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Corporate social responsibility performance, financial distress and firm life cycle: evidence from Australia

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Abstract

This study examines the association between corporate social responsibility (CSR) performance and financial distress and additionally the moderating impact of firm life cycle stages on that association. Based on a sample of 651 publicly listed Australian firm-years' data covering the 2007–2013 period, our regression results show that positive CSR activity significantly reduces financial distress of the firm. In addition, the negative association between positive CSR performance and financial distress is more pronounced for firms in mature life cycle stages. Our results are robust to alternative proxy measures of financial distress, CSR performance and life cycle stages.

Key words: Corporate social responsibility; Financial distress; Corporate life cycle

JEL classification: G01, G32, H26

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1. Introduction

Corporate social responsibility (CSR) and financial distress are prominent research topics, but often these constructs are considered in isolation (Deegan, 2002). The rationale behind corporate CSR engagement is multidimensional and can range from cultural and social reasons to economic and financial reasons. We thus adopt a broad perspective of CSR activities and reporting following Moser and Martin (2012), which encapsulates all corporate actions

that impact firms' stakeholders. Specifically, we are motivated in this study to empirically examine the association between financial distress and CSR performance of publicly listed Australian firms because financial distress impacts the risk-shifting behaviour of firm management.

CSR can be regarded as how a business takes account of its social and environmental impacts of its operations (Deegan, 2002) and generally incorporates benefits by way of economic development to both the firm and the society in which the firm operates (Holme and Watts, 2006; Moser and Martin, 2012). CSR is regarded as key factor in the success and survival of a firm (Hoi *et al*., 2013). However, there is generally no regulatory regime in place mandating disclosure of CSR activities of a firm other than the Australian Stock Exchange governance best practice recommendations, which suggest that firms could consider reporting on these activities. Firms can then voluntarily disclose CSR activities and a likely consequence is that the reporting of such activities will vary widely.

CSR activities could be directed primarily as a risk management strategy used by a firm to enhance its reputation, which, in turn, protects the firm from the risk of adverse political, regulatory and social sanctions (Godfrey, 2005; Minor and Morgan, 2011). A lack of positive CSR orientation by the firm may lead to negative sanctions such as loss of firm/executive reputation, increased political/media pressure, and potential fines and penalties and even possibly consumer boycott. Further, positive engagement in CSR related activities may generate a range of financial benefits to a firm. Indeed, the combined benefits of positive CSR engagement may out-weight the associated costs. Accordingly, firms could to some degree manage their financial disposition by increasing positive CSR activities (Godfrey, 2005) so as to lessen the expected probability of falling into a state of financial distress.

We also argue that the association between CSR and financial distress is moderated by the firms' life cycle stage. Given that managements' access to resources and their strategy are likely to evolve across different life cycle stages, we conjecture that the relation between financial distress and CSR performance to similarly change across life cycle stages. The reason for this is that any association between financial distress and CSR performance is dynamic in nature contingent upon variation in economic fundamentals (e.g. cash flows, retained earnings, asset turnover and solvency-related risks) and opportunities available to the firm across its different life cycle stages. Thus, we assess that the relation between financial distress and CSR performance evolves conditional upon firm life cycle stages.

Based on a sample of 651 firm-years of publicly listed Australian firms covering the 2007–2013 period, our regression results show that positive CSR performance is significantly and negatively associated with financial distress. Moreover, the negative association between positive CSR performance and financial distress is magnified for firms in the mature stage of life cycle development. Our results are robust to alternative proxy measures of CSR

performance, financial distress and life cycle stages. Our findings extend the literature on the drivers of financial distress and the economic consequences of engaging in certain types of CSR activity.

This study contributes to the literature in several important ways. First, it provides unique empirical evidence that assesses the association between CSR performance and financial distress. A negative association is evident. This finding suggests that a firm engaging in positive CSR activities also takes into account its financial disposition, which confirms the view that CSR is a core activity used by firms to support their financial activities. Our findings support the view that CSR activities preserve corporate financial performance (Godfrey *et al*., 2009). This study then links CSR performance with firm life cycle stages and provides evidence that the interaction between both positive CSR performance and life cycle progression is empirically associated with financial distress. In fact, our empirical results show that the negative association between positive CSR activities and financial distress is largely magnified due to firm life cycle progression. To the best of our knowledge, this study is the first to document this association empirically. Second, this study extends the literature by examining the association between CSR performance and financial distress generally and by arguing that CSR activities constitute a set of risk management mechanisms and strategies that impact a whole range of stakeholders. This association is likely to be value relevant to investors in particular in assessing risk premiums relating to future cash flows and the cost of capital, and in determining the likelihood that a firm will be exposed to financial distress. This study provides important evidence regarding the implications of CSR performance for firms' financial risk management. This is particularly important given that sustainability and CSR performance constitute core business activities of Australian listed firms.

The remainder proceeds as follows. Section 2 outlines the background to the study and develops our hypotheses. Section 3 discusses the research design including the sample and statistical techniques. Section 4 summarises the empirical results. Finally, Section 5 concludes the paper.

2. Background and hypotheses development

2.1. Financial distress

Corporate financial distress, according to Altman and Hotchkiss (2006), is a rather vague term, which can be further attributed to four generic terms commonly used in business research: *failure, insolvency, bankruptcy* and *default*. Failure arises when the realised rate of return on invested capital, with allowance for risk consideration, is significantly and continually lower than prevailing rates on similar investments or insufficient revenues to cover costs, and where the average return on investment is constantly below the firm's cost of capital.

Critically, financial distress increases incentives for risk-shifting to occur by shareholders and their agents (i.e. firm management) (Maksimovic and Titman, 1991; Eberhart and Senbet, 1993). Indeed, in times of financial distress, risk-shifting behaviour increases (Maksimovic and Titman, 1991; Eberhart and Senbet, 1993; Campello *et al*., 2010, 2011, 2012). Financially distressed firms exhibit an increase in the cost of capital, a reduction in access to external funding sources, weaker credit ratings and, in general, an increase in the disposition of managers to take on more risk (Edwards *et al*., 2013). However, credit-constrained firms focus on the need to conserve capital, to maintain credit ratings, to meet the requirements of debt covenants and to continue as a going concern. A firm in financial distress may also be subject to the risk of severe negative sanctions such as loss of firm/executive reputation, increased political/media pressure, potential fines and penalties, and even consumer/creditor reprimands. In equilibrium, a firm will carry out CSR activities provided that the marginal benefits of doing so exceeds marginal costs. A firm strategies designed to reduce financial distress will become more appealing and viable as the potential costs of financial distress increase. Overall, firm management may be compelled to undertake risk mitigating CSR-related strategies to mitigate the risks and costs associated with financial distress. While there are several methods to mitigate risk-shifting behaviour, more traditional methods (e.g. the use of CSR) have not been evaluated till now, motivating this study.

2.2. CSR performance and financial distress

Margolis and Walsh (2001) reviewed 109 studies that examined the association between CSR orientation and corporate financial performance and found that 54 of these studies reported a positive association between the two. Godfrey *et al*. (2009) and Attig *et al*. (2013) find that enhanced financial performance for strongly CSR orientated firms arises through creation of stronger exchange relationships with key stakeholders such as customers, creditors and employees, in negating the occurrence or potential impediments of government intervention, and with the view to enhance future revenue growth. Waddock and Graves (1997), purport that firms meet internal stakeholders' expectations through strategic use of financial resources that enhances firms' reputation and competiveness. El Ghoul *et al*. (2011) provide evidence that stronger CSR engagement is associated with a lower cost of equity capital while Cheng *et al*. (2013) find that firms with superior CSR orientation have both better stakeholder engagement and transparency around CSR performance which in turn assist in reducing capital constraints. Lee and Faff (2009) and El Ghoul *et al*. (2011) assert that firms exhibiting poor CSR practices face significantly higher idiosyncratic risk.

Minor and Morgan (2011) and Hoi *et al*. (2013) highlight the emerging trend that CSR activities and reporting can be viewed as an important part of firm's

risk management. According to the risk management argument, a firm that engages in and reports on its CSR activities would serve the interests of its shareholders, which could potentially mitigate the risk associated with falling into financial distress. Specifically, extensive positive CSR activities that impact a range of stakeholders act as a hedge against financial impediments or constraints as the firm may be able to galvanise, and rely on its linkages and reputation with various stakeholders to mitigate risks of financial distress. A firm's action designed to ensure financial stability is legitimately influenced by its attitude to and actions about CSR, which encapsulate broader considerations regarding legality and ethics (Avi-Yonah, 2008). As a result, a firm develops CSR-related policies, strategies and activities that provide the most favourable financial outcomes in a complex and competitive business environment. Accordingly, the risk management perspective suggests that increased positive CSR activities and financial distress should be systematically and negatively related. Godfrey *et al.* (2009) extends the risk management perspective by asserting that when firms participate in institutional type CSR activities aimed at society as a whole, this creates goodwill or moral capital for the firm that provides insurance-like protection when negative events occur. They posit that such activity leads to positive attributions from stakeholders, who then temper their negative judgements and sanctions towards firms because of this goodwill and this serves to preserve economic value for the firm.

