# Sustainability and Dividends: Complements or Substitutes?

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*Article*

# Sustainability and Dividends: Complements or Substitutes?

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**Abstract:** We examine the relation between environmental, social, and governance commitment levels (ESG) and firm dividend payer status. Given that larger and more profitable firms are positively associated with both payer status and ESG, it could be that ESG and dividends are complements. However, given that both dividends and ESG relate to firm spending decisions, it may be that the choice is "either/or" and that ESG and dividends are substitutes. We document a positive relation between ESG and dividend payer status in U.S. firms over the period 1991-2016. In particular we find that the proportion of dividend payers is roughly 13% higher for firms with positive ESG compared to those with negative ESG. Including ESG in the models used to predict payer status provides, on average, a nearly 26% improvement in relative forecast accuracy. Our results are robust to estimation techniques and the inclusion of variables known to be determinants of payer status.

**Keywords:** dividend policy; ESG

**JEL Classification:** D81; G13; G31; M14; K42

## 1. Introduction

Much of the literature on environmental, social, and governance commitments (ESG) focuses on determining the value of ESG programs. One common limitation in such analysis is that causality is difficult to determine. For instance, it may be that ESG leads to greater profitability or alternatively that greater profitability leads to better ESG. Our paper takes a different approach by avoiding the question of optimal ESG policies and instead focuses on the relation between two strategic corporate decisions: dividends and promoting sustainability via an ESG focus. Thus, we do not seek to answer whether or not ESG is value enhancing but rather to document the relation between two important uses of cash.

The literature has linked ESG to many financial decisions and outcomes including: returns (Andries, 2014), idiosyncratic volatility (Mishra and Modi, 2013), institutional ownership (Borghesi et al., 2014), loan access (Goss and Roberts, 2011, and Kim et al., 2014), founder political affiliation (Di Giuli and Kostovetsky, 2014, Kim et al., 2014), analyst forecasts (Becchetti et al., 2013), capital allocation (Bhandari and Javakhadze, 2017), and cash holdings (Cheung, 2016). However, the relation between ESG and firm dividend policy has received less attention. Some of the earliest literature considering the link of ESG and dividend policy are Rakotomavo (2012), Cheung et al. (2016), and Benlemlih (2019) and Samet and Jarboui (2017). These papers document a positive relation between ESG and the dividend payout ratio. Cassimon et al. (2016), conversely, model a predicted negative link between dividends and ESG projects, and Masulis and Reza (2015) find that after the 2003 tax cuts ESG spending declines following dividend increases. This suggests a negative relation between ESG and dividends. However, ESG has also recently been seen as complementary to signaling via dividends by Seth and Mahenthiran (2022).

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Thus, the current literature does not reach a consistent conclusion on the relation between ESG and the dividend payout ratio. The focus of this paper is not on the dividend payout ratio, but rather the determinants of dividend payer status. In particular, while other papers on ESG and dividends focus on payout proportion among the universe of payers, we consider whether a sustainability focus is linked to the choice of a firm on whether or not to pay dividends at all. This is an important distinction given that only roughly 43% of the firms in our sample are dividend payers. As earlier papers focus on the payout levels of only the 43% of firms who pay, the full scope of the relation between dividends and ESG has been, heretofore, a lesser focus of the literature. With our broader focus on the decision to pay dividends, vis a vis ESG, we provide increased perspective on the interplay between two important pieces of corporate policy.

With respect to the dividend payout ratio, Cheung et al. (2016) suggest that the positive relation is due to the fact that ESG causes greater profitability, and more profitable firms have higher payout ratios. Similarly, Rakotomavo (2012) finds that more profitable firms engage in ESG, and ESG spending doesn't limit dividend payout. Consistent with this result, larger firms and firms that generate significant cash flows are more likely to both engage in ESG (Borghesi et al., 2014) and to pay dividends (Fama and French, 2001). Benlemlih (2019) argues that the positive link is due to firms' desire to manage agency issues which may lead to overspending on ESG. While positively linking ESG to payout policy, Samet and Jarbouri (2017) note a preference of high-ESG firms for share repurchases. Harper and Sun (2019) find a positive link between pro-sustainability firm policy and cash positions.

Our paper offers an alternative perspective based on dividend signaling. Under the free cash flow hypothesis of Jensen (1986), managers with excess cash have the choice to either pay dividends to shareholders or potentially waste the funds on negative-NPV projects. In this scenario, dividend changes signal information about the misuse of cash by managers. Lang and Litzenberger (1989) develop the cash flow signaling hypothesis which predicts that dividends signal information about future investments. Their evidence, however, indicates that overinvesting firms see greater market reactions upon dividend increases. Thus, the market responds favorably to the news that such firms are less likely to waste cash, consistent with the free cash flow hypothesis. Conversely, Denis et al. (1994) find that overinvesting firms increase capital expenditures following dividend increases. Similarly, Yoon and Starks (1995) find that dividend increases signal increased capital expenditures. Both results are consistent with the free cash flow hypothesis.

One potential investment for firms is ESG. Benlemlih and Bitar (2016) find that firms with higher ESG have greater investment efficiency. That is, high-sustainability firms are more likely to take on positive-NPV projects and avoid negative-NPV projects. To the extent that dividends and capital expenditures are positively (negatively) linked, this result would suggest that ESG and dividends are complements (substitutes). However, the relation between ESG and dividends is an empirical question, and it is not necessary for our purposes to take an a priori stance on the link between dividends and capital expenditures.

If ESG is viewed analogously to firm investment in sustainability, then the above literature provides guidance on the expected relation between dividends and ESG. In particular, it may be that firms with excess cash are able to afford spending on both ESG and dividends. Thus, ESG and dividends would be complements. Consistent with this possibility, Cheung (2016) finds a positive link between ESG and cash holdings. If ESG is a positive (negative) NPV endeavor, then a complementary relation would be value maximizing (destroying).

Alternatively, it may be that firms with relatively more limited cash must choose between ESG and dividends such that they are substitutes. If ESG spending is negative NPV, this possibility is consistent with Lang and Litzenberger (1989) who argue that firms that payout via dividends are less likely to take on negative-NPV projects. Even if ESG spending is positive NPV, it may still be that dividends and ESG are substitutes. In particular, the existence of positive-NPV projects for the firm, including ESG, may indicate that shareholders are better served bypassing dividends. Regardless of the financial merits of ESG, however, the relation between ESG and dividends is an empirical question which we address here.

