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Abstract

Using a sample of 22,839 US firm-year observations over the 1991-2012 period, we find that high CSR firms pay more dividends than low CSR firms. The analysis of individual components of CSR provides strong support for this main finding: five of the six individual dimensions are also associated with high dividend payout. When analyzing the stability of dividend payout, our results show that socially irresponsible firms adjust dividends more rapidly than socially responsible firms do: dividend payout is more stable in high CSR firms. These findings are robust to alternative assumptions and model specifications, alternative measures of dividend, additional control, and several approaches to address endogeneity. Overall, our results are consistent with the expectation that high CSR firms may use dividend policy to manage the agency problems related to overinvestment in CSR.

1. Introduction

In recent years, there has been considerable evolution in corporate social responsibility (CSR), specifically in the way that companies have begun approaching CSR as a new strategy

for improving their image and gaining competitive advantage; this may increase firm value as highlighted by Robinson et al. (2011).[1]

The literature on CSR has shifted from focusing on the relationship between CSR and firm performance (e.g., Margolis and Walsh, 2003; Margolis et al., 2007), to several other relevant topics in corporate finance, such as the impact of CSR on the cost of capital (El Ghoul et al., 2011), debt maturity (Benlemlih, 2017), the capital structure (Girerd-Potin et al., 2011), and information asymmetry (Dhaliwal et al., 2011). Our paper is related but different from this existent literature. Indeed, most of prior studies focus on the value creation associated with high CSR involvement (e.g. Margolis and Walsh, 2003; Orlitzky, 2003). Yet, it is relevant to investigate to what extent CSR affects the distribution of this wealth. More precisely, our study focuses on the impact of CSR on dividend policy: one of the major financial decisions for most firms. Dividends are considered the most commonly used payout device in the corporate world. Since the dividend irrelevance theory posited by Miller and Modigliani (1961),[2] extensive theoretical and empirical work has suggested different explanations of the dividend policy puzzle, namely, agency theory (e.g., Kalay, 1980), the "bird-in-the-hand" theory (e.g., Gordon, 1963; Lintner, 1962), signaling theory (e.g., Ross, 1977), and life-cycle theory (e.g., Fama and French, 2001). Despite substantial research, the dividend puzzle is far from being solved, even in the US context (Shao et al., 2010).

Motivated by the importance of dividend policy in corporate finance, as well as the growing interest in CSR, this paper aims to define how dividend policy is influenced by firms' CSR level. There are potentially two important theoretical arguments that could explain why CSR activities may have an effect on firm dividend policy. On the one hand, the first argument is based on the free cash flow argument of Jensen (1986). Jensen argues that managers with large free cash flow have incentives to overinvest beyond an optimal level. High dividend

payout policy reduces the resources under managers' control and constrains them from diverting free cash flow. From a CSR perspective, it is argued that managers derive private benefits from being identified as socially responsible (Brown et al., 2006). These private benefits associated with high CSR identification are likely to encourage overinvestment in social and environmental activities. This argument is particularly true when firms have access to high cash in place (Barnea and Rubin, 2010). If dividend policy serves as a disciplinary mechanism that avoids social overinvestment and prevents managers from wasting cash through high social expenditures, thus, we expect a positive relationship between CSR and dividend payout. On the other hand, the second argument is based on the signaling theory of dividends (e.g. Bhattacharya, 1979). Managers use dividend changes to issue a direct signal to the market regarding the future results of the firm: an increase in dividend payout serves as an indicator that informs market about an increase in the expected results. From a CSR perspective, firms need to honor explicit and implicit claims with financial and nonfinancial stakeholders (stakeholder theory). A high dividend payout strategy shows a firm's ability to honor financial stakeholders claims. It also signals that CSR expenditures are far from exhausting firm's cash and lead to a better allocation of a company's resources.

Using a sample of 22,839 US firm-year observations, representing 3,040 unique US firms between 1991 and 2012, and after controlling for previous determinants of dividend policy as well as industry and year fixed effects, we find that high CSR firms pay more dividends than low CSR firms, providing strong evidence for our earlier hypothesis. Furthermore, the analysis of individual components of CSR is consistent with our main result: five of the six dimensions used in the analysis are also associated with high dividend payout, namely, corporate governance, community, diversity, employee relations, and the environment. We also investigate the stability of dividend payout, another interesting issue in our context. We expect that, *ceteris paribus,* dividend payout in socially responsible firms should be more

stable than that in socially irresponsible firms. Using the same sample as above and an extension of Lintner's (1956) model, which is commonly used in dividend smoothness studies (e.g., Von Eije and Megginson, 2008), we find that low CSR firms adjust dividends quicker than high CSR firms: the dividend policy is more stable for firms with a high CSR score. Finally, by analyzing the controversial dimensions provided by KLD, we find that firms involved in two controversial activities, namely, the military and alcohol, are associated with low dividend payouts. We think that those firms reduce their dividend payouts to finance their projects internally because of the high cost of external funding as highlighted by Goss and Roberts (2011). To check the robustness of our results, we further run a battery of sensitivity tests, including alternative assumptions and model specifications, alternative measures of dividend payout, additional control variables, instrumental variables, propensity score matching, and the Heckman Selection Model to address endogeneity and selection bias issues, all of which confirm our findings.

Our study contributes to the literature in several ways. First, this is the first paper to our knowledge to study the effect of CSR on dividend policy, one of the most debated issues in modern corporate finance. Studies on the relationship between CSR and financial performance differ and provide evidence that social performance enhances firms' wealth; it is thereby relevant to investigate the distribution of this wealth. Second, we extend prior research on factors affecting the dividend policy, such as corporate governance (Mitton, 2004), national culture (Shao et al., 2010), and family or state ownership (He et al., 2012), by showing that a high CSR score is associated with high dividend payouts.

The remainder of this article is structured as follows. In the next section, we develop our theoretical arguments for the relationship between CSR and dividend policy as well as our main hypotheses. In the third section, we present the data and the research design. The fourth

section discusses the main results of the study. Robustness tests are reported in the fifth section, and we conclude in the sixth section.

2.   Corporate social responsibility and dividend policy

To justify the main hypothesis of this work, which states that high CSR firms are likely to pay more in dividends than low CSR firms, two main arguments are developed: they are based on the agency and the signaling theories.

First, based on agency theory, dividend payout plays a major role in controlling the agency cost of free cash flow. Dividend payout helps reduce the resources under managers' control and consequently reduce the potential inefficient use of firms' resources. In the CSR context, the agency conflict is a specific issue as not only managers but all the insiders (managers, blockholders who are not part of the daily management team, and directors) have an interest in increasing social performance. Assuming that different stakeholders may have different interests with respect to CSR, Barnea and Rubin (2010) point out that insiders gain private benefits from being part of highly socially responsible firms. Their argument is consistent with that of Brown et al. (2006), who study corporate philanthropic practices. Brown et al. (2006) suggest that donations may enable managers and directors to be identified as socially responsible at shareholders' expense because CSR programs are likely to enhance insiders' reputations and provide them with other specific benefits (gifts, tickets to events, access to celebrities, new networks, etc.). Managers may engage in CSR voluntarily due to their own self-interests, such as receiving public accolades or a personal warm glow from social activities (Cespa and Cestone, 2007). Indeed, some managerial self-interest may lead managers to overinvest in philanthropy in particular (Bartkus et al., 2002) and in CSR in general (Harjoto and Jo, 2014). Unless this cost of giving is offset by reduced compensation, CSR may represent an agency cost: insiders would have to pay the costs associated with non-

value-creating CSR activities (Barnea and Rubin, 2010). Ye and Zhang (2011) state that high levels of giving will not be accepted by shareholders because they consider that overinvestment in CSR beyond an optimal level may generate negative net present value for the firm. This idea is consistent with the argument put by Godfrey (2005), who also suggests that corporate philanthropy may generate negative moral evaluations when philanthropy practices are viewed as an ingratiating attempt to win favor.

Godfrey (2005) and Ye and Zhang (2011) emphasize the existence of an optimal level of CSR that a firm's social involvement should not exceed. Beyond this optimal level, any additional social and environmental involvement is more likely to generate additional costs for the firm without generating any corresponding insurance value. In the absence of monitoring mechanisms, and in the presence of low insiders' ownership, insiders may induce firms to increase their CSR commitment to a level higher than that which maximizes the firm's value. This is very much the case when firms have access to high cash in place. When insiders are obliged to use external funding, they are more worried about the return on their investment, thus avoiding overinvestment in CSR. Banks and debt holders have the power to influence decisions and play a monitoring role, as highlighted by Gilson et al. (1990). They argue that with increased monitoring from the bank, significant internal changes take place in the direction of the board.[3] Adopting an optimal dividend policy thus helps to reduce the cash in place for managers and is likely to discourage them from overinvesting in CSR.

Second, based on the signaling theory of dividends, company announcements of an increase in dividend payout act as an indicator of the firm possessing strong future prospects. A manager who has good investment opportunities is more likely to signal than one who doesn't. From a CSR point of view, the dividend payout might serve as a signal for two main considerations. First, firms are encouraged to behave and create their wealth ethically and in a

sustainable way, keeping the interest of financial and non financial stakeholders aligned and going in the same direction. A high dividend payout strategy is likely to strengthen firms' reputation as concerned about their financial stakeholders (shareholders). It is also a good way to communicate the fairness and ethicality of wealth distribution among those who have contributed to its creation (He et al., 2012). Second, previous literature argues that resources devoted to CSR activities in the short-term may deprive the company from cash and reduce its competitive advantages (e.g. Waddock and Graves, 1997). A high dividend payout is more likely to signal to the market that CSR expenditures are far from exhausting firm's cash and lead to a better allocation of company's resources and a high shareholders' satisfaction.

Thus, from one side, a high dividend payout policy reduces the cash in place for managers and discourages them from overinvesting in CSR. On the other side, a high dividend payout policy is a good way to signal a company's reputation as concerned about their financial stakeholders. Consequently, the main hypothesis of this work is as follows:

H1: High CSR firms pay more dividends than low CSR firms, ceteris paribus.

The use of an overall CSR score might mask the effect of each CSR dimension in determining firm dividend policy. Galema et al. (2008) and Attig (2011) indicate that the difference in the findings of some CSR studies may be due to the use of aggregate CSR measures. When considering the relationship between CSR and dividend policy, we can expect that some individual components of the CSR score (dimensions related to primary stakeholders) might be more relevant than others (dimensions related to secondary stakeholders) in affecting firms' dividend payout. First, given the importance of the governance mechanism in agency theory, one might argue that the higher the governance score, the more the firm uses the dividend policy to control the phenomenon of overinvestment in CSR. Based on the outcome model of dividends (La Porta et al., 2000), the corporate governance score is likely to be

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positively related to dividend payout as better-governed firms offer stronger protection rights to their shareholders (this is also true for the diversity dimension which reflects another aspect of corporate governance). Second, Brown et al. (2006) emphasize that highly visible companies that may face litigation risks, or those which participate in industries impacting the environment, have high reputations for giving back to the community as this may generate friendlier treatment by regulators. The community score is the KLD dimension that reflects firms' giving to the greatest extent,[4] and we anticipate that high community involvement may be due, inter alia, to high charitable giving practices. High dividend payments are likely to play a role in controlling donation strategy, which explains our expectation of a positive effect of community score on dividend payout. Third, there is strong support in the literature for CSR activities increasing a firm's reputation, leading to favorable attitudes toward the firm and reducing financial risk (Harjoto and Jo, 2014). By focusing on employee relations, several studies have demonstrated that firms with high employee relation scores are less risky and have better credit ratings (Verwijmeren and Derwall, 2010; Bauer et al., 2009). Firms with an interest in employees' wellbeing are likely to reduce their probability of bankruptcy by reducing the firm leverage (Berk et al., 2010). Therefore, by treating their employees fairly, firms reduce the potential for litigation, gain employee support, particularly in times of financial instability, and have access to more stable cash flows: firms' resources can be dedicated to strategic decisions, such as the distribution of dividends. Finally, we think that some other components of CSR (components related to secondary stakeholders), such as the environmental aspect and product characteristics, may be less relevant to dividend policy. These components are more likely to improve not only managers' reputation but also firm reputation. We therefore expect that high investment in the environment and product characteristics does not affect dividend policy. Accordingly, the second hypothesis of this work is as follows:

H2: CSR components that present the most firm's primary stakeholders interests are also associated with high dividend payout.

Now, we move on to consider the stability of dividend payout: the third main analysis of this work. First, as highlighted by Easterbrook (1984), one of the most important conditions for dividend policy to serve as a disciplinary device for reducing agency costs is the stability of dividend payments. According to our expectation in the first hypothesis, dividends are more likely to play a role in controlling agency costs for firms with a high CSR score. Thereby, socially responsible firms should adjust dividends less quickly than socially irresponsible firms; this explains why the dividend payout is likely to be more stable in high CSR firms than in low CSR firms. Second, if high CSR firms pay more in dividends than low CSR firms (as stated in the first hypothesis), managers in low CSR firms would retain more cash flow than managers in high CSR firms. Managers in low CSR firms would therefore have more resources to manipulate, e.g., to increase their dividend payout, than managers in high CSR firms (He et al., 2012). Low CSR firms are, then, more likely to increase their dividend payout to signal their true value when the market undervalues their equity. Therefore, managers in socially irresponsible firms will frequently adjust the level of dividend payout to reflect the better value of their firms, unlike socially responsible firms, which do not need to use their dividend policy as a signal. Finally, our discussion on the stability of dividend payout in high and low CSR firms would be strengthened by the characteristics of high CSR firms, such as the reputation for efficient cost control and the optimal use of resources. CSR firms may prefer a more stable dividend policy to signal their transparency and sound management. We then formulate the third hypothesis of this study as follows:

H3: Dividend policy is more stable in high CSR firms than in low CSR firms.

