

Does the market value social pillar?

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Abstract:

The paper addresses the link between the social component of corporate social responsibility and market value of equities. Preceding results on this topic are, to our knowledge, still scarce and not really conclusive. Using a both rich and worldwide dataset, Asset4 – Thomson Reuters, we find that social expenses are clearly value-adding. Moreover, all the social subsets are positively related to a goodwill, even if those concerning human capital reveal to be more significant. Social expenses therefore prove to be a social investment, creating value for both social stakeholders and shareholders.

Keywords: Social pillar, Market value, Corporate social responsibility, Reputation, Human capital

JEL classification: G11, G12

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“Our investors choose to align their success with forward-thinking corporations – corporations that understand the value of their employees and the communities from which they draw their strength.”

Amy Domini

1. Introduction

The stakeholder approach of firm depicts an organizational behavior where managers are not only driven by the maximization of shareholder value (Freeman 1984). The corporation dwells within a complex network and its economic performance depends on the capacity of managers to achieve a global policy including shareholders, employees, customers, suppliers but also public stakeholders such as local communities, government and environment. Following Clarkson (1995), the stakeholder management is related to corporate social responsibility (CSR) and consequently the “stakeholder framework” can be used to assess its efficiency.

One common classification of CSR relies on three pillars: environmental pillar, social pillar, and governance pillar (ESG). This paper focuses on the value added by the social pillar. We seek to analyze the link between shareholder value and the social expenses related to the social pillar. Our approach is innovative since the literature generally investigates the global relationship between CSR performance and financial performance (e.g. Bird *et al.* (2007); Galema *et al.* (2008); Jiao (2010); Marsat and Williams (2013)). Results are mixed and no conclusive. Consequently the in-depth analysis of CSR pillars should be enlightening and bring explanations that cannot be given by top-down studies.

The social pillar consists in social expenses that cover a wide range of activities, namely: health and safety, diversity and opportunity, training and development, employment quality, product responsibility, community and human rights. Some expenses are made inside the firm toward the workforce and one should assume that they lead to higher labor productivity. Such an increase in productivity could create shareholders value if the marginal expenses are less than the marginal benefits they bring.

The literature on human capital (Becker 1962) reinforces the idea that social expenses toward employees should be linked with a financial goodwill. A low stress at work, worthy training programs and career planning constitute factors that both motivate employees and increase productivity. “It is obvious that these skills and knowledge are a form of capital, that this capital is in substantial part a product of deliberate investment...” (Schultz 1961, p1). In sum,

this human capital, which is used by corporations in order to produce goods and services, should constitute an intangible asset (goodwill) if it generates a net residual income (Ohlson 1995; Weber 2008). Another condition for this human capital to be embedded into intangible assets is that managers must achieve an efficient human resources policy avoiding turnover. Indeed, if the corporation is not able to retain employees at work in the firm, they would leave the firm and the training and development expenses will be lost.

Besides these human capital expenses, firms also make expenses toward external stakeholders such as customers (e.g. product responsibility) or local communities (e.g. education, donations, and human rights). The financial implications of these social issues achieved outside the corporation are more ambiguous. They should create positive externalities through reputational effects creating customer-friendly patterns.

In the institutional perspective framework (Doh & Guay 2006; Campbell 2007; Doh *et al.* 2009), social expenses should also be explained by a need for social legitimacy. The stake here for corporations is to ensure that stakeholders will not develop a mistrust attitude caused by a lack of sustainability. Such an attitude would put the firm in an awkward position that could in the end weaken its capacity to have access to its necessary resources.

These elements pinpoint the fact that social issues are key issues for shareholder value. Corporate market value is assumed to gather investor's perception on the ability of the firm to generate future earnings. Therefore, market value is a forward-looking measure, as compared to accounting ratios, including anticipations and investor's psychology (Demsetz & Villalonga 2001). Firm market value therefore includes a goodwill (Ohlson 1995) which is primarily attributable to firm reputation and human capital (Jiao 2010).

Within the present value model, this goodwill has two components: cash flows and discount rate. On the one hand, the management of social stakeholders can produce extra cash flows induced by productivity gains or reputation. On the other hand, it can decrease the discount rate through "insurance-like" benefits (Godfrey *et al.* 2009), leading to a lower financial risk, and also through an "ethical premium" (Marsat *et al.* 2013).

The paper investigates empirically the net effect of social pillar on shareholders market value. Such a special focus on social pillar is, to our knowledge, not often studied per se so far, apart from very specific points of view. We also attempt to make a bridge between top-down and bottom-up literatures, whose results are mixed so far. Our study expands preceding works that only deal with US firms since our sample includes firms on a worldwide basis. We ensure the robustness of the findings using a wide set of control variables and three different proxies for firm value.

Our results show a strong positive relationship between social pillar and firm value. Interestingly, even if all the components of social pillar are positively related to, the overall results are especially strong with human capital proxies. This finding is consistent with the idea that social expenses toward employees are a “social investment” producing intangible assets. These assets raise firm market value and take part in the global financial goodwill (Ohlson 1995). Since investments in human capital are value-adding for shareholders, one can also notice that capital markets promote the social component of corporate social responsibility (Scholtens 2006).