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Another path to a substitute relation between ESG and dividends is that firm CEOs may derive private benefits from ESG spending such that they prefer ESG to dividends. Consistent with this possibility, Masulis and Reza (2015) find that after the 2003 Tax Reform Act dividend increases are associated with decreased ESG spending. They relate this to the fact that tax changes made it more costly for CEOs to pursue private benefits via charitable contributions. Thus, some firms substituted spending on charity for dividends after the tax change and presumably substituted the reverse direction prior to the tax cut.

Our results support the interpretation of ESG and dividends as complements. Specifically, we find a positive relation between ESG and the propensity of a firm to pay dividends. The positive relation between ESG and dividend-payer status is robust to various estimation techniques. In a simple split of the sample, we find that 52.2% of high-ESG firms are dividend-payers while only 38.8% of low-ESG firms are dividend payers. We confirm this positive relation in logit regressions which control for known determinants of dividend-payer status. The results of our logit regressions indicate that a one standard deviation increase in ESG is associated with between a 7%-11% increase in the likelihood of being a dividend payer.

Further, in the spirit of Fama and French (2001), we estimate a logit model for the period 1991-2005. We then combine the coefficients estimated over this early period of our sample with actual firm characteristics in the 2006-2016 period to generate the expected percent of dividend payers. Our results indicate a positive relation between ESG and payer status. Additionally, we find that including sustainability in our model improves the accuracy of the payer prediction by 26% (2.9%) per year on a relative (absolute) basis compared to a model excluding ESG. Moreover, we find that the macro trends in ESG match the macro trends in dividend-payer status such that when average ESG is lower and declining the proportion of dividend payers is lower and declining.

While the results discussed above control for firm profitability, we conduct additional analysis in which we bifurcate the sample based on profitability. The results indicate that the positive relation between ESG and payer status only holds for above-median profitability firms. Taken collectively, the results indicate that firms which are more profitable are able to spend on both dividends and ESG. Finally, in order to deal with potential endogeneity issues, we conduct a two-stage least squares estimation where initial ESG is the instrumental variable. The complementary relation between ESG and payer status holds in this analysis.

Our result is significant in that it suggests that firms do not necessarily have to choose between dividends and ESG when deciding how to allocate cash. This fact does not diminish the importance of understanding the economic merits of ESG. In particular, if ESG is negative-NPV then shareholders would still prefer additional dividends rather than spending on ESG. Conversely, if ESG is positive-NPV, then increasing both dividend distributions and ESG spending would be rational by managers and optimal for shareholders.

We note that we do not attempt to draw any conclusions about the causal relation between manager motives, ESG spending, and ESG outcomes. In particular, we do not address why firms spend on ESG or whether ESG spending is a positive-NPV project. Instead, we focus on how firm ESG spending relates to another firm decision, namely dividend payout. By focusing on this issue, we clarify one channel through which sustainability spending relates to firm strategy.

## 2. Literature Review and Hypotheses

Bénabou and Tirole (2010) survey the literature on ESG and note that there are three ways of looking at the so-called "Win-Win" view of ESG. Under this view, higher firm ESG is linked to higher profitability, and thus there is no conflict between maximizing shareholder wealth and ESG. The positive link between ESG and profitability may be related to a longer-term view which ultimately may be more profitable. Similarly, there is the potential for strategic ESG which attempts to gain competitive advantage (i.e., increase competitor costs to keep up with environmental efforts, etc.). It may be that stakeholders want firms to undertake ESG on their behalf due to lower corporate transaction costs. Finally, asking the firm to do "good" in environmental and other issues does not have an individual equivalent (i.e., investors cannot write a check to see that a firm sources

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environmentally friendly products). Regardless of the reason, under Win-Win there is no conflict between shareholder wealth maximization and ESG.[1]

The veracity of the Win-Win view of ESG depends on the empirical evidence on the relation between ESG and financial performance. Bénabou and Tirole (2010) note that, overall, empirical evidence finds no, or a slightly positive, relation between ESG and firm returns. In particular, Hong et al. (2012) find no evidence that corporate "goodness" is positively related to firm returns. Bénabou and Tirole (2010) also note that ESG and profitability are clearly endogenous. The most profitable firms have the greatest means to pursue ESG (and dividends for that matter). Thus, the Win-Win view of ESG may not be supported based on historical evidence.

With respect to investor preferences, Bénabou and Tirole (2010) examine the literature on the impact ESG may have on asset prices. They note that environmentally concerned investors can select clean companies such that sustainability may have little impact on prices. Consistent with this possibility, Andries (2014) finds no significant relation between ESG and firm returns. Hong and Kacperczyk (2009) find that "sin" stocks have higher expected future returns due to being ignored by institutions who elect to avoid investment in such stocks. Similarly, for high-ESG firms Borghesi et al. (2014) find institutional ownership is negatively related to ESG. They find evidence that ESG investments may be part of a strategy for political gain or to create goodwill. Thus, there is some evidence that high-sustainability policies may influence market participants and, subsequently, asset prices.

There is a growing body of work examining ESG and other dimensions of the firm. For instance, Mishra and Modi (2013) find that high (low) ESG is linked to low (high) idiosyncratic volatility. Other research relating ESG to firm variables includes Goss and Roberts (2011) who find that high-ESG firms are able to obtain lower cost loans (by 7-18 bps). Kim et al. (2014) find similar evidence in the syndicated loan market. Di Giuli and Kostovetsky (2014) and Kim et al. (2014) find that Democratic-founded firms score higher on ESG than Republican-founded firms. There is no evidence that such firms recover increased expenditures through increased sales, and increases in ESG ratings are related to negative future stock returns. Their results suggest that ESG is at the cost of maximizing firm value. Wu and Shen (2013) show that the relation between ESG and returns for banks depends on the motives (strategic, altruism, and greenwashing) and find positive, non-negative, and non-existent relations for the three motives, respectively. Becchetti et al. (2013) find that elements of ESG are related to the absolute forecast error of EPS. High ESG contributes to unbiased EPS estimates.

Dividend signaling suggests that firms convey information through dividends (Modigliani and Miller, 1961). Traditionally, such signals have been linked to firm quality and earnings stability. Such characteristics were found by Borghesi et al. (2014) to be related to sustainability. . Thus, the typically observed positive market response to dividend initiations (e.g. Asquith and Mullins (1983) and Officer (2011)) is attributed to signals of the firm's future earnings. Thus, it may be that ESG and dividends are complements. The existing ESG and dividend policy literature provides evidence consistent with this explanation (Rakotomavo (2012), Benlemlih (2019), and Cheung et al. (2016)) in the context of the payout ratio.

