Are ESG ratings relevant? Evidence from dividend cuts*

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Abstract

I find that the market reactions to dividend cuts are significantly less severe when the underlying firms have high Environmental, Social, and Governance (ESG) ratings. Among different components of ESG ratings, I find that the environmental pillar rating contributes most significantly to my findings. I further document that high ESG performance premium tend to partially substitute for dividend premium. Overall, my findings are consistent with the notion that negative demand shocks from dividend cuts are absorbed with milder reactions when firms are favored by ESG-motivated investors.

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1. Introduction

How important are environmental, social, and governance (ESG) ratings to investors? The question of what is a "good" investment receives renewed interest with the recent emergence of ESG ratings that bring a new dimension to evaluating investments. Although the premise of ESG ratings is to distinguish the "good" firms from the "bad," there are also ongoing discussions about whether these ratings indeed achieve this objective, and even so, whether investors should be concerned if their investments are socially desirable.

An added challenge to answering this question is that ESG ratings typically capture both the material information about the firm as well as the market's sentiment towards the firm. In these aspects, this question is similar to the premium investors assign to dividends, which incorporate both material and sentiment-related information, among other factors. The long-standing literature in payout policy explores the various reasons firms pay dividends and why they could be reluctant in cutting them.[1] More recently, Farre-Mensa et al. (2018) provide an extensive review of the uneconomic decisions firms make to keep paying dividends, including external financing of dividends with debt as well as equity (termed "equity recycling").

In this paper, I investigate the role of ESG ratings on market reactions to dividend declarations, with particular focus on dividend cuts. Using a sample of dividend declarations made by public firms between 2002 and 2023, I first show that there are significant announcement returns to the dividend changes of ESG-rated dividend-payers. Market significantly reacts to all types of dividend declarations, including dividend cut, continuation with no change, and increase declarations. Among different categories of dividend declarations, I find that dividend cuts receive the most economically significant reactions, due to their nature of being rare and extreme events that dividend-payers strictly avoid.

Dividend cuts generate an economically significant adverse market reaction. However, the reactions are significantly less pronounced for dividend-payers with high ESG ratings. A simple partition of the sample into low- versus high-ESG rating firms reveals that the

[1] Allen and Michaely (2003) provide an in-depth review of payout policy.

announcement effect of dividend cuts is -3.8% for low-ESG firms and -2% for high-ESG firms. This finding is consistent with the notion that ESG ratings are an important metric for investors. Turning to dividend increases, which occur far more frequently than dividend cuts, I find milder but still statistically significant positive market reactions. A similar partition of the sample into low- versus high-ESG rating firms shows that low-ESG firms have an announcement effect of 0.8% while high-ESG firms have an announcement effect of 0.6%. I explain these findings with a model of demand elasticity which incorporates an expanded investor base due to an increase in ESG ratings.

ESG ratings are an aggregation of multiple aspects of firms' corporate social responsibility performance metrics. These aggregations include environmental, social, and governance pillars, as well as controversy scores in the case of ESG combined scores.[2] Among different components of ESG ratings, I find the environmental pillar to be most statistically significant in muting the negative market reactions to dividend cuts. While this finding does not preclude the relevance of other components of ESG ratings, it suggests that the environmental scores are the most relevant in attracting investors to firm's stock.

A well-documented finding in the literature of payout policy is the significant premiums investors assign to dividend-paying stocks. All else equal, dividend-paying firms have higher market-to-book ratios than non-dividend paying firms (Baker and Wurgler (2004), among others). An interesting question that relates ESG with dividends is whether these two factors lure in the same investor base. To address this question, I test for the existence of dividend and ESG premiums. After confirming the significance of dividend premiums in my sample, I explore the ESG ratings. I find that having high ESG ratings generate a similar premium to that of dividend-paying status. I also find that, both being ESG-rated and having a high ESG rating separately generate significant premiums. Considering both dividend-paying and having high ESG rating statuses together, I find that having high ESG ratings capture some

[2]These component scores are also aggregations themselves. I discuss the ESG scores in more detail in Section 3. Unless noted otherwise, I use the terminology ESG ratings, ESG scores, and ESG to refer to ESG combined scores.

part of the premium assigned to dividend-payers. I further find evidence consistent with the notion that although dividend and ESG clientele have a significant overlap, these factors also generate distinct premiums. That is, ESG scores generate a significant premium even after controlling for dividends.

This paper contributes to the literatures on payout policy and ESG ratings in multiple dimensions. To the best of my knowledge, this is the first paper to study the market reactions to dividend declarations with an ESG overlay. This interaction is especially meaningful considering the debates on the stickiness of dividend policies as well as the disagreements about the relevance of ESG ratings to investors. This study contributes to the existing work by demonstrating that ESG ratings are indeed relevant. Even under rare and severe negative events of dividend cuts, high ESG ratings shield the firm from extreme market reactions.

Second, this paper contributes to the literature by investigating the importance of different components of ESG scores in the context of dividend changes. ESG scores are aggregations of many different aspects of firms' corporate social responsibility performance. Therefore, it is important to see which aspects of ESG scores are relevant. For the investors of dividend-paying firms, having a high environmental component score is the most important aspect of ESG scores, relative to other pillars.

Third, I contribute to the literatures on dividend and ESG premia. There are separate literatures on either of dividend premium and ESG premium, which attempt to explain the sources of these premia. This study contributes to these literatures by investigating the interaction of dividend and ESG premia. I document some evidence that there is an overlap between the investor bases of these two different statuses. I also find some evidence that ESG premium can partially substitute dividend premium.

Overall, in answering the question of ESG ratings' relevance, I make contributions to both payout policy and ESG rating literatures. I contribute to the literature on payout policy by presenting new evidence of interaction of dividend policies and firms' ESG performance. I contribute to the ESG literature on the ongoing debates about whether ESG performance of a firm is indeed an aspect of the firm that is important to investors. My findings suggest that there is a significant interaction between these seemingly independent characteristics of the firm. I next discuss how this paper relates to the existing literature.

1.1. Related literature

Broadly, this paper relates to the literature on payout policy and the relatively recent literature on ESG ratings. The literature on payout policy proposes various explanations of motivations for why firms pay dividends and why they are reluctant on cutting them after initiation. These explanations, among others, include differential taxes on capital gains versus dividends which generate tax clienteles for dividends (e.g., Elton and Gruber, 1970), firms' signaling their prospects through dividends (e.g., John and Williams, 1985), firms reducing agency costs via dividend payouts (e.g., Easterbrook, 1984), or the premium investors assign to cash flows that are received in the form of dividend payments due to their behavioral tendencies (e.g., Shefrin and Statman, 1984). Firms that pay dividends go to great lengths to keep paying them, including externally financing them with debt and equity (Farre-Mensa et al., 2018). Cutting dividends result in severe negative reactions from the market. For example, Ham et al. (2020) report a five-day abnormal stock return of -3.3% for non-financial firms around dividend decrease announcements. Given the importance of dividend policy for investors, I consider this setting of dividend cuts as an appropriate laboratory to test whether and how important are ESG ratings to investors when the underlying firms announce significant negative news.

The literature on ESG ratings goes back to discussions of the social responsibilities of a firm. On one side, there is the view that the sole purpose of a business is to increase its profits (e.g., Friedman, 1964).[3] On the other side, there are arguments against the efficiency of markets in addressing issues such as poor environmental and employee practices of firms,

[3] "...there is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition, without deception or fraud" (Friedman, 1964).

which lead to a growing trend of socially responsible investment (e.g., Bénabou and Tirole, 2010).[4] The main purpose of ESG scores is to rate the firms in terms of their corporate social responsibility performance. However, an important question is whether investors adjust their investment policies based on ESG ratings. In particular, I focus on the question of whether investors react differently to adverse news of differently ESG-rated firms. Lins et al. (2017) find that, during the financial crisis of 2008-2009, firms with high social capital (measured with their corporate social responsibility intensity) generated four to seven percent higher returns than firms with low social capital, and argue that building social capital can serve as an insurance policy for the times when investors' trust in companies diminish. In this paper, I utilize the dividend cuts as firm-specific downturns to further isolate the impact of firm-level ESG ratings on the market reactions. I separately analyze the different components of ESG ratings to see the components that are reliably important. Furthermore, I study the commonality of premia captured by dividend-paying and high-ESG rating status of firms.

The remainder of the paper is structured as follows. In the next section, I propose an explanation to the impact of ESG ratings and observed findings. Section 3 describes the sample used in this study. Section 4 presents the results of the paper. Section 5 provides concluding remarks.

2. ESG ratings and the price elasticity of demand

I postulate that the milder reactions to the dividend cuts of high ESG rating firms are explained by their difference from low ESG rating firms in their price elasticity of demand. In this section, I present a simple model to demonstrate this. I assume that the supply of firms' shares outstanding is fixed in the short-run. I further assume that there are three types of investors in the market.

