STAKEHOLDER RATINGS AND CORPORATE FINANCIAL PERFORMANCE: SOCIALLY RESPONSIBLE FOR WHAT?

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Abstract

This paper aims at empirically supporting, in a cross-country and cross-industry analysis, the instrumental role of stakeholder management by adopting a disaggregated approach to the corporate social performance measurement. By using a sample of 250 European industrial listed firms, from 10 European countries, in the period 2001-2003, we find the following evidence: i) the firm is not socially responsible towards all stakeholders, but invests more in key-stakeholders, those who are (perceived as) more influential on its business and have a more valuable impact on its financial performance; ii) a null or weak significance of the relationship between corporate social performance (CSP) and corporate financial performance (CFP) in the whole sample hides highly significant opposite relationships in two separate sub-samples (i.e. firms with positive and negative relationship, respectively): the sign of the CSP-CFP link cannot be expected to be univocal, since the marginal reward-cost equilibrium of social investment is firm-specific.

Keywords: Instrumental Role of Stakeholders Management, Corporate Financial Performance, Corporate Social Performance, European Listed Firms

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1. Introduction

The relationship between corporate social performance (CSP) and corporate financial performance (CFP) is an important issue (McGuire et al. 1988). The management literature emphasizes the significance of corporate social responsibility in corporate decision making. Recent developments show that the focus of corporate attention shifted from a merely financial orientation to a much broader one. If society can decide that corporations have responsibilities toward stakeholders, we can expect corporations to be held accountable for their social performance (Gossling, 2003).

Corporate social responsibility (CSR) is a construct difficult to be caught. Many definitions have been formulated by the theoretical and empirical literature on CSR. All definitions have in common that they are multidimensional constructs, measuring organizational behavior across a wide range of dimensions. The EU Commission (2001) defined social responsibility as "*a concept whereby companies integrate social and environmental concerns in their business operations and in their interaction with their stakeholders on a voluntary basis.*" CSR is relevant on different levels within and outside organizations and is therefore difficult to measure. The three different principles of Wood (1991) – legitimacy, public responsibility and managerial discretion – each operate on a different level, respectively on the institutional, organizational, and individual level. CSP is a way of making CSR applicable and putting it into practice (Marom 2006). In general, multidimensional constructs are used to measure CSP, by evaluating organizational behavior across a wide range of dimensions and/or a wide range of processes.

The correlation between corporate social performance (CSP) and corporate financial performance (CFP) has been largely studied but, despite these developments, the linkage between CSP and CFP are still far from clear. Various and contradictory results are obtained, from both theoretical and empirical points of view. Positive, negative, and neutral associations have been hypothesized, variously motivated and empirically observed, as well as different causality directions of the link.

Summing up, a more in-depth knowledge about the nature of the relationship between CSP and CFP, and about the factors that influence this relationship, is broadly recommended in order to better understand the CSP-CFP link and contribute to the practice of CSP in managing organizations.

This paper aims at contributing to the debate by verifying preliminarily some empirical implications deriving from the unified theory of the CSP-CFP link formulated by Marom (2006). This theory, as we will better explain below, stresses the instrumental role of stakeholder management and supports a disaggregated approach to CSP measurement. It describes the stakeholder management of the firm as a process that identifies

the stakeholders who return higher marginal rewards than the marginal costs of the social output they receive. According to Marom's unified theory, the firm should invest more in those stakeholders who return the most significant CSR-related reward component.

This paper tries to verify, in a cross-country and cross-industry analysis, if firms adopt a utilitarian approach to CSR, i.e. if they invest in those stakeholders who are perceived to be more influential on their business and have an expected more valuable impact on their financial performance. The rationale of this hypothesis is that the stronger the stakeholder impact on the firm value (as perceived by the firm), the higher the reward associated with the social output.

2. The theoretical and empirical background

Several theoretical models have been proposed to explain the CSP-CFP relationship. Two aspects of this relationship are relevant: the sign and the direction of causality.

Regarding the first aspect, the most widely accepted theories were summarized in a Preston and O'Bannon's (1997) study. The two influential and contradictory hypotheses are the following:

1. the social impact hypothesis, which assumes that meeting the needs and expectations of various stakeholders increases financial performance, i.e. corporate social responsibility positively influences CFP. As Freeman (1994) argued, social performance is needed to attain business legitimacy. A firm has an investment in reputation, including its reputation for being socially responsible. An increase in perceived social responsibility may improve the image of the firm's management and permit it to exchange costly explicit claims for less costly implicit charges (McGuire et al. 1988). The central idea is that the success of an organization depends on the extent to which the organization is capable of managing its relationships with key groups, such as lenders and shareholders, but also customers, employees, suppliers, and even communities or societies. Several mechanisms mediate the relationship: improving corporate reputation, decreasing business risk, gaining higher support from regulatory agencies, attracting more investment from financial markets and others, etc... In more detail the positive impact on financial performance of different dimensions of CSP has been widely suggested (Waddock and Graves 1997; Berman et al. 1999): good employee relations might be expected to enhance morale, productivity, worker commitment and effort and lower turnover and absenteeism ; positive customer perceptions about the quality and safety of a company's products may lead to increased sales or decreased costs; environmental responsiveness can lower the cost of complying with present and future environmental regulations and enhance firm's efficiencies; firms with strong shareholders rights tend to have a lower cost of equity capital, nd this supports the idea that reducing agency problems between stakeholders and management improves financial performance (Cheng et al., 2006). Good community relations can help a firm to obtain competitive advantage through tax advantages, a decreased regulatory burden, and an improvement in the quality of local labor. Furthermore, the impact of each social output not only avoids the costs of negative reactions or improves the returns of positive ones by the key stakeholders group that benefits from it, but can also improve the firm's image and enhance the loyalty of all stakeholders, summing up in a cumulative and more widespread effect. Lastly, a "strategic posture" view emphasizes the importance, as sources of competitive advantage (and therefore of positive impact on financial performance) of core values to which employees and other key-stakeholders can relate (Waddock and Graves 1997).
2. the trade-off hypothesis, which assumes that by increasing their social performance, firms incur unnecessary costs and consequently reduce their profitability, thus putting them at a disadvantage when compared to firms that are less socially active, i.e. CSR negatively influences CFP (Griffin and Mahon 1997).

A neutral association is proposed (Ullman 1985), due to the multiple intervening variables affecting the CSP-CFP relationship, and the CSP's measurement problems that could mask any existing linkage.

Regarding the second aspect, even when a positive link can be established, its causality direction is questioned. The slack resources hypothesis argues that financially successful companies simply have more resources to spend on CSP and therefore attain higher standards. The good management hypothesis states that a better performance along various dimensions of CSP itself results in better financial outcomes, as explained above.

Some authors (Waddock and Graves 1997; Nelling and Webb 2009) hypothesized a simultaneous relationship, a sort of "virtuous circle", such that CSP is *both* a predictor *and* a consequence of firm financial performance.

From an empirical perspective, past findings on the CSP-CFP link point out that more than one hundred studies' results were not conclusive and in

some cases contradictory (Marom, 2006). The correlation between CSP and CFP was found to be positive, negative, or not significant, and with different causal directions. The review of the most recent (beyond 1990) empirical studies (van Beurden and Gössling, 2008) shows less ambiguous results: the majority (68%) of the 34 analyzed studies finds a positive relationship between CSP and CFP, while 26% show no significant relationship and only 6% show a negative relationship.

The Marom's unified theory (2006) can explain all the possible signs of the CSP-CFP relationship, connecting the business domain to the CSR domain. In the business domain, the cost-benefit equilibrium determines an inverted U-relationship between production output and profits (profits decline on the right side because consumers experience a decrease in marginal utility); we should also expect to find something similar to the inverted U-function in the CSR domain. Social outputs result from the exercise of CSR. Firms create social outputs in order to address the needs and expectations of their various stakeholders, since these outputs provide utility to the same stakeholders. The firm's CSR activities pay: satisfied customers buy more, satisfied employees are more motivated and productive, satisfied investors support higher market values, satisfied legislators pass favorable laws, and so forth. All these outcomes contribute to the firm's financial performance. According to the unified theory, either positive, negative or neutral relationship are possible depending upon whether marginal rewards are higher or lower than marginal costs.

3. Research design and hypotheses

This paper aims at verifying preliminarily some empirical implications deriving from Marom's unified theory of the CSP-CFP link (Marom, 2006). It can also contribute to the debate from a methodological perspective, while considering preliminarily and tentatively the obtained empirical evidence.

