

Corporate Social Responsibility and Stock Market Efficiency*

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Abstract

We investigate the relationship between Corporate Social Responsibility (hereafter CSR) and I/B/E/S analysts' earnings per share (EPS) forecasts using a large sample of US firm forecasts for the 1997-2004 period. We show that the net difference between CSR strengths and weaknesses significantly reduces both the absolute forecast error on EPS and its standard deviation after controlling for standard regressors plus year, industry, and firm/broker effects. Our findings are consistent with the hypothesis that reduced transaction costs (and conflicts) with stakeholders and more transparent accounting practices implied by CSR significantly affect the bias. The CSR effect is strongly asymmetric and mainly driven by CSR weaknesses, consistent with the fact that the predicted channels of influence are mainly captured by CSR weakness scores. A crucial aspect of our findings is that CSR contributes to make financial markets efficient as unbiasedness and efficiency are (in almost all specifications) not violated in the subsample of the top 20 percent (lowest CSR weaknesses) companies, while they are in the bottom 20 percent CSR companies.

Keywords: Earnings per Share; Analyst Forecast; Corporate Social Responsibility.

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1 Introduction

Advertising social and environmental friendly behavior, issuing sustainability reports and hiring CSR experts is becoming increasing corporate practice in the most recent years.¹ The growing relevance of CSR has led academicians to reflect on whether it represents a major change in economic paradigm with respect to the standard approach by which forces of market competition transform individual and corporate self-interested behavior into an efficient and socially optimal outcome, while the state intervenes with taxes and regulation to address the problem of externalities and public goods and redistributes income and wealth according to the dominating social standards (Benabou and Tirole, 2010). The demand for CSR has emerged only in the last decades. CSR was an almost irrelevant issue in pre-globalization high income economies where domestically producing firms already strived to comply with demanding domestic social and environmental rules and did not have much room for additional voluntary compliance to standards above the law.² Quite to the contrary, in globally integrated economies in which production is delocalized, with institutions and rules kept highly heterogeneous amongst nations, regulatory arbitrage and race to the bottom have made the role of CSR progressively more important. In parallel with its increasing relevance, and with the extension of (at least formal) CSR practices, academicians and practitioners wonder whether CSR is a “win-win” strategy by investigating the relationship between CSR and corporate performance under different dimensions. A large number of empirical contributions have addressed this issue so far without conclusive results.³ A main reason is that CSR entails costs of addressing more closely the needs of a wider range of stakeholders and several potential benefits (higher intrinsic motivations and

¹In 2005 90 percent of Japanese companies, 71 percent of UK companies and 32 percent of US companies participated in CSR reporting (KPMG, 2005). ICCA global report survey (2010) documents that 31 percent of the top 500 Fortune companies have a separate CSR department. The Nielsen Global Report (2012) calculates that 46 percent of interviewed consumers are willing to pay more for socially and environmentally sustainable products. Even though the willingness to pay for CSR tends to be upward biased these data and revealed preferences of market shares of socially responsible products reveal that the phenomenon is consistent (Carson et al., 2001).

²We implicitly refer here to the EU Commission (2001) definition of CSR 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*”.

³Findings documenting a positive link may be found, among others, in Ruf et al. (2001), Baron et al. (2008), Jo and Harjoto (2007), Jo and Harjoto (2011) and Vogel (2005). Inconclusive results are in McWilliams and Siegel (2001), Aupperle et al. (1985) and Margolis and Walsh (2003). Negative links are found among others by Preston and O’Bannon (1997) and Freedman and Jaggi (1986). Becchetti et al. (2008) document with panel data on a large sample of US firms that CSR adoption has positive effects on added value while negative effects on return on equity. For the literature on the relationship between CSR and productive efficiency see, among others, Shadbeigian and Gray (2006) and Vitaliano and Stella (2006). For the literature on CSR and financial performance see, among others, Bauer et al. (2005). Confirming the lack of consensus on the sign of the relationship, Margolis and Walsh (2003) report in their meta-paper which evaluates empirical findings of this literature that: “*When treated as an independent variable, CSR is found to have a positive relationship to corporate financial performance in 42 studies (53%), no relationship in 19 studies (24%), a negative relationship in 4 studies (5%), and a mixed relationship in 15 studies (19%)*”.

lower shirking and turnover of workers, minimization of transaction costs with stakeholders, anticipation of product and process innovation in environmental friendly and energy saving production techniques, enhanced reputation on product quality and higher demand from socially concerned consumers).⁴ Results are therefore necessarily time and context dependent since they vary according to the specific relevance of each of the factors mentioned above. Moreover, if one of the potential gains from CSR is in the reduction of some forms of risk or of the likelihood of a negative catastrophic event (Benabou and Tirole, 2009), stock returns or corporate profits are not the best indicator to measure it.⁵ With this paper we want to emphasize that an interesting unexplored dimension where it is possible in principle to evaluate the relationship between CSR and risk is that of analysts' forecasts on earnings.⁶ By comparing this information, and calculating the absolute value and the dispersion of the earnings forecast error for high/low CSR oriented firms it is possible to check how CSR affects an ex-post measure of risk and uncertainty represented by the distribution of the deviation between ex-ante analysts' forecasts and actual ex-post released corporate earnings.

In order to do so we use information from one of the most widely adopted CSR scoring standards, that is, the Kinder, Lydenberg, and Domini Research & Analytics, Inc. (hereby RiskMetrics-KLD) rating criteria.⁷ As it is well known RiskMetrics-KLD ratings outline factors of strength and weakness in eight different CSR domains (community, corporate governance, diversity, employee relations, environment, human rights, product quality and controversial business) giving a positive (negative) point for each of the strength (weakness) element for which the firm qualifies within each domain.⁸ We argue that there are at least two reasons why CSR (and, more specifically, RiskMetrics-KLD scores for social responsibility) should affect the earnings forecast error.

First, if CSR implies higher care for stakeholders it may also be thought as affecting positively corporate care in the relationship with analysts and, more in general, as reducing opacity in the communication strategy with the public. More specifically, we know that managers are tempted to manipulate earnings by manipulating accruals (Sloan, 1996 and

⁴On the positive impact on worker productivity see the efficiency wage (Shapiro and Stiglitz, 1984; Salop, 1979; Malcomson, 1981), the gift exchange (Akerlof, 1982), and the intrinsic motivation (Rya et al., 1991; Frey and Oberholzer-Gee, 1997, and Kreps, 1997) literature. On the minimization of transaction costs with stakeholders see Freeman (1984). On positive reputation effects see Minor (2009).

⁵Becchetti and Ciciretti (2011) show on this that CSR rating agencies were more able than standard financial rating agencies to capture with ex-ante negative scores the Lehman Brother default and that, at the event date, the market adjusted the weight given to such scores generating significant abnormal returns for stocks with similar social ratings.

⁶Higher absolute value and dispersion of the earnings forecast error produce, by definition, extra risk in terms of higher uncertainty in predicting firm behavior.

⁷In November 2009, RiskMetrics Group acquired the Kinder, Lydenberg, and Domini Research & Analytics, Inc. (KLD). MSCI Inc. acquired RiskMetrics Group Inc. in June 2010. KLD was founded in 1988 and it was an independent investment research firm providing management tools to professionals integrating environmental, social and governance factors (ESG) into their investment decisions.

⁸For a detailed description of RiskMetrics-KLD criteria see Appendix A.

Chaney et al., 2011). Discretionary special charges may be for instance used in order to inflate corporate results or to avoid the negative signal of nonpositive earnings per share to the market. This behavior may generate unpredictable shocks to the “ordinary” process of earning generation of the firm thereby creating additional uncertainty and error in analyst forecasts. This is because the forecasting accuracy of analysts is obviously expected to be higher for earnings generated by the ordinary activity of the firm than for end of period extraordinary operations used to manipulate earnings. If this is true CSR would generate a relatively lower forecast error and lower dispersion of it. Our idea is supported by the criteria used by the CSR rating company RiskMetrics-KLD to measure corporate CSR weaknesses. One of these criteria assigns negative points if “*The company restated its earnings over an accounting controversy, has other accounting problems, or is involved with some other controversy not covered by other RiskMetrics-KLD ratings*”.

Second, if CSR is assumed as minimizing transaction costs with stakeholders (and reducing litigation), it consequently tackles an important source of risk (conflicts with stakeholders may translate into significant corporate losses, especially when they lead to class actions), thereby reducing uncertainty and variability of earnings. Similarly, judicial trials and litigations are explicitly indicated among factors determining CSR weaknesses (negative points in CSR indicators).⁹ Hence, we may reasonably assume that less CSR oriented firms have previously incurred (and are likely to incur more in the future) these kinds of problems adding an extra factor of uncertainty in analysts’ forecasts.¹⁰

Based on these considerations the theoretical hypothesis we aim to test in this paper is that higher CSR scores should be associated with significantly lower absolute value and dispersion of the earning forecast bias. More specifically, since we identify the main items through which CSR affects the earning forecast error in CSR weakness scores (see the specific RiskMetrics-KLD weakness items quoted in the introduction), we expect the impact of RiskMetrics-KLD ratings to be asymmetric and concentrated on the negative side of the index.

⁹In the RiskMetrics-KLD diversity domain negative CSR points are assigned if “*The company has either paid substantial fines or civil penalties as a result of affirmative action controversies, or has otherwise been involved in major controversies related to affirmative action issues.*” In the employees domain negative CSR points are assigned if “*The company recently has either paid substantial fines or civil penalties for willful violations of employee health and safety standards, or has been otherwise involved in major health and safety controversies.*” In the environment domain negative CSR points are assigned if “*The company has recently paid substantial fines or civil penalties for violations of air, water, or other environmental regulations, or it has a pattern of regulatory controversies under the Clean Air Act, Clean Water Act or other major environmental regulations.*”

¹⁰Note that, in principle, our theoretical prediction on the negative effect of CSR on the earning forecast bias may apply also to models in which the earning forecast bias does not contradict rationality. In Lim (2001) a small upward bias represents the optimal choice for analysts who want to conquer a preferential relation with the firms in terms of quality of information received. The demand for preferential treatment may be higher for firms with less accounting transparency or higher shocks due to conflicts with stakeholders. Moreover, low CSR firms may be more inclined to discriminate among analysts and concede such preferential treatment.