The first type of investors demand dividend-paying stocks simply by the virtue of their dividend yields. This type represents the investors that include dividend-paying stocks in

[4] Gillan et al. (2021) provide a detailed review of the ESG literature.

their portfolioos due to their behavioral tendencies[5] or the funds that include stocks into their portfolio based on a dividend yield criterion.[6] The demand curves of these first type investors is price inelastic and is as follows:

$$q_i^b = D_i, \tag{1}$$

where q_i^b denotes the quantities of stock i demanded by the behavioral- or dividend criterion-based investors which equals to demand level $D_i > 0$.

The second and third type investors have price-elastic demand functions. These two types differ in whether they incorporate ESG ratings to their investment objectives. I will refer to them as non-ESG versus ESG investors, henceforth.[7] The demand functions of these investors for a given stock i are as follows:

$$q_i^{ne} = a_i - b_i p_i, \tag{2}$$

$$q_i^e = (a_i - b_i p_i)\frac{s_i}{\bar{s}}, \tag{3}$$

where q_i^{ne} and q_i^e denote the quantities of stock i demanded by non-ESG and ESG investors, respectively, and $s_i, \bar{s} > 0$. s_i denotes the ESG score of stock i and $\bar{s}$ denotes the baseline ESG score level for that stock which would make ESG investors equivalent to non-ESG investors in their demand for the stock. The ESG-motivated investors' demand for the stock is increased (decreased) as s_i exceeds (falls below) $\bar{s}$.[8] Note that, there is a pivotal shift in the demand curve as a result of a change in stock's ESG ratings. As its ESG ratings increase,

[5] Ben-David (2010) provides a review of behavioral biases that lead to preference for dividends.

[6] Dividend yield criterion is a common requirement for income or dividend funds. See, for example, Vanguard High Dividend Yield ETF (https://advisors.vanguard.com/investments/products/vym/vanguard-high-dividend-yield-etf), Fidelity High Dividend ETF (https://institutional.fidelity.com/prgw/digital/research/quote/dashboard/composition?symbol=FDVV), among others.

[7] Note that this simplifying assumption can be relaxed without loss of generality. One can extend the investor base to a continuum of investors in terms of their ESG preferences.

[8] This notion is consistent with Pedersen et al. (2021), who model the ESG-adjusted expected returns for "ESG-motivated investors," where the authors indicate, "...each stock's expected excess return is increased if its ESG score s_i is above the desired average score $\bar{s}$; otherwise, it is lowered" (pp. 578).

demand curve of the stock flattens. The aggregate demand for the stock i would be:

$$q_i^{agg} = q^b + q_i^{ne} + q_i^e = D_i + (a_i - b_i p_i)(1 + \frac{s_i}{\bar{s}}). \tag{4}$$

Let q_i^S denote the fixed supply of shares for the stock i. In equilibrium, $q_i^{agg} = q_i^S$. Therefore, the equilibrium price of the stock is:

$$p_i^* = \frac{a_i}{b_i} - \frac{q_i^S - D_i}{b_i(1 + \frac{s_i}{\bar{s}})}. \tag{5}$$

This aggregate demand curve has a slope of $-\frac{1}{b_i(1+\frac{s_i}{\bar{s}})}$. As ESG score s_i increases, the demand curve becomes flatter (more elastic). Panel A of Figure 1 provides an illustration of flattening demand curve.

Suppose now that the stock i receives a negative demand shock, K_i, due to a dividend cut, where some of the first type (behavioral- or dividend criterion-based) investors drop the stock from their portfolio. The demand of first type investors would become: $D_i' = D_i - K_i$. This shock would be absorbed by both non-ESG and ESG investors.[9] The new equilibrium price of the stock would become:

$$\begin{aligned}(p_i^*)' &= \frac{a_i}{b_i} - \frac{q_i^S - D_i'}{b_i(1 + \frac{s_i}{\bar{s}})} \\ &= \frac{a_i}{b_i} - \frac{K_i}{b_i(1 + \frac{s_i}{\bar{s}})} - \frac{q_i^S - D_i}{b_i(1 + \frac{s_i}{\bar{s}})}.\end{aligned} \tag{6}$$

Therefore, a dividend cut leads to a negative demand shock, shifting the demand curve to the left. Importantly, the magnitude of this shift is decreasing in firm's ESG score s_i. Panel B of Figure 1 demonstrates visually the shift in the demand curves of low- versus high-ESG stocks. The stock price change due to the shift in the demand curve is greater in magnitude for low-ESG firms than that of high-ESG firms.

[9] This exercise is similar to that of Wurgler and Zhuravskaya (2002), where the authors investigate the demand effect of inclusion of stocks to S&P 500 index. In that case, some index funds start including the new member of S&P to their portfolios due to their criterion of investment on index-constituents, resulting in a positive demand shock.

Overall, this simple model suggests that dividend cuts of high-ESG firms would lead to less severe market reactions (smaller returns in magnitude). My proposed explanation for the difference in market reactions to the dividend cuts of low- versus high-ESG firms is that they have different price elasticities of demand. However, note that this explanation does not preclude other theories such as more favorable disposition toward high-ESG firms and increased tolerance by their investors to non-ESG related negative events (Lins et al., 2017). Although I argue that price elasticity plays an important role, the complete explanation is likely to be a compound of these theories.

3. Data

The data in this paper come from several sources. The main sample consists of dividend declarations of public firms during the period from 2002 to 2023. The sample period is determined by the availability of ESG data which starts at 2002. I next describe the sample construction as well as some of the key variables in my analyses.

3.1. Dividend declarations

I obtain the dividend declarations from the Center for Research in Security Prices (CRSP) database. I restrict the sample to ordinary common shares (share codes of 10 and 11) traded in NYSE, AMEX, and Nasdaq exchanges (exchange codes of 1, 2, and 3). I focus on the distributions that are ordinary quarterly taxable cash dividends (distribution code of 1232). I drop the dividend declarations by financial industry firms (first SIC code digit of 6). I require the previous quarterly dividend declaration to be made in the past 180 days to keep a given dividend declaration in the sample (Ham et al., 2020). To better isolate the effect of current dividend declaration, I further drop dividend declarations when there is another distribution between the current and most recent quarterly dividend declaration dates (Benartzi et al., 1997; Nissim and Ziv, 2001).

I obtain the data for stock returns and market returns from the CRSP database, and the firm financials from the Compustat database. I provide the detailed descriptions of constructed variables in the variable definitions Appendix A.

3.2. ESG ratings

I retrieve the ESG ratings from the London Stock Exchange Group (LSEG) database, formerly known as Refinitiv.[10] LSEG provides various metrics when it comes to ESG as well as measures on detailed breakdown of each pillar (e.g., resource use, emissions, etc., as part of environmental pillar). The scores of each component of these ratings, except for governance component, range from 0 to 100 and represent percentile scores of the firm within its industry group. The governance component scores similarly range from 0 to 100, but represent percentile scores of the firm within its country of incorporation. Put more succintly, the ESG component score of a given firm is based on its performance of the firm in that dimension relative to its peers. Therefore, a score of 50, for example, always indicates the median score for the industry group (the country of incorporation, for governance scores) firm belongs.

I use the variable "ESG combined score" (as termed by LSEG). This is an augmented version of the variable "ESG score," as it overlays the controversies about the company on top of the self-reported ESG information from the company.[11] A common criticism to most ESG ratings provided by various databases is that they are typically based on companies' self-reported information that is likely to be positively biased. LSEG addresses this issue by separately calculating an ESG controversies score that is based on the information reported in the global media. The "ESG combined score" is the result of the combination of these self-reported and non-self-reported ESG information about the company.

Figure 2 presents the ESG coverage of the dividend declarations in my sample over the

[10] Refinitiv was acquired by LSEG in 2021, which is the reason of name change.

[11] For more information about ESG combined scores and their components, see the ESG scores methodology of LSEG, available at: https://www.lseg.com/content/dam/data-analytics/en_us/documents/methodology/lseg-esg-scores-methodology.pdf.

years. A dividend declaration is considered as ESG-covered if the reference firm had an ESG combined score as of the most recent fiscal year-end prior to dividend declaration. Although the concept of corporate social responsibility is a long-standing topic, the concept of ESG ratings is a relatively recent phenomenon. The data used in this study reflects this. As Figure 2 shows, the ESG coverage of dividend dividend declarations have ramped up over time, reaching to coverage levels above 80% toward the end of my sample period.

3.3. Descriptive statistics

Table 1, Panel A presents the descriptive statistics for my dividend declarations sample. I partition the sample into three subsamples based on the type of dividend declaration: dividend cuts ($\Delta Dividend < 0$), dividends unchanged ($\Delta Dividend = 0$), and dividend increases ($\Delta Dividend > 0$).

As the sample sizes of different types of dividend declarations reflect, a dividend cut is a rare event that firms avoid. Figure 3 presents the the fraction of dividend declarations that are dividend cuts over the years. The unconditional probability of a dividend declaration being a dividend cut is less than 1%. This probability increases during some economic downturns such as the aftermath of financial crisis of 2008 and the 2020 recession due to COVID-19. Even during such extreme periods, however, the probability of dividend cuts does not exceed 2.5% which suggests that firms are highly averse of dividend cuts.