Another perspective relies on stakeholder theory whereby positive CSR engagement represents a proxy for high quality management (Gross, 2009). Altman and Hotchkiss (2006) report that a pervasive reason as to why firms fall into financial distress is due to management incompetence. If CSR activities are reflective of management quality in general (Attig and Cleary, 2015), then it follows that firms engaged in those activities are less likely to fall into a state of financial distress. Gross (2009) uses both multivariate regressions and a discrete time hazard model to report that CSR disclosures are significantly negatively associated with the degree of financial distress in the U.S. context. Gross (2009) also shows that high disclosing firms (i.e. those in the top quartile of KLD scores) are 11 percent less likely to experience takeover or default. In the U.S. context, Attig *et al.* (2013) find a positive association between strong social performance and firms' credit ratings, which they attribute to improved stakeholder relations and an increase in firms' long-term sustainability, a signal of efficient resource use and sound financial performance, and a reduction in costs associated with socially irresponsible behaviour. In particular, Attig *et al.* (2013) find that stakeholder management attributes such as community relations, diversity, employee relations, environmental performance and product characteristics are the most important in explaining firms' creditworthiness. Overall, Attig *et al.* (2013) posit that credit analysts view positive CSR activities favourably in their rating decisions because the resulting improvements in long-term sustainability reduce the probability of default. Additionally, disclosure of CSR information may enhance stakeholders' perception of

compliance, governance and risk management, which could in turn provide information regarding firms' probability distributions of its future cash flows.

We conjecture that a similar line of argument could account for a possible negative association between firms' positive CSR disclosure and financial distress.

Taken as a whole, we thus expect firms that exhibit a higher level of positive CSR activities as a risk management strategy to be subject to lower levels of financial distress. We thus hypothesise that:

H1: All else being equal, positive CSR performance is negatively associated with financial distress.

2.3. Firm life cycle, CSR disclosure and financial distress

Life cycle theory posits that firms are subject to systematic changes in operating, investing and financing activities, resource endowment, organisational capabilities, risk appetite and strategies as they progress through different stages (Helfat and Peteraf, 2003). Extant studies show that introduction and decline firms are less profitable and more risky, while growth and mature firms are more profitable and less risky (Dickinson, 2011; Habib and Hasan, 2015). It is thus not unreasonable to expect that these differences will impact levels of financial distress across each stage of the firm life cycle.

Investors evaluate a firm's ability to deal with financial distress and recover profitability primarily through its generation of cash flows and earnings potential (Black, 1998). When firms are faced with financial constraints, as they are more likely to do so in their early stages of growth, their management teams may search for ways to improve capabilities and resource retention (Helfat and Peteraf, 2003). However, in the early stages, firms may lack liquid resources and the ability to effectively compete with their peers (Spence, 1977, 1979, 1981). In particular, according to dynamic resourced-based theory, human capital, social capital and cognition, and resources (e.g. financing, technological and material) are likely to be lacking in the early stages of firms' life cycle (Helfat and Peteraf, 2003). In the early stages of life, firms may face a high cost of capital owing to uncertainties about future cash flows and earnings and the potential difficulty of raising additional capital (Jenkins *et al*., 2004; Kim and Suh, 2009; Hasan *et al*., 2015).

During the mature phase, the firms may have greater competitive advantage through resource use, capability management and maintenance (Gray and Ariss, 1985; Helfat and Peteraf, 2003). In the mature stage, firms may be sufficiently well resourced making them less susceptible to financial distress. Access to greater resources including expertise in the maturity phase may mean that firm management can focus on maintaining reputation and investments (Javanovic, 1982; Hasan and Habib, 2017). Firms in this stage of their life cycle

have higher earnings per share, retained earnings/total assets, retained earnings/total equity and return on net operating assets, leading to higher and sustained dividend payouts compared to younger stage firms (DeAngelo *et al*., 2006; Dickinson, 2011). Firm size and age also increase in the mature phase. Maintenance of operating cash flows, ongoing certainty relating to future cash flows, earnings, innovations and investments and profit margins in mature stage firms may mean that these firms are less prone to financial distress.

Given that positive CSR performance reduces financial distress, and that financial distress is contingent on firm life cycle, it is also possible that both CSR performance and life cycle stages can jointly impact financial distress of a firm. Moreover, the association between financial distress and CSR performance is likely to be magnified as a consequence of firm life cycle stages. Mature firms are concerned with the reputational consequences of their activities and how they interact with key stakeholders, including regulatory authorities and hence these firms are likely to engage in positive CSR activities more extensively as compared to younger or decline stage firms (Hasan and Habib, 2017). In fact, in the early and decline phases of firms' life cycle, CSR activities and disclosure, and indirect costs including reputational effects and financial reporting effects, are likely to be less important than access to badly needed capital for survival, growth, innovation and sustained financing. The reason for this is that younger firms face uncertainty concerning revenue flows and costs (Javanovic, 1982) and these firms face risk-taking around investments and innovations (Gort and Klepper, 1982; Miller and Friesen, 1984; Dickinson, 2011). Younger firms are concerned largely with achieving growth objectives and ensuring that they can adequately compete and have sufficient resources to expand into new markets and to develop new product lines, and hence are less likely to be concerned with engaging in positive CSR activities (Ramaswamy *et al*., 2008). Legitimacy with key stakeholders by way of increased positive CSR activities is likely to be less important as compared to achieving financial objectives. The need to conserve capital or to meet the minimum capital needs of the firm is less critical for mature firms, so these firms can expend greater resources in ensuring they engage in, and adequately communicate their CSR activities (Hasan and Habib, 2017).

Certainty and reduced risk relating to current (and possibly future) earnings and cash flows may mean that mature stage firms have reduced risk of financial distress and a higher propensity to pursue positive CSR arrangements including communication of those activities. The reason is managers of these firms are likely to have a better understanding of the environment in which the firm operates and have more resources at their disposal which may allow them to identify opportunities to engage in, and communicate positive CSR activities. Indeed, Waddock and Graves (1997) and Elsayed and Paton (2007) argue that the existence of funds is a key determinant of whether managers decide to engage in positive CSR activities. Moreover, if firms have excess cash, reduced

innovations, less competition and relatively higher levels of agency costs, management of mature stage firms will be incentivised to re-invigorate the firm by engagement in positive CSR programs (Jawahar and McLaughlin, 2001; Elsayed and Paton, 2007). To do so may enhance a firm's competitive and reputation position in the market. In addition, managers of mature stage firms are likely to be mindful of the potential reputational costs associated with poor CSR engagement and communication. In essence, based on the difference in economic fundamentals between young and older firms, the dynamic between CSR activities and financial distress is magnified (Miller and Friesen, 1984; Black, 1998; Helfat and Peteraf, 2003). Mature firms with steady-state investments, combined with effective legitimacy with society through more extensive positive CSR activities, are likely to face reduced financial distress. The reason is mature firms capitalise on their relations with key stakeholders, and society as a whole, to maintain reputation and ensure that this also assists in sustaining competitive advantage and financing opportunities. Thus, the association between positive CSR performance and financial distress is likely to be moderated by firm life cycle stages. Therefore, we hypothesise that:

H2: All else being equal, the association between positive CSR performance and financial distress is magnified for firms in the mature life cycle stage.

3. Research design

3.1. Sample and data

Our initial sample consists of 135 randomly selected publicly-listed Australian firms over the period 2007–2013. The final sample consists of 93 firms (651 firm-year observations) after excluding firms with missing data (42). A summary of the sample reconciliation is presented in Table 1, panel A. The number of firm-year observations distributed across industry sectors is provided as Table 1, panel B and the number of firms distributed across industry sectors and years is provided as Table 1, Panel C. Both Panel B and C show that industrials, materials and consumer discretionary sectors dominate in our sample.

3.2. Dependent variable

Financial distress is the dependent variable in this study. To improve the robustness of our results, we rely on three measures of financial distress used in the accounting and finance literature: Berger *et al.* (1999) model (BOS_Dis), Altman (1968) model (AltmanZ) and Almeida and Campello (2007) model (AC_Dis). The models are each defined in Appendix I. For all these measures, higher values of our financial distress proxies represent lower levels of financial distress.