However, Masulis and Reza (2015) find that dividend increases are linked to decreased ESG spending (via charitable contributions) after the 2003 Tax Reform Act. Thus, ESG and dividends may be substitutes. A substitute relation is also possible if ESG is positive NPV and a rational manager pursues such spending, rather than dividends, due to shareholder wealth maximization motives. If ESG is negative NPV, then a substitute relation may stem from the observation that dividend spending has been linked to a lower likelihood of wasteful spending (Lang and Litzenberger, 1989).

[1] Another view is insider-initiated ESG (see Cheng et al. 2014 for detailed discussion). In this case, philanthropy supports board members or management views and profit is not typically maximized.

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## 3. Data and Methodology

Our explanatory variables of interest involve Corporate Social Responsibility (ESG) levels as measured in the KLD database via MSCI. KLD covers around 650 companies of the Domini 400 Social SM Index and the Standard & Poor's (S&P) 500 from 1991-2002, and its coverage increases to over 3000 firms of the Russell 3000 beginning in 2003. Following the methodology of Deng et al. (2013) we create an adjusted ESG measure (AdjESG) which combines data across seven areas: community, corporate governance, diversity, employee relations, environment, human rights, and product quality and safety. We replicate the Deng et al., (2013) method and calculate average scores of each of the seven fields by firm-year observation and average these seven fields to compute our adjusted ESG measure, AdjESG. This approach corrects for data coverage discrepancies of firms across firms and time (Manescu, 2009). This is consistent with Cheung et al. (2016). For robustness, we alternatively consider a slight modification in the construction of AdjESG. We omit charitable giving measures (which we consider distinctly in separate analysis) from construction of AdjESG and thereby construct the slightly modified explanatory measure AdjESG2. The omission of charitable giving is driven by the Masulis and Reza (2015) finding that charitable giving is negatively related to dividends, relative to other papers, which find that ESG is generally more positively related to dividends. Within the KLD data, charitable giving is binary variable equal to one if the dimension is categorized as a firm strength and zero otherwise. We note that ChGiving data is only available through 2011 while our AdjESG measure is available through 2015. Beyond considering the direct link between AdjESG and dividend policy, we consider whether changes in AdjESG from one firm-year to the following year (AdjESG D1-Year) are linked to payout characteristics.

Those firms with ordinary quarterly dividends (CRSP code 1232) paid in the calendar year following the construction of the firm's AdjESG measure are noted as dividend payers (DivPayer = 1). Dividend yield (DivYield) is the sum of a firm's quarterly dividends in a calendar year divided by its opening, calendar-year stock price (from CRSP).

Our experimental design links AdjESG levels at the end of calendar year t to dividend measures at the end of calendar year t+1. We consider logistic regression models explaining DivPayer which include a number of controls, all calculated as nearly as possible to the end of calendar year t+1.

CRSP data are further utilized to construct a number of control measures. We utilize the control variables found in Becker et al. (2011) and Krieger et al. (2013). The basis for inclusion of these variables comes from the extensive literature on payout policy. Fama and French (2001) find that dividend payers are generally more profitable, larger, and have fewer growth opportunities. Thus, we include Size, which is the log of market capitalization at the end of year t, based on shares outstanding and year-end stock price data. Ret is the return of the firm from the end of year t-2 through the end of year t. Firms with higher volatility are thought to be less comfortable in issuing dividends. Volatility is the standard deviation of the two years of monthly CRSP returns of the firm from the end of year t-2 through the end of year t. Finally, as more established firms are thought to be more likely to pay dividends, we use the IPO date of the firm, recorded in CRSP, to create four dummy variables indicating the length of time that a firm has been publicly traded (specifically from 1-5 years, 6-10 years, 11-15 years, or 16-20 years). For firms that have been publicly trading for over 20 years, all four of these age, dummy variables take the value 0.

COMPUSTAT data are used to construct additional control measures. In cases of companies that do not employ calendar fiscal years, the latest COMPUSTAT data compiled completely before the beginning of calendar year t+1 are utilized. Net income (NetIncome), cash (Cash), and long-term debt (Debt) controls are taken directly from COMPUSTAT with each control variable scaled by its firm total assets. These measures have been shown in the literature (e.g., Brav et al., (2005) and Brav et al. (2008)) to be predictive of dividend policy. The growth rate in total assets from the prior year (AssetGrowth) and the standard deviation of the most recent three years of earnings growths (EarnGrVol) serve as additional controls representative of investment opportunities and stability. Q is approximated using the market-to-book ratio to capture another measure of growth opportunities of the firm. Furthermore, SIC code data from COMPUSTAT are used to construct industry dummy variables used in much of our analysis. We exclude utilities (2-digit SIC code 49) and financial

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companies (2-digit SIC codes 60-69) from all analysis herein. We Winsorize continuous explanatory variables at the 1% and 99% levels. Data coverage begins in 1991, limited by the beginning of ESG data collection from KLD.

Our analysis begins by comparing the ESG levels of those firms which do and do not pay dividends with a simple, two-sample t-test approach. We then proceed to logistic modeling approaches which seek to predict a firm's dividend-payer status based on ESG levels. For robustness, we consider different subsets of control variables in our modeling environment with a full model of:

$$\text{Logit}(\text{DivPayer}_{i,t+1}) = \text{Constant}_{i,t} + \text{ESG}_{i,t} + \text{Char}_{i,t} + \text{Year}_{i,t} + \text{Age}_{i,t} + \text{Industry}_{i,t} + \varepsilon_{i,t} \quad (1)$$

where, for firm i in year t, $\text{ESG}_{i,t}$ is one of our explanatory variables of interest in this study (AdjESG; AdjESG2; AdjESG D1-Year; AdjESG2 D1-Year). $\text{Char}_{i,t}$ is a vector of characteristic controls included for robustness, namely: Size, NetIncome, Cash, Q, Debt, Ret, EarnGrVol, Volatility, and AssetGrowth. $\text{Year}_{i,t}$ is a vector of dummy variables of calendar years included to control for changes in macroeconomic changes in dividend policy over time. $\text{Age}_{i,t}$ is a vector of age-group dummy variables included to control for firm age, and $\text{Industry}_{i,t}$ is a vector of industry dummy variables included to control for industry when determining dividend policy. The general intuition of our tests is straightforward. A positive (negative) relation between ESG and dividend payer status (DivPayer = 1 for dividend payers; 0 otherwise) indicates that they are complements (substitutes).

As an alternative approach, we consider a methodology utilized by Fama and French (2001). They employ Fama and MacBeth (1973) regressions with payout variables as the dependent variables and firm profitability, asset growth, market-to-book, and the NYSE-size percentile for a firm in a given year serving as controls. We take this approach for the dependent variables DivPayer and DivYield with Newey-West standard errors utilized for inference. To mimic the Fama and French (2001) methodology, three new control measures are introduced. Profit is COMPUSTAT net income divided by equity. Market-to-book is market value at the end of year t divided by the most recent COMPUSTAT book value of equity. Percentile is the NYSE size percentile that the firm falls in for a given year.

