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Corporate social responsibility and the likelihood of external financing

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ABSTRACT

This paper empirically investigates the relation between firm performance in corporate social responsibility (CSR) and the need and likelihood of external financing to test the predictions of agency and stakeholder theories. Empirical results from Logit, Linear Probability Model, OLS and Firm fixed effects regressions indicate that CSR is negatively related to the likelihood and level of external financing. Further analysis indicates that CSR has a negative and significant effect on both net equity issued (NEI) and net debt issued (NDI), the two components of external financing. Overall, the empirical results support the predictions of agency theory.

KEYWORDS

Corporate social responsibility; net debt issued; net equity issued; external financing

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1. Introduction

This study empirically examines the relation between corporate social responsibility (CSR) and external financing to test the predictions of two dominant theoretical views: agency theory (shareholder expense view) and stakeholder theory. Agency theory (Jensen and Meckling, 1976) postulates that CSR is an agency problem (Friedman, 1970) and managers tend to overinvest in CSR activities to expropriate private benefits at the expense of shareholders (Barnea and Rubin, 2010; Benabou and Tirole, 2010). In this respect, CSR is a value decreasing investment, and a waste of corporate resources. CSR decreases the sensitivity of external finance to investment-Q by distorting capital allocation efficiency and makes investments more dependent on internally generated funds as financier may restrict external financing due to misallocation of resources (Bhandari and Javakhadze (2017). Investors view CSR as an agency problem that adds frictions to capital markets and tend to penalize managers of CSR firms by demanding higher risk premiums, which makes external financing more expensive. Managers in CSR firms prefer financial slack and may intentionally shy away from external financing to avoid monitoring and disciplining pressures of external capital markets. Consequently, CSR firms are less likely to use external financing.

Stakeholder theory (Freeman, 1984), on the other hand, contends that CSR is a strategic investment which increases firm value by generating cashflows. It argues that CSR creates moral capital and provides insurance like protection (Godfrey et al., 2009; Luo and Battacharya, 2009). Furthermore, CSR reduces information asymmetry (Cai et al., 2016), cost of capital (Sharfman and Fernando, 2008; El Ghoul et al., 2011) and lowers financing constraints (Cheng et al., 2014). It argues that CSR activities are viewed positively, and investors tend to reward managers of CSR firms by reducing risk premium. Stakeholder theory predicts that CSR firms are more likely to use external financing.

Using a large sample of 22,743 firm year observations for the period 2003-2018, this study empirically estimates the relation between CSR and the likelihood of accessing external financing. It uses MSCI (formerly KLD) data on social ratings to measure CSR. External financing is calculated as the sum of net debt issued (NDI) and net equity issued (NEI). Empirical results from Logit and linear probability model (LPM) regressions indicate that controlling for financial constraints and other firm specific variables, CSR is negatively related to the likelihood of external financing. Results from OLS and firm fixed effects regressions show that CSR is negatively associated with the level of external financing. An analysis of the components of external financing indicates that CSR is significantly negatively related to both net debt issued and net equity issued.

The empirical results of this study are robust to alternative measures of external financing and CSR and tests for endogeneity. Results don't change when I use an alternative measure of CSR (adjusted CSR) that corrects unequal weights given to different dimensions of CSR due to differences in the number of strengths and concerns in each dimension. Results also remain same when I use an enhanced measure of CSR that includes the governance and human rights dimensions. Moreover, empirical results are not sensitive to an alternative measure of external financing that is constructed using data from cashflow statements. Finally, results remain similar when I use instrumental variable (IV) and first-order difference regressions to address concerns about endogeneity of CSR and external financing.

This study contributes to the literature on CSR and external financing by empirically investigating the predictions of the two dominant theories on CSR and external financing. To my knowledge, this is the first study that shows that the relation between CSR and the likelihood of accessing external financing is explained by agency theory. In this respect, it adds to the recent literature that finds evidence in support of shareholder expense view of CSR (Bhandari and Javakhdze, 2017; Hussaini et al, 2021).

The rest of this study is structured as follows. Section 2 provides motivation by reviewing previous literature. Section 3 explains data, measurement of variables, and research design. Section 4 presents empirical results and checks the robustness of these results. Section 5 concludes.

2. Motivation and hypotheses

Ever since the publication of Friedman's article "The Social Responsibility of Business Is to Increase Its Profits" in New York Times (Friedman, 1970), the research on corporate social responsibility (CSR) has increased manifold. The theoretical basis of this research is grounded in two competing views on the role of CSR in publicly traded firms: agency theory (shareholder expense view) and stakeholder theory. Agency theory (Jensen and Meckling, 1976) argues that CSR is an agency problem (Barnea and Rubin, 2010; Benabou and Tirole, 2010) and managers tend to overinvest in CSR to gain private benefits using shareholders' resources. Brown et al. (2006), for example, argue that managers use corporate giving to enhance personal reputations in their social circles and receive other private benefits (e.g., tickets to events, access to celebrities, etc.). Barnea and Rubin (2010) argue that corporate insiders (managers and large blockholders) overinvest in CSR to improve their reputations as good global citizens and to have a "warm-glow" effect. Cespa and Cestone (2007) state that inefficient managers tend to invest more in CSR to gain stakeholders' support. Brammer and Millington (2008) argue that CSR engagement results in private benefits to managers and does not bring any financial benefits to shareholders. Similarly, Lys et al., (2015) document that CSR does not affect financial performance and firms only use CSR to signal higher future financial performance. Other studies like Cheng et al. (2023) show that CSR spending is partly explained by agency problems. Kruger (2015) finds that investors react slightly negatively when a firm discloses positive news about its CSR policies and Garcia et al. (2021) find that CSR results in higher audit fees due to higher audit complexity. Hussaini et al., (2021) find that CSR performance at the acquirer level results in higher takeover premiums which is consistent with shareholder expense view.

