.037	0.030	0.033
	(1.79)[c]	*(1.97)*[b]	*(1.79)*[c]	*(1.97)*[b]	*(1.03)*	*(1.07)*	*(0.80)*	*(0.87)*
PAYOUTindadj		-0.003		-0.003		-0.002		-0.001
		(-3.14)[a]		*(-3.14)*[a]		*(-0.90)*		*(-0.54)*
EARNGROW		-0.021		-0.021		-0.006		-0.007
		(-1.28)		*(-1.27)*		*(-0.21)*		*(-0.22)*
EARNVOL		0.235		0.236		0.036		-0.133
		(1.09)		*(1.10)*		*(0.09)*		*(-0.28)*
BOOKLEVindadj		-0.002		-0.002		0.044		0.054
		(-0.14)		*(-0.14)*		*(1.86)*[c]		*(2.35)*[b]
TOBINQindadj		-0.002		-0.002		0.000		0.000
		(-1.11)		*(-1.12)*		*(0.05)*		*(0.08)*
LNASSETS		-0.003		-0.003		-0.007		-0.008
		(-1.04)		*(-1.04)*		*(-1.13)*		*(-1.28)*
CASHFLOWindadj		-0.043		-0.043		-0.080		-0.041
		(-1.74)[c]		*(-1.74)*[c]		*(-1.28)*		*(-0.63)*
CASHindadj		-0.029		-0.029		-0.012		-0.016
		(-1.79)[c]		*(-1.79)*[c]		*(-0.33)*		*(-0.42)*
DIVYIELDindadj		0.159		0.159		0.158		0.143
		(1.76)[c]		*(1.75)*[c]		*(0.73)*		*(0.62)*
Year & Firm Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2363	2200	2363	2200	728	713	658	644
Adjusted R2	0.16	0.17	0.16	0.17	0.26	0.27	0.27	0.27

Table 3: CARs Controlling for Differences in Asymmetric Information

This table contains results of OLS regressions of CARs, measured over a three-day window around the day on which the firm announces a dividend increase, on optimism and control variables that include controls for differences in asymmetric information. Results are shown for CARs calculated using the CRSP equal-weighted index. (Results are similar using the value-weighted index.) The results show that CARs are significantly higher when optimistic managers announce a dividend change than when rational managers announce a similar-sized dividend change even after controlling for differences in asymmetric information.

In Panel A, a CEO is classified as optimistic, a Longholder, for all of her years in the sample if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. In Panel B, a CEO is classified as a Post-Longholder (Pre-Longholder) for the years after (up until) she has held options that are at least 40% in the money until the year of expiration for the first time. In Panels C and D, a CEO is classified as optimistic from the year after she fails to exercise an option with five years remaining duration that is at least 67% (150%) in the money. This sample only includes CEO-years of CEOs who had options that were at least 67% (150%) in the money at some point during year five.

deltaDIV is the change in quarterly dividends divided by last quarter's quarterly dividends. *PAYOUT* is the annual dividend divided by net income before extraordinary items. *EARNGROW* is earnings growth divided by last year's book equity. *EARNVOL* is the standard deviation of regression residuals (from regressing quarterly earnings on last quarter's earnings and quarterly dummy variables) divided by average total assets. *BOOKLEV* is total debt divided by total assets. *TOBINQ* is the market value of assets divided by the book value of assets. *LNASSETS* is the log of total assets. *CASHFLOW* and *CASH* are cash flow and cash divided by total assets, respectively. *DIVYIELD* is the annual dividend payment divided by the fiscal year-end stock price. *PSI* measures firm-specific return variation. "*indadj*" indicates that a variable was industry-adjusted by deducting the median value of all firms with the same 2-digit SIC code. *DRATING* is a dummy that equals one if the firm has a bond rating and 0 otherwise. "*indadj*" indicates that a variable was industry-adjusted by deducting the median value of all firms with the same 2-digit SIC code. All regressions include a constant, year and firm fixed effects. Regressions that include *DRATING* are based on data from 1980, 1987, and 1994 only.

t-statistics based on robust standard errors clustered by firm are in parentheses. Superscripts a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

