

Review

What corporate social responsibility reporting adds to financial return?

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Accepted 24 January, 2010

Using a Capital Asset Pricing Model (CAPM) for panel data, this study investigates the influence of corporate social responsibility (CSR) on financial performance, for 154 European firms between 2000 and 2008. The CSR index reveals whether or not the firm published a social report for year t . Statistical evidence shows that this index is negatively and significantly associated with the expected return on the capital asset, even after (i) controlling for size, sector and country specific effect or PER, and (ii) correcting for size-CSR multicollinearity bias.

Key words: Corporate social responsibility, financial performance, panel data.

INTRODUCTION

The prior conception of corporate social responsibility (CSR) can be found in Milton Friedman's (1970) famous article titled "The social responsibility of business is to increase its profits". Although CSR has nowadays a much wider scope than it used to - adding environmental and social concerns to economic imperatives - it is difficult to believe however, that firms have only minor financial interest to invest in such a praxis (McWilliams and Siegel, 2001; McWilliams et al., 2006). Yet the connection between financial return and social performance is probably not unambiguous.

From a theoretical perspective, Preston and O'Bannon (1997) describe different possible interactions between profit and CSR. There are mainly two approaches which stand out and justify a positive connection between financial return and social performance. The first one considers that an increase in profits will stem from an overall increase in factor productivity; the second one that the benefits in terms of image will induce an increase in profits. By looking at causality from a different angle, a positive connection can also be explained by the fact that only those firms that reap large profits can afford the luxury of social responsibility policies. Finally, one cannot

exclude the possibility of a negative connection. Either because to pursue good financial results at all costs for the short term satisfaction of shareholders would be detrimental to the firm's social commitments, or because responsible corporate practice would entail net expenses for the firm. Given this theoretical uncertainty, what do empirical studies say?

On the whole, empirical studies reveal an ambiguous relationship between corporate social responsibility and financial performance variables. Some authors found positive correlations, some others account for negative correlations, while the absence of correlation is also put forward (cf. for example Jones and Wicks (1999); Donaldson (1999); Berman et al. (1999); Roman, Hayibor and Agle (1999); McWilliams and Siegel (2001); Johnson (2003); Margolis and Walsh (2003); Orlitzky, Schmidt and Rynes (2003); Salzmann, Ionescu-Somers and Steger (2005). Margolis and Walsh (2001) provide a very interesting summary of these studies, inventorying 95 of them between 1972 and 2000. Although their meta-analysis reveals that the majority of these studies conclude that there is a positive connection (e.g. Orlitzky, Schmidt and Rynes, 2003), the existence of an unambiguous connection remains difficult to corroborate. Indeed, the results hinge greatly upon the diversity of data and the econometric method used. But recent works seem to indicate that CSR do not impact positively financial performance (Nelling and Web, 2009; Shen and Chang, 2008; Renneboog, and alii, 2008).

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Thus Griffin and Mahon (1997) describe the use of over 57 different financial return variables in empirical studies. Regarding the assessment of social performance four main indicators can be identified: (1) the analysis of the contents of annual reports (Bowman and Haire, 1975), (2) the use of reputation indexes such as Fortune Corporate Reputation Index (Griffin and Mahon, 1997), (3) the use of data produced by specialised assessment organisations, such as the KLD index (McWilliams and Siegel, 2000), and (4) the use of primary data thanks to perceived measures gathered through surveys (Theo, Welsh and Wazzan, 1999).

Such a disparity in the measures available to assess this concept makes it difficult to compare results. Moreover the diversity of statistic methods that have been used renders such a comparison even more complicated. Multivaried analyses (factorial analysis, automatic classification, etc.) have been rapidly replaced by models of portfolio analysis that use multiple regressions. (This generally entails a comparison between returns on a portfolio made up of firms that have obtained positive results regarding their social responsibility and returns on a portfolio made up of firms that have not. See for example Derwall et al.'s (2005), de Bauer et al.'s (2005) or Renneboog et al.'s (2006) work, that offer contrasted results from American and international samples). However, a number of methodological limits must be noted. They generally have to do with the quality of the samples: limited size, lack of international scope or temporal scope. Another issue that can arise from the lack of control variables - particularly regarding the disparity in sectors - is that studies are often based on inter-sector data so as to increase the number of observations. This method, however, has been criticised by Wokutch and Spencer (1987) because the concept of social responsibility depends, by definition, on the economical, social, political and legal context in which the firm evolves. This is the reason why Stanwick and Stanwick (1998) suggest using control variables systematically in regressions such as the business sector or the size of the firm. Moreover, samples that are comprised of very large firms exclusively often lead to specific distributions, which can bias the OLS estimate.