The empirical implications of this theory are the following:

- a disaggregated approach is appropriate in order to measure CSP, because the reward-cost equilibrium is stakeholder-specific. An aggregated CSP measure could be misleading, because we could expect that a firm invests in social outputs that satisfy those stakeholders categories who are perceived as more influential on its financial performance. Therefore, the firm is not socially responsible towards *all* stakeholders. In addition, we can expect that a firm invests more in social outputs that evoke a significant aggregated utility;
- stakeholders' management should be a process that identifies those stakeholders who return higher marginal rewards than the marginal costs of the social output they receive, and therefore the firm should invest more in those stakeholders who return the most significant CSR-related reward component. In practice, a firm invests more in those stakeholders who are (perceived as) more influential on the firm's business and have an expected more valuable impact on the firm's financial performance. The rationale of this hypothesis is that the stronger the stakeholder impact on the firm's value (as perceived by the firm), the higher the reward associated with the social output and the higher the optimized level of social investment;
- we cannot expect univocal results about the CSP-CFP relationship: the sign of the impact of the firm's social investment (towards different stakeholders) on its medium-term financial performance depends on both the amount and the effectiveness of the firm's investments. Moreover, we do not know how well firms interpret the utility function of their stakeholders in order to optimize their investments.

In accordance with the above implications, we will empirically test the following hypotheses:

H1: stand-alone measures of social investment in each stakeholder category are not mutually correlated in a very significant way. We could find a more significant correlation among social ratings related to stakeholder categories that presumably earn an aggregate utility from the social investments.

H2: a firm invests more in those stakeholder categories that are perceived as critical to its business success. This suggests a firm's *instrumental* posture towards stakeholders: the firm seeks to manage the key stakeholders in order to maximize profits. The social ratings used in this analysis do measure (rather subjectively) the firm's investment in different stakeholders' categories, but they do not measure the actual level of stakeholders' satisfaction achieved by means of it. Thereby, they seem to be appropriate for measuring the subjective posture of the firm. The key-role of the different categories of stakeholders for each firm depends on country- , industry- and firm-specific characteristics. We therefore expect that each social rating variance could be significantly explained by the *mediating variables* that better measure these characteristics.

H3: Marom's unified theory and the instrumental approach adopted here hypothesize that, in the medium-term (we assume a two-year lag of CFP), the direction of causality in the CSP-CFP relationship is from CSP to CFP. Nevertheless, we do not expect a univocal sign in the relationship between CSP and CFP, since the sign depends on the trade-off between marginal utility and marginal cost of the social output for each stakeholder category. Instead, we could reasonably presume that some firms experience a positive relationship and other firms a negative one. Firstly, the social ratings utilized in this study measure the firm's investment in each stakeholder category, and they do not measure the stakeholders' utilities; secondly, we cannot suppose that the utility function of different relevant stakeholders are perfectly known by the firm: therefore we cannot assume that the firm is able to target the level of social output not beyond the point where its marginal utility equals its marginal costs. Therefore, we expect the absence of a statistically significant relationship between CSP and CFP in the whole sample, but a positive and a negative relationship in two different sub-samples. Marom's (2006) unified theory can explain not univocal signs in past empirical findings concerning the CSP-CFP link: but we think that it better explains the ambiguous sign of the CSP-CFP relationship among firms in the same sample than among samples from different studies.

H4: Firm-specific factors could affect the firm's ability to match the marginal reward-cost equilibrium of its social investment towards each key-stakeholder category. Moreover, we can assume that the following variables could be significant as *firm- aspecific* predictors of the ex post function which discriminates between sub-samples exhibiting positive and negative links between CSP and CFP: financial flexibility (higher levels of cash flows in excess and lower financial leverage), risk and previous or current profitability. According to the control hypothesis by Jensen (1986), debt disciplines managers and motivates them to run the firm as efficiently as possible: leverage ties managers' hands and commit them to pursue strategies with great vigor than they would without the threat of financial distress. In addition, when the firm is highly levered, creditors themselves will closely monitor managers' actions, providing an additional layer of management oversight. The slack resources hypothesis assumes that for managers to engage in wasteful investments, they must have the cash to invest. Furthermore, we could hypothesize that managers of more profitable firms could be more confident on their abilities and tend to be bullish on the firm's prospects, less concerned about their performance, and more likely to engage in inefficient investments.

4. Data and methodology

4.1. The sample

The sample includes 250 European industrial listed firms (from 10 European countries[7]), in the period 2001-2003, adding up to 523 panel data. The panel is unbalanced. Tables 1-3 summarize panel data by country, industry, and year.

The 2001-2003 period was chosen because the 2001 EU Report on CSR (EU Commission, 2001) can be seen as a turning point in the attention toward CSR. Empirical evidence shows an increase of most ratings during these three years, as proved by a Kruskal Wallis test in Table 4-Panel B, when controlling for sample unbalance. Therefore, a better sensitivity to the CSR issue is reasonably expected in this period.

4.2. CSP and CFP measures

CSP is disaggregated in eight social ratings which can be related to corresponding stakeholder groups: *community*, *corporate governance*, *customers*, *employees*, *environment*, *suppliers*, *business ethics*, *controversies*, allowing for a multidimensional assessment. They are provided by the SiRi Group, an independent rating service that focuses exclusively on the assessment of CSP across a range of dimensions related to stakeholder concerns (Kinder, Lydenberg, Domini – KLD – is the company of the group that produces social ratings for US firms). The following aspects are considered in measuring each rating: *i)* voluntary disclosure of the impact of firm's activities on stakeholders' interests; *ii)* principles, rules and management systems utilized in order to meet stakeholders' needs; *iii)* quality/effectiveness of managerial systems adopted to protect each stakeholder category.

Five of the eight ratings emphasize the firm's relationship with well determined and identified stakeholders' categories (respectively *actual and potential shareholders*, *customers*, *employees*, *natural environment* and *suppliers*), while the first one and the last two identify a more general concern about social responsibility.

The total rating is provided by the SiriGroup as a weighted average of the eight ratings. The Appendix provides details on the aspects

[7] Countries in which the firms are listed (but in most observations this matches the countries were the firms' HQs are located).

considered in determining ratings. It emerges that ratings do not measure the degree of stakeholder satisfaction, but the firm actions towards each stakeholder category. Table 4 shows descriptive statistics of these CSP measures.

As suggested by the empirical literature, CFP was measured by using both market-based and accounting-based measures. In fact, empirical research shows that the CSP-CFP link differs whether market- or accounting-based measures are adopted. Furthermore, both of them are plagued by some limits (McGuire et al. 1986): accounting-based measures tap only historical aspects of firms' performance, they suffer bias from managerial manipulation and differences in accounting procedures, and are not adjusted for risk, industry, and other variables. Market-based measures implicitly assume that investors' evaluation of firm's performance is an appropriate indicator.

Market-based measures include shareholder total return (*ri*), market value to book value (*mtbv*), market value growth rate (*mva*). Accounting-based measures consist of profitability measures such as return on equity (*roe*), return on assets (*roa*), and return on sales (*ros*).

Different lags of market and accounting measures with respect to social ratings are likely to be considered: market measures value future cash flows instead of accounting indexes, which need a (larger) lag in order to account for the impact of rating.

4.3. Mediating variables

The key-role of the different categories of stakeholders for each firm depends on country-, industry-, and firm-specific characteristics. In order to measure their relative relevance we defined various proxies of these characteristics. We limited this analysis to the five social ratings that more directly identify a well determined stakeholder category. We consider the aspects described below for each of them (consistently with the available data). Surely finer proxies could be defined in order to better catch the relevance as value drivers of the corresponding stakeholders. Further analysis could improve these aspects.

We expect that the variance of each social rating will be well explained by the corresponding mediating variables.

A) Corporate governance

Country. We classified the 10 European countries of the panel data according to La Porta et al.'s (1998) "legal environment" indexes, that measure the level of investor protection and the relevance of capital market discipline upon the firm. *country_dummy2* ranges from 1 (French-civil-law countries – Belgium, France, Italy and Spain – have the weakest legal protections of investors) to 4 (common-law countries – Ireland and UK – have the strongest), with German- (Germany and Switzerland) and Scandinavian- (Finland and Sweden) civil-law countries located in the middle, respectively with values of 2 and 3. This taxonomy is also consistent with the Levine's (2002) framework, which classifies countries in terms of type of financial systems (market- vs. bank-based): market-based systems are likely to be more oriented to the satisfaction of shareholders' interests, being the companies' ownership structure much more dispersed.

Payout policy. We suppose that dividend paying firms (*payout* and *dividend yield* as measures*)* are more disciplined by the capital market and therefore more sensitive to shareholders' and investors' needs. From another perspective, firms with a more variable financial performance (ROE volatility measured by *varROE* over the previous 5 years) are also likely to take more care of their shareholders.

Financial flexibility. Highly levered firms (*finlev* as measure of financial leverage) or firms with lower operating cash flow (ratio of operating cash flow to sales: *cfsales*) are more likely to experience less financial flexibility and then to be more dependent on capital markets in order to obtain resources to satisfy their financial needs.