For additional perspective, as a robustness measure we reconsider our original logistic regression approach, segmenting our sample in two, based on profitability level (scaled net income). In so doing, we seek supporting evidence for potential substitute or complement relationships between ESG and dividends. For example, a particularly strong negative relationship between ESG and payer status amongst low profitability firms might indicate a substitute relationship. Specifically, firms with relatively limited resources would be more likely to choose between dividends and ESG rather than being able to afford both.

Finally, similar to Bhandari and Javakhadze (2017), we conduct an instrumental variable approach and estimate two-stage least squares (2SLS) regressions in order to address endogeneity concerns prevalent in the ESG literature. We do so by utilizing, as our instrumental variable, the initial level of ESG when it is first available within our sample (FirstESG). As in Bhandari and Javakhadze (2017), we posit no relationship between FirstESG and dividend-payer status (DivPayer) beyond the potentially endogenous measure, ESG[2]. The first of our two stages is then estimated based on this instrumental variable and subsets of our control measures via:

$$\text{PredESG}_{i,t} = \text{Constant}_{i,t} + \text{FirstESG}_{i} + \text{Char}_{i,t} + \text{Year}_{i,t} + \text{Age}_{i,t} + \text{Industry}_{i,t} + \varepsilon_{i,t} \quad (2)$$

Second-stage, probit regression estimations are then made with predicted levels of ESG (based on equation 2) as an explanatory variable, in conjunction with identical subsets of the same control measures used in equation 3:

$$\text{Probit}(\text{DivPayer}_{i,t}) = \text{Constant}_{i,t} + \text{PredESG}_{i} + \text{Char}_{i,t} + \text{Year}_{i,t} + \text{Age}_{i,t} + \text{Industry}_{i,t} + \varepsilon_{i,t} \quad (3)$$

Our rationale is that invoking the 2SLS, instrumental variable approach may provide additional evidence that ESG levels impact the firm choice of whether to pay dividends.

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[2] Such an approach is also utilized in Attig et al., 2013 and Benlemlih and Bitar, 2016.

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The proportion of dividend payers in our sample is about 43%. One of the key differences in our analysis is the focus on payer status, and the infrequency of dividend payers within the full sample partially motivates our interest. In particular, while other papers on ESG and dividends focus on payout proportion among the universe of payers, we focus on whether or not a firm pays dividends at all. Our mean (median) AdjESG of -0.03 (0.00) is consistent with the literature (i.e., Deng et al. (2013) and Cheung et al. (2016)).

## 4. Results

Preliminary results are reported in Table 1, in which we present summary statistics based on a sample bifurcation of ESG. Low (High) AdjESG corresponds to negative (positive) ESG. The results indicate that the % of firms paying dividends in the High-AdjESG group is 52.2% versus 38.8% for the Low-AdjESG group. Thus, there is a 13.4% higher proportion of paying firms in the high-ESG group, a difference which is significant at the 1% level. This is preliminary evidence consistent with a complementary relation between sustainability and dividend-payer status. We note that the difference in DivYield between low- and high-ESG firms is significant in the full sample. However, it is not statistically significant in the "payers only" sample. This difference is driven by the fact that the full sample includes more than half of the firms with 0% yield, as they are non-payers. Collectively, this highlights the importance of focusing on payer status amongst all firms rather than payout levels of *only* paying firms as has been commonly done in prior literature. Our broader scope encompasses consideration of all firms, rather than just a minority subset. In fact, the remainder of our analysis focuses only on payer status and not on dividend yield.

**Table 1.** Table 1, below, presents the sample statistics *DivPayer* and *DivYield* based on a sample bifurcation on AdjESG. Low (High) AdjESG corresponds to ESG scores less than (greater than) zero. *AdjESG* is a variable measuring the ESG of a firm in the manner of Deng et al. (2013). *DivPayer* is a dummy variable denoting whether a firm pays dividends (1 = yes, 0 = no) in the following calendar year. A number of firm characteristic controls are included. *DivYield* is the firm's dividend yield calculated as the total quarterly dividends paid in the following calendar year divided by the stock price at the start of that year. The sample period is from 1991-2016.

| | Low AdjESG | High AdjESG | Difference | t-test | p-value |
|---|---|---|---|---|---|
| DivPayer (%) | 38.80 | 52.23 | -13.43 | -18.25 | 0.000 |
| DivYield | 0.008 | 0.011 | -0.003 | -14.32 | 0.000 |
| DivYield (Payers Only) | 0.0197 | 0.0203 | -0.0006 | -1.14 | 0.254 |
| n | 11224 | 7434 | | | |

We report the results of our logit regression in Table 2. Our variables of interest are AdjESG and AdjESG2 (which excludes charitable giving). In all six specifications, the coefficient on ESG is positive and significant. The economic significance of the result is such that a one standard deviation increase in ESG is associated with an increase in the likelihood of a firm paying dividends of between 7% and 11%, depending on the specification. Thus, consistent with the complement hypothesis, we find that higher ESG scores are linked to a higher likelihood to pay dividends even after controlling for other known determinants of payer status.

The results for our control variables are generally consistent with prior research and match prior expectations. For instance, we find that larger and more profitable firms are more likely to be dividend payers. We note that while the inclusion of these and other control variables does not eliminate the statistical significance of our results, it does reduce their economic significance. That said, the lowest economic significance of the six specifications still indicates that a one standard deviation increase in ESG is associated with an increase of 5% likelihood of dividend-payer status.

