The effect of corporate social responsibility on firm risk

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Abstract

Purpose – *The purpose of this paper is to investigate the link between corporate social responsibility (CSR) and risk for a sample of US firms rated by KLD.*

Design/methodology/approach – *The authors' approach involves three distinctive features. First, the authors use individual indicators of CSR to highlight which CSR dimension matters most for a firm's risk. Second, the authors distinguish CSR strengths and concerns to reveal potentially nonlinear relationships. Third, the authors use a measure of risk that takes into account the predictable changes in a firm's performance and that does not collapse the panel data into a single cross-section. This allows the CSR–risk relationship to be estimated by the variation within each firm and the variation across firms.*

Findings – *Consistent with existing results, the authors find that CSR concerns relating to diversity, employee relations and corporate governance increase the risk to shareholders. More interestingly, the authors show that CSR strengths relating to diversity and employee relations are also associated with higher risk. The positive influence of both CSR strengths and concerns on a firm's risk is confirmed using aggregate CSR indicators.*

Research limitations/implications – *The results confirm that CSR strengths and concerns represent distinct constructs that should not be aggregated into a single measure. The effect of poor CSR on firm risk is more significant than what would appear to be the case using an aggregate index.*

Practical implications – *Although lack of CSR engagement may not affect (and may even benefit) a firm's current performance, it may seriously damage its performance in the future. Firms should be aware of this risk.*

Originality/value – *The positive relationship found between CSR and firm risk underscores the inherent conflict between the interests of employees and those of shareholders. By committing to a more favorable treatment of their employees, firms incur a fixed cost that inevitably transfers more risk to their shareholders.*

Keywords *CSR, Social responsibility, Firm risk, Stakeholders support*

Paper type *Research paper*

1. Introduction

While the link between corporate social responsibility (CSR) and financial performance has been extensively investigated[1], the association between CSR and firm risk remains much less understood. Orlitzky and Benjamin (2001) review the empirical evidence and underline the differences in methodologies and inconsistencies across studies. Nonetheless, a weak negative relationship seems to exist between CSR and risk, which supports the idea that CSR activities can help firms to mitigate the fallout from negative events. For instance, CSR may reduce the likelihood of lawsuits due to accidental pollution and may generate goodwill that insulates firms against a public backlash.

In this paper, we re-examine the relation between CSR and firm risk using a sample of US firms rated by KLD[2]. To preserve the panel structure of the data, we measure risk by the absolute deviation from a firm's expected performance. This approach proposed by Adams *et al.* (2005) allows us to exploit the variations within each firm in addition to the variations across firms. It also takes into account the predictable changes in a firm's

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performance, which standard measures of volatility completely ignore. Consequently, our measure is a better indicator of the true risk affecting a firm's performance. Following the advice of Hillman and Keim (2001) and Rehbein *et al.* (2004), we also evaluate the effects of each CSR dimension and distinguish CSR strengths from CSR concerns, instead of using an aggregate index, as has often been the case in previous studies. This approach offers the potential to reveal more complex (e.g. nonlinear) relationships and may indicate which CSR dimensions have a stronger effect on firm risk.

In line with existing evidence, we find that greater CSR concerns are associated with a higher risk to shareholders. The most significant dimensions involve diversity and employee relations. This result suggests that a short-term focus, possibly induced by financial incentives (McGuire *et al.*, 2003), can lead firms to sacrifice their social responsibilities toward their employees at the risk of increasing their long-term liabilities. A more significant result from our study is to show that greater CSR strengths are also associated with higher risk. Diversity and employee relations are found again to be the most critical CSR dimensions. This relationship highlights the trade-off between the claims of a firm's employees and those of its shareholders. By committing to a more favorable treatment of its employees, a firm inevitably transfers more risk to its shareholders. The combination of a positive and a negative effect on risk also explains why the use of a single aggregate index in prior literature only produced a weak negative relationship.

The remainder of this paper is structured as follows. Section 2 reviews the existing evidence and articulates the hypotheses linking CSR and risk. Section 3 presents the theoretical framework upon which the empirical tests are based. Section 4 describes the sample and the regression results. Section 5 concludes.

2. Hypotheses

In this section, we develop two seemingly opposite hypotheses that underscore the complex relationship between CSR and risk. Two additional hypotheses focus on the individual CSR dimensions and distinguish the impact of CSR strengths and concerns.

2.1 Arguments for a negative impact on risk

Stakeholder theory (Donaldson and Preston, 1995; Jones, 1995) suggests that investment in CSR helps firms to reduce their risk. By generating relational capital among stakeholders, CSR engagement provides firms with downside protection equivalent to an insurance contract (Godfrey, 2005). The idea is essentially that stakeholders are less likely to impose severe sanctions in the event of a crisis. As a result, CSR makes firms less vulnerable and more resilient to a potential downturn. In particular, consumers are less likely to shun the firm's products. Following negative incidents, such as environmental disasters, high-CSR firms (i.e. more responsible firms) are expected to be less affected than their direct competitors.