The remainder of the paper is organized the following way. Section 2 presents the theoretical background about the relationship between social pillar and corporate market value. Section 3 details the dataset and methodology. Section 4 provides the results and discusses the influence of the different components of the social pillar. Section 5 concludes.

2. Theory and hypotheses

Corporate social responsibility covers a wide range of aspects concerning environmental, social and governance issues. These elements are measured by an extensive set of ESG data points that are aggregated to assess the whole CSR performance through a global social rating. This rating is used in many empirical studies to investigate the link between financial performance and social performance. Market value is one possible proxy for the financial performance of corporations since the financial goodwill relies on the firm’s capacity to produce abnormal earnings. The empirical literature mainly focuses on the two extremities of the ESG data spectrum: on the one hand researches considering the global influence of CSR on financial performance; on the other hand, researches exploring the effect of a fine detail. Papers considering the link at the scale of given pillar are mainly dedicated the environment and governance pillar. Surprisingly few papers consider the social pillar itself. In this sense, our paper attempts to bring a significant contribution to the existing literature.

The social pillar should be positively related to corporate market value by generating intangible assets that are human capital and reputation. Social expenses toward employees induce higher labor productivity; while reputational effects make products more attractive to customers and boost corporate revenues. Beyond these economic motivations, investments in the social pillar should be caused by some kinds of non-financial factors such as legitimation

or entrenchments strategies. Legitimation depicts the behavior of corporations seeking a good reputation among local communities, governments or customers and may lead to value creation. Managers, however, should also be willing to achieve corporate social policies in order to reinforce their positions in the organization but also to obtain private benefits of control. In this case, social policies might be detrimental to shareholders.

2.1 Overall CSR empirical approach

Social pillar is the subset of ESG assessment that deals more precisely with social concerns. It relates to relationships of the firm to employees, customers and local communities, representing a major component of firm reputation. Moreover, the social pillar also attempts to measure human capital. Then, social pillar seems to be a notion that embraces largely the intangible investments of the firms. Researches on this particular pillar, however, are still scarce. Most of the studies so far deal whether on the whole CSR measure and its main components or on more specific issues like human capital.

The bulk of these studies on firm-value and social pillar are ‘top-down’ since they only consider social pillar as a component of CSR, as well as environmental and governance issues. Bird *et al.* (2007) show, using KLD CSR data from 1991 to 2003 on a sample of firms belonging to the S&P 500, that valuation multiple as market-to-book and price-to-earnings are positively related to diversity, employee and product strengths, but negatively to employee concerns. For Galema *et al.* (2008), using the same ratings over the 1992-2006 period, and including a larger set of control variables, only diversity is positively related.

More recently, Jiao (2010) addresses this issue by measuring the link between stakeholder welfare (including environment) and firm value. She finds that stakeholder welfare, measured by KLD scores, is valued as intangibles, especially employee welfare and environmental performance. The results are robust to numerous control variables. Results concerning diversity and community are however not significant. Marsat and Williams (2013) document only a slight positive relationship between human capital, measured by MSCI ESG data issues and valuation ratios, but stakeholder capital is not significantly related. Moreover, Girerd-Potin *et al.* (2013) find that “business stakeholders” (employees, clients and suppliers) ratings are associated with a lower cost of equity in a Fama and French (1993) framework. Based on the partial evidence of existing literature, we therefore presume that:

H₁: Higher social performance leads to a higher corporate market value.

Testing this hypothesis with a new worldwide set of data is interesting since the evidence on social pillar is differently assessed and mixed. As far as we know, whereas studies on the environmental side and firm value are largely documented (Dowell *et al.* 2000; Konar & Cohen 2001; Horváthová 2010; Guenster *et al.* 2011; Lioui & Sharma 2012), the social side itself is still by far less explored. A few empirical works deal more precisely with human capital and firm reputation.

2.2 Social issues

The social expenses performed by corporation can be made toward internal stakeholders or toward external stakeholders (Løwendahl & Revang 1998). Internal stakeholders mainly consist in employees and managers; external stakeholders are constituted of different kinds of outsiders; such as shareholders, customers, local communities or governments. One should rationally assume that the benefits related to internal social issues are greater than the one attached to external issues. Indeed, a financial loss occurs among the external stakeholders' chain: the closer these stakeholders to the firms, the higher the financial performance related to.

Internal social issues

Human capital is generally defined as skills acquired by employees through education and practice that make them more productive (Schultz 1961; Becker 1962). Corporations invest in human capital by hiring high qualified employees and by training them. Pantzalis and Park (2009) show how confusing it is to capture both input and output of human capital. They find that firms relatively low valued from a human capital perspective tend to have higher returns on American stock markets.

From a value relevance point of view, Lajili and Zéghal (2005) show a positive relationship between labor costs disclosures and market equity. Doong *et al.* (2011) focus their study on the Taiwanese market. Using different proxies for human capital, they show that more skilled employees are more productive, and then enhance firm value. Chen *et al.* (2005) use human capital efficiency to measure human capital in the Taiwanese stock exchange context. They find that human capital is significantly related to market-to-book value on the 1992-2002 period.