Our study is a follow-through on these empirical studies and attempts to find the best solution to the limits outlined in the previous paragraph. To this end, our sample includes both a cross-section dimension of 154 firms in six European countries and thus offers an international ambit, as well as a longitudinal dimension with a follow up on social responsibility reports over 9 years between 2000 and 2008. We focus our attention on reports that have a true social content, in order to give weight to the idea that better social reports can lead to an increase in productivity and therefore to an increase in financial performance (The idea is to merge the « efficiency wage » dimension with a “gift exchange” perspective (Akerlof, 1982). A number of reports take on an environmentalist

perspective only, and thus avoid this mechanism). The econometric model will be established using the tried and tested Capital Asset Pricing Model (CAPM) in which we include a certain number of control variables. Express consideration is given to the size of the firms. Indeed, Fama and French (1992) have demonstrated the importance of such a variable when evaluating assets. Moreover size and social responsibility policies generally go hand in hand (McWilliams and Siegel, 2001). Our aim is to shed some new light on the connection between financial return and corporate social responsibility, thanks to an unusual database and to appropriate econometric techniques.

This article will be structured as follows: the database used and the panel data method will be reviewed in the next two points. In the fourth point we will disclose our results, which will be analysed in the fifth point, before a general conclusion of this study is drawn.

DATA SOURCES AND DESCRIPTIVE STATISTICS

The empirical analysis of this study is carried out on the basis of panel data from six countries - France, Germany, the United Kingdom, Spain, Sweden and Denmark - and covers the 2000 - 2008 periods. The cross-sectional dimension is quite important since 154 multinational firms retained in the analysis on the following basis: they employ at least 1,000 individuals at time of survey and their corporate headquarters are in one of the selected countries.

The firms' financial return is assessed on the basis of the average quoted price of shares over the chosen period of time. The value of market indexes on the different stock markets (DAX, CAC40 and IBEX35 for Germany, France and Spain respectively, FTSE100 for the United Kingdom and OMX20 for Scandinavia) is also taken into account. Interest rates for each currency zone are short term interest rates (Euribor for the Euro zone, Libor in London, Cibor in Copenhagen and Stibor in Stockholm). The daily data is collected on Datastream and enables us to calculate the average yearly value of interest rates.

Regarding the firms' social data, our approach is to observe the firm's behaviour with respect to the publication of social reports. Given this standpoint the website www.corporateregister.com soon became a requisite source of information. By the end of the year 2006, this website listed some 13,000 non-financial reports, issuing from over 3,350 companies in 89 countries. These reports offer information on companies' inner and outer activities in various areas such the environment, social work, sustainable development, etc. Aside from giving online access to these reports, the distinctive feature of this website is that it offers an analytical survey for each firm listed in its archives, detailing the number of available reports, their contents (CSR, environment, etc.),

and the date it was published. From a methodological point of view, the number of reports dealing with social aspects published by companies between 2000 and 2008 can be easily tallied. Note that only those reports offering a social dimension have been selected. A total of 650 reports have been published by the 154 firms of our sample over the ten year period of observation (It is important to note that companies that are not listed on www.corporateregister.com will be considered as firms that have no CSR practice, just like those that are listed but have not published a report. This methodological option is based on the rationality hypothesis, which states that the opportunity cost of not being on the world's most important website on the subject will be very high for a firm wishing to improve its image in terms of CSR). Thence it is possible to create a dummy variable with regards to CSR. Firms that published reports containing significant social information that are available on www.corporateregister.com in the course of year 1 will be awarded 1 point, the others 0 point. Table 1 shows a high increase in CSR over the period 2001 - 2008, with more than one in two companies (55.2%) producing a report on the subject in 2008. The obvious limit of this approach is that it is difficult to ascertain whether the contents of the reports accord with the companies' actual doings. This limit is unavoidable, however, when working on large samples. Our work will therefore, like others, complement previous in-depth studies based on a single firm or on a small group of firms.