Sen *et al.* (2006) assert that CSR creates a reservoir of goodwill that mitigates negative stakeholder assessments. Greater loyalty from customers can help firms to absorb external shocks and gives them time to make adjustments to their operations. In addition, CSR can improve the attitudes of employees toward the firm (Melo, 2012). It makes them more willing to share the pain in case of financial difficulty. For instance, employees may dedicate longer hours working for free and drum up outside support (by writing to politicians or encouraging friends to buy the firm's products). CSR engagement can thus bolster the firm's ability to confront negative events.

Aside from helping to absorb the effect of a negative shock, CSR can reduce the likelihood that firms experience such events in the first place. For instance, environmental responsibility decreases the risk of an accidental pollution. The fact that it mitigates the likelihood of costly fines should also count as a positive return to CSR investments. In one

of the earlier CSR studies, Spicer (1978) demonstrates that firms with good pollution control records are less vulnerable to costly sanctions.

As a rule, attention to CSR helps develop a strong culture of safety with regard to employees and other stakeholders. By fostering greater risk awareness, CSR can prepare the firm for detrimental incidents, which mitigates their severity and decreases their likelihood. For instance, investment in maintenance reduces the risk of accidents involving workers, but also signals that safety is a crucial matter to the firm. Similarly, adoption of green technologies tends to be costly, but involves less frequent and dramatic incidents, as the technologies should, by design, be more attentive to these issues. Consideration to product safety and extensive testing can also reduce the risk of accidents involving customers. On the whole, CSR is expected to make manufacturers more thoughtful in dealing with all sorts of risk.

In contrast, firms with poor attention to the interests of their stakeholders increase the costs they may have to pay in the future (McGuire *et al.*, 1988). Examples of the substantial costs due to irresponsible corporate behavior include the lawsuits leveled against cigarette manufacturers (Orlitzky and Benjamin, 2001). These costs further escalate because of the increased likelihood of regulatory intervention (e.g. through stricter production norms and advertising conditions).

Perception of poor CSR by the public is likely to magnify the severity of a backlash. It increases the chance that the firm is held responsible and receives negative publicity. Hence, poor CSR activity has the potential to exacerbate the costs at a time when the firm already faces serious difficulties. In particular, the firm may come under pressure to control the damage to its image by spending heavily on advertising and public relations. Due to poor CSR, firms cannot bank on the loyalty of their customers and employees. Customers may switch to other suppliers while employees may leave the firm when the going gets tough. In both cases, the firm's problems will be amplified, which points to a greater risk to shareholders.

Yet, firms may be willing to incur these long-term costs because of financial constraints or the pressure to achieve short-term objectives (e.g. earnings targets set by financial analysts). This leads to excessive attention being put on reducing current costs, while future problems are downplayed or even ignored. McGuire *et al.* (2003) suggest that managerial incentives might be responsible for poor CSR due to a stronger focus on achieving short-term goals.

Increasing evidence of the negative relation between CSR and risk has emerged in the past few years. Luo and Bhattacharya (2009) show that CSR is associated with lower idiosyncratic risk. Oikonomou *et al.* (2010) find a negative relation between CSR strengths and systematic risk and a positive relation between CSR concerns and systematic risk. The most critical issues involve community, employment and environmental concerns. Salama *et al.* (2011) investigate the relation between community and environmental responsibility (CER) and systematic risk in the UK and conclude similarly to the existence of a significant negative relationship.

Sharfman and Fernando (2008) show that improved environmental risk management is associated with a lower cost of capital and especially a lower cost of equity. The cost of debt is found to increase only because firms take advantage of their perceived lower risk to increase their leverage. El Ghoul *et al.* (2011) confirm these results using KLD data. In the same vein, Attig *et al.* (2013) establish that good CSR is associated with higher credit ratings. These studies suggest that investors are confident that high CSR firms present a lower risk.

The following hypothesis encapsulates the above discussion:

H1. CSR is associated with lower risk.

2.2 Arguments for a positive impact on risk

An alternative viewpoint is that investment in CSR diverts valuable corporate resources that could be used in other projects such as developing new product lines or building stronger research and development capabilities (Barnea and Rubin, 2010). As a result, CSR activities may decrease the firm's competitiveness and make it more vulnerable to external shocks. For instance, excessive attention to the environment may increase production costs and put firms at a disadvantage relative to their competitors. By making corporate failure more likely, CSR can thus translate into greater risk to shareholders.

More generally, CSR involves a trade-off between the competing claims of different stakeholder groups. Better consideration to the claims of one group of stakeholders represents a cost to another group of stakeholders. For instance, reluctance to fire employees due to concerns for their welfare corresponds to a fixed cost for the firm that increases the risk to its shareholders. The cost of caring for employees (or more precisely one category of employees) can also be borne by other employees. This occurs when the firm is required to restrain the wages offered to its more productive employees to offset the extra cost generated by its less productive employees that it is reluctant to fire. It follows that the best employees may leave the firm, while external candidates could be deterred from joining it, thus affecting the firm's performance, and ultimately increasing the risk to its shareholders.