3. Data and research design

3.1. Sample selection

To investigate the relationship between CSR and dividend policy, our sample is drawn from two data sets: Compustat, which provides financial statement data, and MSCI ESG STATS (formerly known as KLD STATS), which provides CSR data. To construct our sample, we begin with all firms from Compustat for the period 1991–2012 with non-missing financial information. We exclude from our sample financial firms (SIC codes between 6000 and 6999) and utility firms (SIC codes between 4900 and 4999) because they are regulated entities. We also eliminate firms with abnormally high dividend payouts (i.e., higher than earnings or net sales). Next, we match our Compustat sample with MSCI ESG STATS, which evaluates each firm across13 CSR dimensions based on annual reports, public information, global media publications, government documents, academic journals, and business surveys. Our final sample contains 22,839 observations between 1991 and 2012. Table 1 presents the sample composition by year and by industry (using the two-digit Standard Industrial Classification (SIC) code). The sample distribution by year shows that the number of firms in our study is fairly distributed around 300 firms for the period1991–2000 and500 firms in 2001–2002, before increasing dramatically to between 1,600 and 2,000 firms in the period2003–2012. The increase in the number of firms in our sample is mainly due to the increase in the number covered by KLD after 2003. The sample distribution by industry is based on the first two digits of the SIC code. As expected, Table 1 shows that manufacturing industries have the largest number of observations at 12,091 and comprise more than 50% of our sample. The other industries, particularly mineral industries, transportation, trade, and service industries, all have an important number of observations and are well represented in our sample.

Table 1 goes here

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3.2. Regression variables[5]

3.2.1. CSR data

Our original sample is drawn from MSCI ESG STATS, a database compiled by MSCI ESG Research and its predecessor, KLD Research & Analytics Inc. Since its founding in 1988, KLD has been providing research, analysis, and consulting services related to environmental, social, and governance practices. Its rating is considered a standard in CSR and has been widely used by researchers (e.g., Wood, 1995; Sharfman, 1996; Hillman and Keim, 2001; Waddock, 2003; Chatterji et al., 2009; Jo and Na, 2012). The number of firms covered by KLD has increased over time. The database covered around 650 firms in the period 1991–2000, 1,100 firms in 2001 and 2002, and 3,100 firms from 2003 to 2007 (Bouslah et al., 2013). The KLD rating consists of 13 CSR dimensions, grouped into two major categories: seven qualitative issues and six controversial business issues. The seven qualitative issues include: community, diversity, employee relations, the environment, product characteristics, human rights,[6] and corporate governance. The six controversial business areas include: alcohol, gambling, firearms, the military, nuclear power, and tobacco. The qualitative aspects include positive and negative ratings (strengths and concerns) using a binary system (0/1) for every concern and strength. The controversial areas include only negative ratings (concerns) with a binary system for whether a firm is involved in one or more concerns. To construct our CSR score, we first calculate an overall CSR score based on six different CSR areas, namely: community, diversity, employee relations, the environment, product characteristics, and corporate governance. For each qualitative area, we calculate a score equal to the number of strengths minus the number of concerns. We then sum the scores for the qualitative aspects to obtain our overall score (CSR_NET). This approach is widely used in the CSR literature (e.g.,

El Ghoul et al., 2011; Goss and Roberts, 2011; Attig et al., 2013). More detailed definitions of the variables are provided in Appendix A.

Table 2 provides an overview of the descriptive statistics for the CSR data. Panel A reports the different statistics for the overall CSR score as well as for the individual components of CSR. All the scores present a median equal to 0 (except for the overall CSR score for which the median equals -1), which suggests that the distribution of CSR scores is relatively balanced with positive and negative values. Panel B shows the overall CSR score over time. The statistics indicate that the overall CSR score exhibits non-negligible variation over time, ranging from a minimum of -9 to a maximum of 18.

Table 2 goes here

3.2.2. Dependent variables

Studies on dividend policy focus on three fundamental issues: payout ratio (e.g., Faccio et al., 2001; La Porta et al., 2000), payout propensity (payer or nonpayer, e.g., Denis and Osobov, 2008), and the stability of dividend payments (e.g., Aivizian et al., 2003). This study adds to the first and third lines of research by focusing on how CSR affects dividend payout as well as the stability of dividend payments. The second line of research is marginally treated in the section on robustness tests.

To test the first and the second hypotheses of this work on the relationship between CSR and dividend policy, we use two main constructs to measure dividend payout: the ratio of cash dividends on common stocks[7] to net sales (e.g., La Porta et al., 2000; Brockman and Unlu, 2009; Chay and Suh, 2009), and the ratio of cash dividends on common stocks to total assets (e.g., Aivazian et al., 2003; Shao et al., 2010). We scale cash dividends by net sales and total assets rather than earnings and market capitalization for several reasons.[8] First, earnings have

the potential problem of being easily to manipulate using accounting tricks so that the figures match a predetermined target. Second, La Porta et al. (2000) indicate that the diversion of resources may occur before earnings are reported, in which case the ratio of dividends to earnings will overestimate the share of true earnings that is paid out as dividends. Third, when earnings are negative, the ratio becomes meaningless. This problem could be solved by eliminating firm-years with negative earnings; however, this remedy reduces the sample size by more than 12.75%.[9] Fourth, when earnings are low, there may be a resulting instability in the payout ratio, which could bias the results. Finally, the use of the cash dividend to market capitalization ratio could lead to pricing problems that may exist because of low share prices. As a guard against all these problems related to earnings and market capitalization, we prefer to use cash dividends to net sales and to total assets, particularly as net sales are independent of accounting conventions and total assets are less subject to manipulation and theft.

Panel A in Table 3 provides descriptive statistics for the main dependent variables and shows that more than 50% of the firms in our sample are not dividend payers.

3.2.3. Control variables

To enable better isolation of the effect of CSR on dividend policy, we control for a set of potential variables commonly used in prior studies on firm dividend policy (e.g., Smith and Watts, 1992; Faccio et al, 2001; Fama and French, 2001; Von Eije and Megginson 2008), each of which is described below.

Firm size (SIZE) is calculated as the natural logarithm of the dollar value of total assets. According to the life-cycle theory, firm size and dividend payout are positively correlated. Large firms tend to be more mature, less risky, and have access to high free cash flow. Furthermore, they can also use external funds to finance their business at low cost. Thus, larger firms have considerable flexibility in paying more in dividends.

Cash holdings (CASH) is measured by cash and short-term investments scaled by total assets. On the one hand, in the presence of agency conflicts, managers increase the cash in place and short-term investments, which reduces dividend payment. Thus, a negative relationship is expected between dividend payout ratios and cash holdings. On the other hand, managers might use dividends to mitigate the agency costs of free cash flows. In this case, the relationship between dividend payout and cash holdings should be positive.

Growth opportunities (GROWTH) are estimated as the logarithm of sales growth over the previous year. The life-cycle theory suggests that firms with high investment opportunities will retain earnings to finance growth opportunities, whereas firms with low investment opportunities will have access to high cash flow and tend to pay more in dividends. Thus, we expect a negative relationship between growth opportunities and the dividend payout ratio.

Leverage (DEBT) is the book value of total liabilities scaled by the book value of total assets. We expect a negative association between leverage and dividend payments. The borrowing ratio is more likely to affect dividend policy because of the potential monitoring role of debt on managers. Firms with a high leverage ratio are financially constrained by their lenders; this explains their low ability to pay high dividends.

Profitability (ROA) is measured by net income to the book value of assets. High profitability firms are more likely to generate free cash flows and thus to make higher dividend payouts. According to the life-cycle theory, mature firms are more profitable and are more inclined to pay dividends. We then expect a positive association between profitability and the dividend payout ratio.

Life cycle proxy (RE_TE) is calculated as the ratio of retained earnings to the book value of common equity. The life-cycle theory states that the cash generated by firms in their mature stage is greater than amount that can profitably be invested. After years of successful

business, they accumulate high profits (high retained earnings to common equity ratio) and tend to pay high dividends. In contrast, young firms face large investment opportunities with high cash flow requirements, resulting in low retained earnings to common equity ratio. Thus, we use the ratio of retained earnings to total equity as a proxy for the firm's life cycle and expect a positive association between this proxy and dividend payout.

Additional control variables. Several additional control variables are used in the section on robustness tests to ensure that our analysis does not suffer from any omitted variables bias. These additional control variables include: taxes (TAXE), a dummy variable that takes the value of 1if the firm has a tax advantage from its previous years and 0otherwise;the research and development ratio (R_D) calculated as research and development expenditures to total assets, which is another proxy for firm growth possibilities; the volatility of profitability (SROA), which is equal to the standard deviation of the return on assets (ROA) over the previous five years; firm age (AGE), which is calculated as the number of years between the fiscal year and the first listing in the database; the market-to-book ratio (MTB), calculated as the book value of total assets minus the book value of equity plus the market value of equity scaled by the book value of total assets. We expect that firms with a high tax advantage, a high research and development ratio, and a high return on asset volatility pay fewer dividends, whereas older firms with a high market-to-book ratio tend to pay high dividends.

Panel B in Table 3 shows that our sample includes on average mature (median retained earnings as a percentage of assets 50%), profitable (median ROA 5%), liquid (median cash holdings as a percentage of assets 11%), and slow growth firms (median net sales growth rate 8%).

Panel C in Table 3 reports descriptive statistics for all the variables used in the section on robustness tests.

Table 3 goes here

Table 4 goes here

3.3. Research methodology

To study the relationship between CSR and dividend policy, we use two main approaches: first a univariate method based on the comparison tests; second a multivariate method based on the regression models. In a second stage, we also use Lintner's (1956) model regressions to investigate the stability of dividend payouts for CSR and non-CSR firms.

CSR and dividend policy

First, through the univariate approach, we compare the mean and the median for our main measures of dividend policy (as well as for the additional dependent variables used in the robustness tests) for socially responsible and irresponsible firms. Second, through the multivariate approach, we run regressions of dividend policy measures on the overall CSR score (also on individual components of CSR scores) and other control variables, as defined below:[10]

$$Dividend_{it} = \alpha + \beta_1 \times CSR_{it} + \beta_2 \times SIZE_{it} + \beta_3 \times CASH_{it} + \beta_4 \times GROWTH_{it} + \beta_5 \times DEBT_{it} + \beta_6 \times ROA_{it} + \beta_7 \times RE\_TE_{it} + INDUSTRYFIXEDEFFECTS + YEARFIXEDEFFECTS + \varepsilon_{it} (1)$$

where all the variables refer to firm i in year t, and εit is the respective disturbance term.

We also include industry dummy variables to control for industry fixed effects, which may affect the relationship between firms' dividend policy and social performance scores. Industry

dummy variables are based on the first two digits of the SIC code. We also include dummy variables for each year in our sample period (i.e., year fixed effects) to control for changing economic conditions. We use ordinary least squares (OLS) specifications with robust standard errors adjusted for both heteroscedasticity and clustering of observations. More precisely, we use Petersen's (2009) one-way cluster-robust standard errors approach at the firm level.

CSR and the stability of dividend payments

To test the third hypothesis concerning dividend stability in CSR − versus non-CSR –firms, we adopt a statistical approach similar to that constructed by Lintner (1956). Lintner's model is widely used by researchers to examine dividend smoothness. By testing different dividend prediction models, Fama and Babiak (1968) conclude that Lintner's model performs better than other models in terms of explanatory power. In line with this conclusion, Benartzi et al. (1997) demonstrate that Lintner's framework is the best model of the dividend-setting process. Many studies on dividend stability have used this framework, including those of Shevlin (1982), Brav et al. (2005), Robinson (2006), and Von Eije and Megginson (2008). Thus, we calculate the following Lintner model regressions for cash dividends:

$$\Delta Div_{i,t} = \alpha_{i,t} + \beta_{1i}D_{i,t-1} + \beta_{2i}E_{i,t} + \mu_{i,t} (2)$$

where:

$\Delta Div_{i,t}$= the changes in annual cash dividends from year t-1 to year t;

$D_{i,t-1}$= the lagged value of cash dividends;

$E_{i,t}$= earnings before interest but after tax for year t;

$\mu_{i,t}$= the error term of the equation.

To the equation we add industry and year fixed effects (the industry fixed effects are based on the first two digits of the SIC code), and we estimate the model using robust standard errors

clustered at the firm level (Petersen, 2009). Furthermore, to compare the stability of dividend payout between high and low CSR firms, we split the sample so that low CSR firms are those with a negative overall CSR score and high CSR firms are those with a positive overall CSR score.