Finally, control variables such as the size of a firm or its business sector are taken into account. Several variables can be used for the size of companies, such as turnover, capitalisation market or the number of employees. Traditionally, a size variable based on business valuation is used to create a Small minus Big (SMB) variable (The idea is to separate firms into two groups according to their business valuation and following the median. One then calculates the average return of small firms and of large firms; and works out the difference for each period. The result is a return linked to the size of firms, since empirically smaller-sized firms are supposed to yield higher returns (Fama and French, 1992). In this study, we have decided to use the number of employees' variable as well, because of its discriminatory power. Indeed the apportionment of employees is highly uneven, since two thirds of the workforce of the sample is to be found in only 20% of the firms (The size is only available for 2005, but in the short term, this is a structurally stable variable). Regarding the business sectors, several dichotomies were considered (risk sectors, sectors with high international integration, IT sector given the financial turbulence this sector underwent at the beginning of the reference period, etc.), but the most relevant classification, from a statistical point of view, turned out to be the most simple one: primary, secondary and tertiary sectors, but taking the extra IT variable into account as well. Note, finally, that the dummy variables concerning the country where the corporate headquarters are also available.

In Table 1, one immediately notices the difference between firms that have over 10,000 employees, and those that do not: the latter are systematically outnumbered by the larger firms when it comes to the publication of CSR reports. We will see further on in this article, that the size of a firm can be a decisive factor with regards to CSR. Furthermore, the distribution of the CSR index by sector is relatively homogeneous when compared to the great inequalities between countries. Thus it appears that firms' interest in CSR has increased rapidly in the United Kingdom, France and Sweden. Denmark's low CSR index is in stark contrast with the idea one might have of Scandinavian countries, especially when compared with Sweden's performance. However, when analysing these figures, one should bear in mind the small number of observations made for Denmark (4 companies only). On the other hand, numbers for Germany can be more readily interpreted; the progress of the CSR index is much slower than that of the United Kingdom, France or Sweden. The increase is clearly greatest in Spain, with 100% of firms located in that country presenting a CSR report in 2008, when not one was listed in 2000. By and large, the increase in CSR seems continuous over the period, with a slight decline in 2008.

Estimates procedure

The starting point of our econometric model is an ex-post version of the CAPM. (Based on the sequence of past prices and not on ex ante price securities anticipation). Ever since Sharpe's (1964) and Lintner's (1965) pioneer work, among others, this remains, to this day, one of the most well-known and most used models. In more than forty years, this model has of course been much criticised, but each financial asset evaluation model has its weaknesses (Campbell, 2000). What makes the CAPM so attractive is its open-ended nature, in that adding on certain variables will reinforce the beta's explanatory power. It is from this perspective that we propose to use the CAPM. Note that this is a tried and tested base to which we add other variables that can potentially explain the price of securities' evolution. More specifically, we add a corporate social responsibility variable and a control variable to the regression, variables which partially answer the usual criticisms directed at CAPM. Another specificity of this study with regard to the use of the CAPM model lies in the nature of the data. The evolution of the price of securities in time is not restricted to one sole company - rather it is extended to a set of firms. Such a dataset allow the use of panel data econometrics instead of the usual time-series analysis. In our case, there are undoubtedly some characteristics here that are not controlled for and that are barely noticeable, which explains the disparity among the firms. Panel data econometrics allows us to take this heterogeneity into account and thus answers the usual criticism

Table 1. CSR Index evolution between 2001 and 2008.