Our empirical findings do not reject this hypothesis documenting a significant negative link with both (absolute value and standard deviation) measure of the bias, net of the impact of standard controls such as the number of analysts, the number of forecasts, two-digit industry dummies, firm size and year and firm/broker effects. We further document that the CSR impact is strongly asymmetric since it depends mainly on CSR weaknesses. An important consequence of our main result is that, if we test unbiasedness and efficiency on the bottom and top 20 percent firms in terms of CSR weaknesses, we find that they are rejected for the first while not for the second group of firms. In this sense our findings enrich and complement findings in the earning forecast error literature documenting the rejection of weak efficiency (O'Brien, 1988) and the presence of an earning forecast bias (Nordhaus, 1987) which disappears once discretionary special charges are taken into account (Keane and Runkle, 1998). The paper is divided into four sections (introduction and conclusions included). In the second section we describe our combined database which includes I/B/E/S individual analysts' earning forecasts and RiskMetrics-KLD scores. In the third section we provide descriptive statistics and we illustrate and comment our econometric findings. The fourth section concludes.

2 The Database

Our empirical analysis is based on U.S. analysts' forecasts of U.S. firm earnings from 1997 through 2004. Data on forecasted and actual earnings per share are taken from the I/B/E/S database; data for CSR scores (strengths and concerns) are from RiskMetrics-KLD; data on corporate stock prices are from Datastream. After merging the above three datasets the total number of observations are 162,070 with 4,325 unique analysts and 629 unique companies (the number of firms included in the analysis increases over time from 231 unique companies in 1997 to 528 unique companies in 2004).¹¹ The most important variable for our analysis, which we define as $E[EPS]_{T,h}^{i,j}$, is the earnings per share forecast on the company i formulated by the analyst j for the fiscal year T . h denotes the forecast horizon calculated as the difference in days between the forecast date (I/B/E/S [Institutional Brokers Estimate System] variable ESTDATS) and the end of fiscal year (I/B/E/S variable FPEDATS). Note

¹¹RiskMetrics-KLD provides research, indexes, consulting and compliance services to institutions for integration of environmental, social and governance (ESG) factor into their investment strategies. Data are collected from a wide variety of companies, government, non-government organization and media sources. RiskMetrics-KLD tracks each company through more than 14000 global media sources daily. RiskMetrics-KLD uses three processes to maintain the accuracy and currency of its research: i) continuous updates under the form of daily updates from media sources and special updates from NGOs and government data sources; ii) yearly fiscal year updates from company public documents; iii) a comprehensive annual review that includes analysis of all information gathered throughout the year, review of company websites and CSR reports, and direct communication with the company, NGOs, and research partners. RiskMetrics-KLD indexes (i.e. FTSE KLD 400 Social Index) are generally considered as the benchmark for CSR investment strategies and they are designed to be transparent, representative and investable.

that, the forecast horizon can assume in a few cases also negative values since it may happen that an analyst continues to produce forecasts for a firm also after the end of the fiscal year but before the company completes accounting procedures and reports the official data (I/B/E/S variable REPDATS).

Insert Figure 1.

Figure (1) illustrates an example, for the year 1997, of the distribution of data that will be used in the paper. Each point represents the intersection of the forecast horizon with the analyst and the firm for which the analyst provides the earnings' forecast. A company's stock is defined by the six-digit Committee on Uniform Securities Identification Procedures (CUSIP) number followed by a 01 which indicates a common stock. We associate to it an industry code according to the Standard Industry Classification System (SIC code).

RiskMetrics-KLD divides the CSR criteria into eight broad categories: i) community; ii) corporate governance; iii) diversity; iv) employee relations; v) environment; vi) human rights; vii) product quality; and viii) controversial business issues. For each of them, it identifies strengths and weaknesses, and indicates a series of corporate actions falling under one of the two categories.¹² An advantage of our analysis is that it relies on raw RiskMetrics-KLD scores and not on a comparison between FTSE KLD 400 Social Index constituents and a complementary sample.¹³ This avoids the well known "fixed number index" confounding effects of non index stocks qualifying for high CSR standards and being in the waiting list group or high CSR stocks in the process of losing their strengths who may be in a watch list even though still being in the index.

3 Empirical findings on the absolute forecast error

We comment descriptive statistics on the variables used for the econometric analysis by focusing first on the two main variables of interest for our research (RiskMetrics-KLD ratings and I/B/E/S Details analysts' earning forecasts). The average number of RiskMetrics-KLD CSR strengths is 2.96, while the average number of weaknesses is 2.8. The maximum for both is 11. The median score (2) is very close to the mean for both strengths and weaknesses. The net strength variable, computed as strengths minus concerns, takes a maximum of 11 and a minimum of -11.

¹²Given the well known problems of aggregation and attribution of weights to different qualitative items, RiskMetrics-KLD choice is to provide raw data by attaching -1 or $+1$ if the firm qualifies respectively for the specific factor of strength and weakness. For a detailed description of strengths and weaknesses see Appendix A.

¹³The FTSE KLD 400 Social Index is a float-adjusted, market capitalization-weighted, common stock index of US equities. Launched by KLD in May 1990, the FTSE KLD 400 Social Index (formerly Domini 400 Social Index, DSI 400) was the first benchmark index constructed using environmental, social and governance (ESG) factors. The DSI 400 was renamed the FTSE KLD 400 Social Index in July 2009.

Insert Table 1.

The mean number of analysts per firm is 24.62, while the mean number of forecasts per firm is 134.52 documenting that we have, on average, more than 5 forecasts per analyst on a given firm in our sample. These numbers are extremely stable across different release date subsamples. Following most of the literature, we calculate the earning per share forecast error for company i by analyst j made for the fiscal year T at the h distance (forecast horizon) from the release date as:

$$FE_{T,h}^{i,j} = |E[EPS]_{T,h}^{i,j} - EPS_T^i| / P_{T-1}^i \quad (1)$$

that is, as the absolute difference between the earning per share forecasted at the h distance from the release date - $E[EPS]$ - and the released earning per share scaled by the end of the previous year share price. The average forecast error is 0.016 in the overall sample and it declines from 0.025 in the furthest forecast horizon interval (364 to 271 days before the end of the fiscal year) to 0.007 in the closest interval (below 90 days before the end of the fiscal year to the day in which earnings are released).

Insert Table 2.

If we take the top and the bottom 20 percent firms in terms of difference between RiskMetrics-KLD strengths and concerns we find that the former have a lower forecast error (0.14 against 0.17) and a higher average number of analysts (28.003 against 20.528) and forecasts (166.74 against 104.14). The goal of our econometric analysis is to verify whether the difference in forecast error is significant net of the impact of other covariates which are also different between top and bottom CSR firms.

Insert Table 3.

To this purpose we estimate the following specification

$$FE_{T,h}^{i,j} = \alpha + \beta_1 NetStr_{T-1}^i + \sum_{l=2}^7 \beta_l X_l + \varepsilon_{T,h}^{i,j} \quad (2)$$

and, alternatively,

$$FE_{T,h}^{i,j} = \alpha + \beta_1 TotStr_{T-1}^i + \beta_2 TotCon_{T-1}^i + \sum_{l=3}^8 \beta_l X_l + \varepsilon_{T,h}^{i,j} \quad (3)$$

where $FE_{T,h}^{i,j}$ is the forecast error on earnings per share for company i of analyst j made for the fiscal year T at the distance h from the release date, $NetStr_{T-1}^i$ is the difference between total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns, $TotStr_{T-1}^i$ is the sum

of strengths, and $TotCon_{T-1}^i$ is the sum of concerns. The vector of X-controls may include according to the selected specification: year dummies, firm dummies, analyst dummies, sector dummies, the stock price at $T - 1$, the number of forecasts, the number of analysts, the distance from the release date (forecast horizon), and the natural logarithm of total assets.

Insert Table 4.

Results are provided in Table (4). The first specification includes only 4-digit industry dummies, the second industry and broker dummies, while the third industry and ticker dummies. This is because the dependent variable may be affected by time invariant industry, broker and ticker specific effects. To provide some examples there may be industries in which variability and shocks to the economic environment make forecasts more difficult to formulate and brokerage houses may have policies affecting the forecast error.¹⁴ The total number of observations is 162,070 while the number of regressors is 212 in the first specification, 576 in the second with broker dummies, while 625 in the third with ticker dummies. Note that in this third specification we have a problem of multicollinearity (ticker dummies may coincide with industry dummies and with non time varying CSR scores). The three specifications produce common and consistent findings for the main non-dummy regressors. As one would expect the earning forecast bias increases with forecast horizon.¹⁵ In addition, the number of analysts covering a stock reduces as expected the bias as the presence of a higher number of forecasters conveys less asymmetric information. This is net of the bias augmenting effect of the number of forecasts. The two variables thereby capture, on the one side, a positive information effect produced by the arrival of a new analyst, and, on the other side, the number of shocks affecting corporate earnings by assuming that analysts issue or revise their forecasts after these shocks. As it is well known in the literature, size is a crucial driver of the bias. We proxy it with the natural logarithm of firm's total assets and we find that the variable significantly and negatively affects the bias. Among the several rationales set forth in the literature on this point, García-Meca and Sánchez-Ballesta (2006) emphasize that large firms tend to have less variable earnings and more stable growth patterns (Chung and Kim, 1994; Hodgkinson, 2001 and King et al., 1990). Furthermore, larger firms are likely to have more institutional information which helps analysts to formulate more accurate predictions and more expertise and sophisticated budgeting techniques in order to generate reliable information. Even from the analysts' side the incentives to have better quality information

¹⁴As mentioned in footnote 10 Lim (2001) shows that analysts may find it rational to err on the side of leniency in order to get better information from firms. Boni and Womack (2002) identify internal management pressures and pressures from institutional investor clients of the analysts among rationales for the bias. These factors are likely to be brokerage house specific.

¹⁵This finding is consistent with most contributions in the empirical literature, see among others Brown et al. (1987), Duru and Reeb (2002), Lang and Lundholm (1996), Lang et al. (2003), Lys and Soo (1995).

are stronger in presence of large and more liquid firms since with them it is possible to obtain higher trading profits.

Net of the impact of the above mentioned controls our findings do not reject the hypothesis that CSR quality reduces the earning forecast bias. Our CSR variable is negative and significant, that is, the difference between CSR strengths and CSR concerns has a negative and significant impact on the absolute earning forecast error. The result is robust to the introduction of four digit industry and (alternatively) ticker or broker fixed effects. The net CSR strength impact is not only statistically but also economically significant. If we consider the average earning forecast bias of the overall period we find that one standard deviation change in the net strength minus weakness indicator (around 3 points) reduces the bias by around 10 percent. The effect is a bit smaller in the third specification with ticker dummies. Given the multicollinearity problems generated by the interaction between CSR scores and ticker dummies we consider the second specification as the best one and the benchmark for our robustness check.