	A: Longholder Sample		**B: Pre-/Post-Longholder Sample**		**C: Holder 67 Sample**		**D: Holder 150 Sample**	
	(i)	***(ii)***	***(i)***	***(ii)***	***(i)***	***(ii)***	***(i)***	***(ii)***
LONGHOLDER	0.008	0.009						
	(2.16)[b]	*(2.25)*[b]						
PRE-LONGHOLDER			0.007	0.013				
			(1.84)[c]	*(2.54)*[b]				
POST-LONGHOLDER			0.008	0.004				
			(1.94)[c]	*(0.75)*				
HOLDER 67					0.011	0.009		
					(1.18)	*(0.66)*		
HOLDER 150							0.016	0.006
							(2.15)[b]	*(0.43)*
deltaDIV	0.019	0.044	0.019	0.044	0.037	0.067	0.033	0.066
	(1.96)[c]	*(3.65)*[a]	*(1.96)*[c]	*(3.66)*[a]	*(1.08)*	*(2.64)*[a]	*(0.87)*	*(2.23)*[b]
PAYOUTindadj	-0.003	-0.008	-0.003	-0.008	-0.001	-0.009	-0.001	-0.009
	(-3.00)[a]	*(-2.24)*[b]	*(-3.00)*[a]	*(-2.26)*[b]	*(-0.80)*	*(-1.55)*	*(-0.46)*	*(-1.51)*
EARNGROW	-0.021	-0.058	-0.021	-0.058	-0.006	-0.129	-0.007	-0.126
	(-1.26)	*(-1.75)*[c]	*(-1.25)*	*(-1.76)*[c]	*(-0.20)*	*(-1.53)*	*(-0.23)*	*(-1.34)*
EARNVOL	0.235	0.328	0.237	0.327	0.028	-0.075	-0.137	-0.181
	(1.09)	*(1.03)*	*(1.11)*	*(1.03)*	*(0.07)*	*(-0.10)*	*(-0.29)*	*(-0.21)*
BOOKLEVindadj	-0.001	-0.024	-0.001	-0.024	0.045	-0.005	0.055	-0.003
	(-0.10)	*(-1.48)*	*(-0.10)*	*(-1.52)*	*(1.88)*[c]	*(-0.16)*	*(2.36)*[b]	*(-0.08)*
TOBINQindadj	-0.003	0.002	-0.003	0.002	0.000	0.007	0.000	0.008
	(-1.14)	*(0.55)*	*(-1.16)*	*(0.53)*	*(0.05)*	*(0.62)*	*(0.08)*	*(0.65)*
LNASSETS	-0.003	-0.001	-0.003	-0.001	-0.007	-0.002	-0.009	-0.003
	(-1.10)	*(-1.02)*	*(-1.10)*	*(-0.99)*	*(-1.14)*	*(-0.69)*	*(-1.28)*	*(-0.98)*
CASHFLOWindadj	-0.042	-0.051	-0.042	-0.052	-0.082	-0.050	-0.042	-0.059
	(-1.69)[c]	*(-1.10)*	*(-1.68)*[c]	*(-1.11)*	*(-1.29)*	*(-0.45)*	*(-0.64)*	*(-0.48)*
CASHindadj	-0.028	-0.007	-0.028	-0.008	-0.012	0.028	-0.017	0.013
	(-1.73)[c]	*(-0.36)*	*(-1.73)*[c]	*(-0.44)*	*(-0.34)*	*(0.57)*	*(-0.43)*	*(0.23)*
DIVYIELDindadj	0.159	0.264	0.158	0.263	0.159	0.228	0.143	0.226
	(1.75)[c]	*(2.91)*[a]	*(1.74)*[c]	*(2.91)*[a]	*(0.73)*	*(0.93)*	*(0.62)*	*(0.83)*
PSI	-0.001		-0.001		-0.001		-0.001	
	(-1.22)		*(-1.23)*		*(-0.44)*		*(-0.45)*	
DRATING		0.001		0.001		-0.003		-0.005
		(0.43)		*(0.41)*		*(-0.38)*		*(-0.60)*
Year & Firm Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2179	507	2179	507	713	129	644	113
Adjusted R2	0.17	0.07	0.17	0.07	0.27	0.01	0.27	0.01

Table 4: CARs Controlling for Differences in Agency Problems

This table contains results of OLS regressions of CARs, measured over a three-day window around the day on which the firm announces a dividend increase, on optimism and control variables that include controls for potential agency problems. Results are shown for CARs calculated using the CRSP equal-weighted index. (Results are similar using the value-weighted index.) The results show that CARs are significantly higher when optimistic managers announce a dividend change than when rational managers announce a similar-sized dividend change even after controlling for differences in agency problems.