When a dividend cut occurs, the firm faces a significantly negative market response. A dividend cut on average results in a cumulative abnormal return ($CAR_{[-2,2]}$) of about -3%. It is also important to note that a dividend cut is usually a substantial change, on average a 49% decrease in the dividends. This is also consistent with firms avoiding to make cuts frequently and lumping them together into fewer and bigger cuts.

The average change in dividends for the dividend increases sample is about 18% and the average $CAR_{[-2,2]}$ is about 1%. Finally, as expected, the average cumulative abnormal returns of no change in dividend declarations is about 0%. On a first glance, the main difference between the firms that cut versus increase their dividends, prior to the change in dividends, appears to be dividend cutting firms' lower ESG combined scores, lower return on assets, higher debt-to-assets, and lower market-to-book ratios compared to firms that increase their dividends.

Table 1, Panel B presents pairwise correlation coefficients between ESG combined scores and the pillars of ESG scores. The first three pillars, E, S, and G, are highly positively correlated with one another, as well as the combined score. The controversies score, on the other hand, is negatively correlated with the combined scores as well as the other components. This is an interesting observation by itself, as it suggests that likelihood of "greenwashing" increases as the baseline ESG scores—based on self-reported statements— increase.[12]

4. Results

4.1. Market reactions around dividend declarations

I start with an analysis of the market reactions around different types of dividend declarations. I calculate the buy-and-hold abnormal returns around events, as the difference of compounded stock returns and compounded value-weighted market returns for each time interval.[13] I partition the declarations into "Low ESGC" versus "High ESGC" subsamples based on the ESG combined scores of the firms, where a firm is considered "Low ESGC" if its score is less than or equal to 50, and "High ESGC" otherwise.

Figure 4 plots the reactions around dividend cuts. For both classifications of low versus high ESGC firms, most of the reactions occur around the declaration during the trading days [-2, 2] relative to declaration date. Table 2, Panel A shows the event study results for dividend cuts. The announcement effect, the reaction during the interval [-2, 2] relative to announcement day, is -3.8% for Low ESGC firms. For High ESGC firms the market reaction

[12]Indeed, Kathan et al. (2024) find that prevalence of greenwashing cases increase as ESG scores increase.

[13]The statistical significances of reactions are based on bootstrapped skewness-adjusted t-statistics according to Lyon et al. (1999) (calculated using the Stata package *eventstudy2* (Kaspereit, 2022)).

is about -2%, which is less severe than Low ESGC firms.

The panels B and C of Table 2 show the reactions for no change and increase in dividend declarations, respectively. Although economically small, there appears to be statistically significant positive reaction around the announcements for no changes in dividends. The average reaction to a continuation of dividends with no changes is 0.1%. I observe more pronounced and statistically significant reactions around dividend increase announcements. The announcement effects of dividend increases are 0.8% and 0.6% for low and high ESGC firms, respectively. While these reactions are substantially greater than the reactions to no change declarations, they are still smaller in magnitude than the reactions to dividend cuts. Overall, the event study findings indicate that the strongest market reactions occur around dividend cuts and that the negative reactions are partially muted when the firms have high ESG combined scores.

4.2. Analysis of dividend changes

In this section, I formally test the relation between market reactions to dividend declarations and ESG ratings. I estimate the following model:

$$\begin{aligned} CAR_{[-2,2]} = {} & \beta_0 + \beta_1 I(\Delta Div._{it} < 0) + \beta_2 I(\Delta Div._{it} > 0) + \beta_3 ESG_{it} \\ & + \beta_4 ESG_{it} \times I(\Delta Div._{it} < 0) + \beta_5 ESG_{it} \times I(\Delta Div._{it} > 0) \\ & + \beta_6 Div.\,rel.\,chg._{it} + \beta_7 Div.\,rel.\,chg._{it} \times |Div.\,rel.\,chg._{it}| + \varepsilon_{it}, \end{aligned} \quad (7)$$

where $CAR_{[-2,2]}$, cumulative abnormal return, is the announcement effect calculated as cumulative market-adjusted equity returns following Baker et al. (2016) and Ham et al. (2020). ESG_{it} denotes the ESG combined score of the firm that makes the dividend declaration, $I(\Delta Div._{it} > 0)$ and $I(\Delta Div._{it} < 0)$ are indicators for dividend decreases and increases respectively. $Div.\,rel.\,chg.$ denotes the change in dividend relative to previous dividend and $Div.\,rel.\,chg._{it} \times |Div.\,rel.\,chg._{it}|$ is the interaction term of relative dividend changes with their absolute value. I estimate the Equation 7 in multiple stages, gradually including the predictors.

Table 3 reports my findings. The specification 1 confirms the results from event study, that the dividend cuts result in an economically and statistically significant negative reaction. In specification 2, I include the ESG ratings and interaction terms. Importantly, the coefficient estimate on the explanatory variable of interest "ESG combined score $\times$ I($Dividend < 0$)" is positive and significant. This suggests that higher ESG ratings lead to milder negative reactions to dividend cuts.

In specification 3 of Table 3, I further control for the relative change in dividends as well as the interaction of relative dividend changes with their absolute value. These two controls account for the economic importance of dividend change and the attenuation in announcement returns as the size of the change increases, respectively. As expected, the reaction amount correlates positively with the dividend change amount. Consistent with Baker et al. (2016) and Ham et al. (2020), I find that announcement effect of dividend changes attenuate as the magnitude of dividend changes increase. The coefficient estimate on the ESG and dividend cut interaction term remains positive and significant.

A distinction between dividend cuts and dividend increases is that dividend cuts are much larger in magnitude. Therefore, a question is whether the muting effect of ESG ratings increase with the magnitude of change. It is also important to establish if this effect is asymmetric, where the ESG ratings influence the reactions to dividend cuts and not the reactions to dividend increases. To address these questions, I estimate the following model separately for dividend cuts and dividend increases:

$$
\begin{aligned}
CAR_{[-2,2]} = \beta_0 + \beta_1 Div.\, rel.\, chg._{\cdot it} + \beta_2 Div.\, rel.\, chg._{\cdot it} \times |Div.\, rel.\, chg._{\cdot it}| \\
+ \beta_3 ESG_{it} + \beta_4 ESG_{it} \times Div.\, rel.\, chg._{\cdot it} + \varepsilon_{it}. \quad (8)
\end{aligned}
$$

I estimate the Equation 8 with and without the ESG interaction term.

Table 4 shows the results. Specification 1 shows that, for the subsample of dividend cuts, the market reaction increases (becomes less severe) as ESG ratings increase. I include the ESG interaction term in specification 2, and find that the coefficient estimate on this term is negative and significant. This is as expected since dividend relative changes are negative for dividend cuts subsample. In other words, the increases in ESG ratings counteract the severity of negative dividend relative changes, hence the negative sign.

Turning to the dividend increases subsample in Table 4, the findings suggest no significant relation between the market reactions and ESG ratings. Increased ESG ratings do not appear to play a role in predicting market reaction to dividend increases. The investors do not react either more or less favorably to dividend increases of highly ESG-rated firms. These findings suggest that the effect of ESG ratings on market reactions to dividend changes is asymmetric. That is, although higher ESG ratings reduce the severity of negative reactions to dividend cuts, they do not increase, nor decrease, the market reactions to dividend increases in a statistically significant manner.

4.2.1. Robustness to additional firm-level controls and year fixed-effects

Could factors other than ESG ratings be driving the results? In this section, I address this question by including additional controls to my regression specifications. I start with testing the robustness of main result in Table 3. I take the full specification 3 in Table 3 and extend it with additional control variables. Appendix B, Table B.1 reports my findings. I gradually include firm fixed-effects ("Firm FE"), year fixed-effects ("Year FE"), and other firm-level controls such as "Cash/Assets," "Debt/Assets," and so on. In all specifications, the explanatory variable of interest, "ESG combined score × I($\Delta Dividend < 0$)," remains positive and statistically significant, suggesting a less severe market reaction to dividend cut declarations as ESG combined scores increase.

Turning to the results in Table 4, I similarly extend the specification with additional controls. I gradually include firm-level controls and fixed-effects. Table B.2 of Appendix

B reports my findings. Inspecting the explanatory variable of interest, "ESG combined score × Dividend rel. chg.," my results remain qualitatively the same. Overall, based on these estimations with additional set of control variables, my findings remain qualitatively unchanged.

4.3. Does cheap talk work?

The findings so far highlight the importance of ESG ratings for firms. As a result, it is natural to expect firms to attempt to look "good" to ESG-motivated investors, for both "good" and "bad" type firms. This is especially appealing since most ESG ratings are based solely on firms' self-reported information. In the next analysis, I investigate the question of whether ESG-posturing works.

In an earlier discussion, I pointed to the distinction between self-reported versus non-self reported portions of ESG ratings. One advantage of LSEG database is that it reports the "ESG score" variable based on self-reported information, as well as the "ESG combined score" that combines both the self-reported and non-self-reported information about the firm. The idea behind the ESG combined scores is that, in the absence of controversies, they are equivalent to raw ESG scores. However, if there are ESG controversies about the form in the global media, the ESG combined scores are adjusted in light of the incremental information. Based on these two scores, I calculate an "ESG washing score" as follows:

$$ESG\ washing\ score := ESG\ score - ESG\ combined\ score.$$

This difference proxies the amount of cheap talk in the firm's ESG score. I then include this variable and its interactions with dividend decrease and increase indicators to the baseline specification in Equation 7.