Edmans (2011) conducted a study on the “100 Best Companies to Work For in America”. He argues that employee satisfaction is an major factor for human capital, enhancing retention

and motivation. The results show that companies included in the “100 Best Companies to Work For in America” list exhibit higher valuation ratios, market-to-book as well as price-to-earnings ratios.

External social issues

Besides human capital, social pillar also has a more broad impact on firm reputation, as presented by Vilanova *et al.* (2009). Robinson *et al.* (2011) show that entering in the DJSI (Dow Jones Sustainability Index) increases firm value. Lourenço *et al.* (2013) assess reputation for sustainability leadership considering the firms belonging to the DJSI every year during the 2008-2010 period. They find that market valuation of net income is higher for firms endowed with a stronger reputation. They state that “firm’s reputation for being committed to sustainability is an intangible resource that can increase the value of a firm’s expected cash flows and/or reduce the variability of its cash flows (Robinson *et al.* 2011)”.

Concerning reputation, Servaes and Tamayo (2013) show that advertising expenses play a mediating role between CSR and firm value. They argue that customer awareness about CSR issues is needed as a channel to enhance corporate value. Empirical analysis support this prediction and show that higher prior firm reputation is associated with a stronger relationship whereas the effect is negative for the less admired companies.

The return on investment of expenses toward internal stakeholders should be higher than the one shared toward external stakeholders since there is a narrow link that makes the management more efficient; similarly, the further a stakeholder from the firm, the higher the losses. Finally, one should also assume that external expenses, like toward local communities, create positive externalities at a welfare being level but do not generate positive return on investment for the corporation because the backward financial reward is extremely thin. We therefore assume that one monetary unit invested in training for employees has a higher return on investment than one invested in. In the same way, one monetary unit invested in supplier relationship has a higher return on investment than one invested in local communities. This leads to our second hypothesis:

H₂: Corporate market value is more sensitive to internal than external social issues.

3. Research design

3.1 Data

The social pillar dataset comes from Asset4 - Thomson Reuters ESG Research Data, one of the major ESG rating agencies. The ESG rating is based on raw extra-financial data collection which stems from public available information such as sustainability reports, CSR reports, annual reports, firm or NGOs websites. Data collection and standardization in more than 750 data points is proceed by specialized analysts. These data points are then aggregated into 250 indicators that are used to assess categories scores, which themselves are weighted in the pillars scores. At each level, scores are equally weighted to ensure objectivity. Moreover, each indicator and score is relative to the universe and normalized between 0 and 1. Information is updated each year.

The social pillar aims at measuring the quality of the relationships between the firm and employees, customers and the society. This pillar seems to be therefore an interesting proxy in assessing social issues, including both reputation and human capital. It is composed of seven sub-scores, or categories, computed from indicators. These categories are human rights, community, product responsibility, employment quality, training and development, diversity and opportunity, and health and safety. Description of these categories is reported in Table 1.

< Insert Table 1 about here >

Asset4 - Thomson Reuters ESG Research Data covers the main indices throughout the world, including S&P/TSX COMPOSITE (Canada), SMI (Switzerland), DAX (Germany), CAC 40 (France), FTSE 100 & 250 (UK), S&P 500 and NASDAQ 100 (USA), DJ STOXX Europe, Russell 1000 (USA), S&P ASX 200 (Australia) and MSCI World Index. The number of firms annually covered is around 940 in 2002 to more than 3,800 in 2011. The main countries covered are US (944 firms), Europe (858), Japan (407), Australia (278), Canada (256), Taiwan (123), China (113), Hong-Kong (100).

We investigate the impact of social pillar on corporate value through three different measures of firm valuation. Firm value is captured by natural logs of Tobin's q measured as in main studies such as Demsetz and Villalonga (2001) or Guenster *et al.* (2011), the alternative q ratio of Chung and Pruitt (1994) and the market-to-book ratio, which is often used as a proxy of Tobin's q (Galema *et al.* 2008; Edmans 2011). Using these three different variables enable

us to be sure that the results are not sensitive whatever the valuation proxy used. The correlation between them ranges from 0.76 to 0.97.

In order to avoid any specification bias that might explain market value, we include a large set of control variables. A strong positive relationship is widely documented between firm value and both performance and growth, as well as a negative one with size. These variables, measured by RoA, sales growth and the log of total assets, are included in all regressions. We also systematically control for industry and year fixed effects.

Moreover, Jiao (2010) highlights the role of other factors, such as R&D (McWilliams & Siegel 2001), advertising, debt-to-asset ratio, capital expenditures, dividend yield, insider ownership or firm age in explaining firm value. In order to ensure that the model is correctly specified, and that our findings are not affected by these variables, we include these variables in a second model specification.