In Panel A, a CEO is classified as optimistic, a Longholder, for all of her years in the sample if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. In Panel B, a CEO is classified as a Post-Longholder (Pre-Longholder) for the years after (up until) she has held options that are at least 40% in the money until the year of expiration for the first time. In Panels C and D, a CEO is classified as optimistic from the year after she fails to exercise an option with five years remaining duration that is at least 67% (150%) in the money. This sample only includes CEO-years of CEOs who had options that were at least 67% (150%) in the money at some point during year five.

deltaDIV is the change in quarterly dividends divided by last quarter's dividend. *PAYOUT* is the annual dividend divided by net income before extraordinary items. *EARNGROW* is earnings growth divided by last year's book equity. *EARNVOL* is the standard deviation of regression residuals (from regressing quarterly earnings on last quarter's earnings and quarterly dummy variables) divided by average total assets. *BOOKLEV* is total debt divided by total assets. *TOBINQ* is the market value of assets divided by the book value of assets. *LNASSETS* is the log of total assets. *CASHFLOW* and *CASH* are cash flow and cash divided by total assets, respectively. *DIVYIELD* is the annual dividend payment divided by the fiscal year-end stock price. *PCTOWN* is the fraction of company stock owned by the CEO and her family at the beginning of the year. *PCTVESTOPT* is the CEO's holdings of options exercisable within 60 days from the start of the year (multiplied by 10) divided by the number of shares outstanding. *RETEARN_CS* is retained earnings as a fraction of common stock. *BOARDSIZE* is the number of directors. *CEOCHAIR* is a dummy that equals 1 if the CEO is also the chairman of the board and 0 otherwise. *ROE* is return on equity, net income divided by the book value of equity. "*indadj*" indicates that a variable was industry-adjusted by deducting the median value of all firms with the same 2-digit SIC code. All regressions include a constant, year and firm fixed effects.

t-statistics based on robust standard errors clustered by firm are in parentheses. Superscripts a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

	A: Longholder Sample				B: Pre-/Post-Longholder Sample			
	(i)	***(ii)***	***(iii)***	***(iv)***	***(i)***	***(ii)***	***(iii)***	***(iv)***
LONGHOLDER	0.008	0.007	0.007	0.008				
	(2.24)[b]	*(2.09)*[b]	*(2.07)*[b]	*(2.15)*[b]				
PRE-LONGHOLDER					0.008	0.007	0.007	0.007
					(2.08)[b]	*(1.78)*[c]	*(1.78)*[c]	*(1.84)*[c]
POST-LONGHOLDER					0.008	0.008	0.008	0.008
					(1.84)[c]	*(1.89)*[c]	*(1.86)*[c]	*(1.94)*[c]
deltaDIV	0.021	0.020	0.020	0.019	0.021	0.020	0.020	0.019
	(2.06)[b]	*(2.00)*[b]	*(1.99)*[b]	*(1.92)*[c]	*(2.06)*[b]	*(2.00)*[b]	*(1.99)*[b]	*(1.92)*[c]
PAYOUTindadj	-0.004	-0.003	-0.003	-0.003	-0.004	-0.003	-0.003	-0.003
	(-3.21)[a]	*(-3.11)*[a]	*(-3.12)*[a]	*(-3.19)*[a]	*(-3.21)*[a]	*(-3.11)*[a]	*(-3.13)*[a]	*(-3.20)*[a]
EARNGROW	-0.018	-0.020	-0.020	-0.022	-0.018	-0.020	-0.020	-0.022
	(-1.07)	*(-1.23)*	*(-1.22)*	*(-1.34)*	*(-1.07)*	*(-1.23)*	*(-1.22)*	*(-1.34)*
EARNVOL	0.336	0.245	0.223	0.197	0.336	0.247	0.225	0.199
	(1.67)[c]	*(1.11)*	*(1.03)*	*(0.90)*	*(1.66)*[c]	*(1.12)*	*(1.04)*	*(0.91)*
BOOKLEVindadj	0.002	-0.003	-0.003	-0.003	0.002	-0.003	-0.003	-0.003
	(0.17)	*(-0.24)*	*(-0.22)*	*(-0.21)*	*(0.17)*	*(-0.23)*	*(-0.21)*	*(-0.21)*
TOBINQindadj	-0.004	-0.003	-0.002	-0.003	-0.004	-0.003	-0.002	-0.003
	(-1.69)[c]	*(-1.21)*	*(-0.97)*	*(-1.34)*	*(-1.69)*[c]	*(-1.23)*	*(-0.98)*	*(-1.36)*
LNASSETS	-0.004	-0.003	-0.002	-0.003	-0.004	-0.003	-0.002	-0.003
	(-1.37)	*(-0.98)*	*(-0.84)*	*(-0.99)*	*(-1.37)*	*(-0.98)*	*(-0.84)*	*(-0.99)*
CASHFLOWindadj	-0.049	-0.044	-0.046	-0.047	-0.049	-0.044	-0.046	-0.047
	(-1.79)[c]	*(-1.77)*[c]	*(-1.85)*[c]	*(-1.87)*[c]	*(-1.79)*[c]	*(-1.76)*[c]	*(-1.84)*[c]	*(-1.87)*[c]
CASHindadj	-0.011	-0.029	-0.032	-0.029	-0.011	-0.029	-0.032	-0.029
	(-0.68)	*(-1.80)*[c]	*(-2.00)*[b]	*(-1.84)*[c]	*(-0.67)*	*(-1.80)*[c]	*(-2.00)*[b]	*(-1.85)*[c]
DIVYIELDindadj	0.178	0.155	0.167	0.167	0.178	0.155	0.167	0.167
	(1.83)[c]	*(1.72)*[c]	*(1.86)*[c]	*(1.83)*[c]	*(1.83)*[c]	*(1.72)*[c]	*(1.86)*[c]	*(1.82)*[c]
PCTOWN	0.034				0.034			
	(1.15)				*(1.15)*			
PCTVESTOPT	0.000				0.000			
	(0.02)				*(0.02)*			
RETEARN_CS		0.004				0.004		
		(0.72)				*(0.72)*		
BOARDSIZE			-0.028				-0.028	
			(-1.00)				*(-1.00)*	
CEOCHAIR			-0.001				-0.001	
			(-0.71)				*(-0.70)*	
ROE				0.018				0.018
				(1.18)				*(1.19)*
Year & Firm Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2025	2199	2175	2200	2025	2199	2175	2200
Adjusted R2	0.18	0.17	0.17	0.17	0.18	0.17	0.17	0.17