Using an argument from agency theory, Cespa and Cestone (2007) assert that managers are prone to use CSR activities for the purpose of securing support from local communities and politicians. By deterring hostile takeovers, CSR is likely to exacerbate managerial entrenchment. Given the negative implications regarding the firm's performance, it may not come as a surprise that the firm will be perceived to be more risky.

To date, the empirical literature has not produced any evidence of a positive relation between CSR and risk. Nonetheless, the above discussion provides solid arguments to support the following hypothesis:

H2. CSR is associated with higher risk.

2.3 Additional hypotheses

While many studies aggregate the different CSR dimensions into a single score (Luo and Bhattacharya, 2009; Menz, 2010; Salama *et al.*, 2011; Jo and Na, 2012; Sun and Stuebs, 2012; Attig *et al.*, 2013), it is useful to note that a firm can be both socially responsible in one area and socially irresponsible in another area. This suggests that the individual CSR dimensions should be considered separately (Hillman and Keim, 2001; Rehbein *et al.*, 2004).

To spice up the analysis, a firm can also be both responsible and irresponsible in the same area. For instance, Exxon Mobil was noticed for the year 2000 to have very generous retirement benefits programs for its employees, but at the same time had been involved in major controversies regarding health and safety issues (toward its employees). This further underlines the idea that the strengths and concerns of each CSR dimension are conceptually distinct constructs that should not be mixed. Mattingly and Berman (2006) argue that combining positive and negative social actions is inappropriate because it would assume that a firm with a strength in one dimension cannot have a concern in the same dimension.

In fact, each CSR dimension may have a different implication with regard to risk. In addition, investors may not have a consistent perception of each of the CSR dimensions and may choose to focus on one dimension over the others (e.g. some investors may consider environmental issues to be more important than diversity). This example suggests that the different CSR dimensions may have different impacts on risk. In line with this argument,

Bird *et al.* (2007) demonstrate that not all CSR dimensions are valued by investors. Likewise, there is no reason to expect all CSR dimensions to have the same impact on risk. This leads to the following hypothesis:

H3. The relation between CSR and risk differs with the individual dimension of social performance being considered.

Some studies suggest that the same CSR issue can affect a firm's financial risk quite differently. Meijer and Schuyt (2005) posit that consumers would not expect a firm to grossly participate in high levels of social irresponsibility. However, high levels of social responsibility may not necessarily increase product sales. Similarly, Lankoski (2009) argues that the economic impact of CSR is stronger for issues involving negative externalities (such as pollution) as opposed to issues generating positive externalities (such as support for diversity).

By extension, socially irresponsible firms (i.e. firms associated with high-CSR concerns) should be exposed to a higher degree of risk while socially responsible firms (i.e. firms associated with high-CSR strengths) may only be able to marginally decrease their risk. Consistent with this view, Goss and Roberts (2011) show that firms with CSR concerns are penalized by a significant increase in their cost of debt (more precisely, a higher cost of bank loans) while firms with CSR strengths only benefit from a negligible decrease in their cost of debt. In contrast, Mishra and Modi (2012) find that CSR strengths are associated with significantly lower idiosyncratic risk.

Nevertheless, we leave it to the empirical tests to resolve the issue and state the last hypothesis as follows:

H4. CSR concerns impact risk more than CSR strengths.

3. Data and methodology

3.1 Data source and sample

We use ratings data from KLD (now part of MSCI) to measure the social responsibility of US firms. KLD provides ratings on several dimensions that reflect a firm's CSR activities. The seven categories are: community, diversity, employee relations, environment, product, human rights and corporate governance. Within each category, KLD evaluates multiple items (Rakotomavo, 2012; Stubbs and Rogers, 2013). These items are separated into strengths and concerns. For example, a profit-sharing program for employees can be strength, while poor safety standards might be a concern in the employee relation's category.

All the ratings are binary, with 1 representing the presence of particular strength or concern and 0 representing its absence. KLD obtains its information from publicly available sources such as company documents and media articles and from direct communication with the company's officers as well as from governments and non-government organizations. This allows KLD to generate year-on-year assessments of the social performance of over 650 firms, including all the firms listed in the S&P 500.

To construct the sample, we start with all firms in the S&P 500 that have been rated by KLD over the period between 1991 and 2003[3]. In line with previous studies, we exclude financial firms and utilities because of their different performance and risk indicators (see next section). Financial data are sourced from Compustat. Stock prices required for calculating firm value are sourced from center for research in security prices (CSRP). We drop observations with any missing data and require firms to have five consecutive years of data to ensure a balance between the information gained by comparing firms in any given year and the information gained by observing the behavior of each firm over time. These conditions lead to a final sample to 3,728 firm-year observations.

3.2 CSR variables

Consistent with Bird *et al.* (2007) and Melo (2012), we exclude human rights, which only entered after 2002. This leaves us with six broad categories. Previous studies of CSR have often combined the strengths and weaknesses in each CSR dimension by taking the sum of strengths net of the sum of concerns (Kempf and Osthoff, 2007; Jo and Na, 2012; Sun and Stuebs, 2012). This approach restricts the ability to individually assess the relationship between different dimensions of CSR and risk. It also assumes that a firm that is socially responsible cannot be irresponsible in the same category.