Financial data and control variables – except insider ownership which is extracted from Asset4 - Thomson Reuters ESG Research Data – are from Factset fundamentals. The final sample is composed of an unbalanced panel of 4,312 firms over the 2002-2011 period. Since we have three different measures of market value and missing financial and control variable data, the number of firm-year observations ranges from 13,283 to 19,232 with the most parsimonious set of control variable, and from 8,321 to 11,526 with the complete set.

3.2 Research method

We test our hypotheses using regressions between social pillar, as measured by Asset4 – Thomson Reuters, and firm value, assessed by Tobin's q and market-to-book ratio. In order to account for standard errors bias in this panel dataset for the 4,312 firms over 10 years, we use standard errors clustered by firms (Petersen 2009), year and industry fixed effects. We test eq. 1, given by:¹

$$MV_{i,t} = \alpha_0 + \alpha_1 SO_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 RoA_{i,t} + \alpha_4 SG_{i,t} + DUM_{i,t} + \varepsilon_{i,t} \quad (1)$$

With: MV, market value, assessed by Tobin's q or market-to-book ratio; SO, the measure of social pillar; SIZE, the natural log of total assets; RoA, the return on assets and SG as sales

¹ Since all variance inflation factors among the independent variables are less than 2, there seems to be no significant colinearity problems that might impact the results.

growth; DUM denotes industry from the GICS 2-digits classification and year dummies, and controlled with fixed effect.

Following Jiao (2010), we also add in a second specification, eq.2 variables that may also have an impact on firm market value:

$$\begin{aligned}
MV_{i,t} = & \alpha_0 + \alpha_1 SO_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 RoA_{i,t} + \alpha_4 SG_{i,t} + \alpha_5 RD_{i,t} + \\
& \alpha_6 RDDUMMY_{i,t} + \alpha_7 AD_{i,t} + \alpha_8 ADDUMMY_{i,t} + \alpha_9 DA_{i,t} + \\
& \alpha_{10} CAPEX_{i,t} + \alpha_{11} DIV_{i,t} + \alpha_{12} IO_{i,t} + \alpha_{13} IO^2_{i,t} + \alpha_{14} AGE_{i,t} + \\
& DUM_{i,t} + \varepsilon_{i,t}
\end{aligned} \tag{2}$$

With: RD, research and development expenses scaled by sales; RDDUMMY equals to one if RD is non-available; AD, advertising expenses; ADDUMMY, equals to one if AD is non-available; DA, leverage; CAPEX, capital expenditures; IO, insider ownership; DIV, dividend yield; AGE, age of quotation.

Once equation (2) has been analyzed with the global social pillar, we test the relationship according to different subsamples according to size, performance, subperiods or geographical areas to ensure the robustness of the results. Moreover, we also test the sensibility of each subsets of social pillar independently, since all subsets are highly correlated.

4. Results

4.1 Summary statistics

Table 2 depicts descriptive statistics. Social ratings are scored from 0 to 1, their mean and median are generally close to 0.5 by construction. The average Tobin's q of the sample is 1.60, 1.32 computed as Chung and Pruitt (1994) and 2.66 for the market-to-book ratio. Over the period, the average asset size is \$7.2 bn, the return on asset 12 percent, sales growth rate 12.8 percent, debt-to-asset ratio 20.1 percent, dividend yield 2.7 percent and the insiders are owning 26 percent of the company. The average numbers of years of quotation is more than 11 years.

< Insert Table 2 about here >

R&D and advertising percentage of sales seem to be relatively small. Research and development and advertising expenses are often missing in databases, we set non available data to zero, following Barnett and Salomon (2012). We however control for the availability

of the information through a dummy that is equal to one if data is missing. When excluding missing data, the average R&D/sales ratio is 5.2 percent and advertising by sales 3.8 percent.

< Insert Table 3 about here >

Table 3 presents variable correlation. Direct correlations between market value and social pillar lead to mixed links: the relation seems negative with Tobin's q and Tobin's q (Chung & Pruitt 1994), and positive but not significant for market-to-book. However, this relationship is moderate and does not account for control variables and multivariate regressions are needed. The positive role of RoA, sales growth and R&D is comforted, as well as the negative impact of size.

4.2 The value of social pillar

Table 4 shows that social pillar, measured as the social pillar score of Asset4, proves to be positively and significantly related to valuation proxies, whatever the model specification concerning control variables. This supports hypothesis 1. Among the dependent variables, the market-to-book ratio seems to be more affected by social pillar than pure Tobin's q. More specifically, an increase of 0.1 of the social score leads to an average increase of 1.1 to 3.4 percent of the valuation ratios. Social pillar seems to be valued by the market as a goodwill or intangible value.² Moreover, the magnitude of this valuation is roughly the same than sales growth, which is already known as a significant determinant of Tobin's q.

< Insert Table 4 about here >

We then explore whether the relationship with Tobin's q is sensitive to firm size, performance, time or geographical area³ (see Table 5). Overall, results prove to be robust among the subsamples studied. Small and high performing firms seem to have a slightly stronger social pillar – firm value relationship than larger or less performing ones, but the association is still significant.

< Insert Table 5 about here >

² Following Barnett and Salomon (2012), we explored a non-linear relationship. We however do not find significant and robust results.