	C: Holder 67 Sample				D: Holder 150 Sample			
	(i)	***(ii)***	***(iii)***	***(iv)***	***(i)***	***(ii)***	***(iii)***	***(iv)***
HOLDER 67	0.008	0.013	0.009	0.011				
	(0.83)	*(1.51)*	*(1.06)*	*(1.30)*				
HOLDER 150					0.018	0.017	0.015	0.016
					(1.95)[c]	*(2.63)*[a]	*(2.04)*[b]	*(2.20)*[b]
deltaDIV	0.056	0.041	0.039	0.037	0.051	0.037	0.035	0.033
	(1.49)	*(1.18)*	*(1.11)*	*(1.07)*	*(1.21)*	*(0.97)*	*(0.89)*	*(0.86)*
PAYOUTindadj	-0.019	-0.011	-0.004	-0.007	-0.020	-0.013	-0.005	-0.003
	(-0.65)	*(-0.38)*	*(-0.15)*	*(-0.24)*	*(-0.63)*	*(-0.42)*	*(-0.18)*	*(-0.10)*
EARNGROW	-0.002	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001	-0.001
	(-1.09)	*(-0.98)*	*(-1.09)*	*(-0.97)*	*(-0.66)*	*(-0.65)*	*(-0.63)*	*(-0.70)*
EARNVOL	0.182	0.140	0.038	-0.003	0.004	-0.035	-0.124	-0.153
	(0.44)	*(0.32)*	*(0.09)*	*(-0.01)*	*(0.01)*	*(-0.07)*	*(-0.26)*	*(-0.31)*
BOOKLEVindadj	0.043	0.036	0.048	0.044	0.052	0.048	0.056	0.053
	(1.58)	*(1.54)*	*(2.08)*[b]	*(1.85)*[c]	*(1.95)*[c]	*(2.09)*[b]	*(2.43)*[b]	*(2.34)*[b]
TOBINQindadj	-0.001	-0.001	-0.001	-0.001	-0.001	-0.002	-0.001	0.000
	(-0.18)	*(-0.33)*	*(-0.19)*	*(-0.29)*	*(-0.12)*	*(-0.37)*	*(-0.17)*	*(0.05)*
LNASSETS	-0.002	-0.004	-0.008	-0.007	-0.004	-0.005	-0.009	-0.008
	(-0.31)	*(-0.68)*	*(-1.31)*	*(-1.16)*	*(-0.51)*	*(-0.83)*	*(-1.37)*	*(-1.30)*
CASHFLOWindadj	-0.060	-0.067	-0.080	-0.078	-0.022	-0.026	-0.039	-0.021
	(-0.92)	*(-1.01)*	*(-1.28)*	*(-1.25)*	*(-0.32)*	*(-0.38)*	*(-0.61)*	*(-0.27)*
CASHindadj	-0.009	-0.001	-0.005	-0.013	-0.009	-0.006	-0.013	-0.016
	(-0.22)	*(-0.03)*	*(-0.14)*	*(-0.36)*	*(-0.20)*	*(-0.14)*	*(-0.32)*	*(-0.42)*
DIVYIELDindadj	0.205	0.125	0.147	0.164	0.178	0.113	0.139	0.144
	(0.88)	*(0.61)*	*(0.68)*	*(0.76)*	*(0.71)*	*(0.51)*	*(0.61)*	*(0.62)*
PCTOWN	0.093				0.091			
	(4.63)[a]				*(4.31)*[a]			
PCTVESTOPT	-0.004				-0.005			
	(-0.21)				*(-0.27)*			
RETEARN_CS		0.027				0.026		
		(1.84)[c]				*(1.79)*[c]		
BOARDSIZE			0.083				0.040	
			(1.33)				*(0.46)*	
CEOCHAIR			-0.004				-0.004	
			(-1.02)				*(-0.90)*	
ROE				0.023				-0.045
				(0.69)				*(-0.45)*
Year & Firm Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	666	713	713	713	597	644	644	644
Adjusted R2	0.28	0.27	0.27	0.27	0.28	0.28	0.27	0.27