Lintner's (1956) model indicates that instead of moving immediately to the new target dividend, firms smooth out changes in their dividends by moving part of the way to the target each year. Speed of adjustment (SOA) measures the speed with which firms adjust their dividends and is estimated as $-\hat{\beta}_1$, ;a higher value of SOA indicates a speedier adjustment and subsequently less stable dividend payout. The target payout ratio (TPR) measures the importance of targeting the dividend payment, estimated as $-\hat{\beta}_2/\hat{\beta}_1$.

4. Empirical evidence

In the section 4.1, we present the results of the univariate analysis comparing the dividend level of socially responsible versus those that are not socially responsible. In section 4.2, we use regression models that we have discussed previously.

4.1. Univariate tests

In Table 5 Panel A, we compare the mean and the median for dividend variables between firms with high and low levels of social responsibility. Socially responsible firms are defined as those with a positive overall CSR score, whereas socially irresponsible firms are those with a negative overall CSR score. The two main measures of dividend in our analysis, cash dividends to net sales and cash dividends to total assets, are both higher for socially responsible firms. The difference is approximately22.22% for the first measure and 37.5% for the second. The difference is statistically significant in both cases at the 1% level, providing support for our main hypothesis and suggesting that socially responsible firms pay more

dividends than socially irresponsible firms. This result is confirmed when we use the two other dividend payout ratios (cash dividends to net income and cash dividends to market capitalization).

We also study the difference in control variables between socially responsible and irresponsible firms. Table 5 Panel B shows that CSR firms are larger globally, with a higher cash ratio, and lower growth opportunities and debt ratio. They are also more profitable, with a higher ratio of retained earnings to book value of common equity. All the results of the univariate analysis are significant at the 1% level.

Table 5 goes here

After the preliminary analysis based on the univariate tests, we then move to the multivariate analysis to control for the explanatory variables suggested by the literature on dividend policy.

4.2. CSR and dividend policy: main evidence

Table 6 reports the results of estimating equation (1) using OLS, with standard errors corrected for heteroscedasticity and clustering by firm to account for the lack of independence of observations within a given firm over time. In Model 1, we regress dividend payout (DIV_SALES) on the overall CSR score (CSR_NET) without taking into account the control variables. We find support for our hypothesis claiming a positive relationship between CSR and dividend payout: the estimated coefficient of CSR_NET is positive and statistically significant (at the 1% level), indicating that an increase in the overall CSR score leads to a higher dividend payout. This first result is confirmed in Model 2, which includes potential determinants of dividend payout derived from prior literature: a high overall CSR score is

positively associated with a high dividend payout. Furthermore, in line with prior studies (e.g., Fama and French, 2001; Denis and Osobov, 2008; Von Eije and Megginson, 2008), we document several statistically significant relations in our control variables: the growth measure negatively affects dividend policies, suggesting that firms with high growth opportunities are associated with a low dividend payout; firm size and retained earnings are positively related to dividend payout, suggesting a high level of dividends for large firms with a high retained earnings ratio. In addition, the variable capturing profitability is positively and significantly related to dividend policy, providing some evidence that profitable firms tend to pay more dividends. Firm leverage is negatively and significantly associated with dividend payout (only with the second ratio of dividend payout), providing evidence that firms with high debt levels have a low ability to pay high dividends. Finally, the cash and short-term investments variable does not have a significant effect on dividend payout.

Table 6 (Models 3–4) also presents the analysis of dividend payout measured by the ratio of cash dividends to total assets – our second main measure of dividend payout. The results of this analysis are similar to those of the first: firms with a high overall CSR score are associated with a high cash dividend to total assets ratio. The economic magnitude of our results are not negligible, one standard deviation of the overall CSR score increases the ratio of dividend to net sales by more than 24%, and dividend to total assets by more than 25%.

Table 6 goes here

4.3.   Individual components of CSR and dividend policy

In line with the argument developed in previous literature that aggregating various dimensions of CSR may hide confounding effects among the individual dimensions of social

responsibility (Galema et al., 2008; Bouslah et al., 2013), and to validate our second hypothesis, we extend the scope of our study by analyzing the relationship between individual components of social performance and dividend policy. To do so, we replicate the model in our main analysis (Table 6, Models 2 and 8) by substituting the overall CSR score with the following six attributes of CSR rating: corporate governance (CGOV_NET) in Models 1 and 7, employee relations (*EMPL_NET)* in Models 2 and 8, diversity (DIV_NET) in Models 3 and 9, community (COM_NET) in Models 4 and 10, product characteristics (PRO_NET) in Models 5 and 11, and environment (ENV_NET) in Models 6 and 12. The results derived from these models are consistent with our second hypothesis and provide strong evidence for our main findings on aggregate CSR score. Specifically, five of the six individual components of the CSR score–namely, corporate governance (CGOV_NET), employee relations (EMPL_NET), diversity (DIV_NET), community (COM_NET), and environment (ENV_NET)[11] –are positively and significantly associated with dividend payout. This result suggests that most individual components of CSR do matter for dividend policy and help increase dividend payout. Thus, the higher the corporate governance and diversity scores, the more shareholders use the dividend policy to control the phenomenon of overinvestment in CSR; the high community[12]score may be due, inter alia, to high charitable giving practices, which are linked to high dividend payments to control for managers' donation strategies.

The only component that has a negative effect on dividend policy is the product characteristics score (PRO_NET), which loads negatively and significantly across the two Models (Models 5 and 11, Table 7). The negative relationship between the product characteristics score and dividend payout is undoubtedly due to the components of this score. Indeed, the strengths of product characteristics include research and development and innovation expenditures. These two elements require high investment and should be financed internally as firms will wish to avoid revealing information on these aspects owing to their

strategic nature and the potential for such information to be used by competitors (Bah and Dumontier, 2001). Firms then favor internal financing and therefore pay low dividends to keep larger amounts of cash at their disposal. This explains the negative relationship between the product characteristics score and dividend payout in our study.

Table 7 goes here

4.4.   CSR and the stability of dividend payout

To test the stability of dividend payout, we split our sample into two sub-samples: high CSR firms with a positive overall CSR score and low CSR firms with a negative overall CSR score. We then use Lintner's (1956) model and estimate the SOA and the TPR for both sub-samples. Table 8 shows the results of the analysis. Models 1 and 2 present the main results and show that socially irresponsible firms adjust dividends quicker than do socially responsible firms. The SOA for low CSR firms is 0.57, which is higher than the SOA of 0.52 for high CSR firms. This indicates that the dividend payout is more stable in high CSR firms than in low CSR firms. Regarding the TPR, there is a small difference between the two sub-samples (27.31% for high CSR firms and 26.82% for low CSR firms). In Models 3 and 4, we use as the dependent variable the changes in cash dividends from year t-2 to year t. The results provided by these two models do not differ from those found above. The SOA for low CSR firms is 0.63, which is higher than the SOA of 0.54 for high CSR firms. This result also fits with high stability of dividend payments for high CSR firms. We finally undertake this analysis using total cash dividend (the sum of cash common dividends and cash preferred dividends) and find that the results are similar to those discussed previously.

Table 8 goes here

In Table 9, we extend the study of dividend payout stability to individual components of CSR. We split the sample into two sub-samples according to the score of the specific dimension studied. The results in Table 9 provide strong support for the findings related to the overall CSR score. Firms with low CSR scores measured separately by diversity, community, product characteristics, and environment tend to adjust their dividend payout quicker than firms with high CSR scores in the same individual components.[13] The only dimension that goes against our expectation is corporate governance. Two potential explanations can be put forward to explain this result: first, firms with a high corporate governance score use their dividend policy to a greater extent to control agency problems related to overinvestment in CSR; second, firms with a high corporate governance score tend to adjust their dividend policy depending on the cash in place. They first finance investments that need to be financed internally and then pay dividends. These two elements are associated with less dividend stability, which may explain why firms with a high corporate governance score adjust their dividends quicker than do firms with a low corporate governance score.

Table 9 goes here

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5. Robustness tests

To examine the robustness of the link between CSR and dividend policy, we run additional analyses that assess the sensitivity of our results to alternative estimation methods, alternative measures of dividend policy, alternative measures of CSR scores, additional controls, and potential endogeneity, as well as an approach addressing the self-selection bias. The results of these additional tests are reported in the subsequent section; they all support our earlier evidence on the positive relationship between CSR and dividend policy.

5.1. Alternative estimation methods[14]

We test the robustness of our results in relation to alternative estimation methods for the two measures of dividend payout used in the main analysis. Based on the panel nature of our data, and to dispel concerns regarding omitted variables and unobserved heterogeneity, we estimate fixed effects models (Models 1 and 7) and random effects models (Models 2 and 8). In all these models, we continue to find that the overall CSR score is positively related to dividend payout at the 1% significance level.

In Models 3–6 (Models 9–12 for our second measure of dividend payout), we use alternative methodologies to correct for the heteroscedasticity of the standard errors, as well as for the autocorrelation of the residuals. In Model 3 (Model 9 for the second measure of dividend payout), we employ bootstrapping techniques using 100 random resampling of the 22,839 firm-year observations observed in our initial sample. In Model 4 (Model 10 for the second measure of dividend payout), we use Fama and Macbeth's (1973) procedure to account for cross-sectional dependence. In Model 5 (Model 11 for the second measure of dividend payout), we present the results for the Prais–Winsten standard error estimation. Finally, in Model 6 (Model 12 for the second measure of dividend payout), we correct for autocorrelation among the residuals using Newey–West standard error correction. All the alternative models reported in Table 10 show positive and significant coefficients for the overall CSR score (CSR_NET). They provide support for our main evidence on the positive relationship between CSR and dividend payout; they also suggest that this relationship does not suffer from any model specification problems.

Table 10 goes here

5.2. Alternative measures of dividend payout

In Table 11, we examine whether our main results are affected by any changes in the measure of dividend payout. We replicate our main model (Table 6, Model 2) after replacing the dependent variable with several other measures of dividend payout commonly used in the literature. In Models 1 and 2, we scale cash common dividends by net income and by firm market capitalization, respectively. In Models 3 and 4, we measure dividend payout as the ratio of cash common dividends to free cash flow and to operating cash flow, respectively. One of the main arguments developed in the first hypothesis of this work is based on agency theory. One might argue that a relevant measure of dividend payout should take into account free cash flow. On the one hand, this helps to consider the capacity of the firms to pay dividends. On the other hand, it leads to integration and control of the agency conflicts caused by this free cash flow. In Model 5, the dependent variable is the natural logarithm of cash common dividends. In Models 6 and 7, we measure the dividend payout as the ratio of total cash dividends (the sum of cash common dividends and cash preferred dividends) to total assets and to net sales, respectively. Model 8 uses the natural logarithm of total cash dividends (the sum of cash common dividends and cash preferred dividends) as the dependent variable.

In the next models (Models 9–12), we further include share repurchases when measuring dividend payout as repurchases have become an important payout method for US firms (Grullon and Michaely, 2002). One might argue that share repurchases substitute for dividend payout: low CSR firms might be associated with high share repurchases rather than high dividend payouts. By including repurchases in our measure of dividend payout, we are likely to ensure that the positive effect of CSR on dividend policy is valid even for repurchases. In Models 9 and 10, dividend payout is measured as the ratio of repurchases to net sales and total assets, respectively. In Models 11 and 12, the dividend payout ratios are equal to the sum of cash dividends and repurchases to net sales and total assets, respectively. Finally, we conclude

in Model 13 by using a logistic regression: the dependent variable is a dummy that takes the value of 1 if the firm pays dividends and 0 otherwise.

In each of the 13specifications, the coefficient of the overall CSR score (CSR_NET) loads positively and is statistically significant. These results reinforce our main evidence that firms with high social performance enjoy high dividend (repurchases) payouts.

Table 11 goes here

5.3. Endogeneity

In this last section of our robustness tests, we perform an analysis to address a potential endogeneity bias. Endogeneity is a concern when there is a violation of some assumptions regarding the error term, particularly the assumption that the error terms are uncorrelated with the explanatory variables. Furthermore, a firm's choice to engage in CSR is endogenous. Thus, to ensure that the contribution of CSR involvement to dividend policy is estimated correctly, we further adopt several approaches to correct for endogeneity. First, although we carefully control for the firm characteristics that are suggested by previous literature to matter to the dividend payout policy, we cannot rule out that other omitted variables might be driving the results. We therefore include some additional control variables to ensure that our results are robust to potential omitted variables bias. Second, we use an instrumental variables (IV) approach, a method widely used in studies on CSR. The IV estimation method consists of a two-stage regression: in the first stage, instruments are used to extract the exogenous component of CSR. The predicted value of CSR is then used in the second stage regression. Third, we also use two approaches to address self-selection bias, namely, the propensity score matching analysis and Heckman's (1979) two-stage self-selection model. Finally, we focus

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our analysis on endogeneity with the firm life cycle. One might argue that the positive effect of CSR on dividend policy shown in our analysis is due to the fact that high CSR firms are also firms in the mature stage of their life cycle. To ensure that the relationship between CSR and dividend policy is mainly due to the firm's involvement in CSR, we run our main regression after splitting the entire sample according to the firm stage of their life cycle.