Table 1
Sample selection and distribution of the sample

Panel A: Sample Selection	
Initial Sample – firms (firm-year observations)	135 (945)
Less	
Financial and insurance firms	15 (105)
Firms with missing data	27 (189)
Final sample	93 (651)

Panel B: Number of observation based on industry		
Industry Classifications	Number	Percent
Consumer Discretionary	136	0.201
Consumer Staples	34	0.050
Energy	58	0.100
Financials	4	0.006
Healthcare	36	0.055
Industrials	154	0.236
Information Technology	42	0.064
Materials	150	0.230
Telecommunication Services	14	0.021
Utilities	23	0.035
Total	651	100

Panel C: Distribution of firms across industry and year

Industry Classifications	2007	2008	2009	2010	2011	2012	2013	2014
Consumer Discretionary	1	20	19	20	20	19	19	19
Consumer Staples	1	6	5	6	6	4	4	3
Energy	1	10	10	10	10	6	6	6
Financials	1	1	1	1	1	0	0	0
Healthcare	1	6	6	6	6	4	4	4
Industrials	1	22	23	22	23	21	21	22
Information Technology	1	6	6	6	6	6	6	6
Materials	1	23	21	23	21	21	21	20
Telecommunication Services	1	2	2	2	2	2	2	2
Utilities	1	3	3	4	4	3	3	3

3.3. Independent variables

3.3.1. Corporate social responsibility performance

Our independent variable is represented by corporate social responsibility (CSR) performance, which is used as a proxy measure of the level of positive (or negative) CSR activity undertaken by a firm (Cho *et al.*, 2013). We model

CSR performance as a set of heterogeneous activities in line with most literature (see, e.g. Godfrey *et al*., 2009). Our proxy measures of CSR activity are based on Global Reporting Initiative (GRI) G4 sustainability reporting guidelines. Specifically, using the GRI index of 75 items of CSR activity, we divide those items into positive areas of CSR activity (43) and negative CSR activities (32) in a similar manner to that of Cho *et al*. (2013). Both the positive and negative grouping of items includes the different types and categories of CSR activities. Positive CSR activities comprise for instance activities around improving environmental efforts, strengthening customer relationships, improving employment and health and safety as evidence of adherence to regulations, best practice, monitoring and effectiveness of resource usage. Negative CSR activities may comprise such activities, for instance, as the payment of fines, the existence of liabilities relating to poor environmental or social practices, and engagement in controversial activities or risky activities. Thus, any potential measurement error arising from using CSR disclosure as a proxy for a broad range of CSR activities is minimised in our study.

Our first measure of CSR reporting is based on the number of positive CSR items disclosed by a firm in a given year: *POS_CSR* = natural log of the number of positive CSR items (43) reported in the annual report. Our second measure of CSR reporting is the natural log of the number of negative CSR items (32) reported by each firm (*NEG_CSR*). Activities that comprise positive and negative CSR performance are provided in Appendix II. Use of these items ensures that our CSR index includes a broad range of categories of CSR disclosure that could possibly be engaged in by a corporation. We examined sample firms' annual reports to analyse the reporting of 75 individual CSR activity items that can be grouped into 'environmental' (30 items) and 'social' (45 items). The association between each of these CSR performance grouping and financial distress is examined.

For each of the 75 individual CSR activity item, a firm represented was scored either 1 for disclosure of a particular performance attribute, or 0 otherwise. The scoring was performed by a research assistant and an author, with both cross-checking a sample for consistency.

3.3.2. Life cycle variable

Following prior studies (e.g. DeAngelo *et al*., 2006; Owen and Yawson, 2010; Al-Hadi *et al*., 2016), we employ the DeAngelo *et al*. (2006) model of firm life cycle which utilises retained earnings scaled by total assets or total equity to measure the stages of development in that life cycle. DeAngelo *et al*. (2006) claim that the mix of earned/contributed capital (i.e. retained earnings (RE) scaled by total assets (TA) or total equity (TE)) captures essential information regarding corporate life cycle. Firms with high retained earnings to total assets ratio (RE/TA) or retained earnings to total equity ratio (RE/TE) are typically

more mature, or old with declining investment, while firms with a low RE/TA or RE/TE tend to be young and growing.

3.4. Control variables

We include several control variables in our regression models, including firm size, leverage, research and development (R&D) intensity, cash holding, liquidity, profitability, industry sector and year effects.

Firm size (*SIZE*), measured as the natural log of total assets, controls for differences in resourcing, ability to cope with competition and funding opportunities. Based on prior research, we expect larger firms to be able to cope better in periods of financial distress because they possess superior economic and political power relative to smaller firms.

Leverage (*LEV*), measured as short-term and long-term debt divided by total assets, controls for the level of a firm's indebtedness. R&D intensity (*RDINT*), measured as R&D expenditure divided by total assets, controls for firms' level of R&D expenditure. R&D-intensive firms are more likely to be subject to distress than capital intensive firms. We include firm's cash holdings and liquidity position to control for firms' ability to deal with periods of financial constraints. Additionally, we control for firm's profitability using return on assets (*ROA*) and loss (*LOSS*). Previous literatures suggest positive association between CSR and liquidity (e.g. Subramaniam *et al.*, 2016). Thus, we also include liquidity ratio (QUICK).

Finally, industry sector (*IND*) dummy variables, defined by the two-digit Global Industry Classification Standard (GICS) codes, are included as control variables in our study as it is possible for financial distress to fluctuate across different industry sectors. We also control for year fixed effect to control for time trend.

3.4. Regression models

Our base OLS regression model used to examine the association between extent of CSR performance and financial distress is estimated as follows:

$$\begin{aligned} DIS_{it} = {} & \alpha_{0it} + \beta_1 CSR_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} \\ & + \beta_4 CASH_{it} + \beta_5 ROA_{it} + \beta_6 R\&D_{it} + \beta_7 QUICK_{it} \\ & + \beta_8 LOSS_{it} + \beta_{9-18} IND_{it} + \beta_{19-24} YEAR_i + \varepsilon_{it} \end{aligned} \quad (1)$$

where i = firms 1–93; t = financial years 2007–2013; *DIS* = financial distress (proxied by *AC_Dis, BOS_Dis and AltmanZ*); *CSR* = either *POS_CSR* or *NEG_CSR*; *SIZE* = the natural logarithm of total assets; *LEV* = short-term and long-term debt divided by total assets; *CASH* = cash holdings by the firm defined as cash and marketable securities scaled by total assets; *ROA* = return

on assets; *R&D* = R&D expenditure divided by total assets; *QUICK* = cash plus receivables/current liabilities; *LOSS* = Dummy variable scored as 1 if the firm is a loss making firm in a given year; *IND* = industry sector dummy variable, coded 1 if the firm is represented in the particular GICS category, otherwise 0; YEAR = year dummy variable, coded 1 for a particular year, otherwise 0 and ε = the error term.

Our extended OLS regression model used to investigate the association between financial distress, CSR performance and firm life cycle stages is estimated as follows:

$$\begin{aligned} DIS_{it} = {} & \alpha_{0it} + \beta_1 CSR_{it} + \beta_2 Life\ Cycle_{it} + \beta_3 CSR_{it} * Life\ Cycle \\ & + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 CASH_{it} + \beta_7 ROA_{it} \\ & + \beta_8 RDINT_{it} + \beta_9 QUICK_{it} + \beta_{10} LOSS_{it} + \beta_{11-20} IND_{it} \\ & + \beta_{21-26} YEAR_i + \varepsilon_{it} \end{aligned} \tag{2}$$

where Life Cycle = DeAngelo *et al.* (2006) life cycle model measured as retained earnings scaled over total assets (RE/TA) or retained earnings scaled over total equity (*RE/TE)*; *CSR * Life Cycle* = an interaction term comprising the life cycle variable multiplied by *CSR*.

4. Empirical results

4.1. Summary statistics

Table 2 reports the descriptive statistics for the dependent variable (*DIS*), independent variables (*POS_CSR, NEG_CSR and LCS*) and control variables (*SIZE, LEV, CASH, ROA, QUICK, LOSS*). Our financial distress measures *AC_Dis, BOS_Dis and AltmanZ* have a mean (median) of 0.309 (0.331), 0.448 (0.457), and 11.775 (3.015), respectively. *POS_CSR* has a mean (median) of 0.229 (0.171), and *NEG_CSR* has a mean (median) of 0.184 (0.118). The mean (median) of our measures of life cycle stages represented by RE/TA and RE/TE are 0.086 (0.134) and 0.124 (0.261), respectively. Finally, an acceptable range of variation is observed for all variables, and there is a reasonable level of consistency between the means and medians, reflecting normality of distributions.

4.2. Regression results

Table 3 reports the regression results of the association between CSR performance and financial distress over the 2007–2013 period. Higher values of our financial distress proxies represent lower levels of distress. In Panel A, we find that the regression coefficient for positive CSR activities (*POS_CSR*) is positive for all measures of financial distress (*AC_Dis, BOS_Dis* and *AltmanZ*)

Table 2
Descriptive statistics

Variable	*N*	Mean	SD	0.25	Median	0.75
AC_Dis	651	0.309	0.140	0.204	0.331	0.426
BOS_Dis	651	0.448	0.175	0.330	0.457	0.554
AltmanZ	651	11.775	35.960	2.022	3.015	5.723
POS_CSR	651	0.229	0.236	0.045	0.171	0.333
NEG_CSR	651	0.184	0.196	0.090	0.118	0.248
RE/TA	651	0.086	0.438	0.031	0.134	0.236
RE/TE	651	0.124	1.912	0.064	0.261	0.463
SIZE	651	7.013	1.785	5.808	6.858	8.397
LEV	651	0.178	0.155	0.035	0.162	0.271
CASH	651	0.138	0.170	0.033	0.067	0.169
ROA	651	6.885	9.168	3.280	6.400	10.10
R&D	651	0.004	0.018	0.000	0.000	0.000
QUICK	651	2.538	5.794	0.682	1.070	1.610
LOSS	651	0.143	0.350	0.000	0.000	0.000