Following Mattingly and Berman (2006) and Bird *et al.* (2007), we do not aggregate strengths and concerns in the same CSR dimension, as they might be distinct constructs. Instead, we add up all the ratings regarding the strengths (concerns) of a particular category. We then divide the sum of those ratings by the number of items in the category to allow for a more precise comparison of the impact that each category may have on risk.

We aggregate all the components of strengths (and similarly for concerns) only for the purpose of providing a general indication of their impact on risk. To calculate the aggregate strengths (concerns), the individual components of strengths (concerns) are added up and divided by the total number of rated items. This ensures that the coefficients on the aggregate indicators can be compared with those on the individual dimensions (Hillman and Keim, 2001).

3.3 Measurement of risk

Risk is usually measured by the standard deviation of a performance indicator over a period of time. Most CSR studies use the volatility of stock returns and its systematic and unsystematic (or idiosyncratic) components (Luo and Bhattacharya, 2009). There are two reasons to focus on idiosyncratic risk. First, it represents the main component (about 80 per cent) of total risk. Second, systematic risk is driven by the sensitivity of the firm's cash flows to the business cycle which is outside the firm's control. In contrast, idiosyncratic risk is mostly the outcome of the firm's strategy (Rumelt, 1974; Porter, 1980).

The problem with this approach is that the initial panel is collapsed into a single cross-section if stock return volatility is computed over the whole period (Cheng, 2008; Nakano and Nguyen, 2012). An alternative procedure is to calculate volatility over rolling (shorter) windows or to use high-frequency data (infra-year returns). The disadvantages are that either the volatility measure is highly persistent (due to the overlapping estimation windows) or that it is highly affected by the specific behavior of stock prices over a short (one-year) period. In the asset pricing literature, a period of five years (or 60 months) is generally used for the estimation of risk.

Due to the above limitations, we follow the approach of Adams *et al.* (2005) and evaluate risk by the absolute deviation from the firm's expected performance using two standard measures of firm performance: Tobin's Q or return on assets (ROA). The benefits of this approach are threefold. First, it provides an indicator of risk at each point in time. The panel structure of the data is thus preserved, which allows the CSR – risk relationship to be estimated by looking at the variation across firms and by using the time series variation within each firm. Second, the deviation is not taken with respect to the sample-period average, which is a constant, but with respect to the expected performance, which is time-varying and takes into account the predictable changes in the firm's performance (through the effect of changes in the determinants of performance detailed in the next section). Third, the difference to the predicted value is not squared, which mitigates the influence of outliers (as in the case of median and quantile regressions).

3.4 Models of risk and performance

To generate estimates of risk, the procedure requires a model of firm performance. Consistent with existing studies, the determinants of performance (ROA and Tobin's Q) include the following variables:

- Firm size is measured by the natural logarithm of total assets.
- Firm age is proxied by the number of years since the first trading date on CRSP.
- Payout is dividend per share divided by share price.
- Leverage is the ratio of long-term debt to common equity.
- Diversification is measured by the number of business segments.
- Capex is the ratio of capital expenditure to sales.
- Research and development (R&D) intensity is the ratio of R&D expenditure to sales.
- In addition, we include year dummies to capture the effect of variations in the economy.

The first stage consists in fitting a model of firm performance using the above variables. The fitted value indicates the firm's expected performance. By way of consequence, the residual represents the deviation from the firm's expected performance. In line with Adams *et al.* (2005), we take the absolute value of the residual as a proxy for the firm's risk exposure.

The second stage consists in running a similar regression using the absolute value of the residual from the first stage as the dependent variable and the CSR indicators as explanatory variables. The variables driving the firm's performance are included as controls on the premise that they also affect the firm's risk. Their influence is considered to be as follows.

Larger and older firms are expected to be less risky. Larger firms have more opportunities to implement risk-mitigation strategies. Older firms benefit from a more stable revenue stream. Diversified and high-payout firms are expected to be less risky. Greater diversification reduces idiosyncratic risk while high-payout rates are generally associated with a more stable business outlook. In contrast, higher rates of capital expenditures and investment in R&D are indicative of higher risk. Leverage is normally expected to increase risk. However, as less risky firms tend to adopt a higher leverage, the net impact of leverage could be less obvious.

4. Results

4.1 Sample description

Table I provides descriptive statistics for the CSR indicators and firm characteristics. Panel A reports the statistical properties of the CSR scores. The mean values for each of the individual CSR dimensions are seen to be relatively low, ranging between 0.02 (community concerns) and 0.09 (employee relations strengths). These figures indicate that only a few firms stand out through either exceptionally strong or highly disconcerting CSR activities, while most firms only display a limited number of qualitative strengths or concerns. The aggregate indicators are similarly low, but slightly higher for strengths (average of 0.0756) compared to concerns (average of 0.0673).

Inspection of firm characteristics reveals that average firm age is about 42 years. Firms in the sample are typically involved in eight business segments. Their average long-term debt to equity ratio of about 19 per cent and their average dividend per share represent 1.6 per cent of their share price. The average rate of capital expenditures (+7.8 per cent) appears to be inflated by the presence of a few high-growth firms while the median is much lower (at 4.8 per cent). Finally, the average R&D intensity is 3.1 per cent but tends to be low for most firms.