Among the studies that have direct implications for external financing, Bhandari and Javakhdze (2017) find that CSR decreases the sensitivity of external finance to investment (Q) and aggravates investment sensitivity to cash flows due to distortions in capital allocation efficiency. Ye and Zhang (2011), show that CSR is negatively related to debt financing costs. However, when CSR exceeds optimal levels (when managers overinvest), firms face higher debt financing costs, which increases cost of capital. Magnanelli and Izzo (2017) using data from Dow Jones Sustainability Index show that CSR increases cost of debt. Although Hamrouni et al. (2020) find a negative relation between overall ESG disclosure scores and cost of debt, they also find that environmental disclosure scores are positively related to cost of debt. Samet and Jarboui (2017), however, find that CSR firms are better positioned to obtain financing in capital market by reducing market frictions and agency costs in European firms. These studies generally find that CSR may be positively related to cost of external finance, making external finance more expensive. Other studies show that managers protected from the disciplinary effect of takeover threats award higher wages to their employees (Bertrand and Mullainathan, 2003) and entrenched managers are more likely to treat their employees well (Cronqvist et al., 2009).

In sum, agency-based studies consider CSR as managerial opportunism and an attempt to gain private benefits at the expense of shareholders. These studies show that CSR is a drain on corporate resources that competes with other value increasing investments and distorts capital allocation efficiency. Consequently, investors view CSR as an agency problem and require higher risk premiums for providing external finance to CSR firms. Managers may also intentionally stay away from expensive external financing to avoid the monitoring and disciplinary pressures from capital markets (Bhandari and Javakhdze (2017). Agency theory, therefore, predicts that CSR firms are less likely to access external financing.

The competing stakeholder theory (Freeman, 1984) contends that CSR is not a waste of corporate resources. Instead, it is a strategic investment that increases firm value by balancing the interests of all stakeholders (including the shareholders) and by reducing the risks of resource acquisitions (Haley, 1991; Backhaus et al., 2002). Wang and Choi (2013), for example, show that good stakeholder relations result in higher financial performance and Russo and Fouts (1997) find that firm engagement in CSR creates value by providing sustained and predictable financial

cash flows. The stakeholder theory also argues that CSR activities increase firm value through efficient financial policies by reducing cost of capital (Sharfman and Fernando, 2008; El Ghoul et al., 2011; Girerd-Potin et al., 2014; Ng and Rezaee, 2015). CSR disclosures introduce transparency and reduce information asymmetry between firms and investors (Chih et al., 2010). Investment in CSR creates moral capital which provides insurance like protection in the event of poor performance (Godfrey, 2005; Luo and Battacharya, 2009). Jeffers (2015), for example, argues that CSR generates goodwill which firms can redeem for lower penalty and more generous awards. Hong et al. (2019) show that CSR firms receive lower sanctions from prosecutors. Prior literature also shows that CSR firms are perceived less risky (Robinson et al., 2008; Starks, 2009; Jo and Na, 2012) and investors demand low risk premiums for holding their equity. Cheng et al. (2014) provide empirical evidence from an international sample that firm performance in CSR leads to lower financial constraints measured by the KZ index. Bhandari and Javakhadze (2017), however contend that in their US sample, CSR positively affects investment sensitivity to cash flow and increases financial constraints to some extent. Overall, studies based on stakeholder theory argue that CSR increases investment efficiency, reduces cost of capital, and lowers financial constraint, all of which increase the likelihood of using external financing.

Since the two dominant views offer opposite predictions, the relation between CSR and external financing is essentially an empirical question. I, therefore, formulate the following two competing hypotheses based on agency and stakeholder theories:

Hypothesis 1a: CSR is negatively associated with the likelihood and level of external financing.

Hypothesis 1b: CSR is positively associated with the likelihood and level of external financing.

3. Data, measurement, and research design

3.1. Sample selection

I create a sample of US firms for the period 2003-18 by combining two big datasets. First, I use MSCI (formerly KLD) database, which is widely used in the literature to measure CSR performance (e.g., Kim et al., 2012; Harjoto, 2017; Sheikh 2020). Although MSCI data are available from 1993, the most comprehensive coverage of the data started in 2003, when the MSCI expanded its coverage to companies in the Russell 3000 index. I therefore started the sample period from 2003 to include the most recent and comprehensive data. Second, I collect data on firm financial characteristics and external financing from the Compustat database. Following prior studies, I drop firms in the financial sector and in the regulated industries (SIC codes in the range 4910-4949 and 6000-6999). After I merge data from these two sources, the final sample consists of 22,743 firm year observations.

3.2. Measuring CSR

The MSCI data reports information on firm social performance as strengths and concerns in seven dimensions (diversity, community, environment, employee relations, product, governance, and human rights). Strengths (concerns) are actions that have positive (negative) effect on CSR performance. Following prior work on CSR (e.g., Dhaliwal et al., 2012; Deng et al., 2013; Gregory et al 2014; Harjoto and Laksmana 2018; Sheikh 2022), I exclude the governance and human rights dimensions of CSR because the governance dimension is measured differently from traditional governance measures and the human rights dimension is available only for a small fraction of US firms. In robustness section, however, I test the sensitivity of the empirical results by using an enhanced measure of CSR that includes these two dimensions.