and statistically significant ($p < 0.05$ or better). Further, we find the regression coefficient for *NEG_CSR* is non-significant for *AC_Dis, BOS_Dis* and *AltmanZ_Dis*. These results provide support for H1. Our results show that extent of positive CSR activity is positively associated with our measures of financial distress. Thus, firms that engage in more extensive positive CSR activities are able to reduce their level of financial distress. Our regression estimates are also economically significant. For example, in Model (1), one standard deviation increase in positive CSR (POS_CSR) is associated with 1.46 percent decrease in financial distress. We also find that some of the control variables are significantly associated with financial distress. Specifically, the regression coefficient for *LEV* is negative for *AC_Dis, BOS_Dis and AltmanZ* and statistically significant ($p < 0.05$ or better). Moreover, the regression coefficient for *SIZE* is negative for *AC_Dis, BOS_Dis, and AltmanZ* and statistically significant ($p < 0.01$). Larger firms are less likely to be subject to financial distress as they enjoy superior economic and political power relative to smaller firms. The regression coefficient for *CASH* is negative for *AC_Dis* and *BOS_Dis* and statistically significant ($p < 0.01$). The regression coefficient for *ROA* is negative for *AltmanZ* and statistically significant ($p < 0.10$). The regression coefficient for *QUICK* is negative (positive) for *AC_Dis and BOS_Dis* (*AltmanZ*) and statistically significant ($p < 0.10$ or better). The regression coefficient for *R&D* is negative (positive) for *AltmanZ* (*AC_Dis* and *BOS_Dis*) and statistically significant ($p < 0.10$ or better). We then find consistent effects of CSR on financial distress using a total score of CSR performance items (see Table 3, Panel B). We find that natural logarithm of total CSR (i.e. sum of both positive and negative CSR performance)

Table 3
Regression results

Panel A: Financial distress and corporate social responsibility performance

	BOS_Dis Model 1	AltmanZ Model 2	AC_Dis Model 3	BOS_Dis Model 4	AltmanZ Model 5	AC_Dis Model 6
POS_CSR	0.0619**	14.8984***	0.0667**	–	–	–
	(2.12)	(3.79)	(2.39)	–	–	–
NEG_CSR	–	–	–	0.0463	−22.6094	0.0473
	–	–	–	(1.54)	(−1.58)	(1.55)
SIZE	−0.0121***	−7.3054***	−0.0121***	−0.0100***	0.3604	−0.0100***
	(−3.62)	(−5.21)	(−3.62)	(−3.12)	(0.16)	(−3.10)
LEV	−0.1834***	−16.0658***	−0.1817***	−0.1871***	−44.9548**	−0.1871***
	(−4.81)	(−2.81)	(−4.79)	(−4.93)	(−2.28)	(−4.92)
CASH	−0.3960***	−2.0948	0.6061***	−0.4014***	95.4599	0.6050***
	(−13.12)	(−0.12)	(20.14)	(−13.30)	(0.99)	(20.13)
ROA	0.0005	−0.8013**	0.0005	0.0005	−3.4459*	0.0004
	(1.06)	(−2.53)	(1.01)	(1.07)	(−1.81)	(0.89)
R&D	0.8577***	−65.8381*	0.8615***	0.8830***	144.3646	0.8835***
	(3.88)	(−1.84)	(3.91)	(3.82)	(0.91)	(3.82)
QUICK	−0.0017**	2.7309***	−0.0016*	−0.0016**	2.9534*	−0.0016*
	(−2.06)	(3.51)	(−1.92)	(−1.98)	(1.80)	(−1.90)
LOSS	0.0030	1.7065	0.0038	0.0007	0.9671	−0.0001
	(0.20)	(0.37)	(0.26)	(0.05)	(0.10)	(−0.01)
Constant	0.3851***	52.4863***	0.3836***	0.3769***	18.4215	0.3769***
	(14.62)	(4.85)	(14.60)	(14.09)	(0.95)	(14.05)
YEAR FE	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES
N	651	651	651	651	645	651
Adj. R^2	0.3730	0.4982	0.6051	0.3695	0.2548	0.6019

Panel B: Financial distress and total corporate social responsibility performance

	BOS_Dis Model 1	AltmanZ Model 2	AC_Dis Model 3
Total_CSR	0.0635	0.0004***	0.0720*
	(1.45)	(4.52)	(1.74)
SIZE	0.0349***	0.0370***	0.0350***
	(12.25)	(12.33)	(12.22)
LEV	−0.0132	−0.0183	−0.0117
	(−0.43)	(−0.65)	(−0.38)
CASH	0.0099	−0.0142	−0.0588*
	(0.31)	(−0.57)	(−1.75)
ROA	0.0001	0.0004	0.0001
	(0.21)	(1.30)	(0.20)
R&D	0.5441***	0.6224***	0.5353***
	(4.24)	(5.24)	(4.23)
QUICK	0.0001	−0.0011	0.0001

(continued)

Table 3 (continued)

Panel B: Financial distress and total corporate social responsibility performance

	BOS_Dis Model 1	AltmanZ Model 2	AC_Dis Model 3
	(0.14)	(−1.61)	(0.15)
LOSS	−0.0049	−0.0053	−0.0050
	(−0.36)	(−0.40)	(−0.36)
Constant	−0.2203***	−0.2166***	−0.2233***
	(−8.58)	(−9.26)	(−8.70)
YEAR FE	YES	YES	YES
IND FE	YES	YES	YES
N	651	651	651
Adj. R^2	0.3274	0.3316	0.3284

Higher values of our financial distress proxies represent lower levels of distress. *, **, and *** denote significance at 1, 5 and 10 percent, respectively (Two-tail). The variable definitions are in Appendix I. Robust *t*-statistic are in brackets.

(*Total_CSR*) is significantly positively associated with financial distress (*AltmanZ* and *AC_Dis*) with $p < 0.10$ or better. Overall, our results show that only positive indicators of CSR performance contribute to a reduction in financial distress, supporting H1.

We also report our results regarding the association between CSR performance, firm life cycle stages and financial distress over the 2007–2013 period in Table 4. This Table shows that the regression coefficient for *RE/TA* is positive for *AC_Dis* and *BOS_Dis* and statistically significant ($p < 0.01$). Our findings are largely consistent with the argument that firms with high RE/TA are generally mature or older firms with sufficient levels of capital, investments and assets and are thus less likely to be subject to financial distress. The regression coefficient of the interaction term between *POS_CSR* and *RE/TA* (i.e. *POS_CSR* * *RE/TA*) is positive and significant ($p < 0.05$ or better) for *AC_Dis, BOS_Dis and AltmanZ*. Firms with positive CSR performance combined with maturity in life cycle stages are subject to lower levels of financial distress. Similarly, we find that *POS_CSR*RE/TE* is positive for *AC_Dis, BOS_Dis and AltmanZ* and statistically significant ($p < 0.01$), providing further support for H2. This finding suggests that the effect of positive CSR performance in reducing financial distress is more pronounced for firms with high RE/TA or RE/TE. We also find that several of our control variables are significantly associated with our measures of financial distress ($p < 0.10$ or better) such as *SIZE*, *LEV*, *CASH*, *ROA, QUICK, R&D* and *LOSS*. These results again show that life cycle stage in combination with the extent of positive CSR activity impacts firms' financial distress.

Table 4
CSR performance, firm life cycle and financial distress

	BOS_Dis	AltmanZ	AC_Dis	BOS_Dis	AltmanZ	AC_Dis
POS_CSR	0.0099	3.3644	0.0192	0.0204	3.3547	0.0296
	(0.37)	(0.68)	(0.75)	(0.65)	(0.62)	(1.00)
RE/TA	0.0397***	−30.1658***	0.0402***			
	(3.60)	(−3.28)	(3.71)			
POS_CSR	0.3760***	45.9861**	0.3473***			
* RE/TA	(6.45)	(2.50)	(6.64)			
RE/TE				−0.0196**	−7.7601***	−0.0170**
				(−2.36)	(−3.12)	(−2.20)
POS_CSR				0.1197***	34.4772***	0.1067***
*RE/TE				(3.32)	(3.14)	(3.23)
SIZE	−0.0178***	−4.7258***	−0.0177***	−0.0107***	−6.6834***	−0.0108***
	(−5.00)	(−3.26)	(−4.98)	(−3.05)	(−5.04)	(−3.12)
LEV	−0.1302***	−26.6729***	−0.1308***	−0.1712***	−18.3707***	−0.1694***
	(−3.44)	(−4.43)	(−3.45)	(−4.40)	(−3.21)	(−4.37)
CASH	−0.3799***	−19.2752	0.6229***	−0.4071***	−8.5024	0.5969***
	(−12.02)	(−1.37)	(19.91)	(−12.60)	(−0.53)	(18.70)
ROA	−0.0010*	−0.0993	−0.0010*	0.0008	−0.6380**	0.0007
	(−1.73)	(−0.38)	(−1.76)	(1.50)	(−2.32)	(1.38)
R&D	0.6748***	10.6164	0.6825***	0.9106***	−43.1053	0.9070***
	(3.04)	(0.29)	(3.08)	(4.06)	(−1.31)	(4.06)
QUICK	−0.0016*	3.0146***	−0.0016*	−0.0014*	2.8492***	−0.0014
	(−1.92)	(4.11)	(−1.84)	(−1.68)	(3.70)	(−1.62)
LOSS	0.0262**	−1.2752	0.0258**	0.0057	2.2978	0.0062
	(1.97)	(−0.27)	(1.96)	(0.42)	(0.51)	(0.46)
Constant	0.4229***	38.8507***	0.4204***	0.3810***	51.1977***	0.3800***
	(15.52)	(3.69)	(15.49)	(14.28)	(4.93)	(14.30)
YEAR FE	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES
N	651	651	651	651	651	651
Adj. R^2	0.4218	0.5576	0.6328	0.3914	0.5166	0.6148

The variable definitions are in Appendix I. Robust *t*-statistic are in brackets. *, **, and *** denote significance at 1, 5 and 10 percent, respectively (Two-tail).