| Periods | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | Total |
|------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Firm size | | | | | | | | | |
| <10.000 | 0.095 | 0.122 | 0.257 | 0.365 | 0.378 | 0.365 | 0.459 | 0.365 | 0.301 |
| >=10.000 | 0.200 | 0.275 | 0.487 | 0.563 | 0.650 | 0.738 | 0.738 | 0.725 | 0.547 |
| Business sector | | | | | | | | | |
| I | 0.250 | 0.188 | 0.469 | 0.563 | 0.563 | 0.500 | 0.688 | 0.563 | 0.473 |
| II | 0.140 | 0.116 | 0.349 | 0.302 | 0.442 | 0.512 | 0.558 | 0.558 | 0.372 |
| III | 0.114 | 0.253 | 0.354 | 0.519 | 0.544 | 0.608 | 0.595 | 0.544 | 0.441 |
| Country | | | | | | | | | |
| Spain | 0.000 | 0.143 | 0.714 | 0.857 | 1.000 | 0.857 | 0.857 | 1.000 | 0.679 |
| Sweden | 0.000 | 0.200 | 0.467 | 0.467 | 0.600 | 0.667 | 0.667 | 0.667 | 0.467 |
| France | 0.087 | 0.174 | 0.370 | 0.478 | 0.543 | 0.696 | 0.696 | 0.652 | 0.462 |
| U.K. | 0.244 | 0.267 | 0.400 | 0.511 | 0.578 | 0.533 | 0.578 | 0.533 | 0.456 |
| Denmark | 0.333 | 0.333 | 0.333 | 0.000 | 0.333 | 0.333 | 0.667 | 0.333 | 0.333 |
| Germany | 0.184 | 0.158 | 0.263 | 0.368 | 0.316 | 0.342 | 0.447 | 0.342 | 0.303 |
| Total | 0.149 | 0.201 | 0.377 | 0.468 | 0.519 | 0.558 | 0.604 | 0.552 | 0.429 |

criticism directed at previous empirical studies. The general shape of the model is therefore as follows:

$$(r_{it} - rf_{it}) = c + \beta_1(rp_{it} - rf_{it}) + \beta_2csr_{it} + \sum_{k=3}^K \beta_k control_{kit} + u_{it}, \quad (1)$$

with $i = 1, \dots, 214$ referring to the firms; $t = 1, \dots, 6$ referring to the years (2000 to 2005); r_{it} is the average monthly return rate of firm i 's quotation for year t ; rf_{it} is the interest rate that corresponds to firm i 's nationality for year t ; c is a constant; rp_{it} is the market's average monthly return rate that corresponds to firm i 's nationality for year t ; csr_{it} is a dummy variable that becomes worth 1 if firm i published a report on social responsibility during year t and 0 if it has not; $control_{kit}$ is the k^{th} control variable for firm i on date t . These are dummy variables (country, business sector) and quantitative variables (the size of firm measured in the traditional way with the SMB variable or the number of employees (There is a strong correlation between the size of a firm according to its number of employees and according to its business valuation. Using both of these variables may therefore seem redundant. Yet by enabling the calculation of the SMB variable, business valuation functions in response to a classic and strictly financial logic found in CAPM literature. The number of employees is interesting because it is supposed to be correlated to corporate social responsibility. We will therefore use both size variables, and in the latter situation, we will introduce a specific assessment procedure in order to get rid of the bias that stems from the correlation between the number

of employees and corporate social responsibility.); u_{it} is a term of error. Note that by taking this last variable (size) into consideration, we are taking into account one of the main limits of CAPM found in studies called "anomalies" (As the book to market is not available to us, we are unable to give a strict estimate of Fama and French's three-factor model (1992). It is with regards to the term of error that the heterogeneity of observations is to be found. For although a certain similarity in time in firms' behaviours can be accepted (Over a short period of time only, but our sample has a limited temporal scope. This justifies the fact that we concentrate on individual heterogeneity), this may not realistic from one firm to another. (Especially when considering firms that are so different in terms of size, country, business sector, etc). In that case, the term of error takes on a particular shape: $u_{it} = \eta_i + \varepsilon_{it}$, which includes the unnoticeable individual characteristics (η_i) as well as an idiosyncratic error of the white noise type (ε_{it}).

However, the two random elements (η_i and ε_{it}) the errors term u_{it} cannot be mechanically added to the constant as dummy variables. In this case the unnoticed heterogeneity is taken into account through the error term variance. Hence a possible correlation between the explanatory variables and the effects particular to each firm may occur, and the estimators no longer converge. In such a case, a fixed effects model (For more technical information on these econometric aspects, it is useful to consult the relevant literature (Baltagi, 1995), (2) will be preferred over the random effects one (1). Notice that Hausman's statistics test answers the question whether or not there is a correlation problem between specific effects and explanatory variables. In the end, it is the

result of such a test that will justify choosing the fixed effects or the random effects model.

$$(r_{it} - rf_{it}) = c_{it} + \beta_1(rp_{it} - rf_{it}) + \beta_2csr_{it} + u_{it}, \quad (2)$$

Heterogeneity in the fixed effect model is taken into account through decomposition of the constant. Formerly: $c_{it} = b_0 + a_i + d_t$, where d_t captures the effect of factors that are common to all firms at each period (e.g. changes in the global demand), and a_i takes into account the effect of those factors that remain constant over time such as the country of origin and the business sector. This explains why these usual control variables in the CAPM model are not included in model (2). The case of the size variable must although be discussed.