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**Table 2.** Table 2, below, presents coefficient estimates, standard deviations, and significance levels for the estimation of logistic regressions linking dividend payer status to ESG levels and controls as described by equation (1). *AdjESG* and *AdjESG2* are variables measuring the ESG level of firms in manners similar to Deng et al. (2013). *DivPayer* is a dummy variable denoting whether a firm pays dividends (1 = yes, 0 = no) in the following calendar year. A number of firm characteristic controls are included. *Size* is the natural log of market capitalization. *EarnGrVol* is the standard deviation of operating income growth over the previous three years from year −2 to 0. *NetIncome*, *Cash*, and *Debt* are scaled by total assets. *Q* is approximated using the market-to-book ratio. *Volatility* is the standard deviation of monthly stock returns over the prior two years. *Ret* is the return of the firm's stock over the prior two years. *AssetGrowth* is the growth rate of total assets over the prior year. Additionally, we include age-group indicator variables which are dummies for firms between 1 and 5, 6 and 10, 11 and 15, and 16 and 20 years old, as well as industry–year interaction dummy, and calendar year dummy variables. All continuous variables are Winsorized at the 1% and 99% levels. The sample period is from 1991-2016. Robust standard errors, clustered by firm, are reported in parentheses and used in all regressions. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **Coeff** | **Coeff** | **Coeff** | **Coeff** | **Coeff** | **Coeff** |
|---|---|---|---|---|---|---|
| Constant | -0.392*** | -3.637*** | -1.450 | -0.391*** | -3.642*** | -1.459 |
| | (0.060) | (0.759) | (0.998) | (0.060) | (0.759) | (1.005) |
| AdjESG | 0.403*** | 0.117** | 0.101** | | | |
| | (0.050) | (0.054) | (0.050) | | | |
| AdjESG2 | | | | 0.399*** | 0.110** | 0.105** |
| | | | | (0.049) | (0.054) | (0.050) |
| Size | | 0.245*** | 0.174*** | | 0.246*** | 0.149*** |
| | | (0.033) | (0.035) | | (0.033) | (0.042) |
| NetIncome | | 4.317*** | 4.553*** | | 4.318*** | 4.556*** |
| | | (0.464) | (0.481) | | (0.464) | (0.492) |
| Cash | | -2.955*** | -2.597*** | | -2.954*** | -2.603*** |
| | | (0.364) | (0.377) | | (0.364) | (0.370) |
| Q | | 0.226*** | 0.177** | | 0.226*** | 0.175** |
| | | (0.074) | (0.076) | | (0.074) | (0.075) |
| Debt | | 0.302 | 0.482* | | 0.301 | 0.478* |
| | | (0.238) | (0.256) | | (0.238) | (0.249) |
| Ret | | 0.011 | 0.036 | | 0.011 | 0.037 |
| | | (0.031) | (0.032) | | (0.031) | (0.031) |
| EarnGrVol | | -0.066*** | -0.079*** | | -0.066*** | -0.079*** |
| | | (0.018) | (0.019) | | (0.018) | (0.018) |
| Volatility | | -16.272*** | -14.464*** | | -16.273*** | -14.462*** |
| | | (1.033) | (1.009) | | (1.033) | (1.012) |
| AssetGrowth | | -1.302 | -1.104*** | | -1.302*** | -1.105*** |
| | | (0.110) | (0.101) | | (0.110) | (0.100) |
| Year Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Age Dummies | No | No | Yes | No | No | Yes |
| Industry Dummies | No | No | Yes | No | No | Yes |
| n | 22572 | 20679 | 20679 | 22572 | 20679 | 20679 |
| McFadden $R^2$ | 0.04 | 0.42 | 0.44 | 0.04 | 0.042 | 0.44 |

Table 3 presents the results of Fama-MacBeth regressions in which payer status (DivPayer = 0 or 1) is the dependent variable. This analysis serves as a robustness check on our methodology. The results for levels of ESG are consistent in that we find that sustainability is positively related to the propensity to pay. One addition to Table 3 is the inclusion of a one-year change in ESG variable.

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The coefficient on this inclusion is not statistically significant. Thus, levels of ESG are positively related to payer status while changes in ESG are unrelated to payer status.

**Table 3.** Table 3, below, presents coefficient estimates, standard deviations, and significance levels for the estimation of Fama-Macbeth (1973) regressions linking dividend payer status to ESG levels and controls. In the spirit of Fama and Macbeth (1973), and following Fama and French (2001), logistic regressions are estimated each year and the standard deviation of the yearly coefficients are used for inference. *AdjESG* and *AdjESG2* are variables measuring the ESG level of firms in manners similar to Deng et al. (2013). The dependent variable, *DivPayer*, is a dummy variable denoting whether a firm pays dividends (1 = yes, 0 = no) in the following calendar year. *Profit* is net income divided by equity. *AssetGrowth* is the growth rate of total assets over the prior year. *Market-to-book* is market value divided by book value of equity. *Percentile* is the NYSE size percentile that the firm falls in for a given year. All continuous variables are Winsorized at the 1% and 99% levels. The sample period is from 1991-2016. Robust standard errors, clustered by firm, are reported in parentheses and used in all regressions. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **Coeff** | **Coeff** | **Coeff** | **Coeff** |
|---|---|---|---|---|
| Constant | -0.702** | -0.702** | -0.414 | -0.412 |
| | (0.344) | (0.344) | (0.300) | (0.298) |
| AdjESG | 0.019** | | | |
| | (0.008) | | | |
| AdjESG2 | | 0.019** | | |
| | | (0.007) | | |
| AdjESG D 1-Year | | | 0.005 | |
| | | | (0.013) | |
| AdjESG2 D 1-Year | | | | 0.005 |
| | | | | (0.013) |
| Profit | 0.994*** | 0.994*** | 0.866* | 0.866* |
| | (0.351) | (0.351) | (0.487) | (0.486) |
| AssetGrowth | -0.614* | -0.615* | -0.890*** | -0.889*** |
| | (0.367) | (0.367) | (0.327) | (0.327) |
| Market-to-book | -1.952** | -1.953** | -1.573 | -1.573 |
| | (0.980) | (0.979) | (1.022) | (1.022) |
| Percentile | 0.527*** | 0.526*** | 0.813*** | 0.813*** |
| | (0.071) | (0.070) | (0.139) | (0.139) |
| n | 20679 | 20679 | 18218 | 18218 |
| Adj $R^2$ | 0.27 | 0.27 | 0.25 | 0.25 |

The analysis in Table 4 is in the spirit of Fama and French (2001). In particular, we estimate a logit model for the period 1991-2005 which matches that used in Table 3. We then combine the coefficients estimated over this early period of our sample with actual firm characteristics in the 2006-2016 period to generate the expected percent of dividend payers on a completely ex ante basis. While the traditional use of this approach has been to document the declining propensity of firms to pay dividends, we have a different use. In particular, we follow Krieger et al. (2013) by estimating our predictive model both including and excluding ESG. This approach has two benefits. First, it allows us to determine the relative importance of ESG, compared to other variables, in explaining the propensity to pay. Second, while our previous results were cross-sectional in nature, the analysis in Table 4 allows us to examine payout over time.

We note that the results in Table 4 match Fama and French (2001) in that we find that the expected proportion of payers is always greater than the actual proportion of payers. However, we note that the difference (or "error") between the actual and expected propensity declines significantly in the later period. For instance, the gap between expected and actual in 2016 is 4.6% compared to a gap of 14.4% in 2006.