³ We find similar results using Tobin's q computed as in Chung and Pruitt (1994) and market-to-book ratio as dependent variables.

Besides, we split the overall period into two parts, the cutoff corresponding to the subprime mortgage crisis. Results are unaffected and the same between the two sub-periods. Concerning geographical issues, the social pillar – market firm value relationship stands for North-American and European firms, but is not statistically significant for Asian firms.

4.3 Which social dimensions are the most market valued?

The social pillar score is computed as the mean of seven subcomponents, including human rights, community, product responsibility, employment quality, training and development, diversity and opportunity, and health and safety. Even though these subsets are highly correlated, some may have more influence on corporate value.

< Insert Table 6 about here >

Table 6 presents the regressions using the subsets of the social pillar. As opposed to preceding literature (Bird *et al.* 2007; Galema *et al.* 2008), *all* categories (SO_SUBSET) are positively related to firm value, indicating that they all capture a part of corporate reputation among stakeholders, employees, customers and local communities. This reputation is seen as an intangible asset (Jiao 2010), and therefore valued by the market. The impact of each subset is, however, not as important on firm value.

We postulated that expenses in internal stakeholders would generate a higher financial goodwill in hypothesis 2. Empirical results, however, do not seem to support this view. Internal expenses in diversity and opportunity or health and safety seem to be less significant than external expenses in local communities. Moreover, involvement in the community has a larger impact than product responsibility, even if customers seem to be closer and might easier constitute a goodwill. More than the distinction between internal and external stakeholders, human capital vs other reputation categories seems to be more relevant to understand our results. Indeed, the subsets that have the highest impact on firm value, employment quality and training and development, can be viewed as proxies to measure human capital (Becker 1962):.

5. Conclusion

Social and human factors are obviously key factors of success for corporations. Evidence of market valuation of these social issues, however, are so far still scarce and not conclusive. In this paper, we attempt to address the relationship between social pillar and market value of

shareholders' equity. Based on an extensive and rich worldwide dataset measuring social issues, Asset4 – Thomson Reuters, we investigate this link.

The impact of social pillar proves to be globally positive. This relationship is both strongly significant and robust to different model specifications. Contrary to the existing literature, we also find that social pillar subsets, including human rights, community, product responsibility, employment quality, training and development, diversity and opportunity, and health and safety, are *all* positively related to market value. Moreover, as expected, social issues related to internal stakeholders have a higher influence on market value. This finding is consistent with the idea that these social expenses finally lead to an increase in human capital, which can be seen as a value-adding investment, and therefore a goodwill for the corporation.

Our results are stimulating for managerial purposes. Concerning social issues, shareholders and other stakeholders seem to have converging interests. Money invested in the social pillar creates value for employees, customers and local communities, as well as for shareholders. This supports the “good management” hypothesis, and managers do not seem to have making a tradeoff between equity holders and social stakeholders.

Appendix

Table 1. Variable description

Variable		Variable description
SO	Social pillar score	The social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. It is a reflection of the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long term shareholder value.
SO_SO_HR	Workforce/Human Rights	The society/human rights category measures a company's management commitment and effectiveness towards respecting the fundamental human rights conventions. It reflects a company's capacity to maintain its license to operate by guaranteeing the freedom of association and excluding child, forced or compulsory labour.
SO_SO_CO	Workforce/Community	The society/community category measures a company's management commitment and effectiveness towards maintaining the company's reputation within the general community (local, national and global). It reflects a company's capacity to maintain its license to operate by being a good citizen (donations of cash, goods or staff time, etc.), protecting public health (avoidance of industrial accidents, etc.) and respecting business ethics (avoiding bribery and corruption, etc.).
SO_CU_PR	Workforce/Product Responsibility	The customer/product responsibility category measures a company's management commitment and effectiveness towards creating value-added products and services upholding the customer's security. It reflects a company's capacity to maintain its license to operate by producing quality goods and services integrating the customer's health and safety, and preserving its integrity and privacy also through accurate product information and labelling.
SO_WO_EQ	Workforce/Employment Quality	The workforce/employment quality category measures a company's management commitment and effectiveness towards providing high-quality employment benefits and job conditions. It reflects a company's capacity to increase its workforce loyalty and productivity by distributing rewarding and fair employment benefits, and by focusing on long-term employment growth and stability by promoting from within, avoiding lay-offs and maintaining relations with trade unions.
SO_WO_TD	Workforce/Training & Development	The workforce/training and development category measures a company's management commitment and effectiveness towards providing training and development (education) for its workforce. It reflects a company's capacity to increase its intellectual capital, workforce loyalty and productivity by developing the workforce's skills, competences, employability and careers in an entrepreneurial environment.
SO_WO_DO	Workforce/Diversity & Opportunity	The workforce/diversity and opportunity category measures a company's management commitment and effectiveness towards maintaining diversity and equal opportunities in its workforce. It reflects a company's capacity to increase its workforce loyalty and productivity by promoting an effective life-work balance, a family friendly environment and equal opportunities regardless of gender, age, ethnicity, religion or sexual orientation.
SO_WO_HS	Workforce/Health & Safety	The workforce/health & safety category measures a company's management commitment and effectiveness towards providing a healthy and safe workplace. It reflects a company's capacity to increase its workforce loyalty and productivity by integrating into its day-to-day operations a concern for the physical and mental health, well-being and stress level of all employees.
Q	Tobin's q	$\text{Ln}(\text{market value of equity} + \text{book value of assets} - \text{book value of equity} - \text{balance sheet deferred taxes}) / \text{book value of assets}$
QCP	Tobin's q computed as in Chung and Pruitt (1994)	$\text{Ln}(\text{market value of equity} + \text{liquidating value of preferred stock} + \text{book value of long term debt net} + (\text{short term liabilities} - \text{short term assets}) / \text{book value of assets}$
MB	Market-to-book	$\text{Ln}(\text{market value of equity} / \text{book value of equity})$
SIZE	Size proxy	$\text{Ln}(\text{book value of total assets})$
ROA	Return on assets	$\text{EBITDA} / \text{book value of assets}$
SG	Sales growth	$(\text{Sales in year } t / \text{sales in year } (t-1))$
RD	Research and development expenses	$\text{R\&D expenditures} / \text{sales}$
RDDUMMY	R&D dummy	Equals 1 if RD is non-available, zero otherwise
AD	Advertising expenses	$\text{Advertising expenses} / \text{sales}$
ADDUMMY	Advertising dummy	Equals 1 if ad is non-available, zero otherwise
DA	Leverage	$\text{Book value of debt} / \text{book value of assets}$
CAPEX	Capital expenditures	$\text{Capital expenditures} / \text{book value of assets}$
IO	Insider ownership	Percentage of shares owned by insiders
DIV	Dividend yield	$\text{Dividend per share} / \text{stock price per share}$
AGE	Age of quotation	Natural log of the number of days since first quotation