3.3. Measuring external financing

I follow Baker and Wurgler (2002) in calculating the primary measure of external financing (EF) as the sum of net equity issued (NEI) and net debt issued (NDI). Net equity issued is measured as the change in book equity minus change in retained earnings divided by book value of total assets. Book equity is calculated as the book value of total assets minus total liabilities minus preferred stock plus deferred taxes and convertible debt. Net debt issued is calculated as the residual change in the book value of total assets divided by the book value of total assets. I also calculate an alternative measure of external financing that uses information from cash flow statement variables instead of balance sheet variables. In this setting, net equity issued (NEI) is calculated as the sale of common and preferred stock minus the purchase of common and preferred stock and net debt issued (NDI) is calculated as long-term debt issuance minus long-term debt reduction plus changes in current debt. External financing equals net equity issued plus net debt issued. Details about the construction of these variables are provided in the appendix. To mitigate the effect of outliers on these ratios, I winsorize measures of external financing at 1% and 99%.

3.4. Research design

I follow previous work on external financing (e.g., Almeida and Campello, 2010) and estimate the following equation:

$$External\ Financing_{i,t} = \alpha_0 + \alpha_1\ CSR_{i,t} + \sum_{j=2}^{n} \alpha_j\ Control\ Variables_{i,t} + \varepsilon_{i,t} \quad (1)$$

Logit and Linear Probability Model (LPM) regressions are used to estimate the effect of CSR on the likelihood of external financing and OLS and firm fixed effects regressions to estimate the relation between CSR and the level of external financing. For Logit and LPM estimation, I create a categorial variable (EF>0) which equals 1 if external financing (EF) is positive and 0 otherwise. For OLS and firm fixed effects regressions, the dependent variable is the ratio of external financing to the book value of total assets. All coefficients are estimated with robust standard errors adjusted for heteroscedasticity (White, 1980) and clustered at firm level (Petersen, 2009). Besides firm performance in CSR, I use several control variables that are known to influence the likelihood and need for external financing (e.g., Almeida and Campello, 2010). These variables include firm size, cashflows, cashflow volatility, internal financing, financial constraints, debt to assets, market to book, tangible assets, R&D intensity, capital intensity, year, and industry controls.

Large firms and firms that have huge stock of cashflows (higher profitability) are less likely to need external financing. Similarly, higher cashflow volatility increases uncertainty and the need to access capital markets more frequently. Almeida and Campello (2010) argue that internal and external financing may be complementary to each other. Following them, I include internal financing (change in cash plus change in accounts receivables plus change in inventories). To control for financial constraints, I include a categorical variable (Financially Constrained) that equals 1 if the Kaplan Zingales (1997) index score is above the top 20th percentile and 0 otherwise. To control for growth opportunities, I include market to book value of assets (Tobin's Q). R&D and capital intensities are included to control for competing financing needs resulting from R&D and capital expenditures. Finally, I include year and industry dummies to control for time and industry fixed effects. Details about the construction of these variables are provided in the appendix.

Table 1 provides summary statistics and correlation of control variables. It also provides variance inflation factors (VIFs) of all the control variables. These factors are generally less than 2 (except tangibles assets to total assets ratio which is 2.12) and indicate that there are no concerns for multicollinearity (Kennedy, 2008). Average CSR net score is 0.2184 and the median net score is zero. Average firm in the sample faces a positive external financing (EF>0) 64% of the time. Average external financing (EF) is 7.9% of total assets. Average firm in the sample has assets of $7.3 billion. Its cashflows (EBITDA) are 10.5% of total assets and cashflow volatility is 7.27%. Average

firm is financially constrained 20% of the time and has internal financing of 0.1% of total assets. Its market to book value is 2.1 times, long term debt and tangible assets (PP&E) are 20.3% and 24.9% of total assets. R&D and capital expenditures for an average firm are 4.9% and 5.1% of assets respectively. Table 2 provides correlation matrix of the variables.

Table 1. Summary statistics and correlation matrix.

Variables	Mean	SD	VIF	1	2	3	4	5	6	7	8	9	10
EF	0.079	0.203											
EF>0	0.645	0.479											
CSR	0.218	2.208	1.08										
Assets	7321	30291	1.07	0.23									
CF	0.105	0.148	1.84	0.07	0.05								
CFV	0.073	0.737	1.02	-0.01	-0.01	-0.10							
Const	0.200	0.400	1.83	-0.07	-0.05	-0.40	0.04						
Int. Fin.	0.001	0.126	1.05	0.01	-0.01	-0.02	0.02	0.09					
DTA	0.203	0.224	1.61	0.01	0.04	0.04	-0.02	0.50	-0.05				
MTB	2.153	1.503	1.33	0.07	-0.08	-0.10	0.07	0.07	0.11	-0.12			
PP&E	0.249	0.230	2.12	-0.08	0.06	0.19	-0.02	0.00	-0.07	0.22	-0.24		
R&D	0.049	0.135	1.89	0.02	-0.05	-0.51	0.11	0.24	-0.02	-0.08	0.40	-0.21	
Capital	0.051	0.060	1.9	-0.07	0.00	0.14	-0.01	0.00	-0.08	0.07	-0.04	0.67	-0.10

Note: EF= External financing; EF>0= Categorical variable equals 1 if EF is positive and 0 otherwise; CF= cash flows; CFV= cash flow volatility; Int. Fin=Internal financing; Const= Financial constraints; DTA= Debt to assets; MTB= Market to book; PP&E= Property, Plant & Equipment; R&D= R&D to assets; Capital= Capital expenditures to assets.