Table I Descriptive statistics

Variables	*Mean*	*Median*	*SD*	*Minimum*	*Maximum*
CSR strengths					
Community	0.0772	0.00	0.1198	0.00	0.5962
Diversity	0.0910	0.04	0.1175	0.00	0.5453
Employee relations	0.0911	0.04	0.1141	0.00	0.5361
Environment	0.0548	0.01	0.0761	0.00	0.3205
Products characteristics	0.0508	0.00	0.0889	0.00	0.5000
Corporate governance	0.0885	0.06	0.0839	0.00	0.3077
Aggregate strengths	0.0756	0.06	0.0623	0.00	0.3268
CSR concerns					
Community	0.0196	0.00	0.0487	0.00	0.2692
Diversity	0.0625	0.03	0.0858	0.00	0.3846
Employee relations	0.0650	0.05	0.0706	0.00	0.4000
Environment	0.0767	0.01	0.1381	0.00	0.8443
Products characteristics	0.0897	0.02	0.1346	0.00	0.6923
Corporate governance	0.0900	0.06	0.0911	0.00	0.4167
Aggregate concerns	0.0673	0.05	0.0617	0.00	0.3322
Firm characteristics					
Firm age	42.63	47.00	14.27	2.000	54.00
Firm size	8.241	8.254	1.769	2.479	14.05
Dividend yield	0.016	0.017	0.013	0.000	0.062
Leverage	0.191	0.175	0.132	0.000	0.957
Number of segments	8.532	8.000	6.398	3.000	13.00
Capex/sales	0.078	0.048	0.116	0.000	1.221
R&D intensity	0.031	0.008	0.064	0.000	0.542

Notes: CSR ratings are from KLD; firm age is the number of years since the firm's listing; firm size is log of total assets; dividend yield is dividend per share over price per share; leverage is long-term debt over equity; R&D intensity is research and development expenses divided by sales; the panel consists of 3,728 firm-year observations

Table II displays the Pearson product-moment correlations between the individual and aggregate CSR measures. Aggregate strengths are positively correlated with the individual measures of strengths, and particularly with diversity strengths. This is also true of aggregate concerns, which are highly correlated with the individual measures of concerns (shown in Column 8). The correlations between the individual CSR strengths and concerns are also positive. For instance, community and diversity strengths are positively correlated with products concerns. Likewise, community concerns are positively correlated with environment strengths. This supports the argument of Hillman and Keim (2001) and Rehbein *et al.* (2004) that the individual CSR dimensions need to be treated separately.

Table II Pearson product-moment correlations

Corporate social responsibility variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1. Aggregate strengths													
2. Community (+)	0.648*												
3. Diversity (+)	0.759*	0.531*											
4. Employee (+)	0.663*	0.171*	0.301*										
5. Environment (+)	0.530*	0.198*	0.261*	0.333*									
6. Products (+)	0.519*	0.111	0.185*	0.376*	0.212*								
7. Governance (+)	0.529*	0.184*	0.382*	0.227*	0.128	0.129							
8. Aggregate concerns	0.405*	0.126	0.295*	0.272*	0.333*	0.103	0.427*						
9. Community (−)	0.143	0.023	0.063	0.113	0.245*	0.002	0.137	0.618*					
10. Diversity (−)	−0.014	−0.153	−0.077	0.073	−0.060	0.075	0.143	0.284*	0.060				
11. Employee (−)	0.185*	0.007	0.110	0.158	0.171*	0.086	0.198*	0.613*	0.361*	0.135			
12. Environment −)	0.261*	0.049	0.156	0.235*	0.421*	0.016	0.153	0.790*	0.633*	0.003	0.423*		
13. Products (−)	0.357*	0.246*	0.346*	0.147	0.177*	0.069	0.320*	0.754*	0.278*	0.021	0.279*	0.453*	
14. Governance (−)	0.515*	0.198*	0.406*	0.281*	0.246*	0.156	0.671*	0.679*	0.272*	0.043	0.348*	0.358*	0.519*

Note: *Indicates that the correlation is significant at the 1% level

Aggregate CSR strengths and concerns are also positively and significantly correlated (with a correlation of 0.405). The correlations between the individual strengths and concerns within the same CSR dimension tend likewise to be positive. For instance, the positive correlation between environment strengths and concerns underscores the fact that firms can exhibit both responsible and irresponsible behaviors. This observation confirms that CSR strengths and concerns are distinct notions that should not be merged. Finally, the individual measures are not too highly correlated, which ensures that multicollinearity is not a major concern in the multivariate regressions.

4.2 Regression results

Table III presents the results for the regressions involving individual CSR strengths. Diversity and employee relations strengths are found to have a positive and significant impact on risk proxied by the absolute deviation from the firm's expected ROA. This observation is confirmed using Tobin's Q albeit with weaker statistical significance. The results suggest that CSR activities are associated with greater risk for shareholders.