Table 5 reports my findings. As documented previously, the coefficient estimate of "ESG combined score × I($\Delta Dividend < 0$)" is positive and statistically significant. On the other hand, the coefficient estimate of "ESG washing score × I($\Delta Dividend < 0$)" is statistically insignificant. This finding suggests that having a higher ESG score than what the firm deserves does not help, and therefore, cheap talk does not work.

4.4. Are some components of ESG ratings more important than others?

The analyses so far included ESG ratings as a combined score of multiple components. Therefore, an interesting question is whether some components of ESG ratings are more relevant than the others when predicting market reactions to dividend cuts. To address this question, I separately investigate the component scores of ESG combined scores. I estimate the following model for dividend cuts:

$$CAR_{[-2,2]} = \beta_0 + \beta_1 Div.\,rel.\,chg._{it} + \beta_2 Div.\,rel.\,chg._{it} \times |Div.\,rel.\,chg._{it}|$$
$$\beta_3 Component\ s._{it} + \beta_4 Component\ s._{it} \times Div.\,rel.\,chg._{it} + \varepsilon_{it}, \quad (9)$$

where *Component s.* denotes component scores of ESG combined scores, which include environmental, social, governance, and controversies scores.

Table 6 reports the results of the estimations. Among all different components of ESG ratings, the environmental score is the component that contributes most significantly to the muting effect on negative market reactions to dividend cuts. Although the coefficient estimates of other component scores than environmental scores are not statistically significant, these might be due to sample size since dividend cuts are rare and extreme events. It is also noteworthy that the interaction terms of all component scores and dividend relative changes have negative coefficient estimates, as expected. Overall, the results suggest that the environmental component of ESG ratings is the most relevant, although this conclusion does not preclude the importance of the role played by other components of ESG ratings.

4.5. Can ESG ratings partly substitute for dividend premium?

A well-documented finding in the payout literature is the significant premium investors assign to dividend-paying stocks (Baker and Wurgler, 2004, among others). All else equal, the firms that pay dividends receive higher valuations than the firms that do not pay dividends simply by the virtue of their "dividend-payer" status.

In this section, I explore whether the ESG premium can partially substitute for the dividend premium. My conjecture is that there is a non-negligable intersection of investors that assign premium to dividends and to ESG ratings, and that these investors assign value to dividend-payer status and ESG ratings due to a sentiment factor that is not related to other fundamental observable firm characteristics (profitability, risk, etc.).

I start with an analysis of dividend and ESG premia over my sample period. In this analysis, I include firms that are not dividend payers as well as firms without ESG ratings. I estimate the following equations year-by-year:

$$M/B\,ratio_i = \beta_0 + \beta_1 I(Dividend\,payer)_i + \sum_j \beta_j Controls_i + \varepsilon_i, \tag{10}$$

$$M/B\,ratio_i = \beta_0 + \beta_1 I(High\ ESGC\ score)_i + \sum_j \beta_j Controls_i + \varepsilon_i. \tag{11}$$

"I(Dividend payer)" is an indicator variable that equals one if the firm pays dividend, and zero otherwise. "I(High ESGC score)" is an indicator variable that equals one if the ESG combined score is greater than 50, and zero otherwise. $Controls_i$ include Cash/Assets, Tangibility, Debt/Assets, Cap. Ex./Assets, Return on assets, R&D exp./Assets, I(R&D exp. missing), Stock volatility, Firm age, and Log(Assets) (this selection of controls largely follows prior studies such as Kalcheva and Lins (2007), Coles et al. (2008), and Karpavičius and Yu (2018)). I then save the coefficient estimates of β_1 from both equations.

A positive (negative) β_1 estimate from these equations means that, all else equal, the firms with the indicated status (i.e., either dividend payer or high ESGC score) have higher (lower) market-to-book ratios than the firms without the indicated status. Therefore, a positive (negative) coefficient estimate is interpreted as investors assigning a premium (discount) on the stocks of the reference firm. Although I run the full estimation year-by-year for both specifications, I plot only the coefficient estimates of β_1 for brevity.

Figure 5 presents the coefficent estimates β_1 for each indicator. For majority of the years in my sample period, both dividend paying status and high ESGC score status generate a premium. More relevant to my question in this section, these series of year-by-year estimates are positively correlated (with a correlation coefficient of 0.639). These findings are consistent with the conjecture that part of dividend and ESG premia capture a common factor. To be clear, this does not imply one status exhausts the other in terms of premium generated. I next investigate the extent of the commonality in the premia assigned dividend paying and high ESG rating statuses.

To analyze the interaction of dividend and ESG premia, I next study the interaction effects of dividend and ESG ratings. The sample studied in this analysis is similarly expanded as I include non-dividend-payers as well as non-ESG-rated firms. I estimate the following model:

$$
\begin{aligned}
M/B\,ratio_{it} = \beta_0 + \beta_1 I(Div._{it}) + \beta_2 I(High\,ESGC_{it}) + \beta_3 I(High\,ESGC_{it}) \times I(Div._{it}) \\
+ \beta_4 I(ESGC\,coverage_{it}) + \beta_5 I(ESGC\,coverage_{it}) \times I(Div._{it}) \\
+ \sum_j \beta_j Controls_{it} + \sum_i \gamma_i Firm\,FE_i + \sum_t \theta_t Year\,FE_t + \varepsilon_{it}, \quad (12)
\end{aligned}
$$

where $M/B\,ratio_{it}$ is market-to-book ratio, $I(Div._{it})$ is an indicator that takes the value one if the firm pays dividends, $I(High\,ESGC_{it})$ is an indicator that takes the value one if the firm's ESG combined score is greater than 50, and $I(ESGC\,coverage_{it})$ is an indicator that takes the value one if the firm has an ESG rating. $Controls_{it}$ include firm-level characteristics (*Cash/Assets*, *Tangibility*, *Debt/Assets*, *Cap. Ex./Assets*, *Return on assets*, *R&D exp./Assets*, *I(R&D exp. missing)*, *Stock volatility*, *Firm age*, *Log(Assets)*). $Firm\,FE_i$

and $Year\ FE_t$ are firm and year fixed effects, respectively.

Table 7 reports the findings. Specification 1 runs the full model in Equation 12 for all firms. I find that while having an ESG rating generates a premium, having a high ESG rating generates a substantially greater premium. Furthermore, I find the coefficient on the interaction term to be negative and significant, which suggests that having high ESG rating could partially substitute for paying dividends. This is consistent with my earlier findings where cutting dividends does not as severely affect the firms with high ESG ratings as they do the firms with lower ESG ratings. In specification 2, I repeat this estimation within ESG-rated firms only. I again confirm both the dividend and ESG premiums. Although statistically insignificant, perhaps due to reduced sample size, I also find a negative coefficient estimate, consistent with a substitutive relation.

Overall, my findings in this section are consistent with the notion that ESG premium exists and that it may partially substitute the dividend premium. These findings are consistent with my prior results where having higher ESG scores offset some of the severe negative reaction to dividend cuts.

5. Conclusion

In this paper, I address the question of whether ESG ratings are relevant, by investigating dividend cuts. I investigate the dividend declarations, which include dividend cut, no change, and increase announcements. Among all type of dividend declarations, I find the most economically significant market reactions occur around dividend cuts. Importantly, I document that the market reactions to dividend cuts of low- versus high-ESG rating firms are significantly different. The announcement effect is less severe (smaller in magnitude) to the dividend cuts of high-ESG firms. My proposed explanation for this finding is through different demand elasticities of low- versus high-ESG firms. A negative demand shock is absorbed by a broader investor base for high ESG firms, resulting in a more muted response to dividend cuts.

Next, I study the components of ESG ratings to see if any given component is more important than the others. My findings suggest that the environmental score component of combined ESG ratings plays the most significant role. Although environmental pillar appears to be most significant in its effect on market reactions, this finding does not preclude the relevance of other components of ESG ratings.

Finally, I explore whether investors assign a premium to firms with high ESG ratings. I start by investigating the significance of dividend premium that investors assign to firms simply because of their dividend-paying status. I find significant dividend premiums, consistent with the literature. More relevant in the context of this study, I investigate if there is a premium for having high ESG ratings. All else equal, I find that firms with high ESG ratings have higher market-to-book ratios, which indicates that there is a premium for having high ESG ratings. I further find some evidence that there is a significant overlap between the investor bases of dividends and ESG ratings.

My results are consistent with an increased investor demand in stocks as their ESG scores increase. Having high ESG ratings benefits dividend-paying firms when they need to cut dividends. Overall, my findings suggest that ESG ratings are relevant metrics when making investment decisions and that they play an important role.