3.1 The asymmetry of the CSR effect

The discussion of the CSR criteria which are expected to impact more on the earning forecast bias in the introduction evidenced that such criteria are mainly among those giving negative (CSR weakness) scores. We therefore expect CSR weaknesses to have a stronger impact than CSR strengths on the forecast error (see Table 4). We therefore test for the symmetry/asymmetry of the CSR effect (columns (4)-(6)) with the same three specifications (columns (1)-(3)) in which we separately introduce total CSR strengths (that is, the total number of CSR strengths in the eight CSR domains for which the firm qualifies) and total CSR weaknesses (the total number of CSR weaknesses in the eight CSR domains for which the firm qualifies). In the first specification (column (4)) the CSR-weakness effect is significantly positive and around 50 percent larger than the net strength (strengths minus weaknesses) effect in the corresponding column (1) estimate. Note that, surprisingly, the strength effect is also positive. The null hypothesis of a symmetric effect is therefore clearly rejected. In the second specification (column (5)) in which we add broker dummies, the magnitude of the CSR-weakness effect is even larger. A one standard deviation change in total CSR concerns (2.43) produces in this case a 15.6 percent increase in the bias. In this estimate the total strength effect becomes negative and significant even though with a small magnitude. The rationale for the CSR strength effect is that positive CSR action may create additional uncertainty in analysts behavior. Consistently with CSR criteria discussed in the introduction, the two channels through which CSR is expected to reduce the bias (minimization of conflicts with stakeholders and higher transparency in accounting practices) are all captured by CSR weaknesses. What CSR strengths add is an extra behavior in terms of social and environmental responsibility which may add some unpredictability to firm perfor-

mance. However in our preferred specification (the one with industry and broker dummies) CSR strengths are negative as expected. In Table (4), columns (4A)-(4B) we check whether the CSR effect is robust across distance from release date subsamples. This is one of the most relevant dimensions of variability of our phenomenon since (as it is reasonable to be) the average forecast error varies significantly with such distance. We create two subsamples according to different distances from the release date and consider as a benchmark the specification of Table (4) column (4). Our findings show that the total number of CSR weaknesses significantly increases the forecast error in both intervals. As one would expect the magnitude of this effect declines when the forecast intervals are closer to the release date.

Insert Table 5.

In order to check further the robustness of our results we propose an alternative specification in which we add two lagged variables: the one-year lagged average firm forecast error and the one-year lagged firm/analyst forecast error (Table 5, columns (1)-(6)). The first added variable is positive and significant documenting that the forecast error is autocorrelated.¹⁶ The second added variable is not significant. The significance of the CSR effects remains unaltered in both specifications. The introduction of the lagged dependent variable stimulates some reflections on the causality nexus between CSR weaknesses and the earning forecast error. The documented link between the two variables is less likely to suffer from reverse causality than the traditional nexus between CSR and corporate performance. The error can be known only after the release date and, as such, it cannot affect CSR rating which is formulated well below. Despite this, autocorrelation of the forecast error bias, if detected, could cause both low CSR ratings and the following year persistence in forecast error. However it may well be that the past forecast error is in turn generated by persistent CSR weaknesses. Consider as well that the reverse link is not so clear as it could be in the (CSR-corporate performance) case where it is well known that firms with higher earnings and rents can afford more CSR expenses (Margolis and Walsh, 2003). As well, it seems less likely that third drivers might cause the link between earning forecast bias and CSR as they do with the standard corporate performance-CSR nexus where higher managerial discount rates may reduce short term bias thereby positively affecting both variables. What matters more to our analysis is that CSR weaknesses are significantly associated to the earning forecast error. What seems reasonable given our results and the considerations made above is a biunivocal causal relationship between these two variables. In the section which follows we show that this link, whatever the causality nexus, has important effects on the role of CSR on financial market efficiency.

¹⁶Note that this autocorrelation does not necessarily create room for profitable trading strategies as it may be the case for positive autocorrelation of stock returns.

3.2 Testing unbiasedness and efficiency

Findings presented in the previous sections suggest that the analysis of the relationship between CSR and the earning forecast bias may give an interesting contribution to the well known controversy on the relationship between the earning forecast bias literature and the literature testing market efficiency. As it is well known Nordhaus (1987) documents that the bias violates weak efficiency and O'Brien (1988) finds weak evidence of upward bias. Keane and Runkle (1998) however document that earning forecasts are unbiased once correcting for discretionary special charges. Our results discussed in the previous section provide further qualification to these findings showing that CSR (which includes more transparent accounting practices and reduced conflicts with stakeholders) is associated with a significantly lower earning forecast bias. In order to test more directly this point we run the unbiasedness Keane and Runkle (1998) test plus three combined unbiasedness and efficiency tests on our top and bottom 20 percent corporations in terms of CSR weaknesses. The four specifications are:

$$EPS_T^i = \alpha + \beta_1 E[EPS]_{T,h}^{i,j} + \varepsilon_T^i; \quad (4)$$

$$EPS_T^i = \alpha + \beta_1 E[EPS]_{T,h}^{i,j} + \beta_2 EPS_{T-1}^i + \varepsilon_T^i; \quad (5)$$

$$EPS_T^i = \alpha + \beta_1 E[EPS]_{T,h}^{i,j} + \beta_2 FE_{T-1}^i + \varepsilon_T^i; \quad (6)$$

$$EPS_T^i = \alpha + \beta_1 E[EPS]_{T,h}^{i,j} + \beta_2 FE_{T-1}^{i,j} + \varepsilon_T^i; \quad (7)$$

where EPS_T^i is the earning per share of company i released in the fiscal year T and $E[EPS]_{T,h}^{i,j}$ is the earning per share forecast formulated by analyst j at the forecast horizon h for company i . In the second specification EPS_{T-1}^i is the one-year lagged earning per share, in the third specification FE_{T-1}^i is the one-year lagged average firm forecast error, while, in the fourth specification, $FE_{T-1}^{i,j}$ is the one-year lagged average firm/analyst forecast error (that is, the average error made by the analyst j on the firm i in the previous year). For all of the four specifications we repeat the same test including as control variables year, sector and analyst fixed effects in order to eliminate cross-correlation from regression residuals. The first specification tests unbiasedness which implies that forecasted earnings must not be significantly different from released earnings. Hence, the joint null hypothesis here is $H_0: \alpha = 0, \beta_1 = 1$. In the other three tests we also test efficiency by verifying whether past information affects actual earnings. As it is well known efficiency implies that past information must not affect the current forecast error. Hence the null hypothesis here is $H_0: \beta_2 = 0$.

Insert Table 6.

Insert Table 7.

The tests are run with standard errors clustered for year, firm and broker effects. Our findings clearly show that unbiasedness is rejected for the top 20 percent firms (Table 6, those with highest CSR weaknesses, that is, with CSR weaknesses not below 5), while it is accepted for the bottom 20 percent firms (Table 7, those with lowest CSR weaknesses, that is with CSR weaknesses not above 1). More specifically, if we look at TEST 1 in both Tables, F-tests for the bottom 20 percent subsample do not reject the hypothesis that the coefficient of the earning forecast regressor is equal to 1 (the estimated coefficient is .96) and that the intercept is equal to 0 (the coefficient is 0.0014). In the top 20 percent subsample the estimated coefficient of the earning forecast is much lower (.86) and the null is clearly rejected while the same occurs for the intercept which is significantly higher than zero (0.0117). In order to avoid the risk of residuals cross-correlation we repeat the estimate by adding broker and industry dummies to the base specification (TEST 2 in Tables 6 and 7). In this new estimation the forecast regressor coefficient drops to .68 for top 20 percent firms and to .84 for bottom 20 percent firms. Hypothesis testing confirms all previous findings. In the rest of the six specifications (TEST 3-8 in Tables 6 and 7) testing efficiency and unbiasedness at the same time, the estimates on the bottom 20 percent firms (those with lowest CSR weaknesses) do not reject both unbiasedness and efficiency, while the estimates in the top 20 percent (those with highest CSR weaknesses) document rejection of both hypotheses. This is because lagged 1-year regressors added to the specification are never significant for the bottom 20, while they are so in some cases for the top 20. Note that the only case in which the subsample of the bottom 20 percent does reject the null is the TEST 8 when we add fixed effects. Even in this case however the β coefficient is very close to 1 (.92 with upper confidence interval at .99) and much closer than the coefficient of the subsample of the bottom 20 percent (0.65).

3.3 Empirical findings on the standard deviation of the absolute forecast error

If CSR is expected to reduce some dimensions of risk and uncertainty we expect to find an impact on the variability of forecasts similar to that found on the forecast error. Opacity in accounting practices and conflicts with stakeholders are in fact expected to increase the variability of forecasts across analysts. The estimated specification is

$$FESD_T^{i,H} = \alpha + \beta_1 NetStr_{T-1}^i + \sum_{l=2}^7 \beta_l X_l + \varepsilon_T^{i,H} \quad (8)$$

and, alternatively,

$$FESD_T^{i,H} = \alpha + \beta_1 TotStr_{T-1}^i + \beta_2 TotCon_{T-1}^i + \sum_{l=3}^8 \beta_l X_l + \varepsilon_T^{i,H} \quad (9)$$

where the dependent variable $FESD_T^{i,H}$ is the standard deviation of the earning forecast error for company i in the fiscal year T for the H interval distance from the release date (we consider the four intervals used for descriptive statistics in Table 2). As it is obvious the number of observations is drastically lower since we have only four independent observations for each firms for any considered year (one for each of the four sub-periods built on the four different distance intervals from the release date).

Insert Table 8.

As expected results on volatility go in the same direction as those of the absolute forecast bias. Even in this case we register a negative impact of the number of analysts and a positive effect of the number of forecasts. The net CSR strength minus weakness effect is negative but not significant (Table 8, column 1). When we look at the separate impact of strengths and weaknesses we find that asymmetry is confirmed. CSR weaknesses are positive and significant while strengths are not, consistently with the assumption that the CSR-earning forecast bias effect is driven by some of the factors affecting the former (Table 8, column 2).