The coexistence in model (1) of size and CSR variables may induce a strong bias. Table 1 indeed showed that, for each year, large firms had a higher CSR index than firms that had less than 10,000 employees. We can therefore suspect a multicollinearity problem in the estimates since the "Size" and "CSR" variables are likely to cover the same information. In order to solve this bias issue, one may decide to do without the "Size" variable in the estimates. In that case, the influence of CSR is significant (with 1.4%), but one is then deprived of an important control variable. Another possibility is to "purge" the CSR variable of the size effect. We thus keep the estimated generalised residuals from a regression of CSR on the size firms. The latter are to be interpreted as a variable with information pertaining to CSR which is not explained by the firms' size. Technically, one could use a qualitative choice model (Logit or Probit), since the CSR index is a binary variable. Moreover as the size is only available for a certain period of time, the regression will relate to the pool estimation, which means that the CSR index will be regressed on the size values duplicated for the six years. This intuitive methodology is definitely not without risk, it is nevertheless often used in studies faced with this type of problem (cf. Cameron and Trivedi, 2005).

RESULTS

Table 2 provides estimates for different CAPM models. Four specifications are presented: the basic CAPM model without (Model 1) and with (Model 2) the influence of the CSR index, the model with CSR and without the size variable (Model 3), and a model with the CSR variable purged from the size effect (Model 4). For each specification, a comparison between fixed and random effects is carried out using a Hausman test.

In any model specified the influence of the "Market return rate" variable in the regressions is highly significant (< 1%) and, in accordance with theory, it evolves jointly with the yield on the shares of the 154 companies - a Wald test shows that the coefficient associated with this variable is asymptotically equal to 1 in each of the esti-

mates. In accordance with Fama and French's work (1992) the size of firms is negatively and significantly linked to financial performance. Indeed, we can see that small firms with a SMB variable that have a positive coefficient have a positive return premium (Models 1 and 2). These results help us gaining confidence in the analysis since they concur with previous empirical analysis using the CAPM model.

In the detail, random effects models provide some additional insights. We can see that there is a lower return rate on securities for firms from the secondary and tertiary business sector. A distinct deterioration in financial performances in the IT sector at the beginning of the reference period (2000 - 2001) due to the internet securities bubble bursting - a bubble that encompassed securities linked to the IT sector and possibly even securities linked to new technologies as a whole - may explain this result. Moreover, the country of location for headquarters does not seem to affect the price of securities, what may seem logical for multinational companies, more exposed to global constraints.

Although the sign of the CSR variable is always negative, the significance of the coefficient differs from one model to the other. In Model 2, publishing a CSR report does not seem to affect firms' performance - whether in the fixed effect model or the random effect model. However, the effect of CSR becomes significant as soon as the size variable is not taken into account (Model 3). This result suggests that the two measures share common information - larger companies are more prone to get involved in CSR. In order to isolate the CSR effect, Model 4 uses the variable purged from the "size effect". This latter specification assigns a significant negative coefficient to CSR in both the fixed effects ($p < 5\%$) and the random coefficient ($p < 10\%$) model. Notice that in Model 4, the Hausman test supports the null hypothesis of presence of fixed effects. As a consequence, our results suggest that the appropriate model to measure the influence of CSR - once purged from the influence of firms' size - should be the fixed effects model. In the detail, it seems that publishing a CSR report on the internet (www.corporateregister.com) is negatively associated ($\beta_2 + c_{it} = -3.218 + 0.317 = -2.901$) with financial performance.