5.3.1. Additional control variables

Although we use the control variables affecting the dividend policy and suggested by prior literature, one may think that our evidence of a positive relationship between CSR and dividend payout is driven by potential omitted variables correlated with both CSR and the dividend payout. We add to our main models (Models 2 and 6 in Table 6) some additional, less commonly used variables suggested by prior literature to affect firm dividend policy and we run the models (Table 12). The results generally continue to provide strong support for the main finding. We start in Models 1 and 6 by introducing a tax variable (TAXE), which takes the value of 1 if the firm has a tax advantage from its previous years and 0 otherwise. The coefficient of tax (TAXE) loads negatively and statistically significantly at the 1% level: a tax advantage is generally related to firm losses, which are associated with low dividend payouts. Our second additional variable is the ratio of research and development expenditure to total assets (R_D): in both Models 2 and 7, the coefficient of this variable is negative but insignificant. In Models 3 and 8, we consider the volatility of return on assets (SROA) as an additional variable. The coefficient of SROA loads negatively and is statistically significant (at the 1% and 5% levels or better). This negative relationship is consistent with the evidence in the literature suggesting that the more volatile the return on assets, the lower the dividend payout. In Models 4 and 9, we consider firm age (AGE), measured by the number of years between the fiscal year and the first listing in the database. The coefficient of AGE is positive

and significant at the1% level, suggesting that older firms pay more in dividends, which is consistent with the life-cycle theory. We also consider the market-to-book ratio (MTB) as an additional variable to control for growth opportunities (Models 5 and 11). The coefficient of MTB loads positively and significantly (at the 1% level). We finally include all the previous variables in one model (Models 6 and 12); the results concerning the additional variables remain essentially unchanged. More important for our purposes, controlling for additional firm characteristics does not affect our inference concerning the role of CSR in dividend payout: all the models in Table 13 show positive and significant coefficients for CSR_NET (at the 1% level).

Table 12 goes here

5.3.2. The instrumental variables (IV) approach

The instrumental variables (IV) approach is commonly used in studies on CSR; it helps to address issues related to invisible variables affecting the relationship between CSR and dividend payout. The instrumental estimation method consists of a two-step regression: in the first, we regress the overall CSR score on the instruments and on explanatory variables used in the baseline model (Model 2, Table 6); in the second step regression, the predicted value of the overall CSR score substitutes the overall CSR score (CSR_NET) in the main model (Model 2,Table 6). We follow El Ghoul et al. (2011) in considering the industry-year averages of the overall CSR score (CSR_IND) and Attig et al. (2013) in considering the initial value of the firm's overall CSR scores (CSR_INI). These two instruments are likely to be exogenous to the contemporaneous overall CSR score. In Table 13, we report the results of the first-stage regressions (Models 1 and, 5), and the second-stage regression (Models 2–4 and 6–8). The first-stage regressions show that larger firms, with high cash holdings and high profitability,

are those that enjoy a high overall CSR score. Furthermore, the two instrumental variables used in this first-stage regression, namely, the industry-year average of CSR (CSR_IND) and the initial value of the CSR score (CSR_INI), are positive and significantly affect the overall CSR score. In the second-stage regression, we find that the effect of CSR on firms' dividend payout (Models 2–4 and 6–8) remains significantly positive. This result provides support for our earlier findings and suggests that endogeneity does not affect our results.

Table 13 goes here

5.3.3. Propensity score matching analysis

The propensity score matching (PSM) analysis was first developed by Rosenbaum and Rubin (1983) to address self-selection bias. PSM consists of matching observations based on the probability of increasing their overall CSR score. More precisely, PSM estimates the effects of overall CSR score on dividend policy by comparing the dividend payout of firms that increase their overall CSR score by investing ethically (treated group) to the dividend payout of firms that have a similar probability of increasing their overall CSR score and being socially responsible but for which this does not happen (control group). In other words, we match a high CSR firm with a low CSR firm sharing similar characteristics as reported by their propensity scores, we then calculate the average difference in the payout ratio between the high and the low CSR groups (Benlemlih and Bitar, 2018). To implement the PSM analysis, we first start by constructing a CSR dummy variable that takes the value of 1 if the firm has a positive overall CSR score and 0 otherwise. We then estimate a probit model in which the dependent variable is the dummy variable created above, and the independent variables are the control variables used in the main analysis, the two instruments (CSR_IND and CSR_INI) used in the previous section, time and industry fixed effects. We use the score estimated to match each observation with a high CSR score to an observation with a low CSR

score. To do so, we employ four different matching techniques: one-to-one matching without replacement, one-to-one matching with replacement, the nearest neighbor with n=2 and the nearest neighbor with n=3. We finally use two analyses to study the effect of CSR on dividend policy: in the first analysis, we compare the average of the dividend payout ratio between high CSR firms and their matched neighbors. In the second analysis, we use the propensity score matched samples and re-run the linear models as those estimated in the main analysis (Models 2 and 8, Table 6).

The results related to both analyses are reported in Table 14. In the univariate tests, we find strong evidence that high CSR firms pay more in dividends than low CSR firms. The average difference between the dividend payout ratio for high CSR firms and the mean dividend payout ratio of their matched neighbors with low CSR scores ranges between 7.20% for the one-to-one matching with replacement, and 35.46% for the one-to-one matching without replacement (8.85% and 39.39%, respectively, for the second ratio of dividend payout). This difference is statistically significant at the 5% level or better. Turning to the regression analysis, in all matched samples (Models 1–4 and 5–8), we continue to find a positive and statistically significant coefficient for the overall CSR score, indicating that high CSR firms are associated with high dividend payouts.

Table 14 goes here

5.3.4. Heckman's (1979) two-stage self-selection model

We address the self-selection bias using Heckman's (1979) two-stage self-selection model. The main objective of this analysis is to control for self-selection bias induced by firms choosing to increase their level of social performance. In the first step, we use a probit model to regress a dummy variable that takes the value of 1 if the firm has a positive overall CSR

score and 0 otherwise on all control variables from our main specification (Model 2 in Table 6), and on the instrumental variables used in the previous section (CSR_IND, and CSR_INI). In the second-stage regression, dividend payout variables are the dependent variables, overall CSR score is the interest variable, the control variables are those used in the main specification, and we include the self-selection parameter (measured as the inverse Mills ratio) estimated from the first-stage regression.

The results are reported in Table 15: even after controlling for self-selection bias using the two-step estimation model, this analysis continues to suggest that a higher overall CSR score is associated with higher dividend payout.

Table 15 goes here

5.3.5. CSR, firm life cycle and dividend policy

In this section, we study whether the positive effect of CSR on dividend payout holds in the sample of firms in the first stage of their life cycle. Indeed, even if we control for firm life cycle by including a proxy for mature firms as suggested by previous literature (retained earnings scaled by common equity), the positive effect of CSR on dividend payout could be driven by the fact that high CSR firms are also firms in the mature stage of their life cycle. Splitting the sample into firms in the first stage of their life cycle and firms in the mature stage of their life cycle might help to resolve this problem. It also helps to ensure that the positive association between CSR and dividend policy we found in the main analysis is a result of firms' involvement in CSR.[15]

The results of this analysis are shown in Table 16. The positive impact of the overall CSR score on dividend payout holds in the three sub-samples of the study. Even for firms in the

first stage of their life cycle, high CSR firms enjoy high dividend payouts. The coefficients for

CSR_NET are all statistically significant.

Table 16 goes here

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6.   Conclusion

In this paper, we examine how dividend policy can play a role in controlling the problem of

overinvestment in CSR due to agency issues between insiders and outsiders in socially

responsible firms. We also explore whether the wealth created in firms with high social

performance is distributed in a way that respects and satisfies the interests of all shareholders.

Using a large sample of 3,040 unique US firms and 22,839 firm-year observations between

1991 and 2012, and after controlling for determinants of dividend policy suggested in the

literature, as well as firm and industry fixed effects, we find that high CSR firms pay more in

dividends than low CSR firms. This result provides strong evidence for our first hypothesis

and suggests that CSR firms may use their dividend policy to manage their agency problems.

This result also shows that CSR firms are not only socially responsible in their wealth creation

process, but they are more likely to be so in the distribution of the wealth created.

Furthermore, five of the six dimensions used in the analysis are also associated with high

dividend payouts, namely, corporate governance, community, diversity, employee relations,

and the environment. The only dimension associated with low dividend payouts is product

characteristics. This is more likely due to the integration of research and development and

innovation expenditures in the calculation of this score. In addition, by analyzing the stability

of dividend payouts, we find that socially irresponsible firms adjust dividends quicker than do

socially responsible firms; this provides support for our third hypothesis, which claims that

dividend payout are more stable in high CSR firms than in low CSR firms. We finally show

that firms involved in two controversial activities, namely, the military and alcohol, are associated with low dividend payouts. Firms involved in these two controversial areas might face high external funding costs as highlighted by Goss and Roberts (2011). They may prefer to pay low dividends in order to finance their activities internally.

Our findings are robust to a battery of sensitivity tests, including alternative assumptions and model specifications, alternative measures of dividend payout, additional control variables, instrumental variables, the propensity score matching approach, and the Heckman selection model used to address endogeneity and selection bias issues.

This paper examines dividend policy for firms covered by KLD and located in the US. To generalize the study's main findings, future research should extend the framework of the relationship between CSR and dividend policy by considering other countries/regions and different social performance ratings.

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[1] The mechanisms through which CSR affects firm value are multiple: CSR helps increase a firm's reputation and avoid investors' explicit claims (McGuire et al., 1988); employees have high motivation and may accept low compensation when working for firms with a good reputation, which may reduce firm risk (Berk et al., 2010), the cost of capital (El Ghoul et al., 2011), and the level of debt (Bae et al., 2011); customers are more likely to pay premium prices for firms with a good reputation as this good reputation is considered a signal of product quality (Fombrun and Shanely, 1990).

[2] Miller and Modigliani (1961) argue that the firm value depends only on the profitability of its assets, but not on the amount of dividends paid to shareholders, i.e., dividend policy does not affect firm value.

[3] Gilson et al. (1990) demonstrate that on average, only 46% of directors who have a position on boards prior to financial distress and 43% of the CEOs are still present when their firms emerge from bankruptcy.

[4] We present more information on individual CSR scores in Appendix A.

[5]Appendices A and B provide definitions of all the variables used in the analysis, including dependent variables, CSR variables, control variables, and alternative and additional variables used in the robustness tests.

[6] KLD has assessed firms in the field of human rights since 1995. These dimensions are not available before 1995. We therefore follow Galema et al. (2008) and Kim et al. (2012) in excluding this dimension to construct our overall CSR score. Our main result remains unchanged when we include the human rights dimension in the calculation of our overall CSR measure. Our result also remains unchanged when we use Servaes and Tamayo's (2013) definition of CSR, excluding corporate governance from our overall CSR score.

[7] Fenn and Liang (2001), Brav et al. (2005), and Deshmukh et al. (2013) also employ cash dividends on common stocks. Our core findings remain robust to using total cash dividends (common dividends plus preferred dividends) instead of common dividends.

[8] We avoid using the ratio of cash dividends to earnings and to market capitalization for the reasons developed hereinafter. However, all our core results continue to hold when we measure dividend payout using dividends to earnings and dividends to market capitalization.

[9] We re-run all tests using the reduced sample with dividends scaled by earnings. Our results are similar to those reported herein for dividends scaled by sales and assets.

[10] In our main analysis, we use contemporaneous values of CSR measures, firm dividend payout, and control variables. We obtain similar results when we use contemporaneous values of firm dividend payout and control variables, but lagged values for CSR measures.

[11]The environment score (ENV_NET) loads positively and significantly only with the second measure of dividend payout (cash dividends to total assets in Model 12).

[12] Community is the KLD score that reflects the most firm donations.

[13] The SOA in the sub-sample of CSR versus non-CSR firms measured by the employee relations score is not significant. Thus, we do not compare the stability of the dividend payout for these two sub-samples.

[14] Models 1–5 in Table 10 report the results for dividend payout measured as the cash dividends to net sales, whereas in Models 6–10 the payout ratio is measured by cash dividends to total assets. All these models lead to

the same results and confirm that our main finding of a positive relationship between the overall CSR score and dividend payout is robust for alternative estimation methods.

[15] Another way of addressing the endogeneity issue regarding firm life cycle could be an instrumental approach. However, we could not find a good instrument that would influence firm life cycle but not dividend payout. For this reason, we choose to split the sample according to the stage of firm life cycle and re-run our main regression to check if the effect of CSR on dividend policy holds even in firms in the first stage of their life cycle.

Appendix A. Qualitative issue areas and controversial business issues definitions**.**

We consider six qualitative issue areas from KLD: community, diversity, employee relations, environment, product characteristics and corporate governance. Each area has several strengths and concerns as illustrated below. We calculate a score for each area equals to the number of strengths minus the number of concerns. The overall CSR score is equal to the sum of all areas' scores.