4 Conclusions

Corporate Social Responsibility has been generally considered in the literature as something unconventional with respect to mainstream financial theory postulating maximization of shareholders wealth and supporting the efficient market hypothesis. What we actually document with our research is that this perception is wrong: CSR seems indeed to bring markets closer to efficiency since it significantly reduces the earning forecast bias and the variability of analysts' forecasts. We document the robustness of our findings and relate them to two main rationales which are in-built in CSR criteria. First, CSR includes adoption of more transparent accounting practices which reduce informational asymmetries and, with them, both variability and absolute value of the earning forecast bias. Second, CSR involves minimization of controversies and conflicts with stakeholders which are an additional source of shocks which may affect corporate profitability, thereby increasing its variability.

Consistently with the fact that the two above mentioned factors which are more likely to impact on our results are reported among CSR weaknesses, we test whether the CSR impact is asymmetric and find that it so since significance is concentrated on the negative CSR side. In order to verify more closely the relationship between CSR and market efficiency we

perform unbiasedness and efficiency tests on the top 20 and the bottom 20 firms in terms of CSR weaknesses. We find that efficiency and unbiasedness are not rejected for the first group while they are so for the second.

Our findings contribute originally to the controversy on the relationship between the earning forecast error and the efficient market hypothesis. Consistently with the Keane and Runkle (1998) conclusion that earning forecasts are unbiased once correcting for discretionary special charges, our results further qualify this point showing that CSR weakness criteria and implications play a crucial role to discriminate between biased and unbiased earning forecasts and may therefore become a reference for investors on this issue.

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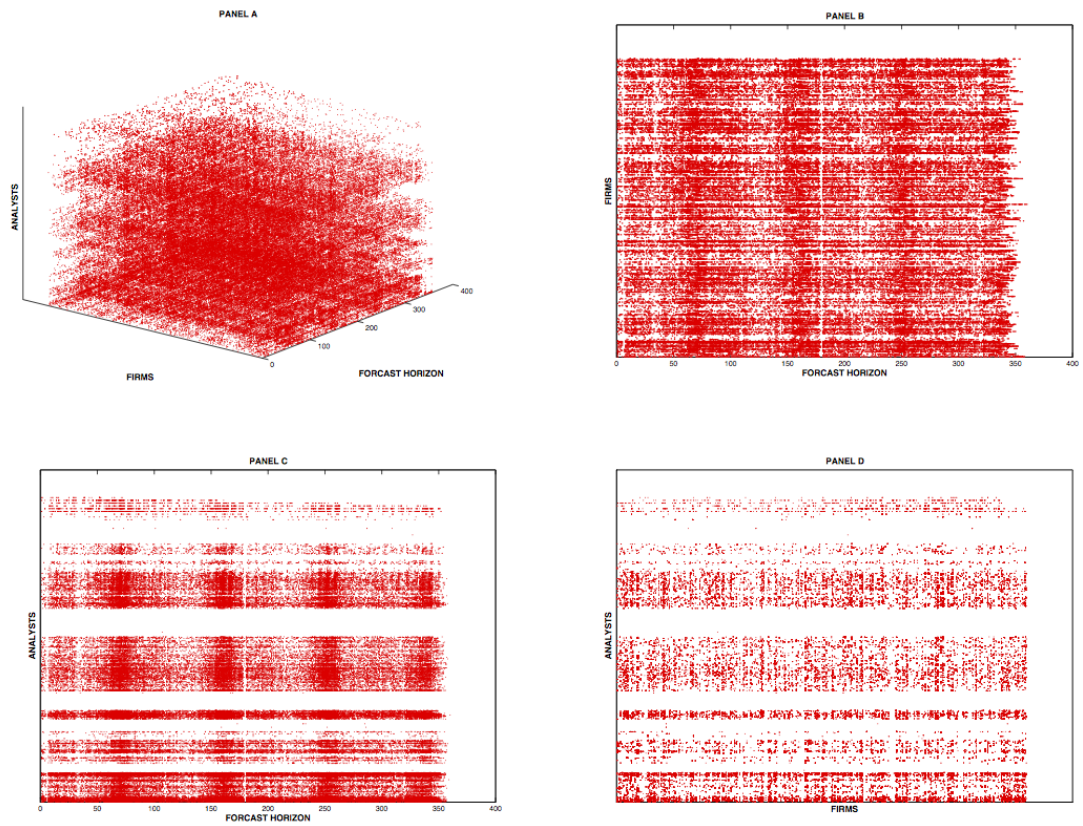


Figure 1: **Panel A:** three dimension data overview by Analysts, Firms and Forecast Horizons; **Panel B:** two dimension data overview by Firms and Forecast Horizons; **Panel C:** two dimension data overview by Analysts and Forecast Horizons; **Panel D:** two dimension data overview by Analysts and Firms.

Table 1: Summary Statistics for KLD CSR indicators

Variable	N	Min	Max	Mean	Sd	Kurtosis	p50	Skewness	p1	p5	p25	p75	p95	p99
ALL YEARS														
Tot. Strengths	162,070	0	14	2.965	2.593	4.252	2	1.162	0	0	1	4	8	11
Tot. Concerns	162,070	0	15	2.827	2.434	5.045	2	1.283	0	0	1	4	7	11
Net Str-Conc	162,070	-11	11	0.138	3.090	3.708	0	-0.101	-7	-5	-2	2	5	8
Net Com	162,070	-2	4	0.241	0.904	5.178	0	0.907	-2	-1	0	1	2	3
Net Gov	162,070	-3	2	-0.412	0.691	2.825	0	-0.017	-2	-1	-1	0	1	1
Net Div	162,070	-2	7	0.862	1.441	3.565	1	0.794	-2	-1	0	2	4	5
Net Emp	162,070	-3	4	0.363	1.120	3.075	0	0.234	-2	-1	0	1	2	3
Net Env	162,070	-5	2	-0.406	1.104	4.786	0	-1.321	-4	-3	-1	0	1	1
Net Hum	162,070	-2	1	-0.165	0.443	9.226	0	-2.497	-2	-1	0	0	0	0
Net Pro	162,070	-4	3	-0.345	0.996	4.397	0	-0.813	-3	-2	-1	0	1	2

Legend: Tot. Strengths: total RiskMetrics-KLD strengths; Tot. Concerns: total RiskMetrics-KLD concerns; Net Str-Conc: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns; Net Com: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns in the Community domain; Net Gov: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns in the Governance domain; Net Div: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns in the Diversity domain; Net Emp: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns in the Employees domain; Net Env: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns in the Environment domain; Net Hum: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns in the Human Rights domain; Net Div: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns in the Product Quality domain. Details on the attribution of strengths and concerns scores are provided in Appendix A.

Table 2: Summary Statistics of the I/B/E/S variables

Variable	N	Min	Max	Mean	Sd	Kurtosis	p50	Skewness	p1	p5	p25	p75	p95	p99
All Sample														
<i>E[EPS]</i>	162,070	-19.940	26.910	2	1.931	26.895	1.700	2.052	-1.595	-0.020	0.917	2.700	5.100	7.700
<i>EPS</i>	162,070	-44.930	23.070	1.930	2.019	23.996	1.660	1.149	-2.250	-0.170	0.837	2.700	5.180	7.450
P_{t-1}	162,070	0.750	1651.500	35.434	76.521	244.212	26.781	14.505	4.483	7.980	17.406	38.810	64.330	123.260
<i>FE</i>	162,070	0	3.497	0.016	0.055	913.926	0.004	23.054	0	0	0.001	0.013	0.063	0.162
<i>FESD</i>	162,070	0	0.648	0.011	0.024	155.659	0.005	9.481	0	0.001	0.002	0.012	0.043	0.101
Number of Analysts	162,070	1	58	24.618	11.142	2.575	23	0.425	4	8	16	32	46	50
Number of Forecasts	162,070	1	516	134.522	101.401	4.794	105	1.477	14	29	63	169	367	460
Forecast Horizon	162,070	-243	360	170.744	104.230	1.888	165	0.005	-22	7	76	257	337	347
Log(Total Assets)	162,070	10.284	20.733	16.064	1.520	3.325	16.148	0.054	12.397	13.642	15.024	17.089	18.488	20.020
Distance from release date: below 90 days														
<i>E[EPS]</i>	41,601	-14.530	26.350	1.970	1.931	20.829	1.700	1.667	-1.780	-0.090	0.855	2.710	5.200	7.600
<i>EPS</i>	41,601	-12.970	23.070	1.952	1.959	20.579	1.680	1.519	-2.140	-0.150	0.850	2.725	5.120	7.400
P_{t-1}	41,601	0.754	1651.500	36.082	82.538	234.657	27	14.323	4.483	8.175	17.390	38.810	64.188	141.120
<i>FE</i>	41,601	0	1.897	0.007	0.033	1661.054	0.002	35.498	0	0	0.001	0.006	0.026	0.068
<i>FESD</i>	41,601	0	0.648	0.011	0.022	196.923	0.005	10.437	0	0.001	0.002	0.011	0.043	0.082
Number of Analysts	41,601	1	58	24.450	11.057	2.621	23	0.436	4	8	16	32	45	50
Number of Forecasts	41,601	1	516	131.665	99.422	4.961	103	1.514	14	29	62	164	360	460
Forecast Horizon	41,601	1	90	57.643	22.983	2.557	65	-0.832	3	12	44	74	86	90
Log(Total Assets)	41,601	10.650	20.733	16.085	1.529	3.275	16.176	0.035	12.397	13.642	15.039	17.119	18.507	20.020
Distance from release date: 91-180 days														
<i>E[EPS]</i>	41,224	-14	25.900	2.012	1.960	25.246	1.700	2.065	-1.690	-0.050	0.900	2.750	5.160	7.600
<i>EPS</i>	41,224	-12.970	23.070	1.940	2.012	21.874	1.650	1.549	-2.170	-0.170	0.830	2.680	5.190	7.400
P_{t-1}	41,224	0.754	1651.500	35.951	79.011	230.221	27	14.103	4.483	8.175	17.520	39.170	64.438	120.960
<i>FE</i>	41,224	0	2.429	0.013	0.045	1114.652	0.004	27.019	0	0	0.001	0.011	0.051	0.118
<i>FESD</i>	41,224	0	0.648	0.011	0.024	129.636	0.005	8.631	0	0.001	0.002	0.011	0.044	0.117
Number of Analysts	41,224	1	58	24.537	11.162	2.611	23	0.436	4	8	16	32	46	51
Number of Forecasts	41,224	1	516	134.589	101.445	4.798	104	1.476	14	30	63	170	367	460
Forecast Horizon	41,224	91	180	143.446	26.193	2.042	154	-0.680	91	95	120	164	174	177
Log(Total Assets)	41,224	10.284	20.733	16.057	1.524	3.338	16.110	0.049	12.376	13.606	15.021	17.108	18.469	20.020
Distance from release date: 181-270 days														
<i>E[EPS]</i>	39,459	-19.940	26.910	2.019	1.926	28.868	1.730	2.008	-1.400	-0.020	0.935	2.750	5	7.930
<i>EPS</i>	39,459	-44.930	23.070	1.917	2.095	30.989	1.650	0.136	-2.350	-0.250	0.830	2.720	5.200	7.660
P_{t-1}	39,459	0.750	1651.500	34.235	66.081	296.003	26.470	15.724	4.346	7.875	17.360	38.780	64.330	120.960
<i>FE</i>	39,459	0	2.897	0.022	0.066	560.923	0.006	18.164	0	0	0.002	0.019	0.087	0.219
<i>FESD</i>	39,459	0	0.648	0.012	0.025	132.767	0.005	8.887	0	0.001	0.002	0.012	0.044	0.121
Number of Analysts	39,459	1	58	24.651	11.201	2.534	23	0.424	4	8	16	32	46	50
Number of Forecasts	39,459	1	516	135.181	100.902	4.702	106	1.449	15	30	64	171	367	446
Forecast Horizon	39,459	181	270	234.587	25.838	2.072	245	-0.668	182	187	212	255	265	269
Log(Total Assets)	39,459	10.284	20.733	16.052	1.523	3.291	16.106	0.081	12.397	13.634	15.006	17.089	18.507	20.020
Distance from release date: 271-364 days														
<i>E[EPS]</i>	32,357	-19	26.370	2.010	1.894	38.317	1.720	3	-1.100	0.110	0.975	2.600	4.900	7.750
<i>EPS</i>	32,357	-12.970	23.070	1.901	2.016	22.287	1.630	1.772	-2	-0.180	0.815	2.630	5.100	7.790
P_{t-1}	32,357	0.754	1651.500	34.241	61.465	288.191	26.875	15.199	4.625	8.175	17.594	38.810	64.500	120.960
<i>FE</i>	32,357	0	3.497	0.025	0.073	679.137	0.009	19.341	0	0	0.003	0.024	0.097	0.250
<i>FESD</i>	32,357	0	0.648	0.011	0.023	155.908	0.005	9.738	0	0	0.002	0.011	0.040	0.085
Number of Analysts	32,357	1	58	24.822	11.114	2.540	23	0.402	4	8	17	33	46	51
Number of Forecasts	32,357	1	516	134.162	101.693	4.997	106	1.522	15	29	62	167	376	460
Forecast Horizon	32,357	271	360	315.940	23.710	1.795	322	-0.353	272	275	295	337	347	352
Log(Total Assets)	32,357	10.284	20.733	16.071	1.502	3.384	16.176	0.031	12.397	13.687	15.030	17.089	18.469	20.145