4.3. Robustness checks

We re-run our results using an alternative measure of positive CSR activity. Using the positive CSR performance as a proportion of total CSR performance (75), we find (see Table 5) consistent evidence that positive CSR performance is significantly associated ($p < 0.10$ or better) with reduced financial distress (*AC_Dis and AltmanZ*). This provides continued support for H1.

Additionally, we divide CSR performance into five subgroups: environment (EN), social (SO), labour (LA), consumer practices (PR), and human resources (HR) and test the association between each of the subgroups and financial

Table 5
Robustness check: Use of alternative CSR performance

	BOS_Dis Model 1	AltmanZ Model 2	AC_Dis Model 3	BOS_Dis Model 4	AltmanZ Model 5	AC_Dis Model 6
POS_CSR	0.0892	28.1267***	0.1002*			
	(1.48)	(3.92)	(1.76)			
NEG_CSR				0.0712	−31.3339	0.0718
				(1.21)	(−1.39)	(1.23)
SIZE	−0.0108***	−7.2327***	−0.0108***	−0.0093***	−0.0229	−0.0093***
	(−3.20)	(−5.17)	(−3.22)	(−2.96)	(−0.01)	(−2.95)
LEV	−0.1834***	−15.7704***	−0.1815***	−0.1868***	−45.4585**	−0.1870***
	(−4.81)	(−2.77)	(−4.78)	(−4.93)	(−2.30)	(−4.92)
CASH	−0.3978***	−2.2720	0.6043***	−0.4016***	96.2020	0.6048***
	(−13.17)	(−0.13)	(20.07)	(−13.29)	(0.99)	(20.10)
ROA	0.0005	−0.8024**	0.0005	0.0005	−3.4448*	0.0004
	(1.05)	(−2.53)	(0.99)	(1.06)	(−1.81)	(0.89)
R&D	0.8831***	−63.8818*	0.8864***	0.8974***	138.2368	0.8979***
	(3.94)	(−1.79)	(3.97)	(3.90)	(0.87)	(3.90)
QUICK	−0.0017**	2.7332***	−0.0016*	−0.0016**	2.9528*	−0.0016*
	(−2.03)	(3.51)	(−1.90)	(−1.98)	(1.79)	(−1.89)
LOSS	0.0022	1.6075	0.0030	0.0009	0.9314	0.0001
	(0.15)	(0.35)	(0.21)	(0.06)	(0.10)	(0.01)
Constant	0.3805***	52.7391***	0.3795***	0.3743***	19.6507	0.3743***
	(14.26)	(4.82)	(14.26)	(14.01)	(1.00)	(14.01)
YEAR FE	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES
N	651	651	651	651	645	651
Adj. R^2	0.3704	0.4983	0.6034	0.3686	0.2542	0.6014

POS_CSR is the positive CSR as a proportion of total CSR performance and NEG_CSR is the negative CSR as a proportion of total CSR performance. The variable definitions are in Appendix I. Robust *t*-statistics are in brackets. *, **, and *** denote significance at 1, 5 and 10 percent, respectively (Two-tail).

distress. Results are provided in Table 6. We observe that EN, LA and SO are significantly positively associated with *BOS_Dis* ($p < 0.10$ or better); LA, HR, SO, and PR are significantly positively associated with *AltmanZ* ($p < 0.001$) and EN, LA and SO are significantly positively associated with *AC_Dis* ($p < 0.10$ or better). These results provide continued support for H1 with the results being driven particularly by the environmental, social, and labour subgroups.

To test H2, we employed life cycle model of DeAngelo *et al.* (2006) to examine whether association between CSR performance and financial distress is augmented when we interact our life cycle proxy measure with the positive CSR performance (Panel A). As a robustness check of our model that examines life cycle stages results, we follow Owen and Yawson (2010) and

Table 6
CSR categories and financial distress

	BOS_Dis					AltmanZ					AC_Dis				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
EN	0.0205***					1.3453					0.0209***				
	(4.17)					(1.17)					(4.28)				
LA		0.0113**					3.1393**					0.0121**			
		(2.02)					(2.45)					(2.18)			
HR			0.0066					4.1048***					0.0071		
			(1.12)					(3.05)					(1.21)		
SO				0.0099*					3.8256***					0.0104*	
				(1.81)					(3.05)					(1.90)	
PR					−0.0001					2.3494*					0.0008
					(−0.02)					(1.69)					(0.13)
SIZE	−0.0128***	−0.0100***	−0.0087**	−0.0101***	−0.0073**	−6.5037***	−6.8793***	−6.9984***	−7.1982***	−6.6183***	−0.0125***	−0.0098***	−0.0084**	−0.0098***	−0.0071**
	(−3.79)	(−2.93)	(−2.57)	(−2.88)	(−2.16)	(−8.25)	(−8.78)	(−9.04)	(−8.99)	(−8.51)	(−3.73)	(−2.88)	(−2.50)	(−2.82)	(−2.11)
LEV	−0.1960***	−0.1851***	−0.1843***	−0.1843***	−0.1873***	−17.5106**	−16.3487**	−15.1485*	−15.8077**	−15.9227**	−0.1948***	−0.1835***	−0.1827***	−0.1827***	−0.1854***
	(−5.69)	(−5.33)	(−5.28)	(−5.30)	(−5.36)	(−2.18)	(−2.05)	(−1.90)	(−1.98)	(−1.99)	(−5.69)	(−5.32)	(−5.27)	(−5.28)	(−5.34)
CASH	−0.3959***	−0.3920***	−0.4024***	−0.4004***	−0.4028***	−2.3861	0.1410	−2.6012	−1.9272	−2.4898	0.6059***	0.6104***	0.5993***	0.6014***	0.5990***
	(−10.67)	(−10.36)	(−10.72)	(−10.68)	(−10.71)	(−0.28)	(0.02)	(−0.30)	(−0.22)	(−0.29)	(16.44)	(16.24)	(16.06)	(16.14)	(16.03)
ROA	0.0005	0.0005	0.0005	0.0005	0.0005	−0.8017***	−0.8010***	−0.8105***	−0.8120***	−0.7935***	0.0005	0.0005	0.0005	0.0004	0.0005
	(0.92)	(0.92)	(0.89)	(0.87)	(0.92)	(−6.39)	(−6.41)	(−6.50)	(−6.51)	(−6.33)	(0.87)	(0.87)	(0.84)	(0.82)	(0.87)
R&D	0.7810**	0.9127***	0.9331***	0.9109***	0.9440***	−58.4613	−56.1513	−53.7419	−60.0650	−74.6837	0.7879***	0.9208***	0.9426***	0.9196***	0.9437***
	(2.57)	(2.99)	(3.05)	(2.98)	(3.01)	(−0.83)	(−0.80)	(−0.77)	(−0.86)	(−1.04)	(2.61)	(3.04)	(3.10)	(3.03)	(3.03)
QUICK	−0.0018*	−0.0016	−0.0016	−0.0016	−0.0016	2.7195***	2.7294***	2.7141***	2.7493***	2.7054***	−0.0017*	−0.0016	−0.0016	−0.0015	−0.0016
	(−1.72)	(−1.53)	(−1.55)	(−1.48)	(−1.52)	(11.13)	(11.22)	(11.18)	(11.32)	(11.07)	(−1.67)	(−1.48)	(−1.50)	(−1.43)	(−1.47)
LOSS	−0.0029	0.0035	0.0017	0.0021	0.0011	0.9424	1.8668	1.5833	1.5914	1.2673	−0.0024	0.0043	0.0024	0.0028	0.0017
	(−0.21)	(0.24)	(0.12)	(0.15)	(0.08)	(0.28)	(0.56)	(0.48)	(0.48)	(0.38)	(−0.17)	(0.30)	(0.16)	(0.19)	(0.12)
Constant	0.3757***	0.3634***	0.3706***	0.3729***	0.3626***	47.7695***	47.1090***	51.8601***	50.8456***	49.7208***	0.3727***	0.3602***	0.3680***	0.3701***	0.3604***
	(13.82)	(13.31)	(13.11)	(13.37)	(12.80)	(7.54)	(7.51)	(8.03)	(7.97)	(7.65)	(13.80)	(13.28)	(13.10)	(13.36)	(12.80)
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	652	652	652	652	652	652	652	652	652	652	652	652	652	652	652
Adj. R^2	0.3864	0.3734	0.3706	0.3726	0.3694	0.4934	0.4971	0.4997	0.4997	0.4946	0.6124	0.6040	0.6020	0.6033	0.6010

*, **, and *** denote significance at 1, 5 and 10 percent, respectively (Two-tail). The variable definitions are in Appendix I.

modify the life cycle measure of DeAngelo *et al*. (2006) by partitioning the sample into three life cycle stages. Specifically, young firms are those belonging to the cohort with the lowest one-third of RE/TA values, mature firms are those belonging to the cohort with the middle one-third of RE/TA values, and old firms those belonging to the cohort with the top RE/TA values. Results are provided in Table 7 (Panel A). This Panel shows that coefficient for POS_CSR is positive and significant for mature and old firms, implying that positive CSR performance reduces financial distress for mature and old firms.