SCOPE AND LIMITS OF THE STUDY

What is most noteworthy in this econometric study is the negative link between social responsibility and firms' market value. Since, in this CAPM model, the quotations have been rid of their traditional decisive factors, this negative link appears to be quite strong. More specifically, the link that exists between, on the one hand, the size of firms and quotation, and on the other hand, between firms' size and their social responsibility has been dealt with econometrically. This is where the originality of our approach is to be found, along with the

Table 2. Determinants of multinationals financial performance in Europe between 2000 and 2008.

| | Model 1 | | | Model 2 | | | Model 3 | | | Model 4 | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | Coeff. | S. E. | p-value | Coeff. | S. E. | p-value | Coeff. | S. E. | p-value | Coeff. | S. E. | p-value |
| Fixed Effects (FE) | | | | | | | | | | | | |
| Market return rate | 1.037 | 0.041 | 0.000 | 1.046 | 0.042 | 0.000 | 1.018 | 0.041 | 0.000 | 1.018 | 0.041 | 0.000 |
| Size (SMB) | 936.152 | 236.355 | 0.000 | 846.284 | 249.462 | 0.001 | | | | | | |
| CSR | | | | -2.690 | 2.391 | 0.261 | -5.288 | 2.276 | 0.020 | -3.218 | 1.404 | 0.022 |
| Constant | -0.104 | 1.053 | 0.921 | 1.381 | 1.688 | 0.414 | 5.161 | 1.274 | 0.000 | 2.894 | 0.763 | 0.000 |
| R ² | 0.325 | | | 0.326 | | | 0.318 | | | 0.317 | | |
| Random Effects (RE) | | | | | | | | | | | | |
| Market return rate | 1.037 | 0.041 | 0.000 | 1.044 | 0.041 | 0.000 | 1.009 | 0.040 | 0.000 | 1.007 | 0.040 | 0.000 |
| Size (SMB) | 940.170 | 235.967 | 0.000 | 876.187 | 244.014 | 0.000 | | | | | | |
| CSR | | | | -1.929 | 1.885 | 0.306 | -3.648 | 1.828 | 0.046 | -1.946 | 1.163 | 0.094 |
| Business sector dummies: | | | | | | | | | | | | |
| Sector I | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| Sector II | -5.553 | 3.168 | 0.080 | -5.760 | 3.184 | 0.070 | -5.944 | 3.178 | 0.061 | -5.873 | 3.178 | 0.065 |
| Sector III | -8.612 | 2.810 | 0.002 | -8.680 | 2.819 | 0.002 | -8.704 | 2.815 | 0.002 | -8.670 | 2.815 | 0.002 |
| Country dummies: | | | | | | | | | | | | |
| U.K. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. | Ref. |
| France | 3.176 | 2.748 | 0.248 | 3.199 | 2.756 | 0.246 | 3.267 | 2.752 | 0.235 | 3.041 | 2.754 | 0.270 |
| Germany | 3.974 | 2.912 | 0.172 | 3.681 | 2.934 | 0.210 | 3.592 | 2.930 | 0.220 | 3.518 | 2.942 | 0.232 |
| Spain | 3.558 | 5.346 | 0.506 | 3.987 | 5.378 | 0.458 | 4.605 | 5.367 | 0.391 | 4.624 | 5.374 | 0.390 |
| Denmark | -6.533 | 7.870 | 0.406 | -6.874 | 7.901 | 0.384 | -6.885 | 7.888 | 0.383 | -6.951 | 7.894 | 0.379 |
| Sweden | 1.717 | 3.990 | 0.667 | 1.733 | 4.002 | 0.665 | 2.036 | 3.995 | 0.610 | 1.787 | 3.998 | 0.655 |
| Constant | 3.721 | 2.826 | 0.188 | 4.928 | 3.070 | 0.108 | 8.414 | 2.908 | 0.004 | 6.915 | 2.755 | 0.012 |
| R ² | 0.337 | | | 0.337 | | | 0.331 | | | 0.330 | | |
| Wald Test H0: $\beta_{(\text{Market return rate})}=1$ | | | | | | | | | | | | |
| FE model: Chi ² (p-val) | 0.810 | (0.367) | | 1.240 | (0.266) | | 0.19 | (0.659) | | 0.190 | (0.665) | |
| RE model: Chi ² (p-val) | 0.820 | (0.364) | | 1.130 | (0.288) | | 0.05 | (0.814) | | 0.030 | (0.864) | |
| Hausman Test | | | | | | | | | | | | |
| Chi ² (p-value) | 0.090 | (0.957) | | 0.350 | (0.840) | | 1.46 | (0.481) | | 13.190 | (0.000) | |

econometric treatment of panel data.