Table 5: Are Free Cash Flow Problems Bigger at Firms led by Optimists?

This table examines whether free cash flow problems are bigger at firms led by optimistic managers, not because agency problems are worse a priori but because optimists make poorer decisions than rational managers. Panel I shows the difference in mean industry-adjusted cash flow (*CASHFLOWindadj*) and cash (*CASHindadj*). Panel II contains results of OLS regressions of CARs, measured over a three-day window around the day on which the firm announces a dividend increase, on optimism and control variables that include orthogonalized free cash flow proxies. Results are shown for CARs calculated using the CRSP equal-weighted index. (Results are similar using the value-weighted index.) The results continue to show that CARs are significantly higher when optimistic managers announce a dividend change than when rational managers announce a similar-sized dividend change.

In Panels I.A and II.A, a CEO is classified as optimistic, a Longholder, for all of her years in the sample if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. In Panels I.B and II.B, a CEO is classified as a Post-Longholder (Pre-Longholder) for the years after (up until) she has held options that are at least 40% in the money until the year of expiration for the first time. In Panels I.C, II.C, I.D and II.D, a CEO is classified as optimistic from the year after she fails to exercise an option with five years remaining duration that is at least 67% (150%) in the money. This sample only includes CEO-years of CEOs who had options that were at least 67% (150%) in the money at some point during year five.

deltaDIV is the change in quarterly dividends divided by last quarter's dividend. *PAYOUT* is the annual dividend divided by net income before extraordinary items. *EARNGROW* is earnings growth divided by last year's book equity. *EARNVOL* is the standard deviation of regression residuals (from regressing quarterly earnings on last quarter's earnings and quarterly dummy variables) divided by average total assets. *BOOKLEV* is total debt divided by total assets. *TOBINQ* is the market value of assets divided by the book value of assets. *LNASSETS* is the log of total assets. *CASHFLOW* and *CASH* are cash flow and cash divided by total assets, respectively. *DIVYIELD* is the annual dividend payment divided by the fiscal year-end stock price. "*indadj*" indicates that a variable was industry-adjusted by deducting the median value of all firms with the same 2-digit SIC code. All regressions include a constant, year and firm fixed effects.