B) Customers

Strategic orientation of the firm. By referring to Porter's (1980) widely accepted theoretical foundation, we hypothesized that the broad strategic orientation of a firm (cost efficiency or differentiation) influences the perceived relevance of customers for business success. Differentiation captures the firm's attempts to differentiate itself from its rivals using a variety of marketing-related activities and/or competing in a narrow segment that can be defined in terms of buyer type, product type, geography or other factors. It relates to the extent to which a product and its enhancements are perceived as unique. The customer's perception is that the firm's product is special in some way, thereby the firm exercises power over its customers as proved by its ability to command a premium price. The firm's differentiation posture vis-à-vis its competitors is captured by *product uniqueness* (ratio of research and development expenses and intangibles to assets: respectively *R&D%* and *INTANG%*) and *selling intensity* (ratio of general, selling and administrative expenses to total sales: *GEN%*). A negative significant relationship is expected between *customers* rating and these variables: the firm's power over its customers is exercised by other means, and it is unnecessary to invest in social outputs addressed to this stakeholder category. Instead, higher fixed costs

could imply a firm's cost efficiency posture and therefore a less flexible operating structure that implies a higher operating risk. In this case, profits are more sensitive to sales' variability and customers' loyalty is a critical performance driver. Therefore we hypothesized a positive relationship between operating leverage (ratio of operating fixed costs to total operating costs: *OL%*) and *customers rating*.

Customers' power. We consider the type of industry and trade credit policy as potential indicators of customers' relative power. Industry is dummized (*dummypavitt_rev)* in seven categories corresponding to the main business sectors: basic resources and public utilities, traditional and advanced tertiary sector, and industrial sector, further classified according to Pavitt's taxonomy (Pavitt 1985). Trade credit policy is measured in terms of accounts receivables' days (*creddays*).

C) Employees

Intensity and specialization of human capital. We hypothesized that the employees' relevance for business success and the related critical importance of this category of stakeholders could be appropriately measured by the relative weight of the firm's human capital and its skills and competences. The higher these values, the higher the relevance of the labor factor as a value driver, and the stronger the employees' power. *Human capital intensity* is calculated as the ratio of number of employees to total sales, both expressed as logarithms (*LN_lab_intensity*), in order to linearize the relation with the rating. The degree of specialization is measured by the cost of labor per unit (*LABUNI*) and by total or fixed assets per unit (i.e. industrial capital per employee: respectively *ASSUNI* and *FIXUNI*). We considered also the impact of the firm's type of industry (*dummysect*), both as a direct effect and as a mediating factor of the impact of the above variables.

D) Environment

We hypothesized that country and industry can have an impact on the relevance of environmental issues. In particular, the country's identity (*country_dummy2*) identifies the environmental regulations and the extent to which the national community is sensitive to environmental claims. From a utilitarian perspective, the firm's concern for the natural environment relates to the costs of complying with environmental regulations and preventing/avoiding negative reactions from all stakeholders. Furthermore, the firm's environmental responsiveness in contexts more sensitive to environmental issues can significantly improve its image and enhance the loyalty of key stakeholders like customers and employees. As far as the type of industry is concerned (*dummysect_3*), we can suppose that some sectors are more concerned than others with the environmental impact of the firms' activities (for example, natural and basic resources or manufacturing industries vis-à-vis the services sector).

E) Suppliers

The suppliers' relevance is likely to be dependent on the type of industry. According to Porter's competitive forces framework, we can hypothesize that the type of industry influences the main determinants of suppliers' power. We used here a more detailed classification (Datastream level 3 industry classification: *sect3_rev*) and derived, for each of the 14 sectors, an average score of supplier power (see Table 5). We adopted Gandellini's (2010) evaluation framework, which refers to an even more detailed sector classification (Datastream level 5 industry classification in 66 sectors) and estimates, for the most relevant suppliers of each sector, the relative supplier power by scoring (from 1 to 4) Porter's (1980) determinants, and then weighting each of them through a weights vector. We considered the following determinants: suppliers' concentration, uniqueness or differentiation of the inputs and presence of substitute inputs, switching costs for the buyer, threat of forward integration, relevance of the buyer's industry for the supplier, relevance of supplier's costs for the buyer's production cost.

In addition to this composite variable, we considered the firm-specific relevance of suppliers by measuring the impact of the cost of inputs on the firm's production cost or sales: ratio of cost of inputs to sales (*MI%*) and operating leverage (*OL%*).

We can further hypothesize that the firm's size and risk could be mediating variables for all the above social ratings, in addition to those not directly related to a specific stakeholder category, like community, business ethics, and controversies.

Size is likely to correlate with the degree of attention to social responsibility for reputation concerns: as a firm matures and grows, it attracts more attention from external constituents and needs to respond more openly to stakeholders' demands (Waddock and Graves 1997). Furthermore, size could generate economies of scale and scope in managing formalized relationships with stakeholders. We measured firm's size in terms of total sales (*LNSALES*), total assets (*LNASSET)*, and total employees (*LNEMP*), all transformed in natural logarithms since a linear relationship cannot be hypothesized.

Although theory and research are primarily focused on the relationship between corporate social responsibility and financial performance, we can make an argument for a relationship between

social responsibility and operating and/or financial risk, systematic or unsystematic (McGuire et al. 1988; Ullmann 1985). Low levels of CSR may increase the firm's risk: in particular, less socially responsible firms could be considered riskier by the investors, either because they have a negative opinion of the firms' management, or because they anticipate an increase in the firms' costs, owing to lack of social responsibility. In contrast, a high degree of corporate social responsibility may allow a firm to lower its risks as a result of more stable relationships with the government, the key-stakeholders, the financial community, and the society in general. We can therefore expect that the degree of a firm's risk tolerance influences its attitude towards activities that have the potential of eliciting savings, incurring or reducing future costs, building or destroying markets. Our analysis uses both market (levered beta: *betaLEV*) and accounting measures of risk: variance in profitability indexes (standard deviation of ROE, ROA and ROS over the previous 5 years: *varROE*, *varROA*, *varROS*), operating leverage (*OL%*), fixed assets on total asset (FIX%) as a measure of structure rigidity, and various measures of debt exposure (financial leverage, ratio of interests to sales, interest coverage ratio: *finlev*, *INT%*, *INTCOV*).

4.4. Control variables

Size, industry and risk have also been suggested in previous studies to be confounding variables, which affect both firm's CFP and CSP, as well as their relationship. Each of these factors was operationalized as a control variable.

For most variables, different lag measures are utilized in order to account for a medium-term impact and a different causality direction: i.e. one year and two-year lagged measures, backward and forward, indicated respectively by a BF*n* or AF*n* suffix, being *n* the lag years.

4.5. Statistical methodology

We utilized correlation coefficients (Pearson correlation and Spearman rank correlation) to verify the strength of the linear association among social ratings. Both coefficients range between -1 and +1. However, the assumption of normality is not required by the Spearman coefficient, since the rank order of each data value is used in the formula for the Pearson coefficient. We discretized the scale measures of ratings by ranking them in percentiles in order to account for not linear relationships.

We utilized ANCOVA in order to measure, for each social rating, the explanatory power of the corresponding mediating variables.

We utilized a correlation matrix for measuring linear associations among all ratings and various financial performance measures. Then, we utilized a discriminant analysis in order to estimate an ex post function that could be appropriate in discriminating from the whole sample two sub-samples, respectively with a positive and negative relationship, derived by means of heuristic and descriptive methods.

The CSP data were collected from Avanzi srl, the SiRi Group member for Italian firms. All financial data were derived from the Datastream and World Scope databases.

The statistical analyses were performed with IBM SPSS Inc.'s PASW Statistics 17.0 (release 17.0.2).

5. Results

5.1. Correlations among ratings

Table 6 presents the correlation matrix (Pearson and Spearman coefficients in Panel A and B respectively) among social ratings. The correlation matrix among ratings' percentiles was omitted because continuous and rank measurements result to be strongly correlated (Pearson coefficients are always larger than 0,928).

Although statistically significant at the 0.01 level, the correlation coefficients are not so large, and in some cases negative. In fact, the square of the Pearson coefficient is the R square of the simple linear regression between the corresponding variables and measures the proportion of the total variation in each variable accounted for by the other: a correlation coefficient of 0.35 implies an explanatory power smaller than 13%.

The ratings more largely correlated to each other (we highlighted with thicker-border rectangles the correlation values larger than 0.35) are *business ethics*, *community* and *environment*. We could interpret the first two as more general ratings that produce a cumulative effect, together with distinct social investments of the firm on other stakeholder ratings. The *environment* rating is likely to produce an aggregate effect on the *employees* or *customers* rating, respectively: for example, the environmental responsiveness of the firm is likely to improve the work conditions or the safety of the firm's products.

5.2. Ratings and mediating variables

We conducted five ANCOVA analyses in order to model the value of each social rating (*corporate governance*, *customers*, *employees*, *environment*, and *suppliers*), based on its relationships with the corresponding mediating variables, defined as categorical (factor variables) and scale predictors (covariates). The outputs of each analysis are summarized in Tables from 7 to 11.