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More importantly, for our focus, we find that including sustainability measures in our model improves the accuracy of the payer prediction model. This is true in all years examined as the difference between expected and actual payer proportion is lower for the model including ESG in all eleven years we consider. The average improvement as measured on an absolute basis is 2.9%. On a relative basis, the average improvement is nearly 26%. As an example of the relative comparison, consider the expected-minus-actual gap of 2016. For the model excluding ESG, the gap is 7.4% while it is 4.6% for the model including ESG. Thus, in this case, the model with ESG is an improvement of almost 38% (i.e., |4.6%/7.4% -1|) on a relative basis.

Finally, we note that the general macro trends over time, in Table 4, are generally consistent with the complement relation. In particular, at the beginning of the forecast period, average ESG is negative and the proportion of payers is lower compared to later years. Similarly, by the end of the period, average ESG is positive and the proportion of payers has increased. In an unreported simple regression of aggregate ESG on aggregate actual payer percentage, we find that aggregate average ESG is positively and statistically significantly related to average payer proportion.

Overall, Table 4 provides evidence that including ESG as a regressor improves a model's ability to predict payer status. This improvement is economically meaningful. Further, this result is robust over time and is not driven by other variables such as profitability changes as these are directly controlled for in the estimation equation.

**Table 4.** In Table 4, below, all observations from 1991-2005 are used to estimate logit regressions that explain whether a firm pays dividends (i.e. *DivPayer* = 1) for each remaining year in the sample period. The overall sample period is from 1991-2016. *DivPayer* is a dummy variable denoting whether a firm pays dividends (1 = yes, 0 = no) in the following year. *AdjESG* is a variable measuring the ESG of a firm in the manner of Deng et al. (2013). A number of firm characteristic controls are included. *Size* is the natural log of market capitalization. *EarnGrVol* is the standard deviation of operating income growth over the previous three years from year −2 to 0. *NetIncome*, *Cash*, and *Debt* are scaled by total assets. *Q* is approximated using the market-to-book ratio. *Volatility* is the standard deviation of monthly stock returns over the prior two years. *Ret* is the return of the firm's stock over the prior two years. *AssetGrowth* is the growth rate of total assets over the prior year. Additionally, we include age-group indicator variables which are dummies for firms between 1 and 5, 6 and 10, 11 and 15, and 16 and 20 years old, as well as industry–year interaction dummy, and calendar year dummy variables. Expected % is based on applying the logit regression coefficients for the 1991-2005 period to values of the explanatory variables for each subsequent year. There are two sets of results. One includes *AdjESG* along with control variables, and the other includes only the controls.

| | | | | With AdjESG | | Without AdjESG | |
|---|---|---|---|---|---|---|---|
| | Firms | Avg AdjESG | Actual % | Expected % | Expected - Actual | Expected % | Expected - Actual |
| 1991-2005 | 5875 | -0.079 | 50.1 | | | | |
| 2006 | 1273 | -0.177 | 38.6 | 53.0 | 14.4 | 54.1 | 15.5 |
| 2007 | 1325 | -0.187 | 36.9 | 50.6 | 13.7 | 55.5 | 18.6 |
| 2008 | 1402 | -0.208 | 33.9 | 50.6 | 16.7 | 53.2 | 19.3 |
| 2009 | 1315 | -0.206 | 34.7 | 49.7 | 15.0 | 51.3 | 16.6 |
| 2010 | 1386 | -0.302 | 37.4 | 46.9 | 9.5 | 50.2 | 12.8 |
| 2011 | 1320 | -0.355 | 40.7 | 49.7 | 9.0 | 53.8 | 13.1 |
| 2012 | 1347 | 0.284 | 41.9 | 51.3 | 9.4 | 51.9 | 10.0 |
| 2013 | 1302 | 0.193 | 46.4 | 49.2 | 2.8 | 53.7 | 7.3 |
| 2014 | 1391 | 0.256 | 46.0 | 51.4 | 5.4 | 56.0 | 10.0 |
| 2015 | 1388 | 0.305 | 45.1 | 53.1 | 8.0 | 54.9 | 9.8 |
| 2016 | 1355 | 0.384 | 44.1 | 48.7 | 4.6 | 51.5 | 7.4 |

While our analysis to this point has focused on overall ESG, in Table 5 we switch our focus to sub-components of ESG including: environment, community, employees, diversity, product, and

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corporate governance. Specifically, the regressions in Table 5 mirror those in Table 2 except that we replace ESG with each of its sub-components.

We find that only two of the sub-components are significantly related to payer status: diversity and corporate governance. Both diversity and corporate governance are positively related to payer status. One potential concern from this result is the potential that the ESG results to this point are actually driven by governance rather than ESG. In unreported results, we replicate Table 2 except we include a measure of ESG excluding corporate governance. The result of these unreported regressions is qualitatively identical to Table 2 and indicates a positive and statistically significant relation between ESG and payer status.

**Table 5.** Table 5, below, presents coefficient estimates, standard deviations, and significance levels for the estimation of logistic regressions linking dividend payer status to subset indices of the ESG level and controls as described by equation (1). *AdjENV* is the environmental index. *AdjCOM* is the community index. *AdjEMP* is the employee index. *AdjDIV* is the diversity index. *AdjPRO* is the product index. *AdjCGOV* is the corporate governance index. *DivPayer* is a dummy variable denoting whether a firm pays dividends (1 = yes, 0 = no) in the following calendar year. A number of firm characteristic controls are included. *Size* is the natural log of market capitalization. *EarnGrVol* is the standard deviation of operating income growth over the previous three years from year −2 to 0. *NetIncome*, *Cash*, and *Debt* are scaled by total assets. *Q* is approximated using the market-to-book ratio. *Volatility* is the standard deviation of monthly stock returns over the prior two years. *Ret* is the return of the firm's stock over the prior two years. *AssetGrowth* is the growth rate of total assets over the prior year. Additionally, we include age-group indicator variables which are dummies for firms between 1 and 5, 6 and 10, 11 and 15, and 16 and 20 years old, as well as industry–year interaction dummy, and calendar year dummy variables. All continuous variables are Winsorized at the 1% and 99% levels. The sample period is from 1991-2016. Robust standard errors, clustered by firm, are reported in parentheses and used in all regressions. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **Coeff** | **Coeff** | **Coeff** | **Coeff** | **Coeff** | **Coeff** |
|---|---|---|---|---|---|---|
| Constant | -1.527 | -0.363 | -1.616 | -0.877 | -1.640* | -1.825* |
| | (1.007) | (1.005) | (0.999) | (0.982) | (0.990) | (1.042) |
| AdjENV | 0.182 | | | | | |
| | (0.234) | | | | | |
| AdjCOM | | -0.140 | | | | |
| | | (0.149) | | | | |
| AdjEMP | | | -0.095 | | | |
| | | | (0.202) | | | |
| AdjDIV | | | | 0.447*** | | |
| | | | | (0.122) | | |
| AdjPRO | | | | | -0.171 | |
| | | | | | (0.150) | |
| AdjCGOV | | | | | | 0.629*** |
| | | | | | | (0.125) |
| Size | 0.179*** | 0.187*** | 0.183*** | 0.154*** | 0.175*** | 0.186*** |
| | (0.035) | (0.036) | (0.035) | (0.036) | (0.036) | (0.037) |
| NetIncome | 4.560*** | 4.575*** | 4.545*** | 4.594*** | 4.838*** | 4.437*** |
| | (0.483) | (0.540) | (0.484) | (0.491) | (0.539) | (0.545) |
| Cash | -2.586*** | -2.714*** | -2.589*** | -2.660*** | -2.455*** | -2.575*** |
| | (0.377) | (0.399) | (0.377) | (0.378) | (0.384) | (0.407) |
| Q | 0.175** | 0.194** | 0.174** | 0.202** | 0.215** | 0.140* |
| | (0.077) | (0.080) | (0.077) | (0.080) | (0.084) | (0.081) |
| Debt | 0.468* | 0.468* | 0.462* | 0.497* | 0.557** | 0.395 |
| | (0.256) | (0.277) | (0.257) | (0.259) | (0.270) | (0.286) |
| Ret | 0.035 | 0.027 | 0.034 | 0.044 | 0.023 | 0.050 |