Table 2. Descriptive statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.	Observations
SO	0.495	0.477	0.989	0.034	0.309	24292
SO_SO_HR	0.464	0.281	1.000	0.021	0.296	24292
SO_SO_CO	0.503	0.511	0.974	0.027	0.309	24292
SO_CU_PR	0.492	0.451	0.992	0.024	0.305	24185
SO_WO_EQ	0.500	0.495	0.986	0.025	0.305	24292
SO_WO_TD	0.502	0.511	0.974	0.052	0.315	24292
SO_WO_DO	0.487	0.428	0.988	0.048	0.310	24292
SO_WO_HS	0.478	0.417	0.995	0.024	0.300	24292
Q	1.602	1.251	9.850	0.340	1.037	15436
QCP	1.320	0.977	9.997	0.000	1.159	19166
MB	2.664	1.933	19.945	0.000	2.426	23093
SIZE	22.698	22.528	28.750	15.504	1.649	23805
ROA	0.120	0.110	0.960	-0.910	0.104	23471
SG	1.128	1.090	3.746	0.488	0.277	21061
RD	0.021	0.000	1.979	0.000	0.071	24292
AD	0.003	0.000	0.424	0.000	0.018	24292
DA	0.202	0.175	0.990	0.000	0.156	21766
CAPEX	0.054	0.039	0.997	0.000	0.060	22707
DIV	0.027	0.020	0.887	0.000	0.031	22619
IO	0.260	0.200	1.000	0.000	0.232	18658
AGE	8.307	8.611	9.202	0.693	0.915	21501

Table 3. Correlation matrix

	SO	Q	QCP	MB	SIZE	ROA	SG	RD	AD	DA	CAPEX	DIV	IO	AGE
SO	1													
Q	-0.023*	1												
QCP	-0.028**	0.973***	1											
MB	0.016	0.784***	0.756***	1										
SIZE	0.405***	-0.302***	-0.278***	-0.225***	1									
ROA	0.056***	0.557***	0.555***	0.418***	-0.158***	1								
SG	-0.106***	0.17***	0.176***	0.126***	-0.058***	0.133***	1							
RD	0.079***	0.137***	0.106***	0.067***	-0.017	0.004	-0.002	1						
AD	-0.062***	0.02*	0.006	-0.023*	-0.008	-0.009	-0.025**	0.044***	1					
DA	0.065***	-0.165***	-0.057***	0.06***	0.144***	-0.135***	-0.009	-0.15***	-0.118***	1				
CAPEX	-0.025**	0.142***	0.201***	0.08***	-0.038***	0.307***	0.112***	-0.043***	-0.058***	0.098***	1			
DIV	0.084***	0.028**	0.042***	0.062***	-0.049***	0.178***	0.048***	-0.136***	-0.079***	0.078***	-0.012	1		
IO	-0.138***	0.045***	0.058***	-0.013	-0.008	0.053***	0.087***	-0.09***	0.051***	-0.081***	0.128***	0.036***	1	
AGE	-0.036***	-0.015	-0.022*	-0.035***	-0.007	0.025**	-0.028**	-0.027**	0.015	-0.019	-0.005	-0.053***	-0.06***	1