Dimension	Strengths	Concerns
Community	-Charitable Giving -Innovative Giving -Non-US Charitable Giving -Support for Housing -Support for Education -Indigenous Peoples Relations -Volunteer Programs -Other Strength	-Investment Controversies -Negative Economic Impact -Indigenous Peoples relations -Tax Disputes -Other Concern
Diversity	-CEO's identity – Promotion -Board of Directors -Women and Minority Contracting -Employment of the Disabled -Gay and Lesbian Policies- Other strength	-Controversies (e.g. fines) -Non-Representation -Other Concern
Employee Relations	-Union Relations -No-Layoff Policy -Cash Profit Sharing -Employee Involvement -Retirement Benefits Strength -Health and Safety Strength -Other Strength	-Union Relations -Health and Safety Concern -Workforce Reductions -Retirement Benefits Concern -Other Concern
Environment	-Benefical Products and Services -Pollution Prevention -Recycling -Clean Energy -Communications -Property, Plant, and Equipement -Management Systems -Other Strength	-Hazardous Waste -Regulatory Problems -Ozone Depleting Chemicals -Substantial Emissions -Agricultural Chemicals -Climate Change -Other Concern
Product	-Quality -R&D/Innovation -Benefits to Economically Disadvantaged -Other Strength	-Product Safety -Marketing/Contracting Concern -Antitrust -Other Concern
Corporate Governance	-Limited Compensation -Ownership Strength -Transparency Strength -Political Accountability Strength -Other Strength	-High Compensation -Ownership Concern -Accounting Concern -Political Accountability Concern -Transparency Concern -Other concern

Appendix B. Variable Definitions and Data Sources

Variables	Definition	Source
Panel A. Dependent variables		
DIV_SALES	The ratio of cash common dividends to net sales	COMPUSTAT data
DIV_ASSETS	The ratio of cash common dividends to total assets	As above
VAR	It measures the changes in cash common dividends from year t-1 to t	As above
Panel B. CSR variables		
CGOV_NET	The corporate governance score equals to the number of strengths minus the number of concerns in the corporate governance qualitative issues area	KLD STATS data
EMPL_NET	The employee relations score equals to the number of strengths minus the number of concerns in the employee relations qualitative issues area	As above
DIV_NET	The diversity score equals the number of strengths minus the number of concerns in the diversity qualitative issues area.	As above
COM_NET	The community score equals the number of strengths minus the number of concerns in the community qualitative issues area.	As above
PRO_NET	The product score equals the number of strengths minus the number of concerns in the product qualitative issues area.	As above
ENV_NET	The environment score equals the number of strengths minus the number of concerns in the environment qualitative issues area.	As above
CSR_NET	The CSR score equals the sum of the community, diversity, employee, environment, Product characteristics, and corporate governance qualitative issues areas score	As above
NUC_NET	The number of concerns in the nuclear controversial business issue	As above
MIL_NET	The number of concerns in the military controversial business issue	As above
ALC_NET	The number of concerns in the alcohol controversial business issue	As above
TOB_NET	The number of concerns in the tobacco controversial business issue	As above
FIR_NET	The number of concerns in the firearms controversial business issue	As above
GAM_NET	The number of concerns in the gambling controversial business issue	As above
Panel C. Control Variables		
SIZE	Natural logarithm of dollar value of total book value assets	COMPUSTAT data
CASH	Cash and short-term investments scaled by book value of total assets	As above
GROWTH	Logarithmic value of net sales (13,002) growth calculated as log (datat/datat1)	As above
DEBT	Book value of total liabilities and debt scaled by book value of total assets	As above
ROA	Net income scaled by book value of total assets	As above
RE_TE	Retained earnings scaled by common equity	As above
D_{t-1}	Lag of common cash dividend (common cash dividend of year t-1)	As above
E	Earnings before interests, but after taxes	As above

Panel D. Additional variables used in robustness tests

DIV_NI	The ratio of cash common dividends to net income	COMPUSTAT data
DIV_CAP	The ratio of cash common dividends to firm market capitalization	As above
TDIV_ASSETS	The ratio of total cash dividends (the sum of cash common dividends and cash preferred dividends) to total assets	As above
TDIV_SALES	The ratio of total cash dividends (the sum of cash common dividends and cash preferred dividends) to net sales	As above
LOG_DIV	The logarithm of cash common dividends	As above
LOG_TDIV	The logarithm of total cash dividends (the sum of cash common dividends and cash preferred dividends)	As above
DIV_FCF	The ratio of cash common dividends to free cash flow	As above
DIV_OCF	The ratio of cash common dividends to operating cash flow	As above
REP_SALES	The ratio of share repurchases to net sales	As above
REP_ASSETS	The ratio of share repurchases to total assets	As above
TREP_SALES	The ratio of cash common dividends plus share repurchases to net sales	As above
TREP_ASSETS	The ratio of cash common dividends plus share repurchases to total assets	As above
DUMMY	Dummy variable set to 1 if the firm pays dividends, and 0 otherwise	As above
TAXE	Dummy variable that takes one if the firm has a tax advantage, and 0 otherwise	As above
R_D	Research and development ratio, defined as research and development expenditures to total assets.	As above
SROA	Asset volatility defined as the standard deviation of ROA over the previous five years.	As above
AGE	Number of years between fiscal year and the first listing in the database	As above
MTB	Market to Book ratio. The market value is defined as the book value of total assets minus the book value of equity plus the market value of equity. The book value is equal to total assets.	As above

Panel E. Instrumental variables

CSR_IND	The industry-year average of overall CSR score	KLD STATS data
CSR_INI	the firm-level initial value of overall CSR score	KLD STATS data

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Table 1. Sample breakdown by year and industry

Year	N	%	Year		N	%
1991	263	1.15	2008		1,923	8.42
1992	268	1.17	2009		1,992	8.72
1993	271	1.19	2010		2,039	8.93
1994	272	1.19	2011		1,960	8.58
1995	274	1.20	2012		1,965	8.60
1996	288	1.26	Total		22,839	100.00
1997	305	1.34				
1998	308	1.35	Industry	Two-digit SIC	N	%
1999	327	1.43	Agriculture, forestry and fisheries	<10	73	0.32
2000	351	1.54	Mineral industries	10-14	1,326	5.81
2001	622	2.72	Construction industries	15-17	342	1.50
2002	627	2.75	Manufacturing	20-39	12,091	52.94
2003	1,624	7.11	Transportation communications	40-48	1,685	7.38
2004	1,762	7.71	Wholesale trade	50-51	765	3.35
2005	1,757	7.69	Retail trade	52-59	2,113	9.25
2006	1,795	7.86	Service industries	>70	4,444	19.46
2007	1,846	8.08	Total		22,839	100.00

This table presents calendar year and the industry (according to the two-digit Standard Industrial Classification) distributions for the 22839 firm-year observations comprising the sample between 1991 and 2012. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded.

Table 2. Descriptive statistics for corporate social responsibility data

	Mean	Min	Q1	Median	Q3	Max	Std	N
Panel A. Descriptive statistics for corporate social responsibility scores								
CSR_NET	-0.35	-9.00	-2.00	-1.00	1.00	18.00	2.46	22,839
CGOV_NET	-0.27	-4.00	-1.00	0.00	0.00	3.00	0.71	22,839
EMPL_NET	-0.09	-4.00	-1.00	0.00	0.00	7.00	0.93	22,839
DIV_NET	0.03	-3.00	-1.00	0.00	1.00	7.00	1.33	22,839
COM_NET	0.10	-2.00	0.00	0.00	0.00	4.00	0.51	22,839
PRO_NET	-0.12	-4.00	0.00	0.00	0.00	2.00	0.59	22,839
ENV_NET	-0.01	-5.00	0.00	0.00	0.00	5.00	0.78	22,839
	Mean	Min	Q1	Median	Q3	Max	Std	N
Panel B. Descriptive statistics by year for overall corporate social responsibility score								
1991	0.43	-6.00	0.00	0.00	2.00	7.00	2.08	263
1992	0.41	-7.00	-1.00	0.00	2.00	8.00	2.31	268
1993	0.21	-8.00	-1.00	0.00	2.00	9.00	2.57	271
1994	0.26	-8.00	-1.00	0.00	2.00	10.00	2.70	272
1995	0.53	-7.00	-1.00	0.00	2.00	13.00	2.71	274
1996	0.95	-8.00	-1.00	1.00	2.00	11.00	2.45	288
1997	0.66	-7.00	-1.00	1.00	2.00	11.00	2.58	305
1998	0.56	-8.00	-1.00	0.00	2.00	10.00	2.74	308
1999	0.54	-7.00	-1.00	1.00	2.00	12.00	2.81	327
2000	0.56	-8.00	-1.00	1.00	2.00	11.00	2.66	351
2001	0.21	-9.00	-1.00	0.00	1.00	9.00	2.18	622
2002	0.09	-8.00	-1.00	0.00	1.00	8.00	2.28	627
2003	-0.21	-9.00	-1.00	0.00	1.00	8.00	1.71	1,624
2004	-0.47	-8.00	-2.00	-1.00	0.00	11.00	1.87	1,762
2005	-0.51	-8.00	-2.00	-1.00	0.00	12.00	2.07	1,757
2006	-0.68	-9.00	-2.00	-1.00	0.00	15.00	2.22	1,795
2007	-0.68	-9.00	-2.00	-1.00	0.00	15.00	2.32	1,846
2008	-0.68	-9.00	-2.00	-1.00	0.00	14.00	2.32	1,923
2009	-0.67	-9.00	-2.00	-1.00	0.00	14.00	2.29	1,992
2010	-0.79	-8.00	-2.00	-2.00	0.00	15.00	2.74	2,039
2011	-1.16	-7.00	-3.00	-2.00	-1.00	18.00	3.29	1,960
2012	0.66	-6.00	-1.00	0.00	1.00	15.00	2.31	1,965

This table shows descriptive statistics for corporate social responsibility data for the 22,839 firm-year observations between 1991 and 2012. Panel A provides the mean, minimum, first quartile, median, third quartile, maximum, standard deviation, and the number of observations for overall corporate social responsibility score (CSR_NET), corporate governance score (CGOV_NET), employee relations score (EMPL_NET), diversity score (DIV_NET), community score (COM_NET), product characteristics score (PRO_NET), and environmental performance score (ENV_NET). Panel B provides the mean, minimum, first quartile, median, third quartile, maximum, standard deviation, and the number of observations for overall corporate social responsibility score per year. Appendix A&B outline the definitions for all corporate social responsibility scores as well as the way we calculate overall corporate social responsibility score.

Table 3. Descriptive statistics for regression variables.

	Mean	Min	Q1	Median	Q3	Max	Std	N
Panel A. Descriptive statistics for dividend variables								
DIV_SALES %	1.02	0.00	0.00	0.00	1.50	5.88	1.67	22,839
DIV_ASSETS %	0.97	0.00	0.00	0.00	1.51	5.24	1.51	22,839
	Mean	Min	Q1	Median	Q3	Max	Std	N
Panel B. Descriptive statistics for control variables								
SIZE	7.08	4.61	5.87	6.98	8.19	10.02	1.52	22,839
CASH	0.19	0.01	0.04	0.11	0.28	0.65	0.19	22,839
GROWTH	0.10	-0.26	0.00	0.08	0.19	0.50	0.18	22,839
DEBT	0.20	0.00	0.02	0.18	0.32	0.60	0.18	22,839
ROA	0.03	-0.26	0.007	0.05	0.09	0.18	0.10	22,839
RE_TE	0.15	-3.73	-0.04	0.50	0.86	1.74	1.25	22,839
	Mean	Min	Q1	Median	Q3	Max	Std	N
Panel C. Descriptive statistics for variables related to robustness tests								
DIV_NI %	16.01	0.00	0.00	0.00	26.62	79.23	22.78	19,476
DIV_CAP %	0.84	0.00	0.00	0.00	1.58	4.01	1.23	22,839
AGE	22.78	2.00	11.00	18.00	35.00	54.00	14.14	22,839
SROA	0.07	0.01	0.02	0.04	0.09	0.30	0.08	22,839
R_D	0.04	0.00	0.00	0.01	0.05	0.25	0.06	22,839
MTB	2.04	0.35	1.25	1.66	2.44	5.10	1.12	22,839

This table presents descriptive statistics for the regression variables for the 22,839 firm-year observations between 1991 and 2012. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded. Panel A provides the mean, minimum, first quartile, median, third quartile, maximum, standard deviation, and the number of observations for the dependent variables. Panel B presents the mean, minimum, first quartile, median, third quartile, maximum, standard deviation, and the number of observations for the control variables. Panel C reports the mean, minimum, first quartile, median, third quartile, maximum, standard deviation, and the number of observations for some additional variables used in the robustness tests. Appendix B outlines the definitions for all the variables above.