The important role played by the dimensions relating to diversity and employee relations highlights the existence of a trade-off between the interests of employees and those of shareholders. Greater attention to the interests of employees represents a cost to shareholders, which can lead to greater vulnerability in times of financial difficulty. For instance, by offering greater job security to employees, firms impose greater risk to shareholders who will have to absorb the shock from a potential fall in the demand for the firm's products and services.

In contrast, firms uncommitted to the same policy toward their employees may be able to cut their fixed costs and thus moderate the negative shock to their performance. Similarly, promotion of diversity through greater involvement of women and minorities in executive positions might prove to be risky if the firm is unable to source equally competent managers who can effectively help the firm prevail over the competition.

According to some studies, CSR expenditures in areas such as diversity and employee relations represent a wealth transfer in favor of insiders at the expense of shareholders (Videras and Owen, 2006). These investment in CSR activities seem to be incurred for the purpose of gaining stakeholders support (Cespa and Cestone, 2007; Barnea and Rubin, 2010). Investors

Table III Regressions of firm risk on individual CSR strengths

Corporate social responsibility variables	*Absolute deviation from expected performance*	
	ROA	*Tobin's Q*
Community strengths	0.0012 (0.0052)	0.343 (0.157)
Diversity strengths	0.0134** (0.0057)	0.126 (0.156)
Employee strengths	0.0127** (0.0051)	0.224* (0.134)
Environment strengths	−0.0096 (−0.0069)	−0.203 (−0.185)
Products strengths	−0.0012 (−0.0065)	−0.054 (−0.169)
Governance strengths	0.0059 (0.0041)	0.193* (0.104)
Firm age	−0.0072 (−0.0062)	−0.0113*** (−0.0025)
Firm size	−0.0046*** (−0.0007)	−0.108*** (−0.024)
Dividend yield	0.105*** (0.031)	−0.204 (−1.026)
Leverage	−0.0029 (−0.0056)	−0.345** (−0.155)
Number of segments	−0.0009*** (−0.0003)	−0.0179**−(0.0086)
Capex/sales	0.0063 (0.0077)	−0.306 (−0.212)
R&D intensity	0.119*** (0.0334)	0.577 (0.841)
Wald test	397.54***	169.01***
R^2	17.44%	16.23%

Notes: Absolute deviation from expected performance is the absolute value of the residual from the performance model described in Section 3.4; ROA is EBIT over total assets; Tobin's Q is the market to book value of assets; the regressions involve random firm effects and year dummies; the standard errors are corrected for clustering at the firm's level; ***, ** and *indicate that the coefficients are significant at the 1, 5 and 10% level, respectively

are thus entitled to attach a higher risk to high CSR firms. For instance, a higher cost of capital or lower credit rating would reflect greater investor concerns regarding a potential (ex ante) risk. Our results provide evidence that there is actual (ex post) risk in the practice of CSR in the sense that the associated costs are reflected in more volatile financial results (as indicated by a greater deviation from the firm's expected ROA).

Corporate governance strengths are also found to be positively related to firm risk (using Tobin's Q). This positive association is likely to reflect the importance of accountability and transparency in the composition of the governance measure. Previous studies (Ferreira and Laux, 2007; Nguyen, 2011) show that stronger corporate governance is associated with higher idiosyncratic risk because more information is imparted in stock prices. However, higher volatility might not only be due to greater information flows but also could be related to more innovative (and therefore risky) corporate policies.

Financial incentives, through share ownership and stock option grants to senior executives, are expected to promote such policies and should translate into greater idiosyncratic risk (Sanders and Hambrick, 2007; Low, 2009). Our results confirm these arguments by establishing the greater unpredictability of the firm's financial results and proving the materiality of the higher risk assumed by investors.

The greater unpredictability of ROA associated with higher R&D intensity drives home the point that firms undertaking more innovative policies should expect significantly more volatile financial results. The coefficients on the other control variables tend to display the anticipated signs. For instance, larger and more diversified firms are associated with significantly lower risk using both measures of firm performance. The proxy used for firm age is also associated with lower risk, but mainly for Tobin's Q. Interestingly, leverage exhibits a negative influence on firm risk (significant at the 5 per cent level using Tobin's Q). Normally, one would expect to see the more leveraged firm, out of two identical firms, to be the more risky. However, it is also known from the trade-off theory of capital structure that more risky firms operate under lower leverage. Hence, the negative coefficient on leverage could possibly reflect the influence of a higher risk not captured by the other variables.