Each output contains *descriptive statistics* of ratings (dependent variables) in each factor level, the *analysis of variance table*, and the *parameter estimates* of the linear regression model.

We used factor (fixed effects) and scale (covariates) variables. Furthermore, we explored (by tests of between-subjects effects) the interaction-effects (both between factors and factor-covariates), and included them in the analysis whenever significant. As the values of covariates within combinations of factor levels are assumed to be linearly correlated with the values of the dependent variables, in some cases we discretized the ratings in order to better fit this assumption. *Type III sums of squares* were used for evaluating the hypotheses. The analysis of variance is robust to departures from normality (being some cells not very numerous, this assumption is not frequently guaranteed).

The *Levene test* is measured in order to verify the null hypothesis that the variance of the error term is constant across the cells defined by the combination of factor levels. This can be particularly important when there are unequal cell sizes, like in this analysis. If the significance value of the test is larger than 0.10, there is no reason to believe that the equal variances assumption is violated. However, also in an unbalanced model, the effects of a violation of this assumption could be negligible if a minimum number (i.e. > 20) of cases is guaranteed in each cell.

In the analysis of variance, the *partial eta squared statistic* reports the practical significance of each term, based upon the ratio of the variation (sum of squares) accounted for by the term, to the sum of this variation and the variation left to error. Larger values of partial eta squared indicate a larger amount of variation accounted for by the model term, up to a maximum of 1.

The regression model fit is measured by the significance of the *t test* of the regression coefficient, and by the *adjusted R squared*.

The main empirical findings from ANCOVAs, for each rating, are those presented below. We reported only the results that are statistically significant and omitted not significant or negligible ones.

A) Corporate governance

We found a strong country effect on the corporate governance rating (here discretized as percentiles), taxonomized according to the constructs proposed by La Porta et al. (1998) and Levine (2002). Size (*LNEMPBF2*) and total risk (*varROEBF2*), two-year lagged, are significant predictors too, although they do not have large effects on the rating's value. The sign of the relationships are those hypothesized. The model shows a good fit (R squared is about 52%).

B) Customers

Industry and strategic orientation seems to influence the customers rating, and the signs of the relationships are those expected. In this model, the factor-covariate interaction – industry-size – was introduced, due to its significance. The assumption of equality of regression slopes was rejected: the interactions term *dummypavitt_rev*NSALESBF2* (*NSALES* corresponds to deciles of total sales) shows evidence of violation of the equal slopes assumption: the F value is 6.406 at a significance level of 0.01. We therefore estimated separate slopes within each level of *dummypavitt_rev*: the coefficients in the B column for each *dummypavitt_rev* and the corresponding *dummypavitt_rev*NSALESBF2* can be combined into a separate prediction equation for that level of industry factor (the B coefficient of the factor is the intercept term, while the B coefficients of the interaction are the slopes of the regression model). By interpreting the *parameter estimates panel* we obtain that industry has a strong effect on the *customers* rating: larger values are observed in the specialization, scale, and high tech sectors of Pavitt's taxonomy, smaller values in the natural resources/utilities, advanced tertiary, and traditional goods manufacturers. We can observe that customers' power is greatest when customers are concentrated (industrial customers, not end-users) and when capital intensity makes the firm more sensitive to volume changes.

The strategic posture seems to influence the *customers* rating: differentiated firms appear to be less social responsible towards their customers (regression coefficients of the corresponding mediating variables are negative, and statistically significant although not importantly). Size has a positive effect on the rating, but only for natural resources/utilities producers, traditional manufacturers and advanced services suppliers, i.e. in sectors in which the intercept term (industry fixed effect) is lower. In the other sectors size is insignificant, but the sign of the coefficient is negative. In fact, the size variable showed many contrasting effects: on the firm's propensity to CSR, on its power towards customers, and on its focus on sales volume.

The B coefficients are not standardized, and therefore not comparable: the relevance of each predictor is measured by the *partial eta squared*.

The adjusted R squared of the model is rather high (86%), and this depends on the fact that seven different regression models are estimated, and some cells of the factor variable contain a very limited number of cases.

C) Employees

We found that labor intensity and specialization of the human capital influence positively the firm's attitude towards employees' interests: the corresponding F values are high (respectively, 84.903 and about 20), and statistically significant (at the 0.01 level). Industry (*dummysect*) seems to be relevant: firms operating in the natural resources/utilities sector are likely to be more socially responsible towards their employees. It is likely that this depends on more dangerous labor conditions in these activities, and therefore on much more protection by the legal framework or a more active role of labor unions and employee representatives. However, the adjusted R squared of the estimated model is small (17%).

D) Environment

Country (*country_dummy2*), industry (*dummysect_3*), size (*LNSALESBF2*), and risk (*varROABF2* and *finlevBF1*) seem to be significant predictors of the *environment* rating. We found a strong positive effect of size. Regarding the country effect, Scandinavian firms, followed by firms in Common Law and German civil law countries, seem to be more socially oriented to environmental issues than French civil law firms: the well-known ecologic traditions and thereby the severe protection laws of Scandinavian and German countries, together with the stronger law enforcement of the common law countries could easily explain this greater concern. Risk tolerance towards future costly environmental controversies is more limited in riskier and more levered firms. Sectors like natural resources, chemicals and pharmaceuticals, gas/energy/water and other utilities are likely to be more exposed to a stronger environmental impact of production activities vis-à-vis services industries (with other manufacturing sectors in the middle). All factors and variables above are statistically significant. The explanation power of the estimated model is rather good (adjusted R squared is about 37%).

E) Suppliers

Industry and size seem to influence the *suppliers* rating, while the operating leverage is insignificant (it might have been absorbed by the industry factor). The ANCOVA table shows that the factor-covariate interaction – industry-size – is significant. The assumption of equality of the regression slopes was rejected: the interactions term *sect3_rev*LNSALESBF2* shows evidence of violation of the equal slopes assumption. Therefore, we estimated separate slopes within each level of *sect3_rev*: the coefficients in the B column for each *sect3_rev* and the corresponding *sect3_rev*LNSALESBF2* can be combined into a separate prediction equation for that level of the industry factor. By interpreting the *parameter estimates*, we obtain that industry has an effect on the *suppliers* rating, and the values are statistically significant at least at the 0.05 level in the following sectors: *Automobiles & Parts*, *Basic resources + Oil & Gas*, *Food & Beverage*, *Personal & Household Goods*, and *Retail*. We can observe that the sign seems rather consistent with the relative supplier power as estimated above (see Table 5), with the exception of *Basic resources + Oil & Gas*.

Size (*LNSALESBF2*) has a positive impact on the *suppliers* rating, and in some sectors it counterbalances the negative impact of industry.

5.3. The CSP-CFP link

Table 12 (Panel A) shows the correlation matrix among the social ratings and market- and accounting-based measures of financial performance, variously lagged (concurrent, two-year previous and two-year subsequent), and calculated on the whole sample. A few statistically significant relationships are observable (the correlations significant at the 0.01 level are highlighted in yellow), and the correlation values are very small (the maximum correlation coefficient is 0.211 between the corporate governance rating and the shareholder total return). The coefficients are positive with the accounting-based measures and negative with the market-based ones (with the exception of *corporate governance*).

Correlations between accounting and market performance measures and the corresponding lagged measures show that only *ros* and *ri* tend to be rather stable over time (correlations significant at the 0.01 level and larger than 0.35 are highlighted in blue). Therefore, the performance variables were averaged over two years (previous and subsequent) in order to limit their volatility (Table12 - Panel B, variables with AVG prefix), but the correlations with ratings remain insignificant.

Table 13 shows the correlations matrix (Spearman rank coefficient) among social ratings and return on assets, two-year subsequent, calculated on two heuristically derived separate sub-samples (a couple of sub-samples for each rating), which showed, respectively, a positive and negative relationship between each social rating and return on assets.

The *roa* of each couple of sub-samples results highly correlated with the social responsibility indexes, while the correlation does not exist when it is measured on the whole sample.

We were not interested here in verifying the sign and the causality direction of the CFP-CSP relationships, nor in verifying the robustness of accounting-based vis-à-vis market-based performance measurements. Rather, we wanted to

show that a null or weak association between CSP and CFP in the whole sample could be consistent with a strongly significant CSP-CFP association in separate sub-samples. Therefore, we limited our exploratory analysis to *roa* as a financial performance measure, and we hypothesized a causality direction from CSP to CFP in a two-year range (*roaAF2*).

Furthermore, we preferred to contextualize the CFP performance to industry (according to the *dummypavitt_rev* classification). In fact, a *roa* value is likely to be high or low not *per se* but depending on the corresponding industry's median or average performance. We therefore calculated *DEC_roaAF2_sect* as rankings in deciles of *roaAF2*, but with reference to the sample's firms in the same industry, controlling the industry effect on CFP (although approximately, because limited to the sample's firms).