Table 4. Social pillar and market value

Dep. Var:	Q	QCP	MB	Q	QCP	MB
C	1.363*** (11.668)	2.418*** (10.968)	2.199*** (11.784)	1.244*** (9.284)	1.913*** (7.474)	2.077*** (8.752)
SO	0.132*** (6.614)	0.197*** (5.721)	0.294*** (9.248)	0.107*** (5.078)	0.221*** (6.039)	0.273*** (7.557)
SIZE	-0.066*** (-13.404)	-0.141*** (-15.507)	-0.097*** (-12.596)	-0.057*** (-11.291)	-0.124*** (-12.392)	-0.089*** (-9.939)
ROA	2.451*** (21.905)	3.631*** (22.879)	3.02*** (21.314)	2.448*** (17.396)	3.953*** (18.718)	3.208*** (16.239)
SG	0.143*** (8.682)	0.315*** (11.447)	0.251*** (11.133)	0.119*** (6.607)	0.268*** (7.277)	0.212*** (7.493)
RD				0.814*** (3.804)	1.214*** (4.991)	1.036*** (4.912)
RDDUMMY				0.036** (2.387)	0.11*** (4.804)	0.052** (2.108)
AD				0.405 (1.103)	0.944 (1.542)	0.821 (1.432)
ADDUMMY				0.03 (1.455)	0.052 (1.28)	0.029 (0.769)
DA				-0.097** (-2.531)	0.548*** (7.535)	0.306*** (3.953)
CAPEX				-0.044 (-0.282)	0.387* (1.741)	-0.614*** (-3.333)
DIV				-0.783*** (-5)	-1.639*** (-5.055)	-0.856*** (-3.357)
IO				-0.121 (-1.624)	-0.497*** (-3.772)	-0.126 (-0.962)
IO ²				0.252*** (2.603)	0.829*** (4.6)	0.308* (1.748)
AGE				-0.005 (-0.881)	-0.013 (-1.466)	-0.01 (-1.113)
N=	13283	16469	19232	8321	10074	11526
Adj. R ²	0.508	0.428	0.391	0.51	0.457	0.393

Table 5. Sensivity analysis of the social pillar – Tobin's q relationship

Row	Sample	C	SO	SIZE	ROA	SG	RD	RDDU MMY	AD	ADDU MMY	DA	CAPEX	DIV	IO	IO ²	AGE	Adj. R ²	N
(1)	Only small firms (below median)	3.49*** (7.79)	0.15*** (3.82)	-0.17*** (-8.83)	2.53*** (13.8)	0.17*** (5.52)	0.88*** (3.01)	0.03 (1.33)	-0.03 (-0.05)	0.01 (0.13)	-0.07 (-0.95)	-0.08 (-0.44)	-0.94*** (-4.44)	-0.02 (-0.15)	0.36** (1.97)	-0.01 (-0.81)	0.52	2940
(2)	Only large firms (above median)	0.53*** (3.62)	0.10*** (4.74)	-0.02*** (-3.82)	2.14*** (11.03)	0.06*** (3.68)	0.61** (2.19)	0.01 (0.6)	0.83*** (2.69)	0.03 (1.44)	-0.03 (-0.8)	0.05 (0.23)	-0.56** (-2.46)	-0.19** (-2.37)	0.27*** (2.61)	-0.01 (-1.17)	0.46	5381
(3)	Only high performing firms (RoA above median)	1.96*** (9.31)	0.14*** (4.65)	-0.09*** (-11.08)	2.81*** (15.73)	0.17*** (5.79)	0.64** (2.55)	0.02 (1.21)	0.52 (1.24)	0.06* (1.91)	-0.11* (-1.77)	-0.52** (-2.56)	-1.19*** (-5.09)	-0.07 (-0.58)	0.22 (1.43)	-0.01 (-1.62)	0.47	4198
(4)	Only low performing firms (RoA below median)	0.7*** (5.85)	0.07*** (3.27)	-0.03*** (-6.53)	0.57*** (3.98)	0.1*** (5.35)	0.94*** (3.01)	0.04** (2.44)	0.28 (0.77)	-0.01 (-0.35)	0.02 (0.52)	0.33* (1.86)	-0.38*** (-2.94)	-0.12 (-1.61)	0.21** (2.1)	0 (-0.92)	0.27	4123
(5)	Only 2002-2007 subperiod	1.74*** (9.88)	0.12*** (4.54)	-0.08*** (-11.63)	2.6*** (17.11)	0.1*** (3.82)	1.22*** (4.52)	0.05*** (2.63)	0.3 (0.8)	-0.01 (-0.3)	-0.07 (-1.47)	-0.18 (-1.03)	-1.13*** (-4.64)	-0.06 (-0.51)	0.15 (0.94)	-0.01 (-1.51)	0.52	3816
(6)	Only 2008-2011 subperiod	0.87*** (5.74)	0.11*** (4.49)	-0.05*** (-8.46)	2.33*** (13.27)	0.14*** (6.24)	0.57*** (2.89)	0.03* (1.69)	0.47 (0.88)	0.05** (2.19)	-0.08* (-1.75)	0.08 (0.34)	-0.46*** (-3.08)	-0.15* (-1.82)	0.29*** (2.89)	0 (0.04)	0.47	4505
(7)	Only North American firms	0.87*** (4.19)	0.11*** (3.91)	-0.05*** (-6.89)	3.05*** (13.05)	0.17*** (5.37)	-0.11 (-0.35)	0.09*** (3.56)	0.13 (0.31)	0.03 (1.26)	0.01 (0.17)	-0.04 (-0.17)	-0.88*** (-3.9)	-0.14 (-0.97)	0.3* (1.72)	0 (0.2)	0.51	3496
(8)	Only European firms	1.55*** (8.02)	0.12*** (3.24)	-0.06*** (-8.09)	2.02*** (9.75)	0.06*** (2.6)	0.83** (2.58)	0 (0.05)	1.14*** (3.48)	0 (-0.05)	-0.2*** (-3.51)	0.01 (0.02)	-1*** (-4.12)	0.03 (0.33)	-0.01 (-0.07)	-0.01 (-0.96)	0.51	3562
(9)	Only Asian firms	1.54*** (3.75)	0.08 (1.56)	-0.05*** (-4.64)	2.68*** (10.65)	0.03 (0.52)	2.4*** (4.8)	-0.01 (-0.28)	1.18 (0.65)	-0.21 (-0.84)	-0.05 (-0.63)	0.47 (1.02)	-1.22** (-2.22)	-0.41** (-2.49)	0.42* (1.96)	-0.02 (-1.42)	0.61	1060