Legend: *E[EPS]*: forecasted earning per share; *EPS*: released earning per share; P_{t-1} : previous year share price; *FE*: absolute difference between the forecasted earning per share and the released earning per share scaled by the end of the previous year share price; *FESD*: standard deviation of the earning forecast error; Number of Analysts: number of analysts per firm; Number of Forecasts: number of forecasts computed by analyst on a given firm; Forecast Horizon: distance from release date; Log(Total Assets): logarithm of total assets. The sum of the 4 sub-sample does not give 162070 due to the exclusion of the forecast horizon of 0 and greater than 364.

Table 3: Summary Statistics for low and high CSR firms.

Variable	N	Min	Max	Mean	Sd	Kurtosis	Median	Skewness	p1	p5	p25	p75	p95	p99
Low CSR Firms														
$E[EPS]$	33,863	-19.940	13.420	2.231	2.027	18.519	2	-1.184	-2.040	0.050	1.250	3.100	5.270	8.500
EPS	33,863	-12.970	11.050	2.225	2.151	13.978	2	-0.739	-3.790	-0.050	1.170	3.100	5.280	9.310
P_{t-1}	33,863	2.700	120.960	31.904	16.720	6.364	28.425	1.278	5.219	9.300	21.350	40.750	63.500	85.030
FE	33,863	0	1.554	0.017	0.046	254.249	0.005	12.141	0	0	0.001	0.016	0.073	0.167
$FESD$	33,863	0	0.384	0.014	0.028	99.992	0.006	8.388	0	0	0.002	0.016	0.047	0.085
Number of Analysts	33,863	1	53	28.003	9.973	2.573	27	0.501	10	14	20	35	47	53
Number of Forecasts	33,863	2	460	166.745	104.002	3.188	131	1.081	31	52	93	222	382	460
Forecast Horizon	33,863	-76	358	170.503	104.295	1.881	166	-0.003	-20	1	76	256	337	345
Log(Total Assets)	33,863	12.539	20.436	17.085	1.138	3.608	17.002	0.548	14.763	15.253	16.396	17.519	19.454	20.288
High CSR Firms														
$E[EPS]$	21,795	-7.540	26.910	2.029	2.256	57.581	1.750	5.910	-1.570	0.171	1	2.570	4.800	7.638
EPS	21,795	-3.700	23.070	1.962	2.237	46.156	1.680	4.954	-2.140	-0.020	0.940	2.620	4.980	7.290
P_{t-1}	21,795	2.060	1368.800	32.552	73.149	197.701	23.752	12.805	4.346	7.001	15.235	34.670	56.730	247.800
FE	21,795	0	0.617	0.014	0.033	96.081	0.004	7.588	0	0	0.001	0.012	0.065	0.150
$FESD$	21,795	0	0.205	0.010	0.019	62.514	0.004	6.671	0	0.001	0.002	0.011	0.043	0.062
Number of Analysts	21,795	1	55	20.528	11.745	3.371	18	0.942	3	6	12	27	45	55
Number of Forecasts	21,795	1	360	104.147	85.509	3.715	75	1.322	8	21	44	126	292	360
Forecast Horizon	21,795	-80	357	169.244	103.273	1.880	164	0.020	-22	9	75	255	334	345
Log(Total Assets)	21,795	10.650	19.718	15.131	1.416	3.153	15.054	0.098	11.422	12.950	14.145	16.063	17.466	18.450

Legend: low CSR firms: top 20% percentile in terms of CSR weakness scores. High CSR firms: bottom 20% percentile in terms of CSR weakness scores. For variable details: see Table (2).

Table 4: The impact of CSR strengths and concerns on the absolute earning forecast error.

	(1)	(2)	(3)	(4)	(5)	(6)	(4A)	(4B)
Net Str-Conc	-0.00044*** (0.00005)	-0.00045*** (0.00005)	-0.00022*** (0.00006)	-	-	-	-	-
Tot. Concerns	-	-	-	0.00062*** (0.00008)	0.00068*** (0.00008)	0.00073*** (0.00011)	0.00025*** (0.00008)	0.00132*** (0.00016)
Tot. Strengths	-	-	-	-0.00028*** (0.00007)	-0.00025*** (0.00007)	0.00029** (0.00010)	0.00002 (0.00008)	-0.00052*** (0.00013)
Forecast Horizon	0.00007*** (0.00000)	0.00007*** (0.00000)	0.00007*** (0.00000)	0.00007*** (0.00000)	0.00007*** (0.00000)	0.00007*** (0.00000)	0.00006*** (0.00000)	0.00006*** (0.00000)
Number of Analysts	-0.00081*** (0.00002)	-0.00082*** (0.00003)	-0.00049*** (0.00005)	-0.00081*** (0.00002)	-0.00081*** (0.00003)	-0.00049*** (0.00005)	-0.00043*** (0.00003)	-0.00127*** (0.00005)
Number of Forecasts	0.00004*** (0.00000)	0.00004*** (0.00000)	0.00001*** (0.00000)	0.00004*** (0.00000)	0.00004*** (0.00000)	0.00001*** (0.00000)	0.00002*** (0.00001)	0.00007*** (0.00001)
Log(Total Assets)	0.00010 (0.00019)	0.00002 (0.00019)	-0.00555*** (0.00049)	-0.00021 (0.00023)	-0.00039 (0.00023)	-0.00578*** (0.00048)	-0.00111*** (0.00021)	0.00001 (0.00032)
Constant	-0.01049 (0.00741)	-0.00154 (0.00756)	0.07954*** (0.01052)	-0.00535 (0.00762)	0.00479 (0.00780)	0.08292*** (0.01039)	0.02048*** (0.0486)	0.000090 (0.00733)
Industry Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Ticker Fixed Effects	-	-	YES	-	-	YES	-	-
BrokerHouse Fixed Effects	-	YES	-	-	YES	-	-	-
Year Fixed Effects	YES	-	YES	YES	YES	YES	YES	YES
Observations	162070	162070	162070	162070	162070	162070	71816	82825
RMSE	0.05	0.05	0.04	0.05	0.05	0.04	0.07	0.06
R ²	0.13	0.14	0.34	0.13	0.14	0.34	0.21	0.18

Legend: Tot. Strengths: total RiskMetrics-KLD strengths; Tot. Concerns: total RiskMetrics-KLD concerns; Net Str-Conc: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns; Number of Analyst: number of analysts per firm; Number of Forecast: number of forecasts computed by analyst on a given firm; Forecast Horizon: distance from release date; log(Total Assets): logarithm of total assets. Industry Fixed Effects: 4-digit industry dummies, BrokerHouse Fixed Effects: broker identification dummies, Ticker Fixed Effects: industry identification dummies and Year Fixed Effects: years dummies. **4A:** column (1) specification estimate limited to the subsample of forecasts between 181-364 days before the release date; **4B:** column (1) specification estimate limited to the subsample of forecasts formulated below 180 days before the release date. * p -value < 0.05, ** p -value < 0.01, *** p -value < 0.001; (Standard Errors).