4. Results

4.1. CSR and external financing: Baseline results

The main purpose of this study is to empirically examine the relation between firm performance in CSR and the likelihood and level of external financing. Table 2 provides baseline results. Columns 1 and 2 provide results from the Logit and Linear Probability Model (LPM) regressions of the likelihood of accessing external financing (EF>0). The coefficients on CSR are all negative and significant in both regressions. In terms of their economic effect, the average marginal effect of CSR in the Logit regression shows that a one-point increase in CSR results in 1.109% decrease in the probability of external financing. The same results in 1.08% decrease in linear probability model (LPM) regression. These results indicate that CSR firms are less likely to use external financing. Columns 3 and 4 provide results from OLS and firm fixed effects regressions of the effect of CSR on the level of external financing. Here again, the coefficients on CSR are negative and significant. Results form OLS regression show that a one unit increase in CSR results in 0.0033 units decrease in external financing, which translates into 4.17% decrease over the sample mean of 0.0791. The same one unit increase in CSR in firm fixed effects regression is 3.29% decrease over the sample mean. Overall, the negative coefficients on CSR in Table 2 support hypothesis 1a and provide empirical evidence that the relation between CSR and external financing is better explained by the shareholder expense view.

The coefficients on other control variables in Table 2 are generally of the expected signs. Firm size is positive but significant in two specifications. Cashflows to assets ratio (EBITDA/assets) is negative and significant, confirming the previous findings that more profitable firms are less likely to access external financing. Cashflow volatility has positive and significant effect on the level of external financing (OLS and firm fixed effects regressions). The coefficients on internal financing are positive and significant, indicating that internal financing may be complementary. The coefficients on market to book ratios are also positive, showing that growth firms need higher external financing. The coefficients on tangible assets (PP&E) are negative and significant. It seems that firms with

existing inventory of tangible assets have lower need for external financing. Capital intensity has positive and significant effect on both the likelihood and level of external financing.

Table 2. CSR and external financing: Baseline regressions.

Variable	Logit	Linear Probability Model (LPM)	OLS	Firm fixed effects
CSR	-0.0510***	-0.0108***	-0.0033***	-0.0026***
	(0.000)	(0.000)	(0.000)	(0.001)
Ln (assets)	0.0284*	0.0039	0.0016	0.0524***
	(0.054)	(0.217)	(0.101)	(0.000)
Cashflows/assets	-4.2128***	-0.4834***	-0.5372***	-0.3778***
	(0.000)	(0.000)	(0.000)	(0.000)
Cashflow volatility	0.1067	0.0028	0.0073***	0.0072***
	(0.367)	(0.150)	(0.000)	(0.000)
Constrained	0.091	0.0183	0.0181***	0.0058
	(0.151)	(0.134)	(0.000)	(0.386)
Internal financing	1.8234***	0.2629***	0.4474***	0.3917***
	(0.000)	(0.000)	(0.000)	(0.000)
Debt to assets	-0.1848	-0.0567***	0.0568***	0.1319***
	(0.130)	(0.010)	(0.000)	(0.000)
Market to book	0.2902***	0.0334***	0.0271***	0.0245***
	(0.000)	(0.000)	(0.000)	(0.000)
PPE/assets	-1.2461***	-0.2012***	-0.1173***	-0.2590***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D/assets	-0.5686**	-0.0483	0.0571**	0.0183
	(0.038)	(0.173)	(0.013)	(0.628)
Capital intensity	11.1670***	1.5877***	0.6517***	0.6030***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D missing	-0.0921*	-0.0263**	0.0005	0.0001
	(0.060)	(0.015)	(0.882)	(0.998)
Year controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	No
Pseudo R^2	0.0952	0.0993	0.3864	0.1631
Observations	22,743	22,743	22,743	22,743

*Note: This table shows results from Logit, Linear Probability Model, OLS and Firm fixed effects regressions of the effect of CSR performance on the likelihood and level of external financing. The dependent variable for Logit and LPM regressions equals 1 if external financing is positive and 0 otherwise. All variables have been defined in the Appendix. P-values given in parentheses are based on robust standard errors and clustered at firm level. ***, **, and * represent significance at 1%, 5% and 10% respectively.*

4.2. CSR and external financing: Components of external financing

As explained in section 3.3 above, external financing is calculated as the sum of net debt issued (NDI) and net equity issued (NEI). Since debt and equity have their own agency costs, in this section, I estimate the relation between CSR and the individual components of external financing to see if CSR firms tend to reduce debt, or equity or both. Table 3 provides results from Logit, LPM, OLS and firm fixed effects regressions. The coefficients on CSR are all negative and significant for both NDI and NEI in all specifications. These results indicate that CSR firms are less likely to issue both debt and equity as a source of external finance. These results also show that CSR has a significant negative effect on level of net debt issued and net equity issued. It seems that the negative association between CSR and external financing holds for both sources of external financing and CSR firms tend to restrict both net debt and net equity issued. The coefficients on all other control variables have signs and significance comparable to the ones in Table 2.

Table 3. CSR and external financing: Components of external financing.