Subsequently, we tried to derive an ex post function, able to discriminate between the two subsamples, in relation to each social rating. Firstly, we defined the following general (i. e. firm-nonspecific) variables as able to discriminate according to H4 above (variously lagged and discretized): financial flexibility (*cfsales*), financial leverage (*finlev* and *INTCOV*), profitability (*roe* and *roa*), and risk (*varROA*). Secondly, we verified by the Mann Whitney test if each paired sub-samples could significantly differ on these variables, separately considered. Then, we performed a discriminant analysis in order to estimate a multivariate function in which variables are considered simultaneously, and not individually (using the stepwise method for selecting the variables).

Unfortunately, the empirical results were not very significant. We report in Table 14 only the more powerful discriminant analysis, related to the *environment* rating. We omitted for brevity the corresponding results of the Mann-Whitney test that, for most variables, showed significantly differences between the two sub-samples, while the signs of the average ranks were consistent with those hypothesized.

In the multivariate approach, the discriminant function selected only two variables: *cfsalesBF1* and *LNSALES*. The *Wilks lambda* value is near to 1 and reveals weak group differences (its values range from 0 to 1, and the proportion of the total variance in the discriminant scores is not explained by differences between groups), although both the selected variables show significant differences (sixth column in the *ANOVA panel*). The standardized canonical discriminant functions coefficients show sign and impact of each explanatory variable (*cfsalesBF1* appears to have a greater impact than *LNSALES*). The *structure matrix* shows the usefulness of each variable in the discriminant function, including the not selected variables (the signs result to be consistent with the hypotheses).

The value of the canonical correlation (that measures the association between the discriminate scores and the groups coded as 0 and 1, which correspond to the sub-samples with negative and positive links between the *environment* rating and *roaAF2*) shows a very weak discriminant power of the estimated function (0.181).

Finally, the *classification results box* shows the extent to which the classification of this sample was successful. Among the 272 firms with a negative link (code 0), 143 (or 53%) are correctly classified; in the second group (positive link), 145 (or 63%) are correctly classified. Overall, 57.3% of the cases are classified correctly, slightly better than with a random approach.

6. Tests of hypotheses

The firm is not socially responsible towards all stakeholders.

H1 states that a firm is not socially responsible towards all stakeholders because it invests in social outputs that have influence on those stakeholder categories that are perceived as more influential on its financial performance and/or evoke a significant aggregated utility.

The correlation analysis of the social ratings seems to confirm this hypothesis: i) not very significant correlations were found among single ratings; ii) a derivative aggregated effect seems to be plausible for more general ratings like business ethics and community; iii) social ratings which mutually influence each other, or highly impact on different stakeholder categories (i.e. environment on customers and employees) resulted to be more correlated.

The firm invests more in those stakeholders who (are perceived to) return the most significant rewards on its financial performance.

H2 states that a firm invests more in those stakeholder categories that are perceived as critical to its business success. The ANCOVA results on the 5 social ratings more directly related to a specific stakeholder category, partially confirm this hypothesis, showing the firm's instrumental posture towards stakeholders. Selected mediating variables used to measure the key-role of the analyzed categories of stakeholders seem to be rather relevant in explaining the variance of the related social rating.

Firms from countries where the level of investor protection and the relevance of capital market discipline upon the firm are higher, are more socially responsible towards shareholders and investors in general. Furthermore, if the firms are more risky, they reserve more attention to their shareholders' interest.

The type of industry has a strong effect on the customers rating and higher values are observed in sectors where the customers' power is greater, i.e. where customers are concentrated or the capital intensity makes the firm more sensitive to volume changes.

The strategic posture of a firm influences the customers rating too: differentiated firms appear to be less social responsible towards their customers, because the firm's power over them is exercised by other means, and it is unnecessary to invest in social outputs.

We found that firms are more socially responsible towards employees when these represent key value drivers and their power is stronger (labor intensity and the degree of specialization of human capital influence positively the employees rating, although their explanatory power is weak), and in those activities in which the legal framework or the employees' representatives are likely to impose higher protection standards. These results confirm the utilitarian approach of the firm towards employees.

We found that the firm's concern for the natural environment is strongly determined by the costs of complying with environmental regulations and of preventing/avoiding negative reactions on the part of all stakeholders: firms seem to be more environmental responsive in countries where the environmental regulations are tighter and the general community's attention to environmental claims is higher. The same finding applies in industries more concerned with the environmental impact of the firms' activity.

As far as suppliers are concerned, we found that their power (measured according to Porter's competitive forces framework) seems to partially influence the firm's social responsiveness.

Finally, the firm's size seems to influence, more or less, all the social ratings considered: reputation concerns and cost efficiency issues seem to do matter.

The sign of the CSP-CFP link is not univocal.

H3 states, consistently with Marom's unified theory and the consequent instrumental approach here adopted, that the sign of the relationship between CSP and CFP is not univocal, since the sign depends on the trade-off between marginal utility and marginal cost of the social output for each stakeholder category. Therefore, being the marginal reward-cost equilibrium of the firm's social investment firm-specific, we could reasonably presume that some firms experience a positive relationship, and others a negative one.

The empirical evidence observed here does not show a significant relationship between the CSP and CFP measures (variously calculated and lagged) in the whole sample. Conversely, we distinguished two separate sub-samples, for each social rating, that present a strong relationship (none of the correlation coefficients is below 0.7), either positive or negative, between CSP and the two-year lagged CFP.

This evidence seems to be more relevant than previous "not univocal in sign" empirical findings concerning the CSP-CFP link, since, in this study, the sign of the CSP-CFP relationship is not univocal among firms in the same sample, rather than among samples analyzed in different studies (the last should be explained in terms of bias in sample selection).

Disciplined and financially constrained managers better match than others the marginal reward-cost equilibrium of the firm's social investments.

Unfortunately, our heuristic separation in subsamples was not supported by an ex-post function significantly discriminating between firms that exhibit positive and negative links between CSP and CFP, at least based on the firm-nonspecific variables hypothesized and available in this study. Neither the control hypothesis nor the slack resources hypothesis are strongly supported by the empirical evidence obtained here. Avenues for future research on this topic can be suggested. Most issues are related to the difficulty of appropriately discriminating: e.g. the existence of multiple interactions on firms' CFP, the consequent difficulty of segregating and identifying CSR-related rewards, the appropriateness of cross sectional analyses vs. longitudinal ones, the difficulty of deriving the stakeholder utility from the corresponding stakeholder investment of the firm, and the role of firm- and stakeholder-specific influencing factors.

7. Conclusions

The results of this study suggest some conclusions and avenues for future research.

First, rather than examining the relationship between the financial performance and an aggregate measure of the firm's social responsibility, future research should investigate the impact of distinct social responsiveness measures, each related to a specific stakeholder category.

Second, the results suggest that the research of a univocal sign in the CSP-CFP relationship incurs the risk of being unfruitful. Null or weak significance of the CSP-CFP relationship could hide strongly significant opposite relationships in separate subsamples. A more in-depth analysis of the two sub-samples could help at finding appropriate factors for discriminating between efficient and inefficient social spending. From a managerial point of view, the findings could provide the basis for a more accurate stakeholder management, aimed at positioning the firm in a region where the CSP-CFP relationship is positive (Marom, 2006).

Third, previous research, focusing on the CSP-CFP relationship, its sign and its direction of causality, probably overlooked the analysis of factors that influence the social posture of a firm, which can be more or less responsive to some stakeholders than to others, in terms of investment effort. An investigation of this area would do more to move research on social responsibility into theoretically and empirically fruitful areas, than the investigation of the CSP-CFP link *per se*, potentially producing useful insights on this relationship, too.

Fourth, the preliminary results we have obtained from empirically testing Marom's unified theory suggest further investigation in this area. The instrumental approach to CSR and the connection between the business and the CSR domains, both assumed by Marom's theory, seem to fruitfully contribute to a more realistic and comprehensive understanding of the nature of the relationship between CSP and CFP, providing useful insights to the practice of CSR and CSP in managing organizations. As Marom suggests, the unified theory, by changing CSR from a moral and ethical imperative into a management science issue, could enhance its advancement and centrality.