Table 4. Pearson correlation coefficients between variables

	DIV_SALES	DIV_ASSETS	SIZE	CASH	GROWTH	DEBT	ROA	RE_TE	CSR_NET
DIV_SALES	**1.00**								
DIV_ASSETS	**0.90**	**1.00**							
	0.00								
SIZE	**0.29**	**0.23**	**1.00**						
	0.00	0,00							
CASH	**-0.17**	**-0.17**	**-0.45**	**1.00**					
	0.00	0,00	0.00						
GROWTH	**-0.13**	**-0.12**	**-0.08**	**0.09**	**1.00**				
	0.00	0.00	0.00	0.00					
DEBT	**0.06**	0.00	**0.36**	**-0.41**	**-0.07**	**1.00**			
	0.00	0.98	0.00	0.00	0.00				
ROA	**0.26**	**0.31**	**0.21**	**-0.21**	**0.16**	**-0.15**	**1.00**		
	0.00	0.00	0.00	0.00	0.00	0.00			
RE_TE	**0.26**	**0.30**	**0.33**	**-0.37**	**-0.06**	0.01	**0.49**	**1.00**	
	0.00	0.00	0.00	0.00	0.00	0.32	0.00		
CSR_NET	**0.16**	**0.18**	**0.14**	**0.02**	**-0.02**	**-0.05**	**0.11**	**0.11**	**1.00**
	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	

This table provides pearson pair-wise correlation coefficients between dependent variables, overall corporate social responsibility score, and the control variables for the 22,839 firm-year observations between 1991 and 2012. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded. Appendix B provides definitions for regression variables as well as for corporate social responsibility data. Correlation coefficients in boldface are significant at least at the 5% level.

Table 5. Univariate tests for CSR versus non-CSR firms

	Low CSR firms			High CSR firms			P-values	
	N	Mean	Median	N	Mean	Median	T-test	Wil-test
Panel A. Dependent variable								
DIV_SALES	11,575	0.008	0.000	11,264	0.012	0.002	0.00	0.00
DIV_ASSETS	11,575	0.008	0.000	11,264	0.012	0.002	0.00	0.00
DIV_NI	9,721	0.140	0.000	9,755	0.190	0.048	0.00	0.00
DIV_CAP	11,575	0.008	0.000	11,264	0.009	0.002	0.00	0.00
	N	Mean	Median	N	Mean	Median	T-test	Wil-test
Panel B. control variables								
SIZE	11,575	6.982	6.893	11,264	7.182	7.079	0.00	0.00
CASH	11,575	0.181	0.104	11,264	0.189	0.118	0.00	0.00
GROWTH	11,575	0.099	0.090	11,264	0.094	0.079	0.02	0.02
DEBT	11,575	0.214	0.193	11,264	0.193	0.172	0.00	0.00
ROA	11,575	0.025	0.044	11,264	0.038	0.055	0.00	0.00
RE_TE	11,575	0.052	0.421	11,264	0.255	0.568	0.00	0.00

This table presents the univariate tests for the dependent variables and control variables. Panel A provides the univariate tests for the two main measures of cash dividend payout (DIV_SALES and DIV_ASSETS) as well as for the two measures used in the robustness tests (DIV_NI and DIV_CAP). Panel B Provides the univariate tests for the control variables, namely, size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). High CSR firms are defined as firms with positive overall CSR score, well low CSR firms are those with negative overall CSR score. The total sample includes 22,839 firm-year observations between 1991 and 2012. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded. For variables' definitions, refer to Appendix B.

Table 6. Corporate social responsibility and dividend policy

	DIV_SALES		DIV_ASSETS	
	Simple	Main	Simple	Main
	(1)	(2)	(3)	(4)
INTERCEPT	0.028***	0.011	0.011***	0.003
	(2.71)	(1.08)	(4.94)	(1.16)
CSR_NET	0.001***	0.001***	0.001***	0.001***
	(7.23)	(5.31)	(7.48)	(5.94)
SIZE		0.002***		0.001***
		(7.91)		(4.38)
CASH		0.001		-0.002
		(0.33)		(-1.49)
GROWTH		-0.013***		-0.012***
		(-16.93)		(-17.20)
DEBT		-0.002		-0.004***
		(-1.23)		(-3.05)
ROA		0.033***		0.035***
		(13.91)		(14.74)
RE_TE		0.001***		0.001***
		(8.26)		(8.67)
Year effects	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Adj. R2 %	16.34	27.41	16.68	27.65
N	22,839	22,839	22,839	22,839

This table reports the results from regressing dividend payout on overall CSR score and other control variables over the period 1991-2012 for the 22,839 firm-year observations of the sample. Models 1 and 2 regress cash dividend payout (measured as the ratio of dividends to net sales) on overall CSR score for the entire sample period. Models 3 and 4regress cash dividend payout (measured as the ratio of dividends to total assets) on overall CSR score for the entire sample period. The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.

   *statistical significance at the10% level.   **statistical significance at the5% level.***statistical significance at the1% level.

Table 7. Individual components of corporate social responsibility and dividend policy

	DIV_SALES						DIV_ASSETS					
	CGOV_NET	EMPL_NET	DIV_NET	COM_NET	PRO_NET	ENV_NET	CGOV_NET	EMPL_NET	DIV_NET	COM_NET	PRO_NET	ENV_NET
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
INTERCEPT	0.008	0.009	0.013	0.010	0.010	0.010	0.001	0.002	0.005*	0.002	0.002	0.002
	(0.73)	(0.93)	(1.34)	(1.03)	(1.01)	(0.95)	(0.18)	(0.51)	(1.81)	(0.72)	(0.54)	(0.80)
CSR_COM	0.002***	0.001***	0.001***	0.002***	-0.002***	0.000	0.001***	0.001***	0.001***	0.002***	-0.001***	0.001*
	(5.79)	(3.39)	(5.97)	(3.78)	(-3.67)	(1.37)	(4.92)	(3.26)	(6.58)	(4.32)	(-2.59)	(1.85)
SIZE	0.002***	0.002***	0.001***	0.002***	0.002***	0.002***	0.001***	0.001***	0.001**	0.001***	0.001***	0.001***
	(9.26)	(8.37)	(6.45)	(8.07)	(7.93)	(8.37)	(5.85)	(5.00)	(2.51)	(4.42)	(4.58)	(5.05)
CASH	0.002	0.001	0.000	0.001	0.001	0.001	-0.001	-0.002	-0.002*	-0.002	-0.001	-0.001
	(1.02)	(0.61)	(0.19)	(0.55)	(0.79)	(0.68)	(-0.78)	(-1.14)	(-1.64)	(-1.23)	(-0.97)	(-1.10)
GROWTH	-0.013***	-0.013***	-0.012***	-0.013***	-0.013***	-0.013***	-0.012***	-0.012***	-0.011***	-0.012***	-0.011***	-0.012***
	(-17.20)	(-16.97)	(-16.45)	(-16.84)	(-16.79)	(-16.92)	(-17.37)	(-17.23)	(-16.77)	(-17.13)	(-17.01)	(-17.17)
DEBT	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-1.45)	(-1.35)	(-1.07)	(-1.27)	(-1.32)	(-1.42)	(-3.28)	(-3.19)	(-2.86)	(-3.10)	(-3.18)	(-3.27)
ROA	0.034***	0.033***	0.034***	0.034***	0.034***	0.034***	0.035***	0.035***	0.035***	0.035***	0.036***	0.035***
	(13.87)	(13.86)	(14.07)	(13.99)	(13.95)	(13.93)	(14.58)	(14.57)	(14.91)	(14.76)	(14.63)	(14.64)
RE_TE	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(8.41)	(8.36)	(8.58)	(8.44)	(8.65)	(8.52)	(8.86)	(8.80)	(9.03)	(8.85)	(9.01)	(8.93)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2 %	27.11	26.95	27.53	27.22	27.17	26.8	27.12	27.03	27.81	27.42	27.07	26.93
N	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839

This table reports the results from regressing cash dividend payout on individual components of CSR and other control variables over the period 1991-2012 for the 22,839 firm-year observations of the sample. Models 1-6 regress dividend payout measured as the ratio of cash dividends to net sales on individual components of CSR and control variables. Individual components of CSR are corporate governance score (in Model 1), employee relations score (in Model 2), diversity score (in Model 3), community score (in Model 4), product characteristics score (in Model 5), and environmental performance score (in Model 6). Models 7-12 regress dividend payout measured as the ratio of cash dividends to total assets on individual components of CSR and control variables. Individual components of CSR are corporate governance score (in Model 7), employee relations score (in Model 8), diversity score (in Model 9), community score (in Model 10), product characteristics score (in Model 11), and environmental performance score (in Model 12). The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.

*statistical significance at the10% level. **statistical significance at the5% level.***statistical significance at the1% level.

Table 8. Lintner (1956) model estimates for high and low CSR firms

	Common cash dividends				Total cash dividend			
	One lag		Two lags		One lag		Two lags	
	Low CSR firms	High CSR firms	Low CSR firms	High CSR firms	Low CSR firms	High CSR firms	Low CSR firms	High CSR firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
INTERCEPT	-62.92	3.54	-29.74	-133.32	-70.69	37.08	-38.62	-54.97
	(-0.52)	(0.01)	(-0.23)	(-0.23)	(-0.58)	(0.08)	(-0.29)	(-0.09)
D_{t-1}	-0.57***	-0.52**			-0.57***	-0.52**		
	(-3.53)	(-2.30)			(-3.58)	(-2.32)		
D_{t-2}			-0.63***	-0.54**			-0.63***	-0.54**
			(-4.23)	(-2.34)			(-4.28)	(-2.35)
E	0.15***	0.14***	0.17***	0.15***	0.15***	0.14***	0.17***	0.16***
	(3.96)	(2.48)	(4.92)	(2.80)	(3.99)	(2.52)	(4.96)	(2.80)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R2 %	28.86	44.27	34.65	45.37	29.05	44.43	34.58	44.89
N	11,567	11,255	1,018	9,464	11,564	11,254	10,178	9,463
SOA	0.57	0.52	0.63	0.54	0.57	0.52	0.63	0.54
TPR	26.82	27.31	27.35	28.65	26.92	27.52	27.45	28.82

This table reports the results from Lintner's model regressions for CSR and non CSR firms. In Models 1-2, the dependent variable is the changes of cash dividends from year t-1 to year t (changes of total cash dividends: the sum of common cash and preferred cash dividends in Models 5-6). In Models 3-4 the dependent variable is the changes of cash dividends from year t-2 to year t (changes of total cash dividends: the sum of common cash and preferred cash dividends in Models 7-8). The independent variables are the earnings before interest but after taxes (E), and the lagged value of cash dividend measure D_{t-1} (two lags of dividend measure - D_{t-2} - for the models which use as dependent variable changes from year t-2 to year t). CSR firms are those with positive overall CSR score, while non CSR firms are those with negative overall CSR score. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. The speed of adjustment (SOA) is estimated as $-\beta1$, and the target payout ratio (TPR) is estimated as $-\beta2/\beta1$. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.

*statistical significance at the10% level. **statistical significance at the5% level.***statistical significance at the1% level.

Table 9. Lintner (1956) model estimates for high and low CSR firms (measured by individual components of CSR)

	Corporate Governance		Employee relations		Diversity		Community		Product characteristics		Environment	
	Low CGOV firms	High CGOV firms	LowEMPL firms	High EMPL firms	Low DIV firms	High DIV firms	Low COM firms	High COM firms	Low PRO firms	High PRO firms	Low ENV firms	High ENV firms
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
INTERCEPT	-301.907	93.322	102.676	68.800	-11.813	-34.261	-111.768	-39.010	19.920	3.943	96.359	-382.520
	(-1.10)	(0.68)	(0.89)	(0.22)	(-1.05)	(-0.13)	(-1.31)	(-0.18)	(0.03)	(1.06)	(0.70)	(-1.27)
D_{t-1}	-0.420**	-0.603***	-0.297	-0.578***	-0.596***	-0.533***	-0.772***	-0.495**	-0.634***	-0.173***	-0.562***	-0.509**
	(-2.50)	(-2.82)	(-1.58)	(-3.36)	(-4.42)	(-3.08)	(-4.27)	(-2.50)	(-3.82)	(-2.81)	(-2.90)	(-2.32)
E	0.125***	0.155***	0.115**	0.146***	0.168***	0.145***	0.209***	0.136***	0.167***	0.058***	0.139***	0.161***
	(3.00)	(2.69)	(2.38)	(3.32)	(3.74)	(3.29)	(4.71)	(2.79)	(3.43)	(3.78)	(2.94)	(2.66)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj.R2 %	22.62	49.22	9.08	49.28	20.73	39.05	36.09	39.92	47.41	8.87	25.62	44.71
N	7,791	15,301	5,939	16,883	8,323	14,499	910	21,912	3,147	19,675	2,470	20,352
SOA	0.42	0.60	NS	0.58	0.60	0.53	0.77	0.50	0.63	0.17	0.56	0.51
TPR	29.88	25.75	38.84	25.17	28.28	27.15	27.01	27.50	26.38	33.76	24.73	31.71

This table reports the results from Lintner's model regressions for CSR and non CSR firms measured by individual components of CSR. The dependent variable is the changes of cash dividends from year t-1 to year t. The independent variables are the lagged value of dividends measure (D_{t-1}), and earnings before interest but after taxes (E). The sample is split according to the level of CSR score measured by individual components with low CSR firms are those with negative individual score, and firms with CSR firms are those with positive score for the same dimension. Individual components of CSR are corporate governance (CGOV in Models 1 and 2), employee relations (EMPL in Models 3 and 4), diversity (DIV in Models 5 and 6), community (COM in Models 7 and 8), product characteristics (PRO in Models 9 and 10), and environment (ENV in Models 11 and 12). Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. The speed of adjustment (SOA) is estimated as $-\beta1$, and the target payout ratio (TPR) is estimated as $-\beta2/\beta1$. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.