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| | | | | | | |
|---|---|---|---|---|---|---|
| | (0.032) | (0.035) | (0.032) | (0.033) | (0.033) | (0.036) |
| EarnGrVol | -0.080*** | -0.080*** | -0.079*** | -0.078*** | -0.071*** | -0.076*** |
| | (0.019) | (0.020) | (0.019) | (0.019) | (0.020) | (0.021) |
| Volatility | -14.455*** | -14.421*** | -14.524*** | -14.376*** | -14.627*** | -14.000*** |
| | (1.009) | (1.047) | (1.012) | (1.006) | (1.045) | (1.051) |
| AssetGrowth | -1.106*** | -1.167*** | -1.113*** | -1.023*** | -1.076*** | -1.089*** |
| | (0.101) | (0.113) | (0.101) | (0.099) | (0.108) | (0.113) |
| Year Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Age Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Industry Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| n | 20679 | 20679 | 20679 | 20679 | 20679 | 20679 |
| McFadden $R^2$ | 0.41 | 0.40 | 0.41 | 0.43 | 0.41 | 0.44 |

In Table 6, we split the sample into low- and high-profitability sub-samples based on the median level of profitability (net income divided by total assets). While our previous regressions control for profitability, this sample bifurcation addresses the possibility that the substitute/complement relation between dividends and ESG may differ by firm type. The sample split has the added benefit of helping to address endogeneity. In particular, high ESG may cause high profitability or high profitability may cause high ESG. By splitting the sample based on profitability, we are able to isolate the ESG-dividend relation for a given general level of profitability.

The results indicate that the positive relation between ESG and payer status holds (does not hold) for high (low) profitability firms. This result is perhaps unsurprising given that higher profitability firms are more likely to be able to afford both ESG spending and dividends. However, it would not have been surprising to find that lower profitability firms are more likely to be forced to choose between ESG and dividends, yet that is not what we find. The conclusion from this analysis is important in the sense that it further clarifies a key driver of the ESG-dividend relation. In short, the exact sample we would expect to be most likely to see a complement relation, sees exactly such a relation.

**Table 6.** Table 6, below, presents coefficient estimates, standard deviations, and significance levels for the estimation of logistic regressions linking dividend payer status to ESG levels and controls as described by equation (1). Results are segmented by low (in models 1, 3, and 5) and high (in models 2, 4, and 6) levels of profitability (net income), scaled by total assets. *AdjESG* is a variable measuring the ESG of a firm in the manner of Deng et al. (2013). *DivPayer* is a dummy variable denoting whether a firm pays dividends (1 = yes, 0 = no) in the following calendar year. A number of firm characteristic controls are included. *Size* is the natural log of market capitalization. *EarnGrVol* is the standard deviation of operating income growth over the previous three years from year −2 to 0. *NetIncome*, *Cash*, and *Debt* are scaled by total assets. *Q* is approximated using the market-to-book ratio. *Volatility* is the standard deviation of monthly stock returns over the prior two years. *Ret* is the return of the firm's stock over the prior two years. *AssetGrowth* is the growth rate of total assets over the prior year. Additionally, we include age-group indicator variables which are dummies for firms between 1 and 5, 6 and 10, 11 and 15, and 16 and 20 years old, as well as industry–year interaction dummy, and calendar year dummy variables. All continuous variables are Winsorized at the 1% and 99% levels. The sample period is from 1991-2016. Robust standard errors, clustered by firm, are reported in parentheses and used in all regressions. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | **(1) Low Profit** | **(2) High Profit** | **(3) Low Profit** | **(4) High Profit** | **(5) Low Profit** | **(6) High Profit** |
|---|---|---|---|---|---|---|
| Constant | -0.806*** | 0.313*** | -4.772*** | -2.540*** | -1.833 | -0.852 |
| | (0.080) | (0.094) | (0.920) | (0.902) | (1.183) | (1.140) |
| AdjESG | 0.209*** | 0.431*** | 0.027 | 0.184*** | -0.005 | 0.189*** |
| | (0.070) | (0.062) | (0.073) | (0.068) | (0.074) | (0.073) |

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| | | | | | | |
|---|---|---|---|---|---|---|
| Size | | | 0.301*** | 0.202*** | 0.220*** | 0.137*** |
| | | | (0.041) | (0.039) | (0.043) | (0.042) |
| NetIncome | | | 4.466*** | 2.404** | 4.698*** | 2.587** |
| | | | (0.793) | (0.998) | (0.810) | (1.075) |
| Cash | | | -4.371*** | -2.047*** | -3.923*** | -1.729*** |
| | | | (0.563) | (0.403) | (0.575) | (0.424) |
| Q | | | 0.183** | 0.348*** | 0.165* | 0.186 |
| | | | (0.082) | (0.119) | (0.085) | (0.118) |
| Debt | | | -0.076 | 0.629* | 0.119 | 0.778** |
| | | | (0.295) | (0.326) | (0.322) | (0.328) |
| Ret | | | 0.106** | -0.033 | 0.171*** | -0.045 |
| | | | (0.045) | (0.040) | (0.046) | (0.041) |
| EarnGrVol | | | -0.079*** | -0.044** | -0.091*** | -0.061*** |
| | | | (0.023) | (0.021) | (0.025) | (0.022) |
| Volatility | | | -14.898*** | -17.054*** | -14.201*** | -13.984*** |
| | | | (1.265) | (1.335) | (1.248) | (1.339) |
| AssetGrowth | | | -0.966*** | -1.964*** | -0.816*** | -1.719*** |
| | | | (0.112) | (0.210) | (0.107) | (0.206) |
| Year Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Age Dummies | No | No | No | No | Yes | Yes |
| Industry Dummies | No | No | No | No | Yes | Yes |
| n | 11286 | 11286 | 10339 | 10340 | 10339 | 10340 |
| McFadden $R^2$ | 0.03 | 0.04 | 0.41 | 0.43 | 0.42 | 0.45 |