In Panel I, p-values are in parentheses. In Panel II, t-statistics based on robust standard errors clustered by firm are in parentheses. Superscripts a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

PANEL I: Differences in mean industry-adjusted cash flow and cash

		CASHFLOWindadj	CASHindadj
Panel A:	LONGHOLDER	3.56%	1.44%
	RATIONAL	2.95%	2.11%
	Difference	0.61%	-0.67%
	p-value	*(0.014)*[b]	*(0.927)*
Panel B:	PRELONGHOLDER	3.78%	2.09%
	RATIONAL	2.99%	1.96%
	Difference	0.80%	0.13%
	p-value	*(0.000)*[a]	*(0.415)*
	POSTLONGHOLDER	3.31%	0.78%
	RATIONAL	3.05%	2.11%
	Difference	0.27%	-1.33%
	p-value	*(0.238)*	*(0.985)*
Panel C:	HOLDER 67	2.88%	0.92%
	RATIONAL	2.29%	1.21%
	Difference	0.59%	-0.29%
	p-value	*(0.202)*	*(0.616)*
Panel D:	HOLDER 150	3.01%	1.06%
	RATIONAL	3.11%	0.81%
	Difference	-0.10%	0.25%
	p-value	*(0.551)*	*(0.407)*

Panel II: Regression results using orthogonalized CASHFLOW and CASH variables

	A: Longholder Sample	B: Pre-/Post-Longholder Sample	C: Holder 67 Sample	D: Holder 150 Sample
LONGHOLDER	0.008			
	(2.38)[b]			
PRE-LONGHOLDER		0.008		
		(2.08)[b]		
POST-LONGHOLDER		0.009		
		(2.11)[b]		
HOLDER 67			0.012	
			(1.33)	
HOLDER 150				0.018
				(2.31)[b]
deltaDIV	0.019	0.019	0.037	0.033
	(1.97)[b]	*(1.97)*[b]	*(1.07)*	*(0.87)*
PAYOUTindadj	-0.003	-0.003	-0.002	-0.001
	(-3.14)[a]	*(-3.14)*[a]	*(-0.90)*	*(-0.54)*
EARNGROW	-0.021	-0.021	-0.006	-0.007
	(-1.28)	*(-1.27)*	*(-0.21)*	*(-0.22)*
EARNVOL	0.235	0.236	0.036	-0.133
	(1.09)	*(1.10)*	*(0.09)*	*(-0.28)*
BOOKLEVindadj	-0.002	-0.002	0.044	0.054
	(-0.14)	*(-0.14)*	*(1.86)**	*(2.35)*[b]
TOBINQindadj	-0.002	-0.002	0.000	0.000
	(-1.11)	*(-1.12)*	*(0.05)*	*(0.08)*
LNASSETS	-0.003	-0.003	-0.007	-0.008
	(-1.04)	*(-1.04)*	*(-1.13)*	*(-1.28)*
CASHFLOWindadj (orthogonalized)	-0.043	-0.043	-0.080	-0.041
	(-1.74)[c]	*(-1.74)*[c]	*(-1.28)*	*(-0.63)*
CASHindadj (orthogonalized)	-0.029	-0.029	-0.012	-0.016
	(-1.79)[c]	*(-1.79)*[c]	*(-0.33)*	*(-0.42)*
DIVYIELDindadj	0.159	0.159	0.158	0.143
	(1.76)[c]	*(1.75)*[c]	*(0.73)*	*(0.62)*
Year & Firm Dummies	Yes	Yes	Yes	Yes
Observations	2200	2200	713	644
Adjusted R2	0.17	0.17	0.27	0.27

Table 6: CARs Using Non-Industry-Adjusted Control Variables

This table contains results of OLS regressions of CARs, measured over a three-day window around the day on which the firm announces a dividend increase, on optimism and a core set of control variables that – in contrast to Table 2 – are not industry-adjusted. Results are shown for CARs calculated using the CRSP equal-weighted index. (Results are similar using the value-weighted index.) The results show that CARs are significantly higher when optimistic managers announce a dividend change than when rational managers announce a similar-sized dividend change also using non-industry-adjusted control variables.