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Appendix

Table 1 - Sample by country

	N	% of total N
BELGIUM	11	2,1%
FINLAND	7	1,3%
FRANCE	95	18,2%
GERMANY	65	12,4%
IRELAND	5	1,0%
ITALY	29	5,5%
SPAIN	15	2,9%
SWEDEN	15	2,9%
SWITZERLAND	148	28,3%
UNITED KINGDOM	133	25,4%
Total	523	100,0%

Table 2 - Sample by industry

	N	% of total N
basic resources + energy	53	10,2%
industrial sector	314	60,3%
traditional	57	10,9%
scale	102	19,6%
specialization	62	11,9%
high-tech	93	17,9%
traditional tertiary sector	107	20,5%
advanced tertiary sector	47	9,0%
Total	521	100,0%

Table 3 - Sample by year

	N	% of total N
2001	189	36,1%
2002	205	39,2%
2003	129	24,7%
Total	523	100,0%

Table 4 - Descriptive statistics of ratings

Panel A ((N = 523)	BUSINESSETHICS	COMMUNITY	SUPPLIERS	CORP_GOV	CUSTOMERS	EMPLOYEES	ENVIRONMENT	CONTROVERSIES	TOTAL RATING
mean	4,84	4,58	2,66	6,52	5,40	5,83	5,75	-0,86	4,81
median	4,00	5,00	3,00	6,67	5,50	6,00	6,50	-0,50	4,94
std. deviation	3,49	2,53	1,84	1,98	2,42	1,71	2,76	1,11	1,53
variation coefficient (Q3-Q1)/Q2	1,63	0,93	0,67	0,40	0,55	0,44	0,59	2,00	0,38
Panel B (N = 285 *balanced sample*)	**mean**								
2001	4,75	4,08	2,97	5,74	5,39	5,77	5,40	-1,01	4,55
2002	5,66	4,84	3,03	6,35	5,79	6,13	6,03	-1,16	4,90
2003	6,42	5,42	3,03	7,00	6,01	6,36	6,28	-1,17	5,21
Kruskal Wallis Test (grouping variable: year)									
Chi-Square	11,887	15,130	,411	16,511	5,622	6,329	4,904	1,243	11,091
df	2	2	2	2	2	2	2	2	2
Asymp. Sig.	,003	,001	,814	,000	,060	,042	,086	,537	,004

Table5 - Supplier power of industry

variable: sect3_rev	N	average score (*)
Automobiles & Parts	28	1,71
Basic resources + Oil & Gas	22	2,37
Chemicals	34	2,22
Construction & Material	33	2,44
Food & Beverage	29	1,71
Healthcare	46	3,45
Industrial Goods & Services	98	2,14
Media	35	1,36
Personal & Househld Goods	34	2,03
Retail	37	1,46
Technology	45	2,22
Telecommunications	24	1,82
Travel & Leisure	21	2,40
Utilities	31	1,96
Total	517	

Source: our elaborations from Gandellini (2010)

(*) Derived as weighted average (based on the number of cases) of the scores assigned to the industries in a more detailed classification of our 14 sectors (scale from from 1 to 4).

Table 6 - Correlations between social ratings (N = 523)

Panel A (Pearson coefficients)

	BUSINESS ETHICS	COMMUNITY	SUPPLIERS	CORP_GOV	CUSTOMERS	EMPLOYEES	ENVIRONMENT	CONTROVERSIES
BUSINESSETHICS	1							
COMMUNITY	,455**	1						
SUPPLIERS	,354**	,352**	1					
CORP_GOV	,210**	,376**	,191**	1				
CUSTOMERS	,355**	,154**	,145**	-,157**	1			
EMPLOYEES	,419**	,518**	,331**	,188**	,343**	1		
ENVIRONMENT	,438**	,470**	,328**	,173**	,417**	,595**	1	
CONTROVERSIES	-,286**	-,334**	-,241**	-,122**	-,104*	-,260**	-,235**	1

Panel B (Spearman coefficients)

	BUSINESS ETHICS	COMMUNITY	SUPPLIERS	CORP_GOV	CUSTOMERS	EMPLOYEES	ENVIRONMENT	CONTROVERSIES
BUSINESSETHICS	1							
COMMUNITY	,467**	1						
SUPPLIERS	,393**	,373**	1					
CORP_GOV	,198**	,395**	,214**	1				
CUSTOMERS	,323**	,120**	,135**	-,184**	1			
EMPLOYEES	,406**	,501**	,334**	,156**	,318**	1		
ENVIRONMENT	,445**	,460**	,361**	,163**	,392**	,544**	1	
CONTROVERSIES	-,278**	-,354**	-,272**	-,115**	-,081	-,274**	-,209**	1

** Correlation is significant at the 0,01 level (2-tailed)

* Correlation is significant at the 0,05 level (2-tailed)

Table 7 - ANCOVA: Corporate governance rating and mediating variables

Descriptive Statistics

dependent variable: CORP_GOV (percentiles)

country_dummy2	Mean	Std. Deviation	N
1 - French-civil-law countries	45,97	22,452	150
2 - German-civil-law countries	32,94	22,887	199
3 - Scandinavian-civil-law countries	34,09	20,076	22
4 - Common-law countries	81,58	12,205	131
Total	49,58	28,365	502

Levene's Test of Equality of Error Variances[a]

F	df1	df2	Sig.
18,431	3	498	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + LNEMPBF2 + varROEBF2 + country_dummy2

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	210094,595[a]	5	42018,919	107,984	,000	,521
Intercept	5918,554	1	5918,554	15,210	,000	,030
LNEMPBF2	10211,505	1	10211,505	26,243	,000	,050
varROEBF2	3888,523	1	3888,523	9,993	,002	,020
country_dummy2	187818,448	3	62606,149	160,891	,000	,493
Error	193003,717	496	389,120			
Total	1637087,000	502				
Corrected Total	403098,313	501				

a. R Squared = 0,521 (Adjusted R Squared = 0,516)

Parameter Estimates

Parameter	B	Std. Error	t	Sig.	Partial Eta Squared
Intercept	54,361	5,560	9,777	,000	,162
LNEMPBF2	2,691	,525	5,123	,000	,050
varROEBF2	,189	,060	3,161	,002	,020
[country_dummy2=1]	-37,231	2,376	-15,669	,000	,331
[country_dummy2=2]	-47,379	2,262	-20,948	,000	,469
[country_dummy2=3]	-48,013	4,546	-10,561	,000	,184
[country_dummy2=4]	0[a]	.	.	.	.

a. This parameter is set to zero because it is redundant.

Table 8 - ANCOVA: Customers rating and mediating variables

Descriptive Statistics

dependent variable: CUSTOMERS

dummypavitt_rev	Mean	Std. Deviation	N
1 - basic resources + energy	4,2319	2,18638	23
3 - traditional tertiary sector	4,7500	2,36927	61
4 - advanced tertiary sector	4,9069	3,09432	34
21 - industrial sector: traditional	4,8095	2,97387	42
22 - scale	5,9243	2,11030	76
23 - specialization	6,2815	2,54841	45
24 - high tech	5,8008	2,05041	82
Total	5,4118	2,48192	363

Levene's Test of Equality of Error Variances[a]

F	df1	df2	Sig.
2,168	6	356	,046

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: dummypavitt_rev + GENBF1 + INTANGBF1 + dummypavitt_rev * NSALESBF2

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Model	11118,905[a]	16	694,932	138,384	,000	,865
dummypavitt_rev	1573,332	7	224,762	44,757	,000	,474
GENBF1	24,122	1	24,122	4,804	,029	,014
INTANGBF1	69,345	1	69,345	13,809	,000	,038
dummypavitt_rev * NSALESBF2	225,187	7	32,170	6,406	,000	,114
Error	1742,554	347	5,022			
Total	12861,460	363				

a. R Squared = 0,865 (Adjusted R Squared = 0,858

Parameter Estimates

Parameter	B	Std. Error	t	Sig.	Partial Eta Squared
[dummypavitt_rev=1]	1,287	1,187	1,085	,279	,003
[dummypavitt_rev=3]	4,739	,715	6,633	,000	,113
[dummypavitt_rev=4]	3,377	,866	3,902	,000	,042
[dummypavitt_rev=21]	3,510	,971	3,616	,000	,036
[dummypavitt_rev=22]	7,042	,601	11,710	,000	,283
[dummypavitt_rev=23]	8,429	,906	9,301	,000	,200
[dummypavitt_rev=24]	7,192	,551	13,056	,000	,329
GENBF1	-,021	,010	-2,192	,029	,014
INTANGBF1	-,028	,008	-3,716	,000	,038
[dummypavitt_rev=1] * NSALESBF2	,507	,160	3,175	,002	,028
[dummypavitt_rev=3] * NSALESBF2	,156	,106	1,462	,145	,006
[dummypavitt_rev=4] * NSALESBF2	,550	,126	4,380	,000	,052
[dummypavitt_rev=21] * NSALESBF2	,475	,144	3,296	,001	,030
[dummypavitt_rev=22] * NSALESBF2	-,037	,081	-,456	,649	,001
[dummypavitt_rev=23] * NSALESBF2	-,231	,145	-1,588	,113	,007
[dummypavitt_rev=24] * NSALESBF2	-,039	,079	-,493	,622	,001