Variable	Logit		Linear Probability Model		OLS		Firm fixed effects	
	NDI>0	NEI>0	NDI>0	NEI>0	NDI	NEI	NDI	NEI
CSR	-0.0275***	-0.0449***	-0.0058***	-0.0105***	-0.0016***	-0.0018***	-0.0011**	-0.0018***
	(0.001)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.047)	(0.002)
Ln (assets)	0.1854***	-0.2120***	0.0399***	-0.0479***	0.0087***	-0.0070***	0.0547***	-0.0041
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.216)
Cashflows/assets	-0.5735***	-4.1293***	-0.1007***	-0.4259***	-0.0524***	-0.4648***	-0.0925***	-0.2622***
	(0.001)	(0.000)	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cashflow volatility	0.0121	1.6564**	0.0024	0.0035*	0.0007	0.0067***	0.0017**	0.0066***
	(0.570)	(0.025)	(0.532)	(0.085)	(0.585)	(0.000)	(0.038)	(0.000)
Constrained	-0.0129	0.2328***	-0.0032	0.0461***	0.0002	0.0164***	-0.0039	0.0100**
	(0.808)	(0.001)	(0.783)	(0.000)	(0.951)	(0.000)	(0.470)	(0.036)
Internal financing	-0.7053***	2.1440***	-0.1526***	0.2881***	-0.0534***	0.4876***	-0.0427***	0.4258***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Debt to assets	-0.3010***	-0.1538	-0.0675***	-0.0415*	0.0507***	0.0035	0.1028***	0.018
	(0.002)	(0.256)	(0.001)	(0.068)	(0.000)	(0.733)	(0.000)	(0.217)
Market to book	0.1964***	0.1344***	0.0393***	0.0073**	0.0052***	0.0217***	0.0048***	0.0192***
	(0.000)	(0.000)	(0.000)	(0.019)	(0.000)	(0.000)	(0.000)	(0.000)
PPE/assets	-1.0529***	-0.3810**	-0.2105***	-0.0527*	-0.0660***	-0.0493***	-0.1117***	-0.1414***
	(0.000)	(0.011)	(0.000)	(0.079)	(0.000)	(0.000)	(0.000)	(0.000)
R&D/assets	-0.6237**	0.4948	-0.1085**	-0.0288	-0.0264	0.1327***	0.0149	0.0539
	(0.022)	(0.322)	(0.029)	(0.371)	(0.295)	(0.000)	(0.637)	(0.113)
Capital intensity	7.3241***	5.4583***	1.3470***	0.7850***	0.3335***	0.3179***	0.4359***	0.1732***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D missing	-0.1084***	0.0121	-0.0255***	-0.0043	-0.0006	0.0018	0.0039	-0.002
	(0.008)	(0.828)	(0.005)	(0.712)	(0.786)	(0.438)	(0.571)	(0.729)
Year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Pseudo R^2	0.0532	0.1085	0.0665	0.1128	0.1162	0.4769	0.0212	0.4134
Observations	22,743	22,743	22,743	22,743	22,743	22,743	22,743	22,743

*Note: This table shows results from Logit, Linear Probability Model, OLS and Firm fixed effects regressions of the effect of CSR performance on the likelihood and level of net debt issued (NDI) and net equity issued (NEI). The dependent variable for Logit and LPM regressions equals 1 if NDI (NEI) is positive and 0 otherwise. All variables have been defined in the Appendix. P-values given in parentheses are based on robust standard errors and clustered at firm level. ***, **, and * represent significance at 1%, 5% and 10% respectively.*

4.3. CSR and external financing: Instrumental variable regressions

Although this study assumes that CSR exerts a causal effect on external financing, there may be concerns about endogeneity of CSR and external financing due reverse causality. To mitigate these concerns, I use instrumental variable Probit (IV-PROBIT) and two stage least squares (IV-2SLS) regressions. Following previous work, I use religion rank and constituency laws as instrumental variables. Angelidis and Ibrahim (2004) document that the degree of religiousness is positively related to the attitudes towards economic and ethical components of CSR. A higher religion ranking measures the degree of religiousness and is calculated as the ratio of the number of religious adherents to the total population in the state where the firm is located.[1] Following Flammer and Kacperczyk (2016), I use constituency statutes of the state where the firm is located as an instrumental variable. Constituency statutes give legal powers to the board of directors to balance the interests of different stakeholders without breaching their fiduciary duties to shareholders (Orts, 1992; Stout, 2012). Empirical evidence shows that stakeholder representation increases on corporate boards of those companies that enact constituency statutes (Luoma and Goodstein, 1999). Flammer and Kacperczyk (2016) also find a positive association between constituency statutes and firm performance in CSR. I create a categorical variable (constituency) that equals 1 if the state where the company headquarters are located has enacted constituency statutes and 0 otherwise. Both instrumental variables

[1] The data on religion rankings is from the US Religion Census and is available at http://www.rcms2010.org/compare.php. I use 2010 study which is consistent with the sample period of 2003-2018.

(religion rank and constituency) are highly positively correlated with CSR but have no direct relation with external financing.

Results from the first stage regressions (Table 4) show that religion rank and constituency laws have positive and significant effect on CSR performance. The Wald test of exogeneity is significant in IV-PROBIT regression. The Kleibergen-Paap F-statistic (>20) and Hansen J-Statistics (insignificant) in IV-2SLS regressions indicate that the instruments used in the first stage are both valid and relevant. In the second stage regressions, the coefficients on CSR (instrumented) are all negative and statistically significant. These coefficients indicate that firm performance in CSR is negatively associated with the likelihood and level of external financing. The results from IV regressions show that the primary findings of this study are not sensitive to tests of endogeneity.

Table 4. CSR and external financing: Instrumental variable regressions.