As a further effort to address endogeneity concerns, we implement a two-stage least squares instrumental variable estimation approach in Table 7. Our approach is based on Bhandari and Javakhadze (2017) who use the initial level of ESG when it is first available within the sample (FirstESG) as the instrumental variable. We note that our analysis in Table 7 does, in fact, provide evidence of endogeneity issues which further motivate the analysis in Table 7. The results in Table 7 are consistent with those in earlier analysis. In particular, sustainability is positively related to the proposenity to pay dividends.

**Table 7.** Table 7, below, presents coefficient estimates, standard deviations, and significance levels for each of the two stages of two-stage least squares estimation of regressions linking dividend payer status to ESG levels and controls as described by equations (3) and (4). Equation (3) utilizes *FirstESG*, the initial, non-missing level of Adjusted ESG for a firm in the KLD database, as an instrumental variable in OLS predictions of *AdjESG*. Results of first-stage estimations are shown below in models 1, 3, and 5 with various subsets of controls. The predicted level of *AdjESG*, *PredAdjESG*, generated from the initial model (equation 3) is then used in the second stage probit modeling of DivPayer (models 2, 4, and 6, below) accompanied by the same combinations of controls seen in models 1, 3, and 5, respectively. *AdjESG* is a variable measuring the ESG of a firm in the manner of Deng et al. (2013). *DivPayer* is a dummy variable denoting whether a firm pays dividends (1 = yes, 0 = no) in the following calendar year. A number of firm characteristic controls are included. *Size* is the natural log of market capitalization. *EarnGrVol* is the standard deviation of operating income growth over the previous three years from year −2 to 0. *NetIncome*, *Cash*, and *Debt* are scaled by total assets. *Q* is approximated using the market-to-book ratio. *Volatility* is the standard deviation of monthly stock returns over the prior two years. *Ret* is the return of the firm's stock over the prior two years. *AssetGrowth* is the growth rate of total assets over the prior year. Additionally, we include age-group indicator variables which are dummies for firms between 1 and 5, 6 and 10, 11 and 15, and 16 and 20 years old, as well as industry–year interaction dummy, and calendar year dummy variables. All

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continuous variables are Winsorized at the 1% and 99% levels. The sample period is from 1991-2016. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

| | (1) AdjESG | (2) DivPayer | (3) AdjESG | (4) DivPayer | (5) AdjESG | (6) DivPayer |
|---|---|---|---|---|---|---|
| Constant | 0.403*** | -0.286*** | -1.563*** | -2.659*** | -2.014*** | -1.693*** |
| | (0.015) | (0.038) | (0.070) | (0.211) | (0.106) | (0.332) |
| FirstESG | 0.473*** | | 0.432*** | | 0.431*** | |
| | (0.009) | | (0.010) | | (0.010) | |
| PredAdjESG | | 0.362*** | | 0.234*** | | 0.149** |
| | | (0.045) | | (0.060) | | (0.069) |
| Size | | | 0.091*** | 0.157*** | 0.095*** | 0.134*** |
| | | | (0.003) | (0.010) | (0.003) | (0.010) |
| NetIncome | | | 0.060* | 2.401*** | 0.102*** | 2.864*** |
| | | | (0.033) | (0.128) | (0.034) | (0.134) |
| Cash | | | 0.112*** | -1.656*** | 0.042 | -1.282*** |
| | | | (0.033) | (0.097) | (0.033) | (0.102) |
| Q | | | -0.008 | 0.152*** | 0.004 | 0.137*** |
| | | | (0.009) | (0.024) | (0.009) | (0.025) |
| Debt | | | -0.076*** | 0.167*** | -0.072*** | 0.361*** |
| | | | (0.022) | (0.060) | (0.022) | (0.063) |
| Ret | | | -0.031*** | 0.008 | -0.033*** | 0.007 |
| | | | (0.005) | (0.015) | (0.005) | (0.016) |
| EarnGrVol | | | -0.003 | -0.037*** | -0.003* | -0.044*** |
| | | | (0.002) | (0.005) | (0.002) | (0.005) |
| Volatility | | | 0.107 | -8.615*** | 0.300*** | -7.087*** |
| | | | (0.089) | (0.272) | (0.089) | (0.279) |
| AssetGrowth | | | -0.042*** | -0.734*** | -0.047*** | -0.689*** |
| | | | (0.013) | (0.042) | (0.013) | (0.043) |
| Year Dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Age Dummies | No | No | No | No | Yes | Yes |
| Industry Dummies | No | No | No | No | Yes | Yes |
| n | 22572 | 22572 | 20679 | 20679 | 20679 | 20679 |
| Endogeneity p-value | 0.000 | | 0.000 | | 0.000 | |

## 5. Conclusions

While ESG has been examined in the context of many financial variables, relatively little is known about its relation to dividends. By largely focusing on dividend payout amounts, such as yield, the majority of firms have actually been discounted from the limited consideration of dividends in the ESG literature. Specifically, to the best of our knowledge, the literature has not established a relation between sustainability and the propensity to pay dividends. Our results indicate a positive relation between ESG and payer status, consistent with the interpretation that they are complements.

Our results are consistent with the intuition of Rakotomavo (2012), Benlemlih (2014), and Cheung et al. (2016) who find a positive link between dividend payout ratios and ESG. However, rather than focusing on payout ratios, we focus on payer status. This distinction is important as it provides a more general analysis of the ESG and payout relation than those focusing only on the universe of dividend paying firms. Further, our interpretation of a complement relation is inconsistent with Masulis and Reza (2015) who find that after the 2003 tax cuts ESG spending declines following dividend increases.

We offer no evidence on the shareholder impact of a complement relation between sustainability and dividends. Rather than offering a suggestion of optimal allocation by managers, we simply

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document a robust relation that, on average, firms with higher ESG scores are more likely to pay dividends. Such a strategy could be wealth maximizing if ESG is positive NPV.

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