Table 9 - ANCOVA: Employeees rating and mediating variables

Descriptive Statistics

dependent variable: EMPLOYEES (percentiles)

dummysett	Mean	Std. Deviation	N
1 - natural resources/utilities sector	63,89	21,375	53
2 - industrial sector	49,08	27,385	287
3 - traditional tertiary sector	44,78	30,800	96
4 - advanced tertiary sector	49,05	33,041	44
Total	49,85	28,476	480

Levene's Test of Equality of Error Variances[a]

F	df1	df2	Sig.
2,511	3	476	,058

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + LABUNIBF2 + ASSUNIBF2 + LN_lab_intensity_BF2 + dummysect

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	70266,866[a]	6	11711,144	17,411	,000	,181
Intercept	27228,255	1	27228,255	40,481	,000	,079
LABUNIBF2	11915,142	1	11915,142	17,714	,000	,036
ASSUNIBF2	14036,898	1	14036,898	20,869	,000	,042
LN_lab_intensity_BF2	57107,698	1	57107,698	84,903	,000	,152
dummysect	14171,049	3	4723,683	7,023	,000	,043
Error	318150,926	473	672,624			
Total	1581428,000	480				
Corrected Total	388417,792	479				

a. R Squared = 0,181 (Adjusted R Squared = 0,171)

Parameter Estimates

Parameter	B	Std. Error	t	Sig.	Partial Eta Squared
Intercept	-125,238	19,613	-6,386	,000	,079
LAVUNIBF2	,290	,069	4,209	,000	,036
ASSUNIBF2	,002	,000	4,568	,000	,042
LN_lab_intensity_BF2	247,318	26,841	9,214	,000	,152
[dummysect=1]	16,666	5,358	3,110	,002	,020
[dummysect=2]	,005	4,209	,001	,999	,000
[dummysect=3]	-3,316	4,795	-,692	,490	,001
[dummysect=4]	0[b]	.	.	.	.

a. This parameter is set to zero because it is redundant.

Table 10 - ANCOVA: Environment rating and mediating variables

Descriptive Statistics

dependent variable: ENVIRONMENT (percentiles)

dummysett_3	Mean	Std. Deviation	N
1 - basic resources + oil & gas	60,62	24,422	21
2 - manufacturing (except 6)	52,29	29,637	213
3 - traditional tertiary sector	36,46	23,826	99
4 - advanced tertiary sector	37,60	33,138	47
5 - utilities	69,87	15,849	31
6 - chemicals/pharm./constr. & materials	55,65	23,719	95
Total	49,88	28,453	506

Levene's Test of Equality of Error Variances[a]

F	df1	df2	Sig.
2,358	23	482	,000

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + dummysect_3 + country_dummy2 + LNSALESBF2 + varROABF2 + finlevBF1

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	150902,415[a]	11	13718,401	26,275	,000	,369
Intercept	24253,202	1	24253,202	46,452	,000	,086
dummysect_3	39039,459	5	7807,892	14,954	,000	,131
country_dummy2	24856,784	3	8285,595	15,869	,000	,088
LNSALESBF2	72660,842	1	72660,842	139,165	,000	,220
varROABF2	4454,926	1	4454,926	8,532	,004	,017
finlevBF1	3966,745	1	3966,745	7,597	,006	,015
Error	257926,471	494	522,118			
Total	1667836,000	506				
Corrected Total	408828,885	505				

a. R Squared = 0,369 (Adjusted R Squared = 0,355)

Parameter Estimates

Parameter	B	Std. Error	t	Sig.	Partial Eta Squared
Intercept	-65,341	10,631	-6,146	,000	,071
[dummysect_3=1,00]	,143	5,636	,025	,980	,000
[dummysect_3=2,00]	-5,007	2,859	-1,751	,081	,006
[dummysect_3=3,00]	-21,364	3,395	-6,293	,000	,074
[dummysect_3=4,00]	-16,421	4,145	-3,962	,000	,031
[dummysect_3=5,00]	9,684	4,896	1,978	,049	,008
[dummysect_3=6,00]	0[a]	.	.	.	.
[country_dummy2=1]	-13,825	2,787	-4,960	,000	,047
[country_dummy2=2]	-1,115	2,722	-,410	,682	,000
[country_dummy2=3]	15,126	5,338	2,834	,005	,016
[country_dummy2=4]	0[a]	.	.	.	.
LNSALESBF2	7,946	,674	11,797	,000	,220
varROABF2	,697	,238	2,921	,004	,017
finlevBF1	,101	,037	2,756	,006	,015

a. This parameter is set to zero because it is redundant.

Table 11 - ANCOVA: Suppliers rating and mediating variables

Descriptive Statistics

dependent variable: SUPPLIERS

sect3_rev	Mean	Std. Deviation	N
Automobiles & Parts	2,750000	1,7711124	28
Basic Resources + Oil & Gas	3,166668	2,0217103	22
Chemicals	2,403229	1,5084820	31
Construct. & Material	2,810606	1,6954898	33
Food & Beverage	3,637934	1,7400929	29
Healthcare	2,710143	1,2698708	46
Ind. Goods & Services	2,224825	1,5595444	96
Media	2,373736	1,8056758	33
Pers & Household Goods	2,249994	2,3748922	34
Retail	4,197220	2,2796028	30
Technology	1,725927	1,8150459	45
Telecommunications	2,833333	1,3726099	24
Travel & Leisure	2,050000	1,6535448	20
Utilities	2,481181	1,2193864	31
Total	2,593625	1,8011998	502

Levene's Test of Equality of Error Variances[a]

F	df1	df2	Sig.
2,452	13	488	,003

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: sect3_rev + sect3_rev * LNSALESBF2

Tests of Between-Subjects Effects

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Model	3759,095[a]	28	134,253	51,187	,000	,751
sect3_rev	119,807	14	8,558	3,263	,000	,088
sect3_rev * LNSALESBF2	201,983	14	14,427	5,501	,000	,140
Error	1243,208	474	2,623			
Total	5002,304	502				

a. R Squared = 0,751 (Adjusted R Squared = 0,737)

Parameter Estimates

Parameter	B	Std. Error	t	Sig.	Partial Eta Squared
[sect3_rev=Automobiles & Parts]	-9,056	4,812	-1,882	,060	,007
[sect3_rev=BR+O&G]	-4,133	2,009	-2,057	,040	,009
[sect3_rev=Chemicals]	-6,833	3,901	-1,751	,081	,006
[sect3_rev=Construct. & Material]	4,215	2,485	1,697	,090	,006
[sect3_rev=Food & Beverage]	-8,732	4,293	-2,034	,043	,009
[sect3_rev=Healthcare]	-2,349	1,813	-1,295	,196	,004
[sect3_rev=Ind. Goods & Services]	1,330	1,862	,714	,476	,001
[sect3_rev=Media]	-4,496	3,264	-1,377	,169	,004
[sect3_rev=Pers & Househld Goods]	-15,596	4,359	-3,578	,000	,026
[sect3_rev=Retail]	-9,384	3,881	-2,418	,016	,012
[sect3_rev=Technology]	3,137	2,106	1,490	,137	,005
[sect3_rev=Telecommunications]	6,616	4,953	1,336	,182	,004
[sect3_rev=Travel & Leisure]	1,131	5,237	,216	,829	,000
[sect3_rev=Utilities]	4,605	4,515	1,020	,308	,002
[sect3_rev=Automobiles & Parts] * LNSALESBF2	,690	,280	2,459	,014	,013
[sect3_rev=BR+O&G] * LNSALESBF2	,453	,123	3,689	,000	,028
[sect3_rev=Chemicals] * LNSALESBF2	,594	,250	2,374	,018	,012
[sect3_rev=Construct. & Material] * LNSALESBF2	-,095	,166	-,569	,570	,001
[sect3_rev=Food & Beverage] * LNSALESBF2	,791	,274	2,888	,004	,017
[sect3_rev=Healthcare] * LNSALESBF2	,348	,124	2,815	,005	,016
[sect3_rev=Ind. Goods & Services] * LNSALESBF2	,059	,123	,483	,630	,000
[sect3_rev=Media] * LNSALESBF2	,460	,218	2,113	,035	,009
[sect3_rev=Pers & Househld Goods] * LNSALESBF2	1,164	,284	4,102	,000	,034
[sect3_rev=Retail] * LNSALESBF2	,843	,240	3,510	,000	,025
[sect3_rev=Technology] * LNSALESBF2	-,100	,149	-,674	,500	,001
[sect3_rev=Telecommunications] * LNSALESBF2	-,232	,303	-,765	,444	,001
[sect3_rev=Travel & Leisure] * LNSALESBF2	,060	,340	,176	,861	,000
[sect3_rev=Utilities] *LNSALESBF2	-,134	,284	-,471	,638	,000

a. This parameter is set to zero because it is redundant.