Variables	IV-PROBIT		IV-2SLS	
	First stage (CSR)	Second stage	First stage (CSR)	Second stage
Religion rank	0.0044***		0.0050***	
	(0.001)		(0.000)	
Constituency	0.1474***		0.1604***	
	(0.000)		(0.000)	
CSR (instrumented)		-0.3897***		-0.0306**
		(0.003)		(0.017)
Ln (assets)	0.4537***	0.1559***	0.4436***	0.0068
	(0.000)	(0.009)	(0.000)	(0.238)
Cashflows/assets	-0.5620**	-2.2993***	-0.3500***	-0.5257***
	(0.012)	(0.000)	(0.007)	(0.000)
Cashflow volatility	0.0212	0.0523	0.0171	0.0075***
	(0.215)	(0.408)	(0.322)	(0.005)
Constrained	0.0005	0.0559	-0.0201	0.0149***
	(0.992)	(0.128)	(0.659)	(0.002)
Internal financing	0.3823***	1.2297***	0.3966***	0.4567***
	(0.000)	(0.000)	(0.000)	(0.000)
Debt to assets	-0.3776***	-0.2424***	-0.3696***	0.0596***
	(0.000)	(0.003)	(0.000)	(0.000)
Market to book	0.1334***	0.2006***	0.1324***	0.0298***
	(0.000)	(0.000)	(0.000)	(0.000)
PPE/assets	-0.7093***	-0.9652***	-0.7907***	-0.1317***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D/assets	1.3241***	0.1829	1.4873***	0.0911***
	(0.000)	(0.425)	(0.000)	(0.000)
Capital intensity	1.8906***	6.5215***	1.2718***	0.6760***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D missing	-0.3132***	-0.1853***	-0.4548***	-0.0122*
	(0.000)	(0.000)	(0.000)	(0.060)
Wald test		9.92		
		(0.002)		
Kleibergen-Paap F				21.725
Hansen J statistic				2.259
				(0.133)
Year controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	Yes
Observations	21,629	21,629	21,629	21,629

*Note: This table shows results from IV-PROBIT and IV-2SLS regressions of the effect of CSR performance on the likelihood and level of external financing. The dependent variable for IV-PROBIT equals 1 if external financing is positive and 0 otherwise. All variables have been defined in the Appendix. P-values given in parentheses are based on robust standard errors and clustered at firm level. ***, **, and * represent significance at 1%, 5% and 10% respectively.*

4.4. CSR and external financing: First-order difference regressions

Although instrumental variable regressions treat endogeneity concerns arising from two-way causality, there may be concerns about endogeneity caused by unobservable variables that could lead to different levels of external financing. To address these concerns, I run first-order difference regressions. In this model, I regress the first-order differences of external financing on the first-order differences of all independent variables. The differences are calculated as the current year value minus the last year value of the same variable for the same firm. I use the following model to estimate first-order difference regressions:

$$\Delta External\ Financing_{i,t} = \alpha_0 + \alpha_1\ \Delta CSR_{i,t} + \sum_{j=2}^{n} \alpha_j\ \Delta Control\ Variables_{i,t} + \varepsilon_{i,t} \quad (2)$$

For Logit and linear probability model (LPM) regressions, I create a categorical variable that equals 1 if the change in external financing is positive (ΔEF>0) and 0 otherwise. Results from first-order difference regressions are presented in Table 5. Here again the coefficients on ΔCSR are all negative and significant, indicating that changes in CSR exert a negative effect on the likelihood of a positive change in external financing and change in the level of external financing. All other control variables have signs and significance like those in Table 2. I also estimate the baseline regressions with changes in external financing and changes in CSR only and use levels of all other control variables. Results, which are not reported here to save space, don't change.

Table 5. CSR and external financing: First-order difference regressions.

Variable	Logit	Linear Probability Model (LPM)	OLS	Firm fixed effects
CSR	-0.0350***	-0.0068**	-0.0030***	-0.0030***
	(0.005)	(0.013)	(0.002)	(0.002)
Ln (assets)	3.7731***	0.5823***	0.3710***	0.4848***
	(0.000)	(0.000)	(0.000)	(0.000)
Cashflows/assets	-3.6937***	-0.6053***	-0.4307***	-0.4422***
	(0.000)	(0.000)	(0.000)	(0.000)
Cashflow volatility	0.0452	0.0031	0.0005	-0.007
	(0.583)	(0.534)	(0.917)	(0.384)
Constrained	-0.1551***	-0.0393***	-0.0191***	-0.0061
	(0.000)	(0.000)	(0.000)	(0.400)
Internal financing	1.8112***	0.3478***	0.2900***	0.2483***
	(0.000)	(0.000)	(0.000)	(0.000)
Debt to assets	2.8027***	0.4677***	0.2680***	0.2803***
	(0.000)	(0.000)	(0.000)	(0.000)
Market to book	0.2831***	0.0513***	0.0208***	0.0204***
	(0.000)	(0.000)	(0.000)	(0.000)
PPE/assets	-5.9862***	-1.0692***	-0.3384***	-0.2025***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D/assets	1.8039***	0.2999***	0.1154***	0.1658***
	(0.004)	(0.000)	(0.007)	(0.004)
Capital intensity	6.0863***	1.0685***	0.2082***	0.1008
	(0.000)	(0.000)	(0.001)	(0.116)
R&D missing	0.0102	0.0019	0.0047*	0.0012
	(0.717)	(0.740)	(0.077)	(0.911)
Year controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	No
Pseudo R^2	0.1229	0.1376	0.3037	0.2908
Observations	18,884	18,884	18,884	18,884

Note: This table shows results from Logit, Linear Probability Model, OLS and Firm fixed effects regressions of the effect of

*changes in CSR performance on the likelihood of a positive change and changes in level of external financing. The dependent variable for Logit and LPM regressions equals 1 if a change in external financing is positive and 0 otherwise. All variables have been defined in the Appendix. P-values given in parentheses are based on robust standard errors and clustered at firm level. ***, **, and * represent significance at 1%, 5% and 10% respectively.*

4.5. CSR and external financing: Alternative measures of CSR

This study calculates net scores on CSR in five dimensions of social performance. Although this is the most widely used measure of CSR performance in the literature, questions remain about the sensitivity of empirical results to alternative measures of CSR. To address these questions, I use two additional measures of CSR. First, I use adjusted CSR, which corrects the unequal weights given to different dimensions due to different numbers of strengths and concerns in each dimension in the MSCI data. Following previous studies (e.g., Manescu 2009; Deng et al 2013), I first divide strengths and concerns in each dimension of CSR by total number of strengths and concerns in that dimension and then calculate net scores by subtracting adjusted concerns from adjusted strengths. I call this measure "adjusted CSR". Second, I include governance and human rights dimensions of CSR performance and calculate the augmented "CSR_GH" measure.