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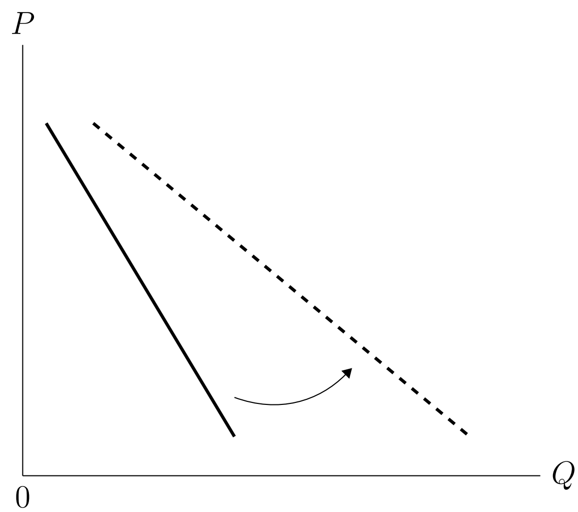
Figure 1: Shifts in demand

This figure presents illustrations of demand curve shifts. Panel A shows the changes in the demand curve as ESG combined scores increase. Panel B illustrates the impact of an equal magnitude demand shock to the prices of low- versus high-ESG firm stocks, denoted with superscripts "L" and "H," respectively. P, Q, S, and D denote price, quantity, supply, and demand, respectively. The subscripts 1 and 2 denote the time periods before and after the demand shock, respectively.

Panel A: Increased elasticity due to increase in ESG ratings



Panel B: Impact of a negative demand shock to prices

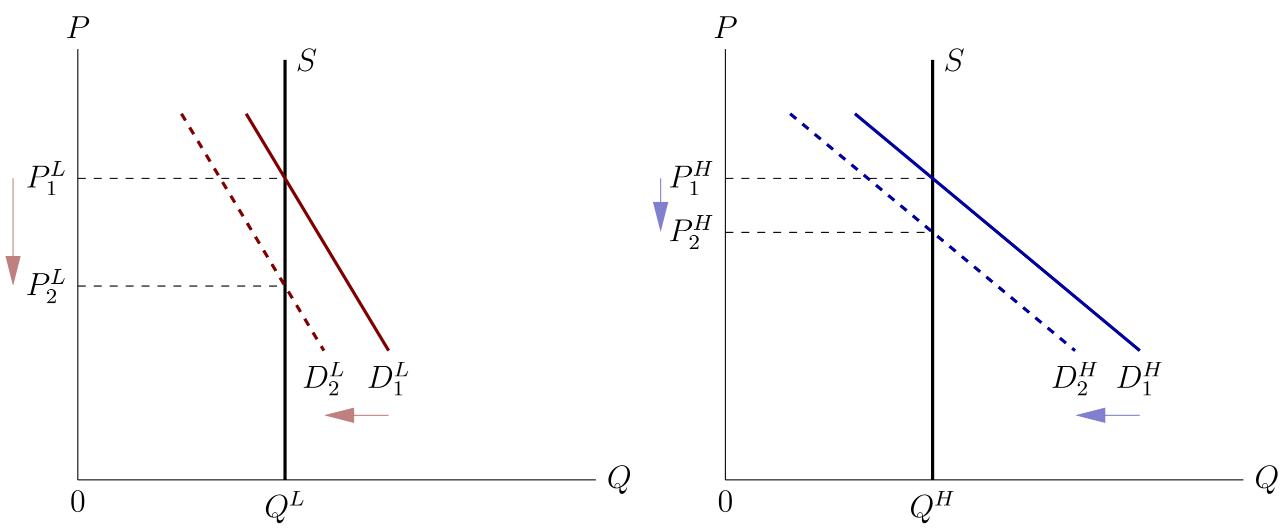


Figure 2: ESG coverage of dividend declarations

This figure presents the ESG coverage of the dividend declarations over the years. The sample period is from 2002 to 2023. A dividend declaration is classified as "ESG-covered" if the reference firm has an ESG combined score as of the most recent fiscal year-end prior to the dividend declaration. Detailed descriptions of all variables are provided in Appendix A.

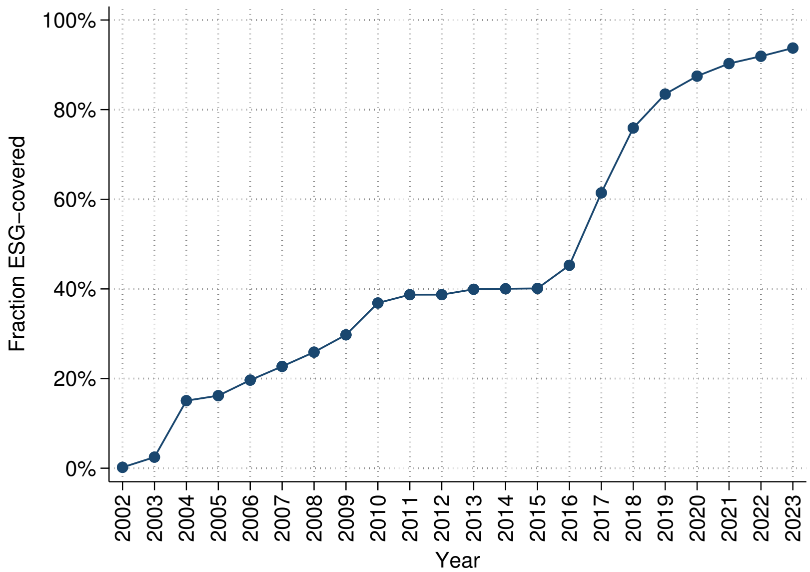


Figure 3: Dividend cuts of ESG-rated firms

This figure presents the prevalence of dividend cuts over the years for the ESG-rated firms. The sample period is from 2002 to 2023. A dividend declaration is classified as a "dividend cut" if the currently declared dividend amount is less than the most recent previous dividend amount. A firm is classified as "ESG-rated" if it has an ESG combined score as of the most recent fiscal year-end prior to the dividend declaration. Detailed descriptions of all variables are provided in Appendix A.

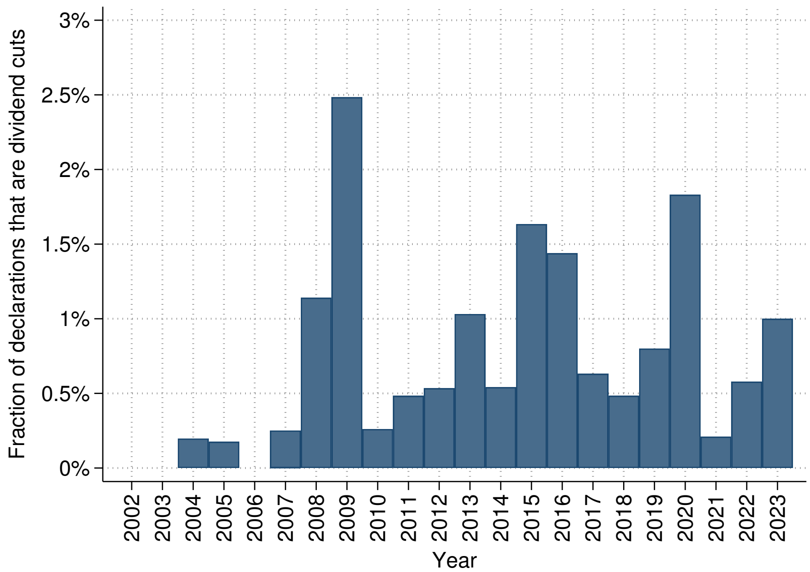


Figure 4: Market reactions to dividend changes of low- versus high-ESG firms

This figure presents the stock market reactions around dividend changes, during [-30, 30] days relative to dividend change declaration date. Panels A and B present the results for dividend cuts and dividend increases, respectively. The sample period is from 2002 to 2023. "CAR" denotes cumulative abnormal returns calculated as compounded stock returns minus compounded value-weighted market returns. The firms are partitioned into "Low ESGC" subsample if their ESG combined score is less than or equal to 50, and into "High ESGC" subsample if their ESG combined score is greater than 50. Detailed descriptions of all variables are provided in Appendix A.