Table 5: The determinants of the absolute earning forecast error (specification with lagged variables)

	(1)	(2)	(3)	(4)	(5)	(6)
Net Str-Conc	-0.00046*** (0.00007)	-0.00049*** (0.00006)	-0.00057*** (0.00008)	-	-	-
Tot. Concerns	-	-	-	0.00089*** (0.00008)	0.00095*** (0.00009)	0.00130*** (0.00013)
Tot. Strengths	-	-	-	-0.00008 (0.00009)	-0.00008 (0.00009)	0.00014 (0.00014)
FE_{T-1}^i	0.70895*** (0.06821)	0.72082*** (0.06897)	0.44509*** (0.06332)	0.70612*** (0.06809)	0.71757*** (0.06882)	0.44401*** (0.06331)
$FE_{T-1}^{i,j}$	-0.11493 (0.06013)	-0.13054* (0.06119)	-0.08263 (0.05357)	-0.11329 (0.06005)	-0.12855* (0.06111)	-0.08265 (0.05356)
Forecast Horizon	0.00007*** (0.00000)	0.00007*** (0.00000)	0.00008*** (0.00000)	0.00007*** (0.00000)	0.00007*** (0.00000)	0.00008*** (0.00000)
Number of Analysts	-0.00073*** (0.00003)	-0.00076*** (0.00003)	-0.00090*** (0.00008)	-0.00071*** (0.00003)	-0.00074*** (0.00003)	-0.00091*** (0.00008)
Number of Forecasts	0.00003*** (0.00000)	0.00003*** (0.00000)	0.00002*** (0.00000)	0.00003*** (0.00000)	0.00003*** (0.00000)	0.00002*** (0.00000)
Log(Total Assets)	0.00199*** (0.00023)	0.00209*** (0.00022)	-0.00546*** (0.00062)	0.00117*** (0.00028)	0.00121*** (0.00027)	-0.00580*** (0.00061)
Constant	-0.05724 (198.279)	-0.05803 .	0.11694 .	-0.04912 .	-0.04649 .	0.1011 (128.836)
Industry Fixed Effects	YES	YES	YES	YES	YES	YES
Ticker Fixed Effects	-	-	YES	-	-	YES
BrokerHouse Fixed Effects	-	YES	-	-	YES	-
Year Fixed Effects	YES	-	YES	YES	YES	YES
Observations	102589	102589	102589	102589	102589	102589
RMSE	0.05	0.05	0.05	0.05	0.05	0.05
R ²	0.22	0.22	0.32	0.22	0.22	0.32

Legend: Tot. Strengths: total RiskMetrics-KLD strengths; Tot. Concerns: total RiskMetrics-KLD concerns; Net Str-Conc: total RiskMetrics-KLD strengths minus total RiskMetrics-KLD concerns; FE_{T-1}^i : one-year lagged average firm forecast error; $FE_{T-1}^{i,j}$: one-year lagged average firm/analyst forecast error; Number of Analysts: number of analysts per firm; Number of Forecasts: number of forecasts computed by analyst on a given firm; Forecast Horizon: distance from release date; log(Total Assets): logarithm of total assets. * p -value < 0.05, ** p -value < 0.01, *** p -value < 0.001; (Standard Errors).

Table 6: Unbiasedness and Efficiency Test for Top 20 % CSR Firms on Constraints

Top 20 % CSR Firms on Constraints									
TEST	α	β_1	β_2	$[\alpha = 0, \beta_1 = 1]$	$[\alpha = 0]$	$[\beta_1 = 1]$	$[\beta_2 = 0]$	Regressors	Controls
1	0.0117** (0.0057)	0.8596*** (0.0613)	-	2.764**	4.24***	5.25***	-	1, $E[EPS]_{T,h}^{i,j}$	NO
2	-0.0305 (0.0182)	0.6817*** (0.0675)	-	16.03***	2.82*	22.21***	-	1, $E[EPS]_{T,h}^{i,j}$	YES
3	0.0014 (0.0078)	0.7841*** (0.0733)	0.0079* (0.0046)	4.63**	0.03	8.67***	2.85*	1, $E[EPS]_{T,h}^{i,j}$, EPS_{T-1}^i	NO
4	0.0144 (0.0141)	0.6524*** (0.0630)	0.0024 (0.0022)	16.12***	1.04	30.40***	1.19	1, $E[EPS]_{T,h}^{i,j}$, EPS_{T-1}^i	YES
5	0.0208*** (0.0065)	0.8317*** (0.0646)	-0.4197* (0.2200)	5.12***	10.15***	6.79***	3.64*	1, $E[EPS]_{T,h}^{i,j}$, FE_{T-1}^i	NO
6	0.0211* (0.0122)	0.6482*** (0.0716)	0.1420 (0.1956)	12.24***	3.00*	24.13***	0.53	1, $E[EPS]_{T,h}^{i,j}$, FE_{T-1}^i	YES
7	0.0204*** (0.0061)	0.8262*** (0.06389)	-0.4248** (0.1969)	5.75***	11.22***	7.42***	4.66**	1, $E[EPS]_{T,h}^{i,j}$, $FE_{T-1}^{i,j}$	NO
8	0.0329 -	0.6472*** (0.0657)	0.0775 (0.0923)	28.85***	28.85***	-	0.71	1, $E[EPS]_{T,h}^{i,j}$, $FE_{T-1}^{i,j}$	YES

Legend: $[\alpha = 0, \beta_1 = 1]$, $[\alpha = 0]$ and $[\beta_1 = 1]$ are the null hypotheses for the Unbiasedness Test. $[\beta_2 = 0]$ is the null hypothesis for the Efficiency Test. Dependent variable: EPS_T^i : earning per share of company i released in the fiscal year T ; $E[EPS]_{T,h}^{i,j}$: earning per share forecast formulated by analyst j at the forecast horizon h for the same company; EPS_{T-1}^i : one-year lagged earning per share of company i ; $FE_{T-1,h}^i$: the average one-year lagged firm forecast error; $FE_{T-1,h}^{i,j}$: the average one-year lagged firm/analyst forecast error. Controls are Sector, Year, Analyst; * p -value < 0.05 , ** p -value < 0.01 , *** p -value < 0.001 ; (Standard Errors).

Table 7: Unbiasedness and Efficiency Test for Bottom 20 % CSR Firms on Constraints

Bottom 20 % CSR Firms on Constraints									
TEST	α	β_1	β_2	$[\alpha = 0, \beta_1 = 1]$	$[\alpha = 0]$	$[\beta_1 = 1]$	$[\beta_2 = 0]$	Regressors	Controls
1	0.0014 (0.0063)	0.9617*** (0.0875)	-	0.84	0.05	0.1901	-	1, $E[EPS]_{T,h}^{i,j}$	NO
2	0.0027 (0.0075)	0.8393*** (0.1118)	-	1.42	0.13	2.07	-	1, $E[EPS]_{T,h}^{i,j}$	YES
3	-0.0038 (0.0024)	1.0159*** (0.0244)	0.0001 (0.0007)	1.29	2.55	0.43	0.01	1, $E[EPS]_{T,h}^{i,j}$, EPS_{T-1}^i	NO
4	-0.0028 (0.0091)	0.9468*** (0.0332)	-0.0006 (0.0006)	1.3	0.1	2.56	1.15	1, $E[EPS]_{T,h}^{i,j}$, EPS_{T-1}^i	YES
5	-0.0028 (0.0018)	1.0179*** (0.02449)	-0.0984 (0.0864)	1.83	2.48	0.54	1.30	1, $E[EPS]_{T,h}^{i,j}$, FE_{T-1}^i	NO
6	-0.0039 (0.0088)	0.9405*** (0.0327)	0.0316 (0.0479)	1.76	0.19	3.32*	0.44	1, $E[EPS]_{T,h}^{i,j}$, FE_{T-1}^i	YES
7	-0.0029* (0.0017)	1.0122*** (0.0239)	-0.0861 (0.0738)	2.45*	2.92*	0.26	1.36	1, $E[EPS]_{T,h}^{i,j}$, $FE_{T-1}^{i,j}$	NO
8	-0.0320*** (0.0067)	0.9269*** (0.0363)	0.0301 (0.0389)	15.53***	22.88***	4.06**	0.60	1, $E[EPS]_{T,h}^{i,j}$, $FE_{T-1}^{i,j}$	YES

Legend: $[\alpha = 0, \beta_1 = 1]$, $[\alpha = 0]$ and $[\beta_1 = 1]$ are the null hypotheses for the Unbiasedness Test. $[\beta_2 = 0]$ is the null hypothesis for the Efficiency Test. Dependent variable: EPS_T^i , earning per share of company i released in the fiscal year T; $E[EPS]_{T,h}^{i,j}$: earning per share forecast formulated by analyst j at the forecast horizon h for the same company; EPS_{T-1}^i : one-year lagged earning per share of company i ; $FE_{T-1,h}^i$: one-year lagged average firm forecast error; $FE_{T-1,h}^{i,j}$: one-year lagged average firm/analyst forecast error. Controls are Sector, Year, Analyst; * p -value < 0.05, ** p -value < 0.01, *** p -value < 0.001; (Standard Errors).

Table 8: CSR and the standard error of the absolute earning forecast error

	1	2
Net Str-Conc	-0.00012 (0.00007)	-
Tot. Concerns	-	0.00045** (0.00014)
Tot. Strengths	-	0.00010 (0.00012)
Forecast Horizon	0.00001*** (0.00000)	0.00001*** (0.00000)
Number of Analysts	-0.00021*** (0.00003)	-0.00021*** (0.00003)
Number of Forecasts	0.00001* (0.00000)	0.00001* (0.00000)
Log(Total Assets)	0.00034 (0.00023)	-0.00006 (0.00032)
Constant	-0.00193 (0.00300)	0.00329 (0.00415)
Observations	9448	9448
RMSE	0.01	0.01
R ²	0.13	0.14

Legend: for variables details see Table (4).

A Criteria of RiskMetrics-KLD social ratings

SOCIAL ISSUE RATINGS ¹⁷

COMMUNITY STRENGTHS:

Charitable Giving (COM-str-A). The company has consistently given over 1.5% of trailing three-year net earnings before taxes (NEBT) to charity, or has otherwise been notably generous in its giving [In 2002, KLD renamed the Generous Giving Strength as Charitable Giving]. **Innovative Giving** (COM-str-B). The company has a notably innovative giving program that supports nonprofit organizations, particularly those promoting self sufficiency among the economically disadvantaged. Companies that permit nontraditional federated charitable giving drives in the workplace are often noted in this section as well. **Support for Housing** (COM-str-C). The company is a prominent participant in public/private partnerships that support housing initiatives for the economically disadvantaged, e.g., the National Equity Fund or the Enterprise Foundation. **Support for Education** (COM-str-D). The company has either been notably innovative in its support for primary or secondary school education, particularly for those programs that benefit the economically disadvantaged, or the company has prominently supported job-training programs for youth. **Indigenous People Relations** (COM-str-E). The company has established relations with indigenous people in the areas of its proposed or current operations that respect the sovereignty, land, culture, human rights, and intellectual property of the indigenous people [added in 2000; in 2002 moved into the Human Rights area]. **Non-US Charitable Giving** (COM-str-F). The company has made a substantial effort to make charitable contributions abroad, as well as in the U.S. To qualify, a company must make at least 20% of its giving, or have taken notably innovative initiatives in its giving program, outside the U.S. **Volunteer Programs** (COM-str-G). The company has an exceptionally strong volunteer program [added in 2005]. **Other Strength** (COM-str-X). The company has either an exceptionally strong in-kind giving program, or engages in other notably positive community activities.