Table 12 - Correlations between social ratings and performance measures

Panel A	BUSINESS ETHICS	COMMUNITY	SUPPLIERS	CORP_GOV	CUSTOMERS	EMPLOYEES	ENVIRONMENT	CONTROVERSIES	roe	roa	ros	ri	mtbv	MVA	roeBF2	roaBF2	rosBF2	riBF2	mtbvBF2	MVABF1	roeAF2	roaAF2	rosAF2	riAF2	mtbvAF2	MVAAF1
roe	0,008	0,077	0,068	0,02	0,038	0,016	0,064	-0,001	1																	
roa	-0,001	,088*	0,082	-0,024	0,049	0,059	0,06	-0,02	,693**	1																
ros	0	,092*	-0,012	0,066	-0,08	0,067	-0,034	-0,001	,276**	,452**	1															
ri	0,004	0,056	0,025	,204**	-,130**	-0,031	0,019	-0,026	,104*	,135**	,102*	1														
mtbv	0,057	-0,051	-0,02	-0,047	,091*	-0,064	-0,017	-0,006	,372**	,314**	0,042	0,062	1													
MVA	-,116**	-0,015	0,054	-0,019	-,115*	-0,035	0,011	0,076	,353**	,338**	,232**	,120**	0,076	1												
roeBF2	0,012	0	,097*	0,073	-,092*	0,032	0,008	0,024	0,051	,130**	0,085	,169**	0,011	,110*	1											
roaBF2	-0,035	-0,013	0,057	0,08	-,088*	-0,016	-0,051	0,031	,104*	,290**	,248**	,122**	0,021	,117**	,788**	1										
rosBF2	-0,014	0,071	-0,024	0,084	-,099*	0,058	-0,01	0,02	,145**	,268**	,725**	0,075	-0,014	0,059	,265**	,392**	1									
riBF2	0,02	0,061	0,032	,195**	-,112*	-0,016	0,018	-0,054	,102*	,119**	,099*	,961**	0,062	0,041	,184**	,117*	0,078	1								
mtbvBF2	0,029	-0,064	,097*	-0,025	-0,021	-0,019	-,135**	0,084	0,017	0,038	,146**	,139**	0,035	-,138**	,295**	,259**	,133**	,160**	1							
MVABF1	-0,074	-,125**	-0,024	-0,049	-0,053	-,142**	-,175**	0,032	0,038	0,067	-0,018	0,013	,112*	,124**	,171**	,168**	0,068	-0,036	0,055	1						
roeAF2	0,019	-0,039	-0,006	-0,073	-0,029	-0,024	-0,04	-0,032	0,01	0,019	0,014	0,019	-0,08	0,063	0,056	0,041	0	0,013	-0,038	0,021	1					
roaAF2	0,034	,112*	0,069	0,071	-0,006	0,071	0,016	-0,054	0,07	,238**	,279**	,148**	-,366**	,106*	0,082	,212**	,110*	,150**	0,058	-0,06	,253**	1				
rosAF2	0,024	,125**	-0,033	0,05	-0,057	,127**	-0,003	-0,044	,171**	,311**	,862**	0,08	0,032	,103*	0,087	,209**	,635**	0,089	,141**	-0,071	0,055	,381**	1			
riAF2	0,017	0,08	0,035	,211**	-,119**	-0,021	0,04	-0,037	,126**	,171**	,115**	,960**	0,062	0,087	,159**	,125**	0,075	,954**	,137**	-0,023	0,03	,188**	,103*	1		
mtbvAF2	-0,012	-0,01	0,005	0,021	0,03	-0,003	-0,038	-0,051	-0,008	0,073	0,067	0,03	-0,037	0,025	-,101*	,130**	0,043	0,032	-0,062	-0,015	0,046	,308**	0,069	0,037	1	
MVAAF1	0,013	0,035	-0,008	0,037	0,085	0,063	0,05	-0,048	-0,028	0,075	,093*	-0,071	-0,082	-,213**	-,232**	-,177**	-0,047	-0,053	-0,06	-,238**	0,031	,197**	,134**	-0,034	0,084	1
Panel B																										
AVG_roe_BF	-,046	,022	,055	,095*	-,040	,023	,030	-,041																		
AVG_roa_BF	-,030	,040	,072	,075	-,082	-,014	-,017	,023																		
AVG_ros_BF	-,006	,079	-,027	,079	-,089*	,052	-,019	,016																		
AVG_ros_AF	,009	,097*	-,038	,046	-,066	,097*	-,024	-,027																		
AVG_roa_AF	,054	,120**	,099*	,044	,044	,063	,053	-,051																		
AVG_roe_AF	,019	-,030	,007	-,070	-,025	-,020	-,030	-,025																		
AVG_ri_BF	,022	,058	,030	,200**	-,118**	-,020	,013	-,051																		
AVG_ri_AF	,017	,077	,040	,214**	-,118**	-,020	,038	-,035																		
AVG_mtbv_AF	,037	-,048	,055	-,031	,083	-,039	-,032	-,044																		
AVG_mtbv_BF	,001	-,069	,095*	-,019	-,018	-,027	-,163**	,047																		

Table 13 - CFP-CSP correlations in separate sub-samples

	DEC_roaAF2_sect		
Spearman coefficient	whole sample	sub-sample +	sub-sample –
SUPPLIERS	,048	-,745**	,701**
sig. (2-tailed)	*,278*	*,000*	*,000*
N	*515*	*264*	*251*
CORP_GOV	,039	-,749**	,782**
sig. (2-tailed)	*,376*	*,000*	*,000*
N	*515*	*266*	*249*
CUSTOMERS	-,001	-,753**	,777**
sig. (2-tailed)	*,973*	*,000*	*,000*
N	*515*	*261*	*254*
EMPLOYEES	,035	-,743**	,782**
sig. (2-tailed)	*,434*	*,000*	*,000*
N	*515*	*249*	*266*
ENVIRONMENT	-,079	-,764**	,771**
sig. (2-tailed)	*,075*	*,000*	*,000*
N	*515*	*276*	*239*

** Correlation is significant at the 0,01 level (2-tailed)

* Correlation is significant at the 0,05 level (2-tailed)

Table 14 - Discriminant analysis (subsamples of environment rating)

Wilks' Lambda

Test of Function	Wilks' Lambda	Chi-square	df	Sig.
1	,967	16,333	2	,000

Eigenvalues

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	,034[a]	100,0	100,0	,181

Standardized Canonical Discriminant Function Coefficients

	Function
	1
cfsalesBF1	,727
LNSALES	-,552

Canonical Discriminant Function Coefficients

	Function
	1
cfsalesBF1	,063
LNSALES	-,347
(Constant)	4,518

Classification Function Coefficients

	GROUP3_ENV	
	0	1
cfsalesBF1	,302	,278
LNSALES	6,493	6,620
(Constant)	-52,589	-54,260

Structure Matrix

	Function
	1
cfsalesBF1	,842
LNSALESBF1[a]	-,713
LNSALES	-,703
cfsales[a]	,691
INTCOVBF1[a]	,345
roaBF1[a]	,272
INTCOV[a]	,237
roa[a]	,160
varROABF1[a]	,004

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions

a. This variable not used in the analysis.

Classification Results[a]

			Membership		
		GROUP3_ENV	0	1	Total
Original	Count	0	143	129	272
		1	86	145	231
		Ungrouped cases	3	4	7
	%	0	52,6	47,4	100,0
		1	37,2	62,8	100,0
		Ungrouped cases	42,9	57,1	100,0

a. 57,3% of original grouped cases correctly classified.

Appendix - Social ratings measurement: relevant issues

BUSINESS ETHICS	mechanisms adopted to prevent corruption, immorality and illegal behaviours and to promote virtuous practice
COMMUNITY	– voluntary disclosure of activity through public reports and communication – deliberate behavior and policies concerning community – the fight against corruption – operations in sensitive countries and donations to the public – constitution of outlines of operational policy in high risk countries – constitution of formal systems/department to manage public relations
SUPPLIERS	– formalised procedures to select suppliers – periodical visits to suppliers – fair negotiation with suppliers – any existing relationship with third world companies – supplier certification
CORP_GOV	– number of directors including non-executive and independent ones – number of board meetings – presence of auditing committee and practices – compensation system for directors – voting rights of shareholders' classes – absence of disputes concerning voting rights or directors'compensation
CUSTOMERS	– market research and public relationship – certified quality – marketing campaigns – a relationship established with acquired customers – guarantees of products safety – researches on customer satisfaction
EMPLOYEES	adopting rules, policies and managerial systems concerning the following : – worker health and safety conditions – protection of young people labour – strong union relations – employee cash profit sharing – employee involvment in decision-making processes – employees training programs
ENVIRONMENT	– formal procedures oriented to protect environment (i.e. plans to reduce water consumption, cut down pollution, recycle raw materials, etc.) – certified managerial systems and responsibilities allocation mechanims concerning management of environmental issues – compliance with environmental regulations – substantial fines or civil penalties for waste management violations – environmental impact of production
CONTROVERSIES	any current suits concerning environmental practices and/or product quality and safety