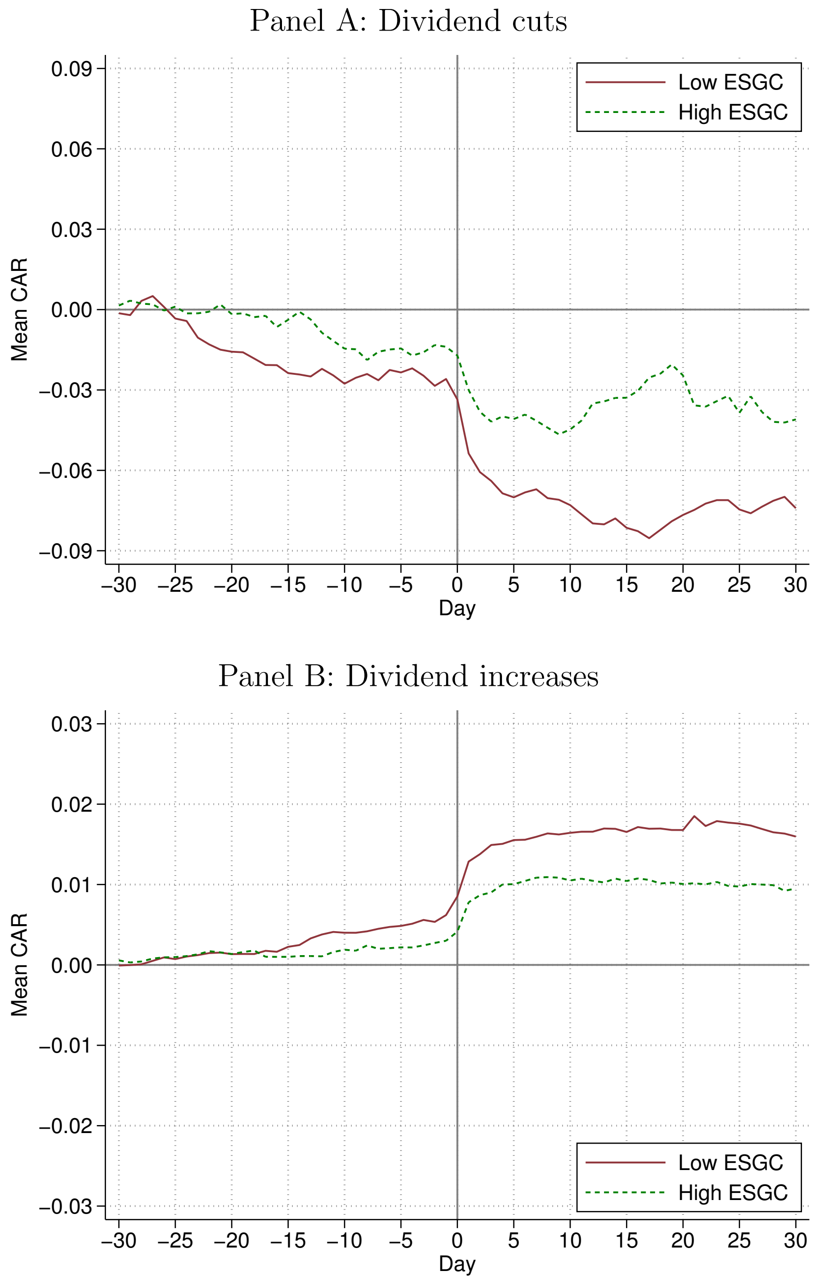


Figure 5: Dividend and high-ESG combined score premia

This figure presents the premiums of dividend-payer and high-ESG combined score indicators over the years. The sample period is from 2002 to 2023. I estimate the following models year-by-year, separately for dividend-payer and high-ESGC score indicators, and report the coefficient estimate of each indicator (β_1) in this figure:

$$M/B\,ratio_i = \beta_0 + \beta_1 I(Dividend\,payer)_i + \sum_j \beta_j Controls_i + \varepsilon_i,$$

$$M/B\,ratio_i = \beta_0 + \beta_1 I(High\,ESGC\,score)_i + \sum_j \beta_j Controls_i + \varepsilon_i.$$

"I(Dividend payer)" is an indicator variable that equals one if the firm pays dividend, and zero otherwise. "I(High ESGC score)" is an indicator variable that equals one if the ESG combined score is greater than 50, and zero otherwise. $Controls_i$ include Cash/Assets, Tangibility, Debt/Assets, Cap. Ex./Assets, Return on assets, R&D exp./Assets, I(R&D exp. missing), Stock volatility, Firm age, and Log(Assets). Detailed descriptions of all variables are provided in Appendix A.

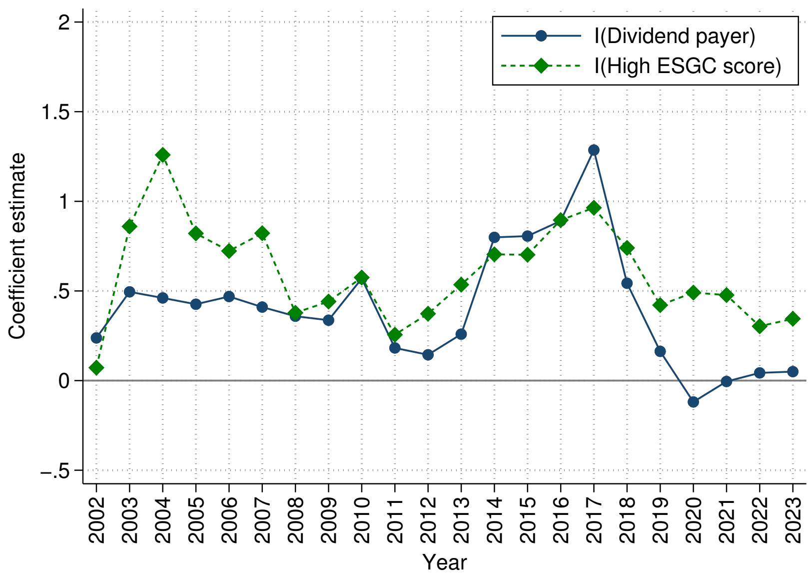


Table 1: Descriptive statistics

This table presents the characteristics of dividend declarations and components of ESG combined scores. The sample period is from 2002 to 2023. Panel A shows the announcement effects of different types of dividend declarations (decrease, no change, or increase in dividends) as well as the characteristics of the reference firms. "$\Delta Dividend$" is the difference between the current and previous dividend. "$CAR_{[-2,2]}$" is the announcement effect, calculated as cumulative market-adjusted equity returns following Baker et al. (2016) and Ham et al. (2020). "Dividend rel. chg." is the change in the dividend relative to previous dividend. "ESG combined score" is the ESG combined score from LSEG database (formerly Refinitiv). Panel B shows the pairwise correlations of the components of ESG combined score with one another and with the combined score. Detailed descriptions of all variables are provided in Appendix A.

Panel A: Dividend declarations

	$\Delta Dividend < 0$ ($N = 280$)			$\Delta Dividend = 0$ ($N = 27,240$)			$\Delta Dividend > 0$ ($N = 6,391$)		
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD
$CAR_{[-2,2]}$	-0.03	-0.02	0.12	0.00	0.00	0.05	0.01	0.01	0.05
Dividend rel. chg.	-0.49	-0.50	0.26	0.00	0.00	0.00	0.16	0.10	0.24
ESG combined score	42.38	40.30	18.74	43.49	42.13	18.90	44.97	43.83	18.73
Environmental s.	34.85	35.14	28.42	35.92	33.38	28.79	38.16	37.50	28.94
Social s.	44.80	40.51	23.59	46.67	43.85	22.90	47.88	45.60	23.00
Governance s.	53.15	55.60	23.47	54.03	56.24	22.10	55.86	57.93	21.58
Controversies s.	86.97	100.00	26.62	86.87	100.00	26.37	86.68	100.00	26.56
Cash/Assets	0.10	0.06	0.10	0.10	0.07	0.11	0.10	0.07	0.11
Debt/Assets	0.34	0.34	0.19	0.29	0.28	0.17	0.29	0.28	0.18
Return on assets	0.06	0.04	0.10	0.07	0.06	0.07	0.08	0.07	0.07
Stock volatility	0.02	0.02	0.01	0.02	0.02	0.01	0.02	0.02	0.01
Firm age	32.70	26.00	23.05	37.09	34.00	24.26	38.33	35.00	24.86
M/B ratio	1.79	1.31	1.21	2.00	1.61	1.17	2.18	1.76	1.25
Total assets	22,112	6,688	68,488	20,990	6,529	47,917	23,351	7,704	50,995

Panel B: ESG combined score components

	ESG combined score	Environmental s.	Social s.	Governance s.	Controversies s.
ESG combined score	1				
Environmental s.	0.819***	1			
Social s.	0.834***	0.775***	1		
Governance s.	0.642***	0.418***	0.402***	1	
Controversies s.	-0.0116*	-0.300***	-0.313***	-0.140***	1

Table 2: Event study of dividend declarations

This table presents the market reactions around dividend declaration dates. The time intervals are relative to the declaration dates and show cumulative abnormal returns ("CAR") for the interval. Cumulative abnormal returns are buy-and-hold abnormal returns calculated as compounded stock returns minus compounded value-weighted market returns. The firms are partitioned into "Low ESGC" subsample if their ESG combined score is less than or equal to 50, and into "High ESGC" subsample if their ESG combined score is greater than 50. "$\Delta Dividend$" is the difference between the current and previous dividend. Panels A, B, and C show the market reactions around decrease, no change, and increase in dividend declarations, respectively. The bootstrapped skewness-adjusted t-statistics according to Lyon et al. (1999) (calculated using the Stata package *eventstudy2* (Kaspereit, 2022)) are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

Panel A: $\Delta Dividend < 0$

	CAR			
Interval:	[-30, -3]	[-2, 2]	[3, 30]	N
Low ESGC	-0.025*	-0.038***	-0.001	189
	(-1.82)	(-4.69)	(-0.06)	
High ESGC	-0.016	-0.020**	0.005	89
	(-1.00)	(-2.26)	(0.32)	

Panel B: $\Delta Dividend = 0$

	CAR			
Interval:	[-30, -3]	[-2, 2]	[3, 30]	N
Low ESGC	0.001	0.001***	0.001	17,408
	(0.76)	(3.49)	(1.15)	
High ESGC	0.001	0.001**	0.001	9,724
	(0.95)	(2.68)	(1.55)	