COMMUNITY CONCERNS:

Investment Controversies (COM-con-A). The company is a financial institution whose lending or investment practices have led to controversies, particularly ones related to the Community Reinvestment Act. **Negative Economic Impact** (COM-con-B). The company's actions have resulted in major controversies concerning its economic impact on the community. These controversies can include issues related to environmental contamination, water rights disputes, plant closings, "put-or-pay" contracts with trash incinerators, or other company actions that adversely affect the quality of life, tax base, or property values in the community. **Indigenous People Relations** (COM-con-C). The company has been involved in serious controversies with indigenous people that indicate the company has not respected the sovereignty, land, culture, human rights, and intellectual property of the indigenous people [added in 2000; in 2002 moved into the Human Rights area]. **Disputes** (COM-con-D). The company has recently been involved in major tax disputes involving Federal, state, local or non-U.S. government authorities, or is involved in controversies over its tax obligations to the community [entered in 1991; in 2005 moved into the Community area]. **Other Concern** (COM-con-X). The company is involved with a controversy that has mobilized community opposition, or is engaged in other noteworthy community controversies.

CORPORATE GOVERNANCE STRENGTHS:

Limited Compensation (CGOV-str-A). The company has recently awarded notably low levels of compensation to its top management or its board members. The limit for a rating is total compensation of less than \$500,000 per year for a CEO or \$30,000 per year for outside directors. **Ownership Strength** (CGOV-str-C). The company owns between 20% and 50% of another company KLD has cited as having an area of social strength, or is more than 20% owned by a firm that KLD has rated as having social strengths. When a company owns more than 50% of another firm, it has a controlling interest, and KLD treats the second firm as if it is a division of the first. **Transparency Strength** (CGOV-str-D). The company is particularly effective in reporting on a wide range of social and environmental performance measures, or is exceptional in reporting on one particular measure [added in 2006; this strength incorporates information from the former Environment: Communications Strength (ENV-str-E) as part of its content.]. **Accountability Strength** (CGOV-str-E). The company has shown markedly responsible leadership on public policy issues and/or has an exceptional record of transparency and accountability concerning its political involvement in state or federal-level U.S. politics, or in non-U.S. politics [added in 2006]. **Other Strength** (CGOV-str-X). The company has an innovative compensation plan for its board or executives, a unique and positive corporate culture, or some other initiative not covered by other KLD ratings.

CORPORATE GOVERNANCE CONCERNS:

High Compensation (CGOV-con-B). The company has recently awarded notably high levels of compensation to its top management or its board members. The limit for a rating is total compensation of more than \$10million per year for a CEO or \$100,000 per year for outside directors. **Ownership Concern** (CGOV-con-F). The company owns between 20% and 50% of a company KLD has cited as having an area of social concern, or is more than 20% owned by a firm KLD has rated as having areas of concern. When a company owns more than 50% of another firm, it has a controlling interest, and KLD treats the second firm as if it is a division of the first. **Accounting Concern** (CGOV-con-G). The company is involved in significant accounting related controversies [added in 2006]. **Transparency Concern** (CGOV-con-H). The company is distinctly weak in reporting on a wide range of social and environmental performance measures [added in 2006]. **Political Accountability Concern** (CGOV-con-I). The company has been involved in noteworthy controversies on public policy issues and/or has a very poor record of transparency and accountability concerning its political involvement in state or federal level U.S. politics, or in non-U.S. politics [added in 2006]. **Other Concern** (CGOV-con-X). The company restated its earnings over an accounting controversy, has other accounting problems, or is involved with some other controversy not covered by other KLD ratings.

DIVERSITY STRENGTHS:

CEO (DIV-str-A). The company's chief executive officer is a woman or a member of a minority group. **Promotion** (DIV-str-B). The company has made notable progress in the promotion of women and minorities, particularly to line positions with profit-and-loss responsibilities in the corporation. **Board of Directors** (DIV-str-C). Women, minorities, and/or the disabled hold four seats or more (with no double counting) on the board of directors, or one-third or more of the board seats if the board numbers less than 12. **Work/Life Benefits** (DIV-str-D). The company has outstanding employee benefits or other programs addressing work/life concerns, e.g., child care, elder care, or flextime [entered in 1991 with the name Family Benefits Strength, it was renamed in 2005]. **Women & Minority Contracting** (DIV-str-E). The company does at least 5% of its subcontracting, or otherwise has a demonstrably strong record on purchasing or contracting, with women- and/or minority-owned businesses. **Employment of the Disabled** (DIV-str-F). The company has implemented innovative hiring programs, other innovative human resource programs for the disabled, or otherwise has a

¹⁷Own elaboration of definitions and groups are updated to the last KLD release.

superior reputation as an employer of the disabled. **Gay & Lesbian Policies** (DIV-str-G). The company has implemented notably progressive policies toward its gay and lesbian employees. In particular, it provides benefits to the domestic partners of its employees [entered in 1991 with the name Progressive Gay/Lesbian Policies strength, it was renamed in 1995]. **Other Strength** (DIV-str-X). The company has made a notable commitment to diversity that is not covered by other KLD ratings.

DIVERSITY CONCERNS:

Controversies (DIV-con-A). The company has either paid substantial fines or civil penalties as a result of affirmative action controversies, or has otherwise been involved in major controversies related to affirmative action issues. **Non-Representation** (DIV-con-B). The company has no women on its board of directors or among its senior line managers. **Other Concern** (DIV-con-X). The company is involved in diversity controversies not covered by other KLD ratings.

EMPLOYEE RELATIONS STRENGTHS:

Union Relations (EMP-str-A). The company has taken exceptional steps to treat its unionized workforce fairly [entered in 1991 it was renamed from Strong Union Relations]. **No-Layoff Policy** (EMP-str-B). The company has maintained a consistent no-layoff policy [added in 1994]. **Cash Profit Sharing** (EMP-str-C). The company has a cash profit-sharing program through which it has recently made distributions to a majority of its workforce. **Employee Involvement** (EMP-str-D). The company strongly encourages worker involvement and/or ownership through stock options available to a majority of its employees, gain sharing, stock ownership, sharing of financial information, or participation in management decision-making. **Retirement Benefits Strength** (EMP-str-F). The company has a notably strong retirement benefits program. KLD renamed this strength from Strong Retirement Benefits. **Health and Safety Strength** (EMP-str-G). The company is noted by the US Occupational Health and Safety Administration for its safety programs. **Other Strength** (EMP-str-X). The company has strong employee relations initiatives not covered by other KLD ratings.

EMPLOYEE RELATIONS CONCERNS:

Union Relations (EMP-con-A). The company has a history of notably Poor Union Relations. **Health and Safety Concern** (EMP-con-B). The company recently has either paid substantial fines or civil penalties for willful violations of employee health and safety standards, or has been otherwise involved in major health and safety controversies. **Workforce Reductions** (EMP-con-C). The company has reduced its workforce by 15% in the most recent year or by 25% during the past two years, or it has announced plans for such reductions. **Retirement Benefits Concern** (EMP-con-D). The company has either a substantially underfunded defined benefit pension plan, or an inadequate retirement benefits program [entered in 1991 with the name Pension/Benefits Concern, it was renamed in 2004]. Other Concern. The company is involved in an employee relations controversy that is not covered by other KLD ratings.

ENVIRONMENTAL STRENGTHS:

Beneficial Products and Services(ENV-str-A). The company derives substantial revenues from innovative remediation products, environmental services, or products that promote the efficient use of energy, or it has developed innovative products with environmental benefits. (The term "environmental service" does not include services with questionable environmental effects, such as landfills, incinerators, waste-to-energy plants, and deep injection wells). **Pollution Prevention** (ENV-str-B). The company has notably strong pollution prevention programs including both emissions reductions and toxic-use reduction programs. **Recycling** (ENV-str-C). The company either is a substantial user of recycled materials as raw materials in its manufacturing processes, or a major factor in the recycling industry. **Clean Energy**(ENV-str-D). The company has taken significant measures to reduce its impact on climate change and air pollution through use of renewable energy and clean fuels or through energy efficiency. The company has demonstrated a commitment to promoting climate-friendly policies and practices outside its own operations [entered in 1991 it was renamed from Alternative Fuel Strength]. **Communications** (ENV-str-E). The company is a signatory to the CERES Principles, publishes a notably substantive environmental report, or has notably effective internal communications systems in place for environmental best practices.[added in 1996; it was incorporated with the Corporate Governance: Transparency rating (CGOV-str-D), which was added in 2005]. **Property, Plant, and Equipment** (ENV-str-F). The company maintains its property, plant, and equipment with above average environmental performance for its industry. [added in 1995]. **Management Systems** (ENV-str-G). The company has demonstrated a superior commitment to management systems through ISO 14001 certification and other voluntary programs [added in 2006]. **Other Strength** (ENV-str-X). The company has demonstrated a superior commitment to management systems, voluntary programs, or other environmentally proactive activities.

ENVIRONMENTAL CONCERNS:

Hazardous Waste (ENV-con-A). The company's liabilities for hazardous waste sites exceed \$50million, or the company has recently paid substantial fines or civil penalties for waste management violations. **Regulatory Problems**. (ENV-con-B) The company has recently paid substantial fines or civil penalties for violations of air, water, or other environmental regulations, or it has a pattern of regulatory controversies under the Clean Air Act, Clean Water Act or other major environmental regulations. **Ozone Depleting Chemicals**. (ENV-con-C). The company is among the top manufacturers of ozone depleting chemicals such as HCFCs, methyl chloroform, methylene chloride, or bromines. **Substantial Emissions**. (ENV-con-D). The company's legal emissions of toxic chemicals (as defined by and reported to the EPA) from individual plants into the air and water are among the highest of the companies followed by KLD. **Agricultural Chemicals**. (ENV-con-E). The company is a substantial producer of agricultural chemicals, i.e., pesticides or chemical fertilizers. **Climate Change**. (ENV-con-F). The company derives substantial revenues from the sale of coal or oil and its derivative fuel products, or the company derives substantial revenues indirectly from the combustion of coal or oil and its derivative fuel products. Such companies include electric utilities, transportation companies with fleets of vehicles, auto and truck manufacturers, and other transportation equipment companies. **Other Concern**. (ENV-con-X). The company has been involved in an environmental controversy that is not covered by other KLD ratings.