Table 6. Social pillar - Tobin's q relationship using the subsets of social pillar

	SO_SO_HR	SO_SO_CO	SO_CU_PR	SO_WO_EQ	SO_WO_TD	SO_WO_DO	SO_WO_HS
C	1.186*** (8.973)	1.154*** (8.831)	1.125*** (8.68)	1.172*** (9.012)	1.208*** (9.161)	1.17*** (8.939)	1.136*** (8.737)
SO_SUBSET	0.081*** (3.828)	0.069*** (3.964)	0.041** (2.463)	0.106*** (6.119)	0.105*** (5.604)	0.054*** (3.222)	0.053*** (2.804)
SIZE	-0.054*** (-10.869)	-0.052*** (-10.937)	-0.049*** (-10.779)	-0.053*** (-11.344)	-0.055*** (-11.414)	-0.052*** (-10.888)	-0.05*** (-10.763)
ROA	2.467*** (17.523)	2.467*** (17.543)	2.488*** (17.702)	2.457*** (17.507)	2.452*** (17.428)	2.475*** (17.577)	2.475*** (17.527)
SG	0.115*** (6.326)	0.113*** (6.306)	0.113*** (6.227)	0.111*** (6.215)	0.117*** (6.535)	0.114*** (6.314)	0.113*** (6.249)
RD	0.83*** (3.826)	0.836*** (3.839)	0.852*** (3.83)	0.825*** (3.808)	0.82*** (3.808)	0.818*** (3.773)	0.837*** (3.834)
RDDUMMY	0.036** (2.407)	0.031** (2.091)	0.033** (2.195)	0.028* (1.848)	0.032** (2.176)	0.031** (2.069)	0.033** (2.186)
AD	0.388 (1.05)	0.394 (1.064)	0.374 (0.991)	0.344 (0.934)	0.413 (1.121)	0.366 (0.985)	0.387 (1.047)
ADDUMMY	0.031 (1.469)	0.028 (1.326)	0.028 (1.348)	0.024 (1.17)	0.028 (1.351)	0.029 (1.395)	0.028 (1.342)
DA	-0.097** (-2.52)	-0.095** (-2.471)	-0.095** (-2.473)	-0.094** (-2.465)	-0.092** (-2.404)	-0.097** (-2.527)	-0.096** (-2.501)
CAPEX	-0.052 (-0.336)	-0.042 (-0.266)	-0.05 (-0.319)	-0.05 (-0.321)	-0.05 (-0.322)	-0.05 (-0.321)	-0.059 (-0.375)
DIV	-0.738*** (-4.683)	-0.737*** (-4.711)	-0.723*** (-4.612)	-0.769*** (-4.917)	-0.765*** (-4.879)	-0.737*** (-4.725)	-0.749*** (-4.774)
IO	-0.139* (-1.856)	-0.121 (-1.618)	-0.141* (-1.877)	-0.129* (-1.728)	-0.126* (-1.687)	-0.135* (-1.807)	-0.129* (-1.722)
IO ²	0.271*** (2.797)	0.25*** (2.585)	0.266*** (2.727)	0.245** (2.535)	0.244** (2.522)	0.265*** (2.74)	0.254*** (2.616)
AGE	-0.004 (-0.824)	-0.006 (-1.036)	-0.005 (-0.978)	-0.005 (-0.900)	-0.005 (-0.888)	-0.005 (-1.003)	-0.006 (-1.082)
N=	8321	8321	8307	8321	8321	8321	8321
Adj. R ²	0.508	0.508	0.506	0.51	0.51	0.507	0.507

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