*statistical significance at the10% level. **statistical significance at the5% level.***statistical significance at the1% level.

Table 10. Robustness tests: alternative estimations and standard errors

	DIV_SALES						DIV_ASSETS					
	Firm Fixed Effects	Firm Random Effects	Bootsrapping	Fama-McBeth	Prais-Winsten	Newey-West	Firm Fixed Effects	Firm Random Effects	Bootsrapping	Fama-McBeth	Prais-Winsten	Newey-West
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
INTERCEPT	0.002***	0.003***	0.011***	0.014***	0.010	0.014***	0.027***	0.008***	0.003***	0.004***	0.009**	0.014***
	(4.73)	(2.83)	(47.73)	(7.38)	(1.48)	(2.51)	(7.82)	(9.91)	(31.19)	(4.06)	(2.17)	(4.21)
CSR_NET	0.000***	0.000***	0.001***	0.001***	0.000***	0.001***	0.000***	0.000***	0.001***	0.001***	0.00***	0.001***
	(7.23)	(9.26)	(128.73)	(9.47)	(6.07)	(7.77)	(5.46)	(8.15)	(157.97)	(8.07)	(6.66)	(8.74)
SIZE	0.000	0.001***	0.002***	0.002***	0.001***	0.002***	-0.001***	0.000**	0.001***	0.001***	0.000***	0.001***
	(-1.00)	(10.26)	(222.43)	(12.45)	(6.87)	(12.79)	(-7.61)	(3.34)	(117.01)	(6.70)	(2.53)	(7.02)
CASH	0.002***	0.001	0.000***	-0.012***	-0.003***	0.001	0.000	-0.001	-0.002***	-0.017***	-0.005***	-0.002**
	(3.07)	(1.21)	(6.29)	(-3.46)	(-4.06)	(0.48)	(0.31)	(-2.16)	(-29.00)	(-4.35)	(-6.23)	(-2.14)
GROWTH	-0.004***	-0.005***	-0.013***	-0.018***	-0.003***	-0.013***	-0.003***	-0.004***	-0.012***	-0.016***	-0.001***	-0.012***
	(-9.71)	(-11.55)	(-238.02)	(-8.46)	(-9.17)	(-20.02)	(-7.42)	(-11.90)	-(229.41)	(-8.99)	(-4.37)	(-20.57)
DEBT	-0.001	-0.000	-0.002***	-0.005***	0.000	-0.002*	-0.002***	-0.002***	-0.004***	-0.010***	-0.002**	-0.004***
	(-1.20)	(-0.08)	(-31.93)	(-2.65)	(0.55)	(-1.75)	(-3.53)	(-3.12)	(-62.59)	(-3.41)	(-2.34)	(-4.32)
ROA	0.009***	0.012***	0.033***	0.048***	0.006***	0.033***	0.011***	0.015***	0.035***	0.053***	0.006***	0.035***
	(8.99)	(13.72)	(274.23)	(9.04)	(6.91)	(19.53)	(12.86)	(18.22)	(264.98)	(8.75)	(7.40)	(21.13)
RE_TE	0.000***	0.001***	0.001***	0.003***	0.000***	0.001***	0.000***	0.001***	0.001***	0.003***	0.000***	0.001***
	(3.53)	(6.46)	(140.24)	(6.37)	(2.62)	(10.39)	(4.17)	(7.67)	(146.27)	(6.22)	(3.38)	(11.05)
Year effects	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	Yes
Industry	No	No	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Adj. R2 %	76.85	27.53	-	-	20.52	-	76.9	27.49	-	-	20.00	-
N	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839

This table reports the results from regressing dividend payout ratios on overall CSR score and other control variables over the period 1991-2012 for the 22,839 firm-year observations of the sample. Dividend payout is measured as the ratio of cash dividends to net sales (Models 1-6) and as the ratio of cash dividends to total assets (Models 7-12). We report results from fixed effects models with both time and firm fixed effects (Models 1 and 6), random effects models with firm random effects and time fixed effects (Models 2 and 4), we also report models with bootstrapping techniques using 100 random resample of the 22,839 firm-year observations observed in our principal sample (Models 3 and 8), models with Fama-MacBeth standard errors (Models 4 and 9), models with Prais-Winsten standard errors (Models 5 and 11), and finally models with Newey-West standard errors correction (Models 6 and 12). The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis.

*statistical significance at the10% level. **statistical significance at the5% level.***statistical significance at the1% level.

Table 11. Robustness tests: alternative measures of dividend payout

	Dividend payments												
	DIV_NI	DIV_CAP	DIV_FCF	DIV_OCF	LOG_DIV	TDIV_ASSETS	TDIV_SALES	LOG_TDIV	REP_SALES	REP_ASSETS	TREP_SALES	TREP_ASSETS	DUMMY
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
INTERCEPT	0.193**	0.007*	0.293***	0.295***	-3.39***	0.004	0.015	-1.141	-0.034***	-0.024***	-0.022	-0.017***	-0.113
	(2.04)	(1.92)	2.91	3.06	(-2.87)	(1.25)	(1.30)	(-1.30)	-4.59	-6.41	-1.21	-2.80	(0.04)
CSR_NET	0.003***	0.000***	0.012**	0.006**	0.033***	0.001***	0.001***	0.058***	0.002***	0.001***	0.002***	0.002***	0.024*
	(2.85)	(2.67)	2.19	2.17	(4.44)	(5.80)	(3.52)	(5.03)	7.33	7.50	7.99	8.51	(2.58)
SIZE	0.016***	0.001***	0.019***	0.012**	1.021***	0.001***	0.001***	0.683***	0.005***	0.003***	0.007***	0.003***	0.376***
	(5.77)	(8.24)	2.54	2.13	(51.62)	(4.04)	(3.17)	(26.92)	10.25	6.96	10.72	6.28	(141.81)
CASH	-0.106***	-0.005***	-0.572***	-0.600***	1.404***	-0.002	0.010***	-0.201***	0.048***	0.032***	0.059***	0.036***	-2.711***
	(-5.02)	(-5.48)	-11.67	-16.36	(7.22)	(-1.49)	(3.24)	(-1.49)	12.91	10.43	12.56	9.63	(94.17)
GROWTH	-0.229***	-0.010***	-0.255***	-0.179***	-1.137***	-0.011***	-0.016***	-0.949***	-0.035***	-0.033***	-0.054***	-0.050***	-2.040***
	(-17.09)	(-19.16)	-8.73	-9.42	(-10.53)	(-15.82)	(-8.56)	(-13.53)	-16.80	-18.45	-19.78	-21.41	(183.39)
DEBT	-0.007	0.000	-0.032	0.023	-0.043	-0.003**	-0.009***	-0.780***	0.003	-0.003	0.008*	-0.005	-0.723***
	(-0.30)	(-0.16)	-0.69	0.60	(-0.25)	(-2.37)	(-2.85)	(-5.37)	0.78	-1.16	1.83	-1.44	(8.02)
ROA	0.363***	0.009***	0.435***	0.331***	4.897***	0.033***	0.051***	1.589***	0.111***	0.119***	0.174***	0.180***	4.372***
	(9.11)	(6.40)	7.27	6.66	(15.02)	(13.62)	(8.70)	(8.24)	18.40	20.65	22.17	24.58	(87.60)
RE_TE	0.031***	0.001***	0.020***	0.014***	0.017	0.001***	0.001***	0.078***	0.001***	0.002***	0.003***	0.003***	0.409***
	(12.14)	(10.23)	4.24	3.67	(0.61)	(7.14)	(4.00)	(5.30)	2.88	3.90	4.44	5.89	(101.72)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2 %	21.45	27.63	5.16	27.67	73.10	25.44	11.75	68.11	19.13	20.01	24.17	25.34	
N	19,476	22,839	22,542	22,785	10,079	22,839	22,839	10,947	21,240	21,240	21,240	21,240	22,839

This table reports the results from regressing alternative measures of dividend payout ratio on overall CSR score and other control variables over the period 1991-2012 for the 22,839 firm-year observations of the sample. The alternative measures of dividend payout are the ratio of common cash dividends to net income (DIV_NI) in Model 1, the ratio of common cash dividends to market capitalization (DIV_CAP) in Model 2, the ratio of common cash dividends to free cash flow (DIV_FCF) in Model 3, the ratio of common cash dividends to operating cash flow (DIV_OCF) in Model 4, the logarithm of common cash dividends (LOG_DIV) in Model 5, the ratio of total cash dividends (common plus preferred dividends) to total assets (TDIV_ASSETS) in Model 6, the ratio of total cash dividends (common plus preferred dividends) to net sales (TDIV_SALES) in Model 7, the logarithm of total cash dividend (common plus preferred dividends) (LOG_CDIV) in Model 8, the ratio of share repurchases to net sales (REP_SALES) in Model 9, the ratio of share repurchases to total assets (REP_ASSETS) in Model 10, the total of common cash dividends and share repurchases to net sales (TREP_SALES) in Model 11, the total of common cash dividends and share repurchases to total assets (TREP_ASSETS) in Model 12, and a dummy variable that takes 1 if the firm pays dividends and 0 otherwise (DUMMY) in Model 13. The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics (z-statistics for Model 6) corrected for clustering at the firm level are presented in parentheses.

*statistical significance at the10% level. **statistical significance at the5% level.***statistical significance at the1% level.

Table 12. Robustness tests: additional control variables to address the endogeneity

	DIV_SALES						DIV_ASSETS					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
INTERCEPT	0.012	0.011	0.012	0.007	0.010	0.006	0.004	0.003	0.004	-0.001	0.001	-0.002
	(1.13)	(1.08)	(1.17)	(0.62)	(0.93)	(0.58)	(1.35)	(1.16)	(1.32)	(-0.45)	(0.52)	(-0.83)
CSR_NET	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(5.26)	(5.36)	(5.30)	(5.03)	(5.02)	(4.73)	(5.89)	(5.95)	(5.94)	(5.64)	(5.62)	(5.27)
SIZE	0.002***	0.002***	0.002***	0.001***	0.002***	0.001***	0.001***	0.001***	0.001***	0.000	0.001***	0.000
	(7.83)	(7.88)	(7.51)	(4.83)	(8.33)	(4.85)	(4.29)	(4.37)	(4.12)	(0.61)	(4.92)	(0.79)
CASH	0.000	0.001	0.001	0.002*	-0.002	0.001	-0.002	-0.002	-0.002	0.000	-0.005***	-0.001
	(0.29)	(0.56)	(0.78)	(1.67)	(-1.54)	(0.55)	(-1.55)	(-1.23)	(-1.16)	(0.14)	(-3.80)	(-1.50)
GROWTH	-0.013***	-0.013***	-0.013***	-0.011***	-0.015***	-0.013***	-0.012***	-0.012***	-0.012***	-0.009***	-0.014***	-0.011***
	(-17.27)	(-16.87)	(-16.80)	(-14.97)	(-17.87)	(-16.42)	(-17.62)	(-17.12)	(-17.08)	(-14.76)	(-18.22)	(-16.53)
DEBT	-0.002	-0.002	-0.002	0.000	-0.002	0.000	-0.004***	-0.004***	-0.004***	-0.003**	-0.004***	-0.002*
	(-1.13)	(-1.29)	(-1.16)	(-0.32)	(-1.20)	(-0.21)	(-2.94)	(-3.08)	(-3.00)	(-1.89)	(-3.05)	(-1.80)
ROA	0.032***	0.033***	0.032***	0.033***	0.031***	0.027***	0.033***	0.035***	0.034***	0.034***	0.032***	0.028***
	(13.44)	(13.03)	(13.41)	(14.07)	(13.99)	(11.86)	(14.26)	(13.92)	(14.40)	(14.95)	(14.90)	(12.96)
RE_TE	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(8.10)	(7.81)	(7.01)	(6.28)	(8.46)	(4.50)	(8.48)	(8.22)	(7.68)	(6.35)	(8.92)	(4.87)
TAXE	-0.002***					-0.002***	-0.002***					-0.002***
	(-6.00)					(4.88)	(-7.68)					(-6.46)
R_D		-0.004				-0.008*		-0.001				-0.007
		(-0.69)				(-1.64)		(-0.26)				(-1.42)
SROA			-0.008***			-0.009**			-0.005**			-0.006**
			(-2.96)			(-3.30)			(-1.97)			(-2.39)
AGE				0.000***		0.000***				0.000***		0.000***
				(10.29)		(10.59)				(12.45)		(12.97)
MTB					0.001***	0.001***					0.001***	0.001***
					(5.78)	(6.57)					(6.47)	(7.12)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2 %	27.55	27.42	27.49	29.65	28.12	30.74	27.85	27.65	27.68	30.94	28.74	32.44
N	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839

This table examines the robustness of the results in Table 6 Model 2 and 8 to omitted variables for the 22,839 firm-year observations of the sample. CSR is measured as the overall CSR score. The dependent variables are the ratio of cash dividends to net sales (Models 1-6) and the ratio of cash dividends to total assets (Models 7-12). The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Additional control variables are a dummy for whether a firm has a tax advantage (TAXE in Model 1 and 7), research and development to total assets (R_D in Model 2 and 8), the return on assets volatility (SROA in Model 3 and 9), the age (AGE in Model 4 and 10), the market to book ratio (MTB in Model 5 and 11). Models 6 and 12 include all the additional variables. Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.
 *statistical significance at the10% level. **statistical significance at the5% level.***statistical significance at the1% level.