Panel C: $\Delta Dividend > 0$

	CAR			
Interval:	[-30, -3]	[-2, 2]	[3, 30]	N
Low ESGC	0.005***	0.008***	0.002	3,904
	(4.24)	(10.39)	(1.56)	
High ESGC	0.002	0.006***	0.001	2,457
	(1.65)	(6.98)	(0.52)	

Table 3: Announcement effects of dividend declarations

This table presents the announcement effects of dividend declarations and the role of ESG combined scores. The sample consists of the dividend declaration announcements of ESG-rated US public firms from 2002 to 2023. "$CAR_{[-2,2]}$" is the announcement effect, calculated as cumulative market-adjusted equity returns. $I(\Delta Dividend < 0)$ is an indicator variable that equals one if there is a decrease in dividend, and zero otherwise. $I(\Delta Dividend > 0)$ is an indicator variable that equals one if there is an increase in dividend, and zero otherwise. "ESG combined score" is the ESG combined score from LSEG database (formerly Refinitiv). "Dividend rel. chg." is the change in the dividend relative to previous dividend. T-statistics from standard errors clustered by dividend declaration year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

	(1) $CAR_{[-2,2]}$	(2) $CAR_{[-2,2]}$	(3) $CAR_{[-2,2]}$
$I(\Delta Dividend < 0)$	-0.034**	-0.061***	-0.040***
	(-2.72)	(-5.48)	(-3.56)
$I(\Delta Dividend > 0)$	0.006***	0.007***	-0.002
	(5.49)	(3.75)	(-1.60)
ESG combined score		-0.000	-0.000
		(-0.84)	(-0.84)
ESG combined score × $I(\Delta Dividend < 0)$		0.001**	0.001**
		(2.37)	(2.43)
ESG combined score × $I(\Delta Dividend > 0)$		-0.000	0.000
		(-0.50)	(0.74)
Dividend rel. chg.			0.059***
			(8.83)
Dividend rel. chg. × |Dividend rel. chg.|			-0.027***
			(-7.79)
Intercept	0.001**	0.002**	0.002**
	(2.34)	(2.67)	(2.67)
Observations	33,911	33,911	33,911
Adjusted R^2	0.006	0.006	0.009

Table 4: Reactions to dividend decreases and increases

This table compares the market reactions to dividend decreases and increases. The sample consists of the dividend declaration announcements of ESG-rated US public firms from 2002 to 2023. "$\Delta Dividend$" is the difference between the current and previous dividend. "$CAR_{[-2,2]}$" is the announcement effect, calculated as cumulative market-adjusted equity returns. "ESG combined score" is the ESG combined score from LSEG database (formerly Refinitiv). "Dividend rel. chg." is the change in the dividend relative to previous dividend. T-statistics from standard errors clustered by dividend declaration year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

	$\Delta Dividend < 0$		$\Delta Dividend > 0$	
	(1) $CAR_{[-2,2]}$	(2) $CAR_{[-2,2]}$	(3) $CAR_{[-2,2]}$	(4) $CAR_{[-2,2]}$
Dividend rel. chg.	0.150*	0.235**	0.052***	0.054***
	(2.00)	(2.64)	(7.72)	(5.12)
Dividend rel. chg. × |Dividend rel. chg.|	-0.074	-0.071	-0.024***	-0.024***
	(-0.84)	(-0.80)	(-6.58)	(-6.22)
ESG combined score	0.062**	-0.034	0.000	0.001
	(2.51)	(-0.83)	(0.12)	(0.20)
ESG combined score × Dividend rel. chg.		-0.200**		-0.003
		(-2.51)		(-0.15)
Intercept	-0.008	0.034	0.001	0.001
	(-0.59)	(1.45)	(0.46)	(0.23)
Observations	280	280	6391	6391
Adjusted R^2	0.033	0.037	0.014	0.014

Table 5: Does cheap talk work?

This table presents the announcement effects of dividend declarations and the role of ESG combined scores versus ESG washing practices. The sample consists of the dividend declaration announcements of ESG-rated US public firms from 2002 to 2023. "$CAR_{[-2,2]}$" is the announcement effect, calculated as cumulative market-adjusted equity returns. I($\Delta Dividend < 0$) is an indicator variable that equals one if there is a decrease in dividend, and zero otherwise. I($\Delta Dividend > 0$) is an indicator variable that equals one if there is an increase in dividend, and zero otherwise. "ESG combined score" is the ESG combined score from LSEG database (formerly Refinitiv). "ESG washing score" is the ESG combined score minus the raw ESG score (raw ESG scores are obtained from LSEG database). "Dividend rel. chg." is the change in the dividend relative to previous dividend. T-statistics from standard errors clustered by dividend declaration year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

	(1) $CAR_{[-2,2]}$	(2) $CAR_{[-2,2]}$
I($\Delta Dividend < 0$)	-0.059***	-0.038***
	(-5.28)	(-3.33)
I($\Delta Dividend > 0$)	0.007***	-0.002
	(3.62)	(-1.60)
ESG combined score	-0.000	-0.000
	(-0.80)	(-0.80)
ESG combined score × I($\Delta Dividend < 0$)	0.001**	0.001**
	(2.50)	(2.55)
ESG combined score × I($\Delta Dividend > 0$)	-0.000	0.000
	(-0.51)	(0.71)
ESG washing score	-0.000	-0.000
	(-1.34)	(-1.34)
ESG washing score × I($\Delta Dividend < 0$)	-0.001	-0.001
	(-0.95)	(-0.96)
ESG washing score × I($\Delta Dividend > 0$)	0.000	0.000
	(0.23)	(0.87)
Dividend rel. chg.		0.059***
		(9.07)
Dividend rel. chg. × |Dividend rel. chg.|		-0.027***
		(-7.91)
Intercept	0.002**	0.002**
	(2.71)	(2.71)
Observations	33,911	33,911
Adjusted R^2	0.006	0.009

Table 6: Dividend cuts and ESG combined score components

This table presents the impact of different pillars of ESG combined scores on the announcement effect of dividend cuts. The sample period is from 2002 to 2023. The components of ESG combined scores are obtained from LSEG database (formerly Refinitiv). T-statistics from standard errors clustered by dividend declaration year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

	(1) $CAR_{[-2,2]}$	(2) $CAR_{[-2,2]}$	(3) $CAR_{[-2,2]}$	(4) $CAR_{[-2,2]}$
Dividend rel. chg.	0.194**	0.188*	0.218**	0.263*
	(2.37)	(1.93)	(2.33)	(2.04)
Dividend rel. chg. × |Dividend rel. chg.|	-0.073	-0.080	-0.092	-0.083
	(-0.81)	(-0.91)	(-1.01)	(-0.93)
Environmental s.	-0.023			
	(-0.85)			
Environmental s. × Dividend rel. chg.	-0.126**			
	(-2.49)			
Social s.		-0.026		
		(-0.65)		
Social s. × Dividend rel. chg.		-0.069		
		(-0.62)		
Governance s.			0.000	
			(0.01)	
Governance s. × Dividend rel. chg.			-0.095	
			(-1.29)	
Controversies s.				-0.037
				(-0.82)
Controversies s. × Dividend rel. chg.				-0.114
				(-0.95)
Intercept	0.027*	0.031	0.021	0.054
	(1.76)	(1.28)	(0.80)	(1.27)
Observations	280	280	280	280
Adjusted R^2	0.034	0.021	0.031	0.024

Table 7: Dividend premiums and ESG combined scores

This table presents the impact of ESG combined scores on dividend premiums. The sample in "All firms" estimation includes all non-financial public firms in both CRSP and Compustat from 2002 to 2023. The sample in "ESG-rated firms" includes all non-financial public firms in both CRSP and Compustat with ESG combined scores from 2002 to 2023. "I(Dividend payer)" is an indicator variable that equals one if the firm pays dividend, and zero otherwise. "I(High ESGC score)" is an indicator variable that equals one if the ESG combined score is greater than 50, and zero otherwise. "I(ESGC coverage)" is an indicator variable that equals in if the firm has an ESG combined score, and zero otherwise. T-statistics from standard errors clustered by firm and year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

	All firms	ESG-rated firms
	(1) M/B ratio	(2) M/B ratio
I(Dividend payer)	0.300***	0.225**
	(6.76)	(2.70)
I(High ESGC score)	0.471***	0.175*
	(3.64)	(1.87)
I(High ESGC score) $\times$ I(Dividend payer)	-0.334**	-0.117
	(-2.57)	(-1.09)
I(ESGC coverage)	0.256**	
	(2.13)	
I(ESGC coverage) $\times$ I(Dividend payer)	0.051	
	(0.39)	
Cash/Assets	1.286***	0.508
	(4.44)	(0.69)
Tangibility	-2.030***	-1.838***
	(-3.73)	(-3.41)
Debt/Assets	2.295***	0.367
	(2.84)	(0.72)
Cap. Ex./Assets	3.678***	4.493***
	(4.32)	(6.57)
Return on assets	-0.009	0.073
	(-0.28)	(1.00)
R&D exp./Assets	2.264***	2.353***
	(5.88)	(3.46)
I(R&D exp. missing)	-0.183	0.236
	(-1.28)	(1.55)
Stock volatility	-8.228***	-9.278**
	(-3.19)	(-2.76)
Firm age	-0.011	0.009
	(-0.80)	(0.62)
Log(Assets)	-0.867***	-0.785***
	(-5.83)	(-5.14)
Intercept	7.393***	8.334***
	(7.16)	(5.99)
Firm FE	Y	Y
Year FE	Y	Y
Observations	83,027	17,900
Adjusted R^2	0.536	0.583