In Panel B, we repeat the analysis for RE/TE measure of firm life cycle and obtain qualitatively similar results. Overall, positive CSR performance reduces financial distress, which is further more pronounced for mature and old firms.

4.4. Instrumental variables (2SLS) regression analysis

It is possible that our baseline regression results (see Table 3) could be affected by endogeneity (e.g. simultaneity and/or reverse causality) arising from firms' engagement in various CSR activities leading to biased regression coefficient estimates. We thus use an instrumental variable technique to further validate the interpretation of the result. The advantage of this technique is that it addresses reverse causality as well as omitted variable bias in the OLS at the same time (Wooldridge, 2010). To do so, we run a 2SLS model that uses instruments for the endogenous variable, CSR performance. In the spirit of Cui *et al*. (2016), we use industry mean POS_CSR performance as an instrument (Industry Mean CSR) for POS_CSR. We use this instrument because firm-level CSR is likely to vary considerably across industries owing to the nature of the products produced, regulatory environment, shifts in social norms (Waddock and Graves, 1997; McWilliams and Siegel, 2001). Therefore, we expect firm-level CSR to be closely related to its industry norm, as captured by the industry mean CSR. Thus, we expect industry mean CSR to be correlated with firm-level CSR but uncorrelated with financial distress.

For the instrument to be valid, it should also be uncorrelated with the error terms. This essentially means that the instruments should (i) not be affected by the dependent variable, (ii) not affect the dependent variable except through the endogenous variables and (iii) not be correlated with omitted variables in the model.

The results of the instrumental variable technique are reported in Table 8. The positive and significant association between positive CSR performance and financial distress remains robust even after accounting for endogeneity. This suggests that endogeneity cannot account for the positive association between POS_CSR and financial distress.

Our instruments also pass the statistical tests for strength, validity and appropriateness. Results reported in Table 8 show that our instrument

Table 7
Corporate social responsibility, corporate life cycle and financial distress: Alternative life cycle classification

Panel A

	BOS_Dis			AltmanZ			AC_Dis		
	Model 1 Young	Model 2 Mature	Model 3 Old	Model 4 Young	Model 5 Mature	Model 6 Old	Model 7 Young	Model 8 Mature	Model 9 Old
POS_CSR	−0.1158*	0.1177***	0.1495***	52.9249	3.2941*	7.1936*	−0.0956*	0.1177***	0.1523***
	(−1.92)	(3.81)	(4.18)	(1.30)	(1.79)	(1.67)	(−1.67)	(3.81)	(4.21)
SIZE	−0.0156**	−0.0261***	−0.0108	−23.7009**	−2.9460*	−2.3051*	−0.0156**	−0.0260***	−0.0108
	(−2.40)	(−4.24)	(−1.50)	(−2.47)	(−1.85)	(−1.82)	(−2.45)	(−4.24)	(−1.49)
LEV	−0.0444	−0.1129*	−0.2113**	−21.2399	−5.7350*	−26.3139***	−0.0388	−0.1128*	−0.2152**
	(−0.68)	(−1.69)	(−2.42)	(−0.38)	(−1.79)	(−3.04)	(−0.61)	(−1.69)	(−2.44)
CASH	−0.4441***	−0.1474**	−0.4938***	122.6703	13.2255	−19.0998	0.5613***	0.8528***	0.5010***
	(−7.89)	(−2.05)	(−9.21)	(0.52)	(1.24)	(−1.40)	(10.04)	(11.84)	(9.25)
ROA	0.0011	−0.0031**	0.0005	−6.2106*	0.0866	0.3200	0.0009	−0.0031**	0.0006
	(1.44)	(−2.21)	(0.47)	(−1.89)	(0.32)	(1.27)	(1.30)	(−2.22)	(0.52)
R&D	7.1719***	2.6039**	0.2763	4234.9080**	324.1456	−14.4915	7.1928***	2.6054**	0.2970
	(5.07)	(2.30)	(0.84)	(2.02)	(1.53)	(−0.38)	(5.16)	(2.30)	(0.90)
QUICK	−0.0009	−0.0278***	0.0005	1.7262	−0.8828	0.9179	−0.0009	−0.0278***	0.0010
	(−0.85)	(−3.75)	(0.32)	(0.61)	(−0.65)	(1.46)	(−0.85)	(−3.75)	(0.59)
LOSS	0.0225	−0.0047	0.0487*	3.0832	−0.6915	−0.6353	0.0226	−0.0047	0.0495**
	(1.14)	(−0.21)	(1.98)	(0.15)	(−0.39)	(−0.16)	(1.18)	(−0.21)	(2.01)
Constant	0.3344***	0.5215***	0.4377***	192.1061**	20.7805*	31.7601**	0.3288***	0.5216***	0.4384***
	(6.98)	(11.32)	(8.20)	(2.35)	(1.69)	(2.52)	(6.97)	(11.32)	(8.21)
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	160	328	163	160	328	163	160	328	163
Adj. R^2	0.6267	0.3020	0.5081	0.3067	0.2415	0.2872	0.8386	0.4558	0.6158

(continued)

Table 7 (continued)

Panel B

	BOS_Dis			AltmanZ			AC_Dis		
	Model 1 Young	Model 2 Mature	Model 3 Old	Model 4 Young	Model 5 Mature	Model 6 Old	Model 7 Young	Model 8 Mature	Model 9 Old
POS_CSR	−0.4194***	0.1793***	0.1745	65.8668	7.8234*	−8.1063	−0.3634***	0.1792***	0.1800*
	(−4.46)	(2.79)	(1.53)	(0.68)	(1.92)	(−1.07)	(−4.09)	(3.87)	(1.98)
SIZE	−0.0149**	−0.0226***	−0.0031	−22.1393**	−2.9392*	−2.0977*	−0.0148**	−0.0226***	−0.0030
	(−2.59)	(−3.71)	(−0.43)	(−2.34)	(−1.85)	(−1.84)	(−2.61)	(−3.74)	(−0.43)
LEV	−0.0427	−0.1286**	−0.2138***	−19.0820	−6.0900*	−11.5691**	−0.0370	−0.1285*	−0.2180**
	(−0.66)	(−2.15)	(−2.70)	(−0.34)	(−1.89)	(−2.30)	(−0.59)	(−1.91)	(−2.52)
CASH	−0.4528***	−0.1763**	−0.5170***	120.1297	12.7730	−20.6449	0.5532***	0.8239***	0.4774***
	(−8.02)	(−2.14)	(−8.07)	(0.51)	(1.22)	(−1.43)	(9.83)	(11.55)	(8.55)
ROA	0.0009	−0.0030**	0.0006	−6.2206*	0.0927	0.2570	0.0008	−0.0030**	0.0006
	(1.15)	(−2.21)	(0.49)	(−1.88)	(0.34)	(0.96)	(1.03)	(−2.23)	(0.59)
R&D	7.0935***	2.3525	0.0799	4469.5660**	311.0947	−63.4351	7.1555***	2.3543*	0.0960
	(5.27)	(1.42)	(0.14)	(2.13)	(1.45)	(−1.65)	(5.41)	(1.92)	(0.30)
QUICK	−0.0007	−0.0279***	0.0005	1.7672	−0.9024	1.3133*	−0.0007	−0.0279***	0.0010
	(−0.70)	(−3.09)	(0.21)	(0.63)	(−0.68)	(1.82)	(−0.70)	(−3.76)	(0.55)
LOSS	0.0344*	−0.0059	0.0294	1.7830	−0.7329	−0.8034	0.0330*	−0.0060	0.0300
	(1.84)	(−0.24)	(0.63)	(0.08)	(−0.41)	(−0.27)	(1.79)	(−0.26)	(1.12)
Constant	0.3200***	0.5174***	0.4026***	188.9151**	21.1298*	21.1062**	0.3156***	0.5174***	0.4030***
	(6.84)	(10.49)	(7.10)	(2.32)	(1.71)	(2.17)	(6.84)	(10.83)	(7.13)
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
IND FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
N	160	329	163	160	329	163	160	329	163
Adj. R^2	0.6492	0.2994	0.4847	0.3051	0.2518	0.2441	0.8468	0.4515	0.5972

*, **, and *** denote significance at 1, 5 and 10 percent, respectively (Two-tail). The variable definitions are in Appendix I. Robust *t*-statistics are in brackets.