The corporate social responsibility variable is what sets this study apart from the numerous previous studies explaining the evolution of quotations based on the CAPM model. The negative and significant relationship, in all cases, indicates that if a firm publishes a corporate social responsibility report for any given year, the firm's quotation's average monthly growth rate will decrease by 0.4% to 0.5%, even when all other variables remain the same. On a yearly basis, this monthly evolution amounts to a 4.66 - 6.16% decrease in any given firm's quotation. The difference in financial performance is therefore quite significant. Furthermore, this result is not an isolated case (cf. Margolis and Walsh, 2001, or Orlitzky, Schmidt and Rynes, 2003, for reviews on the relevant literature). It brings fuel to the controversy surrounding this issue, even more so considering how difficult it is to interpret.

Should we therefore come to the conclusion that social

responsibility reduces companies' profitability? The answer to this question is rather complex. First of all, an econometric study cannot lead to a conclusion in terms of causality. For, just like all the other studies, ours lacks temporal depth. Indeed, causality tests require greater temporal depth than that which is available to us for this study (For instance, Granger causality requires to perform a test using a significant number of past observations. This type of procedure would not be robust if implemented here with six time periods only). Therefore the possibility of a two-way causal link between financial performance and social responsibility cannot be excluded. In other words, a firm's lack of financial performance, and therefore of financial resources, could also be the reason behind the absence of CSR policies. In fact, in some cases these two types of causality can coexist.

Moreover, it could be argued that our results would not

survive the test in the long term, even if 9 years is quite important. Indeed, investing in policies of social responsibility can be considered, in an uncertain universe, as an insurance in terms of image for which a firm working in a risky environment is willing to pay. In that case, social responsibility policies will only be implemented by those firms that are most particular about their image (This the case for big companies that have major brand names and whose intangible assets amount to billions of dollars (Coca Cola for example). Following the same logic, socially responsible policies can be interpreted as insurance against the risk of stricter public regulation. In that case, the investment in social responsibility would help circumvent stricter social or environmental laws likely to reduce firms' financial performance. Here, social responsibility helps firms to avoid a reduction of their profits in the mid- or long-term. Lack of sufficient temporal depth in all studies relating to corporate social responsibility prohibits econometric consideration of the long-term relationship between social responsibility and financial performance.

Lastly, issues due to the social responsibility variable can also be found in our study. Here, the study of corporate social responsibility is linked to whether or not a company has published a report on social responsibility that has been registered on www.corporateregister.com. Although this choice has been justified already, its limits need to be underlined. First of all, a socially responsible policy will not necessarily give rise to the publication and registration of a report, even though it would be absurd for a socially responsible firm not to communicate on its actions. Secondly, writing and publishing a report on a website is no guarantee that the policies are actually being carried out. If the report does not reflect reality, there is no reason why publishing it should have any kind of impact, positive or negative, on economic and financial performance and therefore on quotations. This criticism applies to the great majority of studies, since few can truly appreciate the effectiveness of social responsibility policies when taking a large number of firms into consideration and over a several years. Moreover it is customary to resort to a methodology that is based on reports written by firms. Among others, it is greatly used by audit agencies that base their evaluations primarily on these reports.

CONCLUSION

If we maintain the hypothesis according to which firms carry out CSR policies in order to increase their financial performance, then it seems the results of our study do not concur (at least for the studied sample between 2000 and 2008 and with all the limits previously discussed). This is, in any case, a possible interpretation of the negative correlation between the CSR index and financial return. Once again, however, this conclusion needs to be expanded upon, especially from a mid- or long-term

perspective, considering the fact that the majority of studies have come to the conclusion that there is a positive link between financial return and CSR.

According to the classic consequences of mimicry on financial markets, if investors are convinced that CSR is connected with better financial returns, then this will indeed be the case through self-realisation. Beliefs are therefore likely to play a crucial role when explaining the dynamics behind buying behaviours on the markets. Consequently, they will also play an important part in firms' choices of social responsibility policies.

Once again, only time will give us certainties. Research on this topic should therefore continue and integrate a temporal dimension as precise as possible, as well as the use of financial models that incorporate agents' beliefs.

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