Table 6. CSR and external financing: Alternative measures of CSR.

Variable	Logit	Linear Probability Model (LPM)	OLS	Firm fixed effects	Logit	Linear Probability Model (LPM)	OLS	Firm fixed effects
Adjusted CSR	-0.2132***	-0.0444***	-0.0133***	-0.0133***				
	(0.000)	(0.000)	(0.000)	(0.000)				
CSR_GH					-0.0607***	-0.0129***	-0.0042***	-0.0028***
					(0.000)	(0.000)	(0.000)	(0.000)
Ln (assets)	0.0201	0.0021	0.0011	0.0526***	0.0384**	0.0059*	0.0024**	0.0525***
	(0.165)	(0.487)	(0.257)	(0.000)	(0.011)	(0.063)	(0.016)	(0.000)
Cashflows/assets	-4.2251***	-0.4853***	-0.5428***	-0.3779***	-4.2121***	-0.4840***	-0.5420***	-0.3785***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Cashflow volatility	0.1047	0.0029	0.0075***	0.0072***	0.1126	0.0029	0.0075***	0.0072***
	(0.363)	(0.130)	(0.000)	(0.000)	(0.372)	(0.142)	(0.000)	(0.000)
Constrained	0.0926	0.0188	0.0198***	0.0059	0.0867	0.0174	0.0193***	0.0057
	(0.144)	(0.124)	(0.000)	(0.382)	(0.171)	(0.155)	(0.000)	(0.394)
Internal financing	1.8233***	0.2632***	0.4482***	0.3916***	1.8226***	0.2626***	0.4481***	0.3919***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Debt to assets	-0.1703	-0.0543**	0.0552***	0.1325***	-0.1909	-0.0578***	0.0541***	0.1319***
	(0.164)	(0.013)	(0.000)	(0.000)	(0.117)	(0.008)	(0.000)	(0.000)
Market to book	0.2878***	0.0330***	0.0277***	0.0245***	0.2918***	0.0337***	0.0280***	0.0245***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
PPE/assets	-1.2597***	-0.2030***	-0.1081***	-0.2597***	-1.2471***	-0.2016***	-0.1081***	-0.2580***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D/assets	-0.5961**	-0.0519	0.0568**	0.0187	-0.5396*	-0.0447	0.0599***	0.0184
	(0.027)	(0.146)	(0.012)	(0.621)	(0.052)	(0.206)	(0.008)	(0.626)
Capital intensity	11.1779***	1.5865***	0.6605***	0.6017***	11.1622***	1.5878***	0.6593***	0.6027***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R&D missing	-0.0912*	-0.0260**	0.0044	-0.0001	-0.0953*	-0.0270**	0.0038	-0.0002
	(0.063)	(0.016)	(0.115)	(0.993)	(0.052)	(0.012)	(0.172)	(0.980)
Year controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Pseudo R^2	0.0951	0.0991	0.3837	0.1617	0.0957	0.0999	0.3844	0.1644
Observations	22,743	22,743	22,743	22,743	22,743	22,743	22,743	22,743

Note: This table shows results from Logit, Linear Probability Model, OLS and Firm fixed effects regressions of the effect of CSR on the likelihood and level of external financing. The dependent variable for Logit and LPM regressions equals 1 if external financing is positive and 0 otherwise. Adjusted CSR corrects the unequal weight of unequal strengths and concerns each dimension. CSR_GH includes governance and human rights dimensions in the primary measure of CSR performance. All

*variables have been defined in the Appendix. P-values given in parentheses are based on robust standard errors and clustered at firm level. ***, **, and * represent significance at 1%, 5% and 10% respectively.*

Table 6 presents results from these two measures. The coefficients on Adjusted CSR and CSR_GH are negative and significant in all regressions. These results provide further support to the primary findings of this study. The coefficients on all other control variables are of expected signs. Additionally, I calculate a categorical variable (high CSR) that equals 1 if net scores on CSR are higher than sample median net scores and 0 otherwise and use this variable as an additional measure of CSR. Results, which are not reported here, are same as the results from baseline regressions.

4.6. CSR and external financing: Alternative measure of external financing

Finally, I construct an alternative measure of external financing from the statement of cashflows. Here, I calculate net equity issued (NEI2) as the sale of common and preferred stock minus the purchase of common and preferred stock and net debt issued (NDI2) as long-term debt issuance minus long-term debt reduction plus changes in current debt. I then calculate external financing by adding net equity issued (NEI2) and net debt issued (NDI2) divided by book value of total assets. Results from this alternative measure of external financing are provided in Table 7. Here again, the coefficients on CSR are negative and significant in all specifications, which support the primary results of this study.

Table 7. CSR and external financing: Alternative measure of external financing (EF2).