Table 8
Endogeneity test using two-stage least square regression

	Model 1: BOS_Dis		Model 2: AltmanZ		Model 3: AC_Dis	
	1st Stage	2nd Stage	1st Stage	2nd Stage	1st Stage	2nd Stage
Intercept	−0.3539***	0.6952***	−0.3539***	64.488***	−0.3539***	−0.6952***
	(−8.99)	(9.87)	(−8.99)	(4.79)	(−8.99)	(−9.87)
POS_CSR		1.059***		52.302**		1.060***
		(5.54)		(2.42)		(5.54)
All variables in Main Specification	Yes	Yes	Yes	Yes	Yes	Yes
Year & Industry Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Robust	Yes	Yes	Yes	Yes	Yes	Yes
N						
Instrumental Variables	Coff. (*t*-statistic)		Coff. (*t*-statistic)		Coff. (*t*-statistic)	
Industry Mean CSR	0.5807		0.5807		0.5807	
	(6.03)		(6.03)		(6.03)	
Post-estimations Test for Instrumental Variables						
Predictive power partial R^2						
Robust *F*-test	37.27			37.27		37.27
p-value	0.000			0.000		0.000
Underidentification test						
Kleibergen -paap rk LM statistic	29.712			29.712		29.712
p-value	0.000			0.000		0.000
Endogeneity test						
Durbin-Wu-Hausman tests	73.328			3.538		73.328
Chi-sq(1) *p*-value	0.000			0.06		0.000

*, **, and *** denote significance at 1, 5 and 10 percent, respectively (Two-tail). The variable definitions are in Appendix I.

(Industry Mean CSR) is significantly positively correlated with endogenous variable (POS_CSR). A commonly used test for the strength of the instruments is the *F*-test that jointly tests the significance of the instruments. The *F*-statistic across the three models is 37.27 which is well above the recommended minimum of 10. This number suggests that our instrument is strong. The null hypothesis that CSR performance is exogenous is rejected at a $p < 0.000$.

5. Conclusion

This paper examines the association between CSR performance and financial distress, and the moderating role of life cycle progression in explaining this association. Based on a sample of publicly-listed Australian firms covering the 2007–2013 period, our regression results show that positive CSR performance significantly reduces financial distress of the firm. In addition, the negative association between positive CSR activities and financial distress is magnified for firms in mature stage of life cycle. Mature stage firms with positive CSR performance are associated with reduced levels of financial distress. Our results are robust to an alternative proxy measure of positive CSR activity, and life cycle stages. Our findings extend the literature on the drivers of financial distress specifically and the economic consequences of engaging in positive CSR activity.

Our results support the conjecture that firms engaging in positive CSR activities do so to support their financial activities. In particular, we provide evidence for the first time that the interaction between both positive CSR performance and life cycle progression is empirically associated with financial distress. These results have important implications for firm management and other stakeholders given that firms' access to resources, and the ability to compete with their peers will vary across life cycle stages. Similarly firms' susceptibility to financial distress can also vary systematically across different life cycle stages. Firms that engage in positive CSR activities are likely to be able to reduce the risk of financial distress at the more susceptible stages of life cycle progression. Firm management could develop strategic approaches to their engagement with CSR activities based on both the resourcing capacity of the firm, contingent upon its life cycle progression, and its exposure to financial distress. Our findings are likely to be value relevant to investors in particular in assessing risk premiums relating to future cash flows and the cost of capital, and in determining the likelihood that a firm will be exposed to financial distress.

This study is subject to several limitations. First, the sample is based on publicly-listed Australian firms. Owing to data unavailability, it was not possible to include unlisted firms in our sample. Second, financial distress occurs in different stages and we are unable to relate CSR activity to the different stages of financial distress.

References

Al-Hadi, A., M. M. Hasan, and A. Habib, 2016, Risk committee, firm life cycle, and market risk disclosures, *Corporate Governance: An International Review* 24, 145–170.

Almeida, H., and M. Campello, 2007, Financing constraints, asset tangibility, and corporate investment, *Review of Financial Studies* 20, 1429–1460.

Altman, E. I., 1968, Financial ratios, discriminate analysis, and the prediction of corporate bankruptcy, *Journal of Finance* 23, 589–609.

Altman, E. I., and E. Hotchkiss, 2006, *Corporate Financial Distress and Bankruptcy: Predict and Avoid Bankruptcy, Analyze and Invest in Distressed Debt* (Wiley, USA).

Attig, N., and S. Cleary, 2015, Managerial practices and corporate social responsibility, *Journal of Business Ethics* 131, 121–136.

Attig, N., S. El Ghoul, O. Guedhami, and J. Suh, 2013, Corporate social responsibility and credit ratings, *Journal of Business Ethics* 117, 679–694.

Avi-Yonah, R. S., 2008, Corporate social responsibility and strategic tax behavior, in: W. Schön, ed., *Tax and Corporate Governance* (Springer-Verlag, Berlin Heidelberg), 183–198.

Berger, P. G., E. Ofek, and I. Swary, 1999, Investor valuation of the abandonment option, *Journal of Financial Economics* 42, 257–287.

Black, E., 1998, Life-cycle impacts on the incremental value-relevance of earnings and cash flow measures, *Journal of Financial Statement Analysis* 4, 40–57.

Campello, M., J. Graham, and C. Harvey, 2010, The real effects of financial constraints: evidence from a financial crisis, *Journal of Financial Economics* 97, 470–487.

Campello, M., E. Giambona, J. Graham, and C. Harvey, 2011, Liquidity management and corporate investment during a financial crisis, *Review of Financial Studies* 26, 1944–1979.

Campello, M., E. Giambona, J. Graham, and C. Harvey, 2012, Access to liquidity and corporate investment in Europe during the financial crisis, *Review of Finance* 16, 323–346.

Cheng, B., L. Loannou, and G. Serafeim, 2013, Corporate social responsibility and access to finance, *Strategic Management Journal* 35, 1–23.

Cho, S. Y., C. Lee, and R. J. Jr Pfeiffer, 2013, Corporate social responsibility performance and information asymmetry, *Journal of Accounting & Public Policy* 32, 71–83.

Cui, J., H. Jo, and H. Na, 2016, Does corporate social responsibility affect information asymmetry?, *Journal of Business Ethics*, doi:10.1007/s10551-015-3003-8

DeAngelo, H., L. DeAngelo, and R. M. Stulz, 2006, Dividend policy and the earned/contributed capital mix: a test of the life-cycle theory, *Journal of Financial Economics* 81, 227–254.

Deegan, C., 2002, Introduction: the legitimatizing effect of social and environmental disclosures – a theoretical foundation, *Accounting, Auditing & Accountability Journal* 15, 282–311.

Dickinson, V., 2011, Cash flow patterns as a proxy for firm life cycle, *The Accounting Review* 86, 1969–1994.

Eberhart, A. C., and L. W. Senbet, 1993, Absolute priority rule violations and risk incentives for financially distressed firms, *Financial Management* 22, 101–116.

Edwards, A., C. Schwab, and T. Shevlin, 2013, Financial constraints and the incentive for tax planning. 2013 American Taxation Association Midyear Meeting. Available at: http://aaahq.org/ata/meetings/midyear-meetings/2013/Papers/Edwards_Schwab_Shevlin.pdf.

El Ghoul, S., O. Guedhami, C. C. Kwok, and D. Mishra, 2011, Does corporate social responsibility affect the cost of capital?, *Journal of Banking & Finance* 35, 2388–2406.

Elsayed, K., and D. Paton, 2007, The impact of financial performance on environmental policy: does firm life cycle matter?, *Business Strategy and the Environment* 18, 397–413.
Godfrey, P. C., 2005, The relationship between corporate philanthropy and shareholder wealth: a risk management perspective, *Academy of Management Review* 30, 777–798.
Godfrey, P. C., C. Merrill, and J. Hansen, 2009, The relationship between corporate social responsibility and shareholder value: an empirical test of the risk management hypothesis, *Strategic Management Journal* 30, 425–445.
Gort, M., and S. Klepper, 1982, Time paths in the diffusion of product innovations, *Economic Journal* 92, 630–653.
Gray, B., and S. S. Ariss, 1985, Politics and strategic change across organizational life cycles, *Academy of Management Review* 10, 707–723.
Gross, A., 2009, Corporate social responsibility and financial distress. Available at: http://ojs.acadiau.ca/index.php/ASAC/article/viewFile/677/586
Habib, A., and M. M. Hasan, 2015, Firm life cycle, corporate risk-taking and investor sentiment, *Accounting & Finance*, doi:10.1111/acfi.12141
Hasan, M. M., and A. Habib, 2017, Corporate life cycle, organizational financial resources and corporate social responsibility, *Journal of Contemporary Accounting & Economics* 13, 20–36.
Hasan, M. M., M. Hossain, and A. Habib, 2015, Corporate life cycle and cost of equity capital, *Journal of Contemporary Accounting & Economics* 11, 46–60.
Helfat, C. E., and M. A. Peteraf, 2003, The dynamic resource-based view: capabilities lifecycles, *Strategic Management Journal* 24, 997–1010.
Hoi, C. K., Q. Wu, and H. Zhang, 2013, Is corporate social responsibility (CSR) associated with tax avoidance? Evidence from irresponsible CSR activities, *The Accounting Review* 88, 2025–2059.
Holme, L., and P. Watts, 2006, *Human Rights and Corporate Social Responsibility* (World Business Council for Sustainable Development, Geneva).
Javanovic, B., 1982, Selection and evolution of industry, *Econometrica* 50, 649–670.
Jawahar, I., and G. McLaughlin, 2001, Toward a descriptive stakeholder theory: an organizational life cycle approach, *Academy of Management Review* 26, 397–414.
Jenkins, D., G. Kane, and U. Velury, 2004, The impact of the corporate life-cycle on the value-relevance of disaggregated earnings components, *Review of Accounting and Finance* 3, 5–20.
Kim, B., and J. Suh, 2009, Financial life cycle and capital structure. Available at: http://www.apjfs.org/2009/cafm2009/06_02_Financial%20Life%20Cycle.pdf.
Lee, D. D., and R. W. Faff, 2009, Corporate sustainability performance and idiosyncratic risk: A global perspective, *Financial Review* 44, 213–237.
Maksimovic, V., and S. Titman, 1991, Financial policy and reputation for product quality, *Review of Financial Studies* 4, 175–201.
Margolis, J. D., and J. P. Walsh, 2001, *People and Profits: The Search for a Link Between a Company's Social and Financial Performance* (Lawrence Erlbaum, Mahweh, NJ).
McWilliams, A., and D. Siegel, 2001, Corporate social responsibility: a theory of the firm perspective, *Academy of Management Review* 26, 117–127.
Miller, D., and P. Friesen, 1984, A longitudinal study of the corporate life cycle, *Management Science* 30, 1161–1183.
Minor, D. B., and J. Morgan, 2011, CSR as reputation insurance: primum non nocere, *California Management Review* 53, 40–59.
Moser, D. V., and P. R. Martin, 2012, A broader perspective on corporate social responsibility research in accounting, *The Accounting Review* 87, 797–806.
Owen, S., and A. Yawson, 2010, Corporate life cycle and M&A activity, *Journal of Banking & Finance* 34, 427–440.