A similar analysis for individual CSR concerns is presented in Table IV. The regression results indicate that employee relations and corporate governance concerns are associated with

Table IV Regressions of firm risk on individual CSR concerns

Corporate social responsibility variables	*Absolute deviation from expected performance*	
	ROA	*Tobin's Q*
Community concerns	0.0017 (0.0076)	−0.0318 (−0.1920)
Diversity concerns	0.0028 (0.0045)	0.238** (0.115)
Employee concerns	0.0123** (0.0051)	0.368*** (0.133)
Environment concerns	−0.00264 (−0.0059)	0.0091 (0.1721)
Products concerns	0.0015 (0.0042)	0.158 (0.112)
Governance concerns	0.0182*** (0.0046)	0.206* (0.121)
Firm age	−0.0074 (−0.0061)	−0.0113*** (−0.0024)
Firm size	−0.0049*** (−0.0007)	−0.113*** (−0.024)
Dividend yield	0.1201*** (0.0311)	−0.306 (−1.031)
Leverage	−0.0057 (−0.0056)	−0.426*** (−0.156)
Number of segments	−0.0095*** (−0.0033)	−0.0226*** (−0.0086)
Capex/sales	0.0061 (0.0072)	−0.292 (−0.213)
R&D intensity	0.114*** (0.0335)	0.401 (0.848)
Wald test	351.66***	186.82***
R^2	19.32%	16.44%

Notes: Absolute deviation from expected performance is the absolute value of the residual from the performance model described in Section 3.4; ROA is EBIT over total assets; Tobin's Q is the market to book value of assets; the regressions involve random firm effects and year dummies; the standard errors are corrected for clustering at the firm's level; ***, ** and *indicate that the coefficients are significant at the 1, 5 and 10% level, respectively

significantly higher risk. As in the case of CSR strengths, diversity concerns are also associated with higher risk (except that the effect is now stronger using Tobin's Q instead of ROA).

Together with the analysis regarding strengths, the results suggest that responsibility toward employees is a fundamental dimension of CSR. Bird *et al.* (2007) find that concerns relating to employee relations represent the dimension that is most likely to be sanctioned by lower market valuations. The effect is also nonlinear, which justifies that employee relations strengths and concerns be dissociated and examined separately. For instance, the study of Mishra and Modi (2012) shows that aggregate CSR concerns have a smaller effect on idiosyncratic risk compared to CSR strengths.

While excessive consideration to employee welfare shifts more risk to shareholders, lack of attention to employee welfare is also associated with higher risk to shareholders. In the first case, employees benefit at a cost to shareholders. In the second case, employees bear the cost. Shareholders can extract short-term gains by foregoing CSR expenditures. For instance, letting employees work with poorly maintained machinery can boost short-term profits, but may lead to employee dissatisfaction and low morale, which may damage the firm's future performance. Hence, the higher risk associated with concerns relating to employee relations.

Similarly, under-representation of women and minorities in executive positions may appear a convenient way of avoiding the problems of hiring and integrating different profiles in the organization. But in the long run, the firm may cut itself from a pool of valuable employees. It may also miss the opportunity to increase its appeal to potential customers. By failing to cultivate its connections with women and minorities, the firm may restrict its base of loyal customers on whom it can count in times of difficulty. Poor attention to minorities is also unlikely to generate strong employee commitment to the firm, which in the long run can prove equally damaging.

Greater corporate governance concerns are also associated with higher risk, as indicated by the failure to meet expected performance (especially ROA). This finding is consistent with existing research showing that poor transparency increases the risk to shareholders. For instance, Beasley (1996) and Klein (2002) show that poor disclosure is associated with a high incidence of accounting fraud. By contrast, financial transparency creates an environment that facilitates the monitoring activities of analysts and investors leading to a lower incidence of unpleasant surprises. This broadly explains the lower cost of capital of firms with better disclosures (Botosan, 1997; Botosan and Plumlee, 2002).

As in the analysis of CSR strengths, community, environment and product concerns do not appear to be associated with a higher risk to shareholders. This result does not imply that the risks are non-existent. For instance, investments with negative economic impact on a local community may have a negative impact on the firm's reputation and lead to a loss of revenues. However, careful capital budgeting might indicate that the cost could be absorbed by the investment's expected profits. Hence, the risk may not be exposed at the firm's operating level.

Likewise, poor product safety may lead to costly product recalls. But the extra profits made by foregoing product quality may generate enough profits to cover the eventual losses. In addition, the competitive advantage gained over more responsible producers could put the latter out of business and place less responsible producers in a strong position to meet a possible consumer backlash. Finally, the control variables can be seen to display the same effects as in the previous table. In particular, larger and more diversified firms are characterized by lower risk, while high R&D firms are characterized by higher unpredictability in their operating performance.

The analysis is completed by performing panel regressions of the two risk measures on the aggregate CSR strengths and concerns. Table V confirms that the coefficients on the two CSR indicators are positive and significant. The influence of the aggregate indicators is somewhat weaker compared to some of the individual dimensions (e.g. employee relations and corporate governance concerns), as other individual dimensions (e.g. community, environment and products) have only a low impact on risk. The inclusion of these

Table V Regressions of firm risk on aggregate strengths and concerns

Corporate social responsibility variables	*Absolute deviation from expected performance*	
	ROA	*Tobin's Q*
Aggregate strengths	0.0241** (0.0117)	0.740** (0.321)
Aggregate concerns	0.0252** (0.0109)	0.789* (0.292)
Firm age	−0.0072 (−0.0113)	−0.0115*** (−0.0024)
Firm size	−0.0049*** (−0.0007)	−0.1082*** (−0.0237)
Dividend yield	0.111*** (0.031)	−0.251 (−1.028)
Leverage	−0.0047 (−0.0055)	−0.401*** (−0.155)
Number of segments	−0.0113*** (−0.0035)	−0.0226*** (−0.0086)
Capex/sales	0.0035 (0.0072)	−0.341 (−0.212)
R&D intensity	0.114*** (0.0334)	0.423 (0.847)
Wald test	151.94***	172.11***
R^2	19.67%	16.23%