In Panel A, a CEO is classified as optimistic, a Longholder, for all of her years in the sample if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. In Panel B, a CEO is classified as a Post-Longholder (Pre-Longholder) for the years after (up until) she has held options that are at least 40% in the money until the year of expiration for the first time. In Panels C and D, a CEO is classified as optimistic from the year after she fails to exercise an option with five years remaining duration that is at least 67% (150%) in the money. This sample only includes CEO-years of CEOs who had options that were at least 67% (150%) in the money at some point during year five.

deltaDIV is the change in quarterly dividends divided by last quarter's quarterly dividends. *PAYOUT* is the annual dividend divided by net income before extraordinary items. *EARNGROW* is earnings growth divided by last year's book equity. *EARNVOL* is the standard deviation of regression residuals (from regressing quarterly earnings on last quarter's earnings and quarterly dummy variables) divided by average total assets. *BOOKLEV* is total debt divided by total assets. *TOBINQ* is the market value of assets divided by the book value of assets. *LNASSETS* is the log of total assets. *CASHFLOW* and *CASH* are cash flow and cash divided by total assets, respectively. *DIVYIELD* is the annual dividend payment divided by the fiscal year-end stock price. All regressions include a constant, year and firm fixed effects.

t-statistics based on robust standard errors clustered by firm are in parentheses. Superscripts a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

	A: Longholder Sample		**B: Pre-/Post-Longholder Sample**		**C: Holder 67 Sample**		**D: Holder 150 Sample**	
	(i)	***(ii)***	***(i)***	***(ii)***	***(i)***	***(ii)***	***(i)***	***(ii)***
LONGHOLDER	0.008	0.008						
	(2.24)[b]	*(2.23)*[b]						
PRE-LONGHOLDER			0.007	0.008				
			(1.89)[c]	*(2.00)*[b]				
POST-LONGHOLDER			0.008	0.008				
			(2.03)[b]	*(1.89)*[c]				
HOLDER 67					0.013	0.012		
					(1.59)	*(1.30)*		
HOLDER 150							0.017	0.017
							(2.51)[b]	*(2.30)*[b]
deltaDIV	0.010	0.019	0.010	0.019	0.035	0.040	0.030	0.036
	(1.79)[c]	*(1.93)*[c]	*(1.79)*[c]	*(1.93)*[c]	*(1.03)*	*(1.13)*	*(0.80)*	*(0.94)*
PAYOUT		-0.003		-0.003		-0.002		-0.002
		(-2.80)[a]		*(-2.80)*[a]		*(-1.17)*		*(-0.83)*
EARNGROW		-0.021		-0.021		0.005		0.004
		(-1.26)		*(-1.25)*		*(0.17)*		*(0.13)*
EARNVOL		0.267		0.268		-0.011		-0.168
		(1.21)		*(1.22)*		*(-0.03)*		*(-0.37)*
BOOKLEV		-0.011		-0.011		0.048		0.056
		(-0.91)		*(-0.90)*		*(2.07)*[b]		*(2.48)*[b]
TOBINQ		-0.001		-0.001		0.005		0.005
		(-0.61)		*(-0.61)*		*(1.14)*		*(1.22)*
LNASSETS		-0.003		-0.003		-0.007		-0.008
		(-0.97)		*(-0.97)*		*(-1.04)*		*(-1.13)*
CASHFLOW		-0.050		-0.050		-0.152		-0.113
		(-1.50)		*(-1.50)*		*(-2.02)*[b]		*(-1.43)*
CASH		-0.027		-0.026		0.005		0.003
		(-1.55)		*(-1.55)*		*(0.14)*		*(0.08)*
DIVYIELD		0.177		0.177		0.417		0.447
		(1.97)[b]		*(1.97)*[c]		*(1.83)*[c]		*(1.84)*[c]
Year & Firm Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2363	2198	2363	2198	728	713	658	644
Adjusted R2	0.16	0.17	0.16	0.17	0.26	0.28	0.27	0.28

Table 7: Profitability after Dividend Increases For Firms Managed by Optimistic and Rational CEOs

This table contains results of OLS regressions of the change in profitability (one, two, three, and four years from the dividend change announcement), on optimism and control variables (explained below, but not shown for brevity). The results show that despite higher CARs, future profitability is not significantly higher at firms led by optimistic managers.

In Panel I, the dependent variable is the change in earnings divided by the change in dividends. Two sets of control variables are included: first, variables that predict the change in dividends and second, variables that predict future earnings. In Panel II, the dependent variable is the change in earnings per se. Only the second set of control variables is included in this case.

In Panels I.A and II.A, a CEO is classified as optimistic, a Longholder, for all of her years in the sample if she ever held an option until the year of expiration, although it is at least 40% in the money at the beginning of that year. In Panels I.B and II.B, a CEO is classified as a Post-Longholder (Pre-Longholder) for the years after (up until) she has held options that are at least 40% in the money until the year of expiration for the first time. In Panels I.C, II.C, I.D and II.D, a CEO is classified as optimistic from the year after she fails to exercise an option with five years remaining duration that is at least 67% (150%) in the money. This sample only includes CEO-years of CEOs who had options that were at least 67% (150%) in the money at some point during year five.