Table 13. Robustness tests: instrumental variables to address the endogeneity

	Div_SALE				DIV_ASSET			
	First stage	Second stage			First stage	Second stage		
		2sls	LIML	GMM		2SLS	LIML	GMM
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
INTERCEPT	-1.897*	0.014*	0.014*	0.125**	-1.814	0.014***	0.113***	0.014***
	(-1.72)	(1.77)	(1.77)	(2.50)	(-1.50)	(3.15)	(3.15)	(2.60)
CSR_NET		0.001***	0.001**	0.001***		0.001***	0.001***	0.001***
		(2.52)	(2.50)	(2.77)		(3.40)	(3.38)	(3.46)
SIZE	0.250***	0.002***	0.002***	0.002***	0.259***	0.001***	0.001***	0.001**
	(6.94)	(7.56)	(7.55)	(5.45)	(7.19)	(3.98)	(3.97)	(2.44)
CASH	0.805***	0.000	0.000	0.002	0.836***	-0.002	-0.001	-0.002
	(4.56)	(0.29)	(0.29)	(0.96)	(4.73)	(-1.61)	(-1.61)	(-0.86)
GROWTH	0.099	-0.013***	-0.013***	-0.013***	0.103	-0.012***	-0.012***	-0.012***
	(1.05)	(-16.97)	(-16.97)	(-16.86)	(1.10)	(-17.21)	(-17.21)	(-17.06)
DEBT	-0.296	-0.002	-0.002	-0.002	-0.266	-0.004***	-0.004***	-0.004***
	(-1.62)	(-1.21)	(-1.21)	(-1.26)	(-1.46)	(-2.98)	(-2.98)	(-2.77)
ROA	0.598***	0.033***	0.033***	0.032***	0.529**	0.035***	0.033***	0.035***
	(2.71)	(13.93)	(13.93)	(12.90)	(2.48)	(14.78)	(14.78)	(14.04)
RE_TE	0.026	0.001***	0.001***	0.001***	0.024	0.001***	0.001***	0.001***
	(1.24)	(8.21)	(8.21)	(8.44)	(1.17)	(8.50)	(8.50)	(8.71)
CSR_IND	0.867***				0.865***			
	(19.03)				(18.95)			
CSR_INI	0.618***				0.617***			
	(20.52)				(20.49)			
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	34.88	27.41	27.4	27.41	34.89	27.59	27.61	27.59
N	22,839	22,839	22,839	22,839	22,839	22,839	22,839	22,839

This table presents the results of instrumental variable estimation that controls for the endogeneity of CSR. Models 1-4 study the endogeneity for the regression of dividend payout measured as the ratio of cash dividends to net sales and Model 5-8 study the endogeneity for the regression of dividend payout measured as the ratio of cash dividends to total assets. We employ two instrumental variables (IV): the industry-year average of overall CSR score (CSR_IND), and the firm-level initial value of overall CSR score (CSR_INI). Models a and 5 show the first stage regressions. Models 2-4 and 6-8 show results for the second stage regression (2SLS, LIML, and GMM, respectively). The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.
*statistical significance at the10% level.**statistical significance at the5% level.***statistical significance at the1% level.

Table 14. Robustness tests: Propensity Score Matching

	Dependent variable: DIV_SALES				Dependent variable: DIV_ASSETS			
Propensity Score Matching Estimation	Treated	Controls	Difference	T-stat	Treated	Controls	Difference	T-stat
1-1 Matching without replacement	0.011	0.008	35.46%***	13.99	0.011	0.008	39.39%***	15.94
1-1 Matching with replacement	0.012	0.011	7.20%**	2.38	0.012	0.011	8.85%**	2.58
Nearest neighbor (n=2)	0.012	0.011	10.25%***	3.15	0.012	0.010	11.91%***	3.79
Nearest neighbor (n=3)	0.012	0.011	9.62%***	3.01	0.012	0.010	11.20%***	3.71

	Dependent variable: DIV_SALES				Dependent variable: DIV_ASSETS			
	PSM :1:1 Matching without replacement	PSM:1:1 Matching with replacement	PSM: Nearest neighbor (n=2)	PSM: Nearest neighbor (n=3)	PSM :1:1 Matching without replacement	PSM:1:1 Matching with replacement	PSM: Nearest neighbor (n=2)	PSM: Nearest neighbor (n=3)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
INTERCEPT	-0.005**	-0.003	0.017***	-0.004**	0.006***	0.005**	0.035***	0.003
	(-2.07)	(-1.33)	(6.92)	(-2.21)	(2.80)	(2.06)	(17.24)	(1.74)
CSR_NET	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(4.14)	(3.96)	(4.93)	(4.84)	(4.49)	(4.17)	(5.29)	(5.38)
SIZE	0.002***	0.002***	0.002***	0.002***	0.001***	0.001***	0.001***	0.001***
	(5.85)	(6.16)	(6.68)	(6.91)	(3.10)	(3.39)	(3.76)	(3.85)
CASH	0.000	0.000	0.000	0.001	-0.003*	-0.002***	-0.002	-0.002***
	(0.05)	(-0.14)	(0.23)	(0.36)	(-1.75)	(-1.57)	(-1.50)	(-1.51)
GROWTH	-0.013***	-0.013***	-0.013***	-0.013***	-0.011***	-0.012***	-0.012***	-0.011***
	(-13.45)	(-12.37)	(-14.02)	(-14.57)	(-13.62)	(-12.39)	(-14.34)	(-14.91)
DEBT	-0.003	-0.003*	-0.003*	-0.002	-0.005***	-0.005***	-0.005***	-0.005***
	(-1.43)	(-1.75)	(-1.66)	(-1.38)	(-3.14)	(-3.21)	(-3.58)	(-3.29)
ROA	0.032***	0.032***	0.032***	0.032***	0.034***	0.033***	0.033***	0.033***
	(11.11)	(10.43)	(11.88)	(12.48)	(12.18)	(11.43)	(12.85)	(13.44)
RE_TE	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
	(7.53)	(6.55)	(7.74)	(7.73)	(7.77)	(6.77)	(6.77)	(8.07)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2 %	24.09	24.40	24.50	24.49	24.07	24.10	24.77	24.85
N	12,354	9,154	13,150	15,483	12,354	9,154	13,150	15,483

This table reports the difference in dividend payout ratio (using two measures of dividend payout, namely, cash dividends to net sales and cash dividends to total assets), between high and low CSR firms, estimated by propensity score matching (PSM) with four different matching methods. The propensity scores are computed from a probit model using the same variables as in our main effects model and two instrumental variables. The instrumental variables are the industry-year average of overall CSR score,

and the firm-level initial value of overall CSR score. The table also shows regression estimates of the relation between overall CSR score and firm dividend payout using the matched samples obtained via the four propensity score methods: 1-1 matching without replacement (Models 1 and 5), 1-1 matching with replacement (Models 2 and 6), nearest neighbor (n=2) (Models 3 and7), and nearest neighbor (n=3) (Models 4 and 8). The dependent variables are dividends to net sales (Models 1-4) and dividends to total assets (Models 5-8). The control variables (used in the propensity score matching as well as in the regressions) are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.

*statistical significance at the10% level.

**statistical significance at the5% level.

***statistical significance at the1% level.

Table 15. Robustness tests: Heckman Selection Model

	Dividends		
	Selection equation	Outcome equation	Outcome equation
	CSR_NET	DIV_SALES	DIV_ASSETS
	(1)	(2)	(3)
INTERCEPT	-0.716***	0.011	0.004
	(-10.03)	(1.07)	(1.22)
CSR_SCORE		0.001***	0.001***
		(5.33)	(5.33)
SIZE	0.077***	0.002***	0.001***
	(9.89)	(7.87)	(4.33)
CASH	0.326***	0.001	-0.002
	(5.05)	(0.35)	(-1.52)
GROWTH	0.039	-0.013***	-0.011***
	(0.65)	(-16.99)	(-17.25)
DEBT	-0.311***	-0.002	-0.004***
	(-4.87)	(-1.23)	(-2.97)
ROA	0.151	0.033***	0.035***
	(1.38)	(13.92)	(14.76)
RE_TE	0.024**	0.001***	0.001***
	(2.61)	(8.26)	(8.52)
CSR_IND	0.485***		
	(22.85)		
CSR_INI	0.342***		
	(49.78)		
INV_MILLS		0.006	-0.00
		0.20	-0.34
Year effects	Yes	Yes	Yes
Industry	Yes	Yes	Yes
Adj. R2 %		27.41	27.65
N	22,839	22,839	22,839

This tables reports the results of Heckman's two-step treatment effect model used to correct the self-selection in CSR. The selection (CSR score) equation uses CSR Dummy as the dependent variable that takes the value of 1 if the firm has a positive overall CSR score, and 0 otherwise. We employ two instrumental variables: the industry-year average of overall CSR scores (CSR_IND), and the firm-level initial value of overall CSR scores (CSR_INI). The outcome equations use as dependent variables: the ratio of cash dividends to net sales (Model 2) and the ratio of cash dividends to total assets (Model 3). The outcome equation controls the inverse Mills ratio (*INV_MILLS*) estimated from the selection equation. The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.

*statistical significance at the10% level.

**statistical significance at the5% level.

***statistical significance at the1% level.

Table 16. Robustness checks: CSR, firm life cycle and dividend policy

	DIV_SALES			DIV_ASSETS		
	First stage of firm's life cycle	Medium stage of firm's life cycle	Mature stage of firm's life cycle	First stage of firm's life cycle	Medium stage of firm's life cycle	Mature stage of firm's life cycle
	(1)	(2)	(3)	(4)	(5)	(6)
INTERCEPT	0.002	0.002	0.005	0.005***	0.011***	-0.003
	(1.00)	(0.77)	(0.48)	(2.78)	(3.87)	(-0.73)
CSR_NET	0.000*	0.000**	0.001***	0.000**	0.000**	0.001***
	(1.64)	(2.19)	(4.61)	(2.03)	(2.00)	(5.16)
SIZE	0.001***	0.002***	0.002***	0.001**	0.001**	0.001***
	(3.84)	(4.88)	(6.46)	(2.10)	(2.04)	(3.60)
CASH	-0.002	0.003	0.002	-0.003**	-0.001	-0.003
	(-1.33)	(1.18)	(0.57)	(-2.20)	(-0.60)	(-1.22)
GROWTH	-0.006***	-0.017***	-0.018***	-0.005***	-0.016***	-0.015***
	(-7.33)	(-10.92)	(-11.10)	(-7.32)	(-11.40)	(-9.60)
DEBT	0.003	0.002	-0.007**	0.002	0.000	-0.014***
	(1.37)	(0.87)	(-2.20)	(1.10)	(-0.15)	(-5.22)
ROA	0.017***	0.052***	0.050***	0.018***	0.054***	0.054***
	(7.34)	(8.22)	(10.37)	(7.45)	(8.95)	(11.47)
RE_TE	0.000	0.006***	0.003*	0.000	0.006***	0.006***
	(1.29)	(3.12)	(1.87)	(0.23)	(3.52)	(5.03)
Year effects	Yes	Yes	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes	Yes	Yes
Adj. R2	23.67	22.99	31.71	21.33	22.23	32.78
N	7,606	7,621	7,612	7,606	7,621	7,612

This table reports the results from regressing dividend payout ratios on overall CSR score and other control variables after splitting the sample according to the stage of maturity in firms' life cycle. The regressions are made over the period 1991-2012 for the 22,839 firm-year observations of the sample. Models 1-3 use as dependent variable the ratio of cash dividends to net sales, while Models 4-6 use as measure of dividend payout the ratio of cash dividends to total assets. In Models 1 and 4 the sub-samples include firms in their first stage of their life cycle. In Models 2 and 5 the sub-samples include firms in their medium stage of their life cycle. Finally, in Models 3 and 6, the sub-samples include firms in their mature stage of their life cycle. The control variables are size (SIZE), cash (CASH), sales growth (GROWTH), firm debt (DEBT), return on assets (ROA), and the ratio of retained earnings to common equity (RE_TE). Appendix B outlines the definitions for all the regression variables. All financial variables have been winsorized at the 5% level. Unreported industry controls are based on the two-digit code of the Standard Industrial Classification. Financial firms (SIC codes 6000-6999) and utility firms (sic between 4900 and 4999) are excluded from the analysis. Robust t-statistics corrected for clustering at the firm level are presented in parentheses.

*statistical significance at the10% level.

**statistical significance at the5% level.

***statistical significance at the1% level.