Appendix A Variable definitons

Variable name	Definition	Source
$CAR_{[-2,2]}$	Cumulative abnormal return over the trading days [-2, 2] relative to dividend declaration date, calculated as compounded stock return minus compounded value-weighted market return over the same period, following Baker et al. (2016) and Ham et al. (2020).	CRSP
$\Delta Dividend$	Current dividend minus previous dividend: $D_t - D_{t-1}$, where D_t and D_{t-1} denote the current and previous dividends, respectively.	CRSP
Dividend rel. chg.	Change in dividend relative to the previous dividend: $(D_t - D_{t-1})/D_{t-1}$, where D_t and D_{t-1} denote the current and previous dividends, respectively. Following Ham et al. (2020), I winsorize the relative changes for dividend increases at 200%.	CRSP
Dividend rel. chg. × |Dividend rel. chg.|	"Dividend rel. chg." multiplied with the absolute value of "Dividend rel. chg."	CRSP
ESG combined score	The combined score of environmental, social, governance, and controversies components, obtained from LSEG database (formerly Refinitiv). This score ranges from 0 to 100, with the higher the score, the better.	LSEG
ESG score	The combined score of environmental, social, and governance components. This score ranges from 0 to 100, with the higher the score, the better.	LSEG
Environmental s.	Environmental score of the firm. This score ranges from 0 to 100 and indicates percentile standing of the firm within its industry group, with the higher the score, the better.	LSEG
Social s.	Social score of the firm. This score ranges from 0 to 100 and indicates percentile standing of the firm within its industry group, with the higher the score, the better.	LSEG
Governance s.	Governance score of the firm. This score ranges from 0 to 100 and indicates percentile standing of the firm within its country of incorporation, with the higher the score, the better.	LSEG
Controversies s.	ESG controversies score of the firm. This score ranges from 0 to 100 and indicates percentile standing of the firm within its industry group, with the higher the score, the better.	LSEG
M/B ratio	Market-to-book ratio, calculated as: (book value of total assets (at) − book value of equity (ceq) + market value of equity ($csho \times prcc\_f$))/book value of total assets. Winsorized at the 1% and 99% levels.	Compustat
Cash/Assets	The ratio of cash and short-tem investments (che) to total assets. Winsorized at the 1% and 99% levels.	Compustat
Tangibility	The ratio of net plant, property, and equipment ($ppent$) to total assets. Winsorized at the 1% and 99% levels.	Compustat
Debt/Assets	The ratio of short- and long-term debt ($dlc + dltt$) to total assets. Winsorized at the 1% and 99% levels.	Compustat
Cap. Ex./Assets	The ratio of capital expenditures ($capx$) to total assets. Winsorized at the 1% and 99% levels.	Compustat
Return on assets	The ratio of net income (ni) to previous year total assets. Winsorized at the 1% and 99% levels.	Compustat
R&D exp./Assets	The ratio of research and development expenses (xrd) to previous year total assets. If the research and development expense is missing I assume that it is zero. Winsorized at the 1% and 99% levels.	Compustat
I(R&D missing)	Equals one if research and development expense (xrd) is missing, and zero otherwise.	Compustat
Stock volatility	Standard deviation of daily stock returns in the fiscal year. Winsorized at the 1% and 99% levels.	Compustat and CRSP
Firm age	The current fiscal year minus the year firm first appeared in the CRSP database. Winsorized at the 1% and 99% levels.	Compustat and CRSP
Log(Assets)	Natural logarithm of total assets.	Compustat

Appendix B Additional results

Table B.1: Announcement effects of dividend declarations

This table presents the announcement effects of dividend declarations and the role of ESG combined scores with additional control variables. The sample consists of the dividend declaration announcements of ESG-rated US public firms from 2002 to 2023. "$CAR_{[-2,2]}$" is the announcement effect, calculated as cumulative market-adjusted equity returns. I($\Delta Dividend < 0$) is an indicator variable that equals one if there is a decrease in dividend, and zero otherwise. I($\Delta Dividend > 0$) is an indicator variable that equals one if there is an increase in dividend, and zero otherwise. "ESG combined score" is the ESG combined score from LSEG database (formerly Refinitiv). "Dividend rel. chg." is the change in the dividend relative to previous dividend. T-statistics from standard errors clustered by dividend declaration year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

	(1) $CAR_{[-2,2]}$	(2) $CAR_{[-2,2]}$	(3) $CAR_{[-2,2]}$
I($\Delta Dividend < 0$)	-0.033**	-0.034**	-0.034**
	(-2.54)	(-2.60)	(-2.55)
I($\Delta Dividend > 0$)	-0.001	-0.001	-0.001
	(-0.99)	(-0.84)	(-0.89)
ESG combined score	0.000	0.000*	0.000**
	(0.29)	(2.05)	(2.32)
ESG combined score × I($\Delta Dividend < 0$)	0.001**	0.001**	0.001**
	(2.47)	(2.47)	(2.46)
ESG combined score × I($\Delta Dividend > 0$)	-0.000	-0.000	-0.000
	(-0.23)	(-0.27)	(-0.08)
Dividend rel. chg.	0.058***	0.057***	0.058***
	(7.54)	(7.65)	(7.98)
Dividend rel. chg. × |Dividend rel. chg.|	-0.026***	-0.026***	-0.026***
	(-7.01)	(-7.02)	(-7.30)
Cash/Assets			-0.000
			(-0.08)
Debt/Assets			0.004
			(1.30)
Return on assets			-0.018*
			(-2.04)
Stock volatility			0.157
			(1.54)
Firm age			-0.000
			(-1.06)
M/B ratio			-0.004***
			(-6.11)
Log(Assets)			-0.005***
			(-5.22)
Intercept	0.001	-0.001	0.050***
	(0.76)	(-0.77)	(5.10)
Firm FE	Y	Y	Y
Year FE	N	Y	Y
Observations	33,911	33,911	33,911
Adjusted R^2	0.028	0.029	0.032

Table B.2: Reactions to dividend decreases and increases

This table compares the market reactions to dividend decreases and increases with additional control variables. The sample consists of the dividend declaration announcements of ESG-rated US public firms from 2002 to 2023. "$\Delta Dividend$" is the difference between the current and previous dividend. "$CAR_{[-2,2]}$" is the announcement effect, calculated as cumulative market-adjusted equity returns. "ESG combined score" is the ESG combined score from LSEG database (formerly Refinitiv). "Dividend rel. chg." is the change in the dividend relative to previous dividend. T-statistics from standard errors clustered by dividend declaration year are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% levels, respectively. Detailed descriptions of all variables are provided in Appendix A.

	$\Delta Dividend < 0$		$\Delta Dividend > 0$	
	(1) $CAR_{[-2,2]}$	(2) $CAR_{[-2,2]}$	(3) $CAR_{[-2,2]}$	(4) $CAR_{[-2,2]}$
Dividend rel. chg.	0.264**	0.451*	0.056***	0.041***
	(2.71)	(2.05)	(5.53)	(3.52)
Dividend rel. chg. × |Dividend rel. chg.|	-0.103	-0.156	-0.025***	-0.019***
	(-1.07)	(-0.84)	(-6.64)	(-4.02)
ESG combined score	-0.001	-0.001	0.000	0.000
	(-1.21)	(-0.62)	(1.31)	(0.29)
ESG combined score × Dividend rel. chg.	-0.002*	-0.005*	-0.000	0.000
	(-2.05)	(-1.92)	(-0.33)	(0.60)
Cash/Assets	0.129*	0.543	0.009	0.018
	(1.91)	(1.44)	(0.98)	(1.24)
Debt/Assets	0.052	0.037	0.004	0.000
	(1.38)	(0.20)	(1.31)	(0.04)
Return on assets	-0.100	-0.088	-0.012	-0.024**
	(-1.32)	(-0.44)	(-0.82)	(-2.78)
Stock volatility	-1.606*	3.102	0.116**	-0.094
	(-2.02)	(0.73)	(2.40)	(-0.57)
Firm age	0.000	0.001***	0.000*	-0.000
	(0.68)	(5.65)	(1.99)	(-0.79)
M/B ratio	0.006	-0.025	-0.002**	-0.003*
	(1.14)	(-0.61)	(-2.68)	(-2.01)
Log(Assets)	0.000	-0.047	-0.001**	-0.006**
	(0.08)	(-1.00)	(-2.81)	(-2.70)
Intercept	0.043	0.367	0.008	0.070**
	(0.77)	(0.73)	(1.67)	(2.75)
Firm FE	N	Y	N	Y
Year FE	N	Y	N	Y
Observations	280	280	6,391	6,391
Adjusted R^2	0.054	0.570	0.017	0.083