The first set of control variables includes variables that predict the change in dividends: *deltaDIV* is the change in quarterly dividends divided by last quarter's quarterly dividends; *PAYOUT* is the annual dividend divided by net income before extraordinary items; *EARNVOL* is the standard deviation of regression residuals (from regressing quarterly earnings on last quarter's earnings and quarterly dummy variables) divided by average total assets; *BOOKLEV* is total debt divided by total assets; *TOBINQ* is the market value of assets divided by the book value of assets; *LNASSETS* is the log of total assets; *CASHFLOW* and *CASH* are cash flow and cash divided by total assets, respectively; *DIVYIELD* is the annual dividend payment divided by the fiscal year-end stock price.

The second set of control variables includes variables that predict future earnings: profitability, the change in earnings, and several dummy variables and squared terms to pick up autocorrelation and nonlinearities in the mean reversion of earnings and profitability (as in Fama and French, 2000, and Grullon et al., 2005 – see Section 6.5 for further details). All regressions include a constant, year and firm fixed effects.

t-statistics based on robust standard errors clustered by firm are in parentheses. Superscripts a, b, and c indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel I: Regressing deltaEARN$_t$ / deltaDIV$_0$ on optimism plus two sets of control variables

		$\frac{deltaEARN_1}{deltaDIV_0}$	$\frac{deltaEARN_2}{deltaDIV_0}$	$\frac{deltaEARN_3}{deltaDIV_0}$	$\frac{deltaEARN_4}{deltaDIV_0}$
Panel I.A:	LONGHOLDER	-0.034	-0.031	0.042	0.105
		(-0.36)	*(-0.19)*	*(0.18)*	*(0.53)*
	Observations	2295	2274	2245	2200
	Adjusted R-squared	0.34	0.24	0.18	0.20
Panel I.B:	PRE-LONGHOLDER	0.023	-0.131	0.101	-0.069
		(0.22)	*(-0.79)*	*(0.42)*	*(-0.34)*
	POST-LONGHOLDER	-0.107	0.094	-0.033	0.335
		(-0.94)	*(0.45)*	*(-0.13)*	*(1.31)*
	Observations	2295	2274	2245	2200
	Adjusted R-squared	0.34	0.24	0.18	0.20
Panel I.C:	HOLDER 67	0.346	0.069	0.530	0.061
		(1.15)	*(0.17)*	*(1.24)*	*(0.13)*
	Observations	737	728	716	696
	Adjusted R-squared	0.44	0.30	0.23	0.19
Panel I.D:	HOLDER 150	0.219	-0.031	0.276	0.172
		(0.94)	*(-0.07)*	*(0.56)*	*(0.35)*
	Observations	669	660	649	634
	Adjusted R-squared	0.43	0.30	0.24	0.19

Panel II: Regressing deltaEARN$_t$ on optimism plus one set of control variables

		$deltaEARN_1$	$deltaEARN_2$	$deltaEARN_3$	$deltaEARN_4$
Panel II.A:	LONGHOLDER	-0.010	-0.003	0.002	0.004
		(-1.11)	*(-0.22)*	*(0.15)*	*(0.27)*
	Observations	2295	2274	2245	2200
	Adjusted R-squared	0.40	0.28	0.24	0.21
Panel II.B:	PRE-LONGHOLDER	-0.007	-0.010	0.005	-0.004
		(-0.71)	*(-0.74)*	*(0.30)*	*(-0.27)*
	POST-LONGHOLDER	-0.014	0.006	-0.001	0.015
		(-1.38)	*(0.39)*	*(-0.08)*	*(0.86)*
	Observations	2295	2274	2245	2200
	Adjusted R-squared	0.40	0.28	0.24	0.21
Panel II.C:	HOLDER 67	0.028	0.008	0.025	0.005
		(1.09)	*(0.29)*	*(0.79)*	*(0.14)*
	Observations	737	728	716	696
	Adjusted R-squared	0.51	0.32	0.34	0.33
Panel II.D:	HOLDER 150	0.021	-0.005	-0.008	0.028
		(1.00)	*(-0.14)*	*(-0.22)*	*(0.61)*
	Observations	669	660	649	634
	Adjusted R-squared	0.52	0.31	0.34	0.33