Ramaswamy, V., J. C. Ueng, and L. Carl, 2008, Corporate governance characteristics of growth companies: an empirical study, *Academy of Accounting and Financial Studies* 12, 21–33.
Spence, M., 1977, Entry, capacity, investment, and oligopolistic pricing, *Bell Journal of Economics* 8, 534–544.
Spence, M., 1979, Investment strategy and growth in a new market, *Bell Journal of Economics* 10, 1–19.
Spence, M., 1981, The learning curve and competition, *Bell Journal of Economics* 12, 49–70.
Subramaniam, R. K., S. D. Samuel, and S. Mahenthiran, 2016, Liquidity implications of corporate social responsibility disclosures: Malaysian evidence, *Journal of International Accounting Research* 15, 133–153.
Waddock, S. A., and S. B. Graves, 1997, The corporate social performance–financial performance link, *Strategic Management Journal* 18, 303–319.
Wooldridge, J. M., 2010, *Econometric Analysis of Cross Section and Panel Data*, 2nd edn (MIT Press, Cambridge, MA).

Appendix I. Variable definitions and measurement

Variables	Definition and measurement
Dependent variable	
BOS_Dis	Financial distress model of Berger, Ofek and Swary (1996) calculated as (0.715* Receivable + 0.547 * Inventory + 0.535 * Net PPE)/Total Assets)
AltmanZ	Altman (1968) predicting bankruptcy as a financial distress measures calculated as: (1.2 * Working Capital/Total Assets. + 1.4 * Retained Earnings/Total Assets + 3.3 * Earnings Before Interest and Taxes/Total Assets + 0.6 * Market Value of Equity/Book Value of Total Liabilities + 0.99 * Sales/Total Assets)
AC_Dis	Financial distress model of Almeida and Campello (2007) calculated as ((Cash + 0.715 * Receivable + 0.547 * Inventory + 0.535 * Net PPE)/Total Assets)
Independent variables	
POS_CSR	Natural log of the number of positive CSR items reported in the annual report in a given year
NEG_CSR	Natural log of the number negative CSR items disclosed in the annual report in a given year
TOTAL_CSR	Natural log of the sum of positive and negative CSR items disclosed in the annual report in a given year
RE/TA	Retain Earning/Total Assets, a proxy for corporate life cycle
RE/TE	Retain Earning/Total Equity, a proxy for corporate life cycle
SIZE	Natural log of the firms' total assets at the beginning of year
LEV	Leverage, measured as long-term debt (and short-term debt) scaled by total assets
CASH	Cash holding for firm, defined as cash and marketable securities scaled by total assets
ROA	Profitability of the firm, measured as operating income scaled by total assets
QUICK	The quick ratio, calculated as (cash + receivable/current liability).
R&D	

(continued)

Table (continued)

Variables	Definition and measurement
	Research and development expense ratio, measured as research and development expense scaled by lagged assets. Missing values for research and development expense are set to zero
LOSS	Dummy variable that takes a value of 1 if net income is negative in a given year, 0 otherwise
YEAR	Dummy variables to control for year effects
IND	Dummy variables to control for industry effects

Appendix II. GRI items

Panel A: Positive GRI Index CSR items

Materials used by weight or volume EN1
Percentage (or amount) of materials used that are recycled input materials EN2
Energy saved due to conservation and efficiency improvements EN5
Initiatives to provide energy-efficient or renewable energy based EN6
Reductions in energy requirements of products and services EN7
Percentage and total volume of water recycled and reused EN10
Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas EN11
Description of significant impacts of activities, products, and services on biodiversity in protected areas of high biodiversity value outside protected areas EN12
Habitats protected or restored EN13
Strategies, current action and future plans for managing impacts on biodiversity. EN14
Initiative to reduce of greenhouse gas (GHG) emissions achieved EN18
Total water discharge by quality and destination EN21
Initiatives to mitigate environmental impacts of products and services EN26
Percentage of products sold and their packaging materials that area reclaimed by category EN27
Total environmental protection expenditures and investments by type EN30
Total workforce by employment type, employment contract and region LA1
Total number and rate of new employee hires and employee turnover by age group, gender and region LA2
Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation LA3
Return to work and retention rates after parental leave, by gender LA15
Percentage of employees covered by collective bargaining LA4
Minimum notice period(s) regarding operational changes, including whether it is specified in collective agreements LA5
Percentage (or description) of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs LA6
Health and safety topics covered in formal agreements with trade unions. LA9
Average hours of training per year per employee by gender, and by employee category LA10

(continued)

Table (continued)

Panel A: Positive GRI Index CSR items
Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings LA11
Percentage of employees receiving regular performance and career development reviews, by gender by employee category LA12
Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity LA13
Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation LA14
Percentage (or description) and total number of significant investment agreements that include clauses incorporating human rights concern or that have undergone human rights screening HR1
Percentage and significant suppliers, contractors and other business partners that have undergone human rights screening and actions taken HR2
Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations including the percentage of employees trained HR3
Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights HR5
Percentage of security personnel trained in the organisation's policies or procedures concerning aspects of human rights that are relevant to operations HR8
Percentage (or description) of operations with implemented local community engagement, impact assessments, and development programs S01
Operations with significant potential or actual negative (or positive) impacts on local communities (Charity donations) S09
Significant actual and potential negative (or positive) impacts on society in the supply chain and action taken SO10
Percentage of employees trained in organisation's anti-corruption policies and procedures S03
Actions taken in response to incidents of corruption SO4
Public policy positions and participation in public policy development and lobbying SO5
Total value of political contributions by countries and recipient/beneficiary SO6
Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements PR3
Practices relating to customer satisfaction including results of surveys measuring customer satisfaction PR5
Programs for adherence to laws, standards and voluntary codes related to marketing communications, including advertising, promotion and sponsorship PR6
Panel B Negative GRI Index CSR items
Energy consumption within the organisation EN3
Energy consumption outside of the organisation EN4
Total water withdrawal by source EN8
Water sources significantly affected by withdrawal of water EN9
Number of IUCN Red list species and national conservation list species with habitats in areas affected by operations, by level of extinction risk EN15
Total direct and indirect greenhouse gas emission by weight EN16
Other indirect greenhouse gas (GHG) emissions (Scope 3) EN17

Table (continued)

Panel B Negative GRI Index CSR items
Emissions of ozone-depleting substances by weight EN19
NO, SO, and other significant air emissions EN20
Total weight of waste by type and disposal method EN22
Total number and volume of significant spills EN23
Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex 1, II, III and VIII, and percentage of transported waste shipped internationally EN24
Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organisation's discharges of water and runoff EN25
Monetary value of significant fines and total number of non-monetary sanctions for non-compliance (or statement of compliance) with environmental laws and regulations EN28
Significant environmental impacts of transportation of products and other goods and materials used for the organisation's operations, and transporting members of the workforce EN29
Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender LA7
Workers with high incidence or high risk of diseases related to their occupation LA8
Total number of incidents of discrimination and corrective actions taken HR4
Operations and significant suppliers identified as having significant risk for incidents of child labour, and measures taken to contribute to the effective abolition of child labour HR6
Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labour, and measures to contribute to the elimination of all forms of forced or compulsory labour HR7
Total number of incidents of violations (or improvements) involving rights of indigenous people and actions taken HR9
Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments HR10
Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms HR11
Percentage and total number of business units analysed for risks related to corruption SO2
Total number of legal actions for anti-competitive behaviour, anti-trust, and monopoly practices and their outcomes SO7
Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations SO8
Life cycle changes in which health and safety impacts of products and services categories subject to such procedures PR1
Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes PR2
Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labelling, by type of outcomes PR4
Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion and sponsorship by type of outcomes PR7
Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data PR8
Monetary value of significant fines for non-compliance (or description of compliance) with laws and regulations concerning the provision and use of products and services PR9