HUMAN RIGHTS STRENGTHS:

Positive Record in South Africa (HUM-str-A). The company's social record in South Africa is noteworthy [existed only in 1994 and 1995]. **Indigenous Peoples Relations Strength**. (HUM-str-D). See Community Indigenous Peoples Relations (COM-str-E) [added in 2000 under Community, from 2004 moved in Human Rights]. **Labor Rights Strength** (HUM-str-G). The company has outstanding transparency on overseas sourcing disclosure and monitoring, or has particularly good union relations outside the U.S., or has undertaken labor rights-related initiatives that KLD considers outstanding or innovative [added in 2002]. **Other Strength**.(HUM-str-X) The company has undertaken exceptional human rights initiatives, including outstanding transparency or disclosure on human rights issues, or has otherwise shown industry leadership on human rights issues not covered by other KLD human rights ratings [entered in 1994].

HUMAN RIGHTS CONCERNS:

South Africa (HUM-con-A). The company faced controversies over its operations in South Africa [existed from 1991 to 1994]. **Northern**

Ireland (HUM-con-B). The company has operations in Northern Ireland [existed from 1991 to 1994]. **Burma Concern**(HUM-con-C). The company has operations or direct investment in, or sourcing from, Burma. [added in 1995]. **Mexico** (HUM-con-D). The company's operations in Mexico have had major recent controversies, especially those related to the treatment of employees or degradation of the environment [existed from 1995 to 2002]. **Labor Rights Concern** (HUM-con-F). The company's operations have had major recent controversies primarily related to labor standards in its supply chain [added in 1998; it was lately renamed from the International Labor Concern]. **Indigenous Peoples Relations Concern** (HUM-con-G). The company has been involved in serious controversies with indigenous peoples (either in or outside the U.S.) that indicate the company has not respected the sovereignty, land, culture, human rights, and intellectual property of indigenous peoples [added in 2000]. **Other Concern** (HUM-con-X). The company's operations have been the subject of major recent human rights controversies not covered by other KLD ratings.

PRODUCT STRENGTHS:

Quality (PRO-str-A). The company has a long-term, well-developed, company-wide quality program, or it has a quality program recognized as exceptional in U.S. industry. **R&D/Innovation** (PRO-str-B). The company is a leader in its industry for research and development (R&D), particularly by bringing notably innovative products to market. **Benefits to Economically Disadvantaged** (PRO-str-C). The company has as part of its basic mission the provision of products or services for the economically disadvantaged. **Other Strength** (PRO-str-X). The company's products have notable social benefits that are highly unusual or unique for its industry.

PRODUCT CONCERNS:

Product Safety (PRO-con-A). The company has recently paid substantial fines or civil penalties, or is involved in major recent controversies or regulatory actions, relating to the safety of its products and services. **Marketing/Contracting Concern** (PRO-con-D). The company has recently been involved in major marketing or contracting controversies, or has paid substantial fines or civil penalties relating to advertising practices, consumer fraud, or government contracting. (Formerly: Marketing/Contracting Controversy). **Antitrust** (PRO-con-E). The company has recently paid substantial fines or civil penalties for antitrust violations such as price fixing, collusion, or predatory pricing, or is involved in recent major controversies or regulatory actions relating to antitrust allegations. **Other Concern** (PRO-con-X). The company has major controversies with its franchisees, is an electric utility with nuclear safety problems, defective product issues, or is involved in other product related controversies not covered by other KLD ratings.

ALCOHOL (ALC-con-A) : Licensing. The company licenses its company or brand name to alcohol products. **Manufacturers.** Companies that are involved in the manufacture alcoholic beverages including beer, distilled spirits, or wine. **Manufacturers of Products Necessary for Production of Alcoholic Beverages.** Companies that derive 15% or more of total revenues from the supply of raw materials and other products necessary for the production of alcoholic beverages. **Retailers.** Companies that derive 15% or more of total revenues from the distribution (wholesale or retail) of alcoholic beverages. **Ownership by an Alcohol Company.** The company is more than 50% owned by a company with alcohol involvement. **Ownership of an Alcohol Company.** The company owns more than 20% of another company with alcohol involvement. (When a company owns more than 50% of company with alcohol involvement, KLD treats the alcohol company as a consolidated subsidiary.) **(ALC-con-X): Alcohol Other Concern.** The company derives substantial revenues from the activities closely associated with the production of alcoholic beverages [KLD assigned concerns in this category through 2002].

GAMBLING (GAM-con-A): Licensing. The company licenses its company or brand name to gambling products. **Manufacturers.** Companies that produce goods used exclusively for gambling, such as slot machines, roulette wheels, or lottery terminals. **Owners and Operators.** Companies that own and/or operate casinos, racetracks, bingo parlors, or other betting establishments, including casinos; horse, dog, or other race tracks that permit wagering; lottery operations; on-line gambling; pari-mutuel wagering facilities; bingo; Jai-alai; and other sporting events that permit wagering. **Supporting Products or Services.** Companies that provide services in casinos that are fundamental to gambling operations, such as credit lines, consulting services, or gambling technology and technology support. **Ownership by a Gambling Company.** The company is more than 50% owned by a company with gambling involvement. **Ownership of a Gambling Company.** The company owns more than 20% of another company with gambling involvement. (When a company owns more than 50% of company with gambling involvement, KLD treats the gambling company as a consolidated subsidiary.) **(GAM-con-X): Gambling Other Concern** The company derives substantial revenues from the activities closely associated with the production of goods and services closely related to the gambling industry or lottery industries [KLD assigned concerns in this category through 2002].

TOBACCO (TOB-con-A): Licensing The company licenses its company name or brand name to tobacco products. **Manufacturers.** The company produces tobacco products, including cigarettes, cigars, pipe tobacco, and smokeless tobacco products. **Manufacturers of Products Necessary for Production of Tobacco Products.** The company derives 15% or more of total revenues from the production and supply of raw materials and other products necessary for the production of tobacco products. **Retailers.** The company derives 15% or more of total revenues from the distribution (wholesale or retail) of tobacco products. **Ownership by a Tobacco Company.** The company is more than 50% owned by a company with tobacco involvement. **Ownership of a Tobacco Company.** The company owns more than 20% of another company with tobacco involvement. (When a company owns more than 50% of company with tobacco involvement, KLD treats the tobacco company as a consolidated subsidiary.) **(TOB-con-X): Tobacco Other Concern** The company derives substantial revenues from the production of tobacco products [added in 2002].

FIREARMS (FIR-con-A): Manufacturers. The company is engaged in the production of small arms ammunition or firearms, including, pistols, revolvers, rifles, shotguns, or sub-machine guns. **Retailers.** The company derives 15% or more of total revenues from the distribution (wholesale or retail) of firearms and small arms ammunition. **Ownership by a Firearms Company.** The company is more than 50% owned by a company with firearms involvement. **Ownership of a Firearms Company.** The company owns more than 20% of another company with firearms involvement. (When a company owns more than 50% of company with firearms involvement, KLD treats the firearms company as a consolidated subsidiary) [added in 1999].

MILITARY (MIL-con-A): Manufacturers of Weapons or Weapons Systems. Companies that derive more than 2% of revenues from the sale of conventional weapons or weapons systems, or earned 50 million or more from the sale of conventional weapons or weapons systems, or earned 10 million or more from the sale of nuclear weapons or weapons systems. **Manufacturers of Components for Weapons or Weapons Systems.** Companies that derive more than 2% of revenues from the sale of customized components for conventional weapons or weapons systems, or earned 50 million or more from the sale of customized components for conventional weapons or weapons systems, or earned 10 million or more from the sale of customized components for nuclear weapons

or weapons systems. **Ownership by a Military Company.** The company is more than 50% owned by a company with military involvement. **Ownership of a Military Company.** The company owns more than 20% of another company with military involvement. (When a company owns more than 50% of company with military involvement, KLD treats the military company as a consolidated subsidiary) [entered since 1991]. **(MIL-con-B): Minor Weapons Contracting Involvement.** The company has minor involvement in weapons-related contracting. In the most recent fiscal year for which information is available, it derived 10 to 50 million in conventional weapons-related prime contracts (when that figure is less than 2% of revenue), or 1 to 10 million from nuclear weapons-related prime contracts [existed just from 1991 to 2002]. **(MIL-con-C): Major Weapons-related Supplier.** During the last fiscal year, the company received from the Department of Defense more than 50 million for fuel or other supplies related to weapons [existed just from 1991 to 2002]. **(MIL-con-X): Military Other Concern.** The company has substantial involvement in weapons-related contracting. In the most recent fiscal year for which information is available, it derived more than 2% of sales or 50 million from weapons-related contracting, or it received more than 10 million in nuclear weapons-related prime contracts [existed just through 2002].

NUCLEAR POWER (NUC-con-A): Construction & Design of Nuclear Power Plants. The company designs, engineers, and constructs nuclear power plants and nuclear reactors for use in nuclear power plants; including companies that design nuclear reactors and engineer and/or construct nuclear power plants. **Nuclear Power Fuel and Key Parts.** The company supplies nuclear fuel material and key parts used in nuclear plants and reactors. Fuel includes mining of uranium and conversion, enrichment, and fabrication of uranium. Key parts include manufacture or sale of specialized parts for use in nuclear power plants including but not exclusive to steam generators, control rod drive mechanisms, reactor vessels, cooling systems, containment structures, fuel assemblies, and digital instrumentation & controls. **Nuclear Power Service Provider.** The company is involved in the transport of nuclear power materials and nuclear plant maintenance. **Ownership of Nuclear Power Plants.** The company has an ownership interest or operates nuclear power plant(s). Does not include publicly traded companies that are an owner or operator of a nuclear plant that has shut down and is being decommissioned. **Ownership by a Nuclear Power Company.** The company is more than 50% owned