Variable	Logit	Linear Probability Model (LPM)	OLS	Firm fixed effects
CSR	-0.0470***	-0.0106***	-0.0022***	-0.0013**
	(0.000)	(0.000)	(0.000)	(0.011)
Ln (assets)	-0.0918***	-0.0218***	-0.0034***	0.0170***
	(0.000)	(0.000)	(0.000)	(0.000)
Cashflows/assets	-6.8582***	-0.9002***	-0.4720***	-0.3417***
	(0.000)	(0.000)	(0.000)	(0.000)
Cashflow volatility	0.4327*	0.0047	0.0059***	0.0057***
	(0.100)	(0.165)	(0.000)	(0.000)
Constrained	0.0725	0.0316**	0.0176***	0.0161***
	(0.290)	(0.024)	(0.000)	(0.001)
Internal financing	2.9365***	0.4606***	0.4670***	0.4381***
	(0.000)	(0.000)	(0.000)	(0.000)
Debt to assets	1.0330***	0.1397***	0.0829***	0.1418***
	(0.000)	(0.000)	(0.000)	(0.000)
Market to book	0.1633***	0.0131***	0.0111***	0.0134***
	(0.000)	(0.000)	(0.000)	(0.000)
PPE/assets	-1.3575***	-0.1998***	-0.0854***	-0.1996***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D/assets	-1.0064***	-0.1511***	0.0292	0.0054
	(0.002)	(0.001)	(0.199)	(0.872)
Capital intensity	11.1607***	1.6449***	0.5530***	0.5895***
	(0.000)	(0.000)	(0.000)	(0.000)
R&D missing	-0.0208	-0.011	0.0037	0.0086
	(0.707)	(0.362)	(0.151)	(0.210)
Year controls	Yes	Yes	Yes	Yes
Industry controls	Yes	Yes	Yes	No
Pseudo R^2	0.1428	0.1553	0.4883	0.3820
Observations	21,732	21,732	21,732	21,732

Note: This table shows results from Logit, Linear Probability Model, OLS and Firm fixed effects regressions of the effect of CSR

*on the likelihood and level of external financing. The dependent variable for Logit and LPM regressions equals 1 if external financing is positive and 0 otherwise. All variables have been defined in the Appendix. P-values given in parentheses are based on robust standard errors and clustered at firm level. ***, **, and * represent significance at 1%, 5% and 10% respectively.*

5. Summary and conclusion

This study empirically examines the relation between CSR and external financing to test the predictions of two dominant views: agency theory (shareholder expense view) and stakeholder theory. Agency theory views CSR as managerial opportunism and an attempt by managers to gain private benefits at the expense of shareholders. It implies that CSR is a waste of corporate resources and investors require higher risk premiums for providing finance to CSR firms. It also implies that managers prefer financial slack and may voluntarily stay away from external financing to avoid the disciplinary forces of external capital markets. Stakeholder theory, on the contrary, argues that CSR is a value increasing strategic investment and shareholders reward managers of CSR firms by reducing risk premiums. CSR firms also face lower financial constraints and are more likely to use external financing. The empirical results from a large sample of US firms for the period 2003-2018 support the predictions of agency theory (shareholder expense view) by documenting a robust negative association between CSR and the likelihood and level of external financing.

The results of this study are robust to alternative measures of external financing, CSR, additional controls, and endogeneity concerns. However, like every study, there are a few limitations of this study. First, it is possible that CSR firms are more likely to "afford" investment in CSR due to high levels free cash flows. Although this study includes cash flow to assets as additional variable, it is not possible to control the amount of free cash flows exactly at the time when CSR decisions are made. Second, another limitation of this study is that it uses data that include firms from various industries. Although it adds industry dummies in each regression, the relation between CSR and external financing may be different in individual industries due to differences in industry dynamics. Third, this study measures CSR using net scores from the MSCI social ratings data. There is no systematic conceptual basis for measuring CSR using social ratings. Future research should use other CSR data (e.g., Dow Jones Sustainability Index (DJSI), Accountability Ratings and Global reporting Initiative (GRI)) to test the predictions of the agency and stakeholder theories about the relation between CSR and external financing.

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Declaration of Competing Interest

The author claims that the manuscript is completely original. The author also declares no conflict of interest.

Data Availability

The dataset generated during the current study is not publicly available as it contains proprietary information that the authors acquired through a license. The data can be acquired from Wharton Research Data Services through https://wrds-www.wharton.upenn.edu.

Appendix

Table A1. Variable definition.

Variable	Definition
Book equity (BE)	Total assets – total liabilities – preferred stock + deferred taxes + convertible debt.
Net equity issued (NEI)	Δ book equity (BE) – Δ Retained earnings.
Net debt issued (NDI)	Δ total assets – Net equity issued (NEI) - Δ Retained earnings.
External financing (EF)	Net debt issued (NDI) + Net equity issued (NEI).
Net equity issued (NEI2)	Sale of common and preferred stock – purchase of common and preferred stock.
Net debt issued (NDI2)	Long term debt issuance – long term debt reduction + Δ current debt.
External financing (EF2)	Net debt issued (NDI2) + Net equity issued (NEI2).
EF>0	Categorical variable that equals 1 if EF is positive and 0 otherwise.
NDI>0	Categorical variable that equals 1 if NDI is positive and 0 otherwise.
NEI>0	Categorical variable that equals 1 if NEI is positive and 0 otherwise.
CSR	Net scores on CSR strengths and CSR concerns on five social dimensions of Diversity, Community, Environment, Employee relations and Products.
CSR_GH	Net score on CSR strengths and CSR concerns on seven social dimensions of Diversity, Community, Environment, Employee relations and Products, Governance, and Human rights.
Size	Log of book value of assets.
Cash holdings	Cash and cash equivalents/by book value assets.
Cashflows	Earnings before interest, taxes, depreciation, and amortization (EBITDA)/book value of assets.
Cashflow volatility	Standard deviation of cashflows calculated from previous four years.
Debt to assets	Book value of total debt/ book value of total assets.
Market to book ratio	(Book value of assets - book value of equity + market value of equity)/ book value of assets.
Tangible assets	Net property, plant & equipment /book value of assets.
R&D intensity	R&D expenditures/book value of assets.
Capital intensity	Capital expenditures/book value of assets.
R&D missing	A categorical variable that equals 1 if R&D is missing and 0 otherwise.
NOCF	Net operating cashflow (statement of cashflows)

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