Notes: Absolute deviation from expected performance is the absolute value of the residual from the performance model described in Section 3.4; ROA is EBIT over total assets; Tobin's Q is the market to book value of assets; the regressions involve random firm effects and year dummies; the standard errors are corrected for clustering at the firm's level; ***, ** and *indicate that the coefficients are significant at the 1, 5 and 10% level, respectively

dimensions into the aggregate indicator inevitably dilutes the information from the stronger dimensions. Nevertheless, the results show that CSR strengths and concerns are both associated with a higher risk to shareholders. The implication is that CSR strengths and concerns represent distinct constructs that should not be aggregated in a single variable.

In some cases, it might be justified to develop a clear unequivocal measure of CSR quality. For instance, the assignment of firms to different portfolios for the purpose of assessing their abnormal performance requires the use of a single indicator. However, it is best to leave these dimensions disaggregated in most analyses. In addition, the regression coefficients on these variables are very close, which suggests that combining strengths and concerns, as has been done in some studies, is likely to conceal their differing impact on a firm's risk.

Overall, the results underscore the notion that excessive or insufficient attention to CSR is associated with greater risk to shareholders. While higher risk might appear to be undesirable, shareholders can benefit from distinctive CSR policies. For instance, greater commitment to employee welfare can boost productivity and lead to greater financial performance. Likewise, low commitment to employees can limit their share of the firm's profits, thus increasing the cash flows extracted by shareholders. Obviously, this policy may induce dissatisfaction and organizational inefficiency which increases the risk to shareholders. Hence, the decision to follow dissimilar CSR strategies might not necessarily be good or bad for shareholders.

5. Conclusion

The purpose of this study has been to evaluate the impact of CSR activities on a firm's risk. Its distinct contribution is to separate the firm's strengths and concerns and to apply a more clever way of measuring risk that takes into account the predictable changes in a firm's performance and does not collapse the panel data into a single cross-section. Because of these differences, this study presents the potential to uncover results overlooked in the existing literature.

The analysis shows that all the CSR dimensions are not equally relevant when it comes to their impact on risk, which is consistent with *H3*. Diversity and employee relations appear to be the most significant issues. Moreover, the relationships are nonlinear. Diversity and employee-related concerns can expose the firm to greater risk because lack of moral capital implies that any backlash against the firm is likely to be more severe. Similarly, lower concerns in these two areas suggest that the firm can count on

greater loyalty from its stakeholders, which should help mitigate the severity and likelihood of a crisis (Godfrey, 2005).

At the same time, Diversity and employee relations strengths also expose the firm to greater risk. In line with the assertion of Barnea and Rubin (2010), greater social responsibility in these areas carries significant costs. More specifically, the burden of promising greater job security, health coverage and generous pensions becomes a source of risk. The associated diversion of corporate resources may weaken the firm's competitive position and increase the likelihood of failure. As a rule, commitment to employees corresponds to a fixed cost that transfers the firm's business risk to its shareholders.

The positive relationship found between governance concerns and firm risk is consistent with exiting studies (Botosan, 1997; Botosan and Plumlee, 2002). The potential risk induced by low CSR activities has also been well-documented using different proxies for risk (Luo and Bhattacharya, 2009; Oikonomou *et al.*, 2010; Salama *et al.*, 2011; El Ghoul *et al.*, 2011; Attig *et al.*, 2013). Our contribution in this study has been to provide evidence that high CSR activities also present a certain degree of risk to shareholders. As proposed in *H1* and *H2*, both CSR strengths and concerns are associated with greater risk. Moreover, the magnitude of their impact on firm risk is relatively close, implying that an index combining both CSR strengths and concerns would only point to a weak impact on firm risk. This would suggest that poor CSR does not represent a substantial risk to the firm in contrast to the idea expressed in *H4*. In actual fact, the impact (using disaggregated measures) is highly significant. Firms should be aware of this effect. Although lack of CSR engagement may not affect (and may even benefit) their current performance, it could seriously damage their future performance.

Notes

1. See Aupperle *et al.* (1985), McGuire *et al.* (1988), Waddock and Graves (1997), Griffin and Mahon (1997), McWilliams and Siegel (2000), Allouche and Laroche (2006), Kempf and Osthoff (2007), Surroca *et al.* (2010), Quazi and Richardson (2012) and Melo (2012) for studies of the relationship between corporate social responsibility and financial performance.

2. KLD was founded in 1988 by Kinder, Lydenberg and Domini to provide research and consulting services to investors interested in integrating social responsibility into their investment decisions. The company is now part of MSCI.

3. Our data set is the same as Bird *et al.* (2007). Budget constraints have prevented us from acquiring more recent data. On the positive side, our findings can be better contrasted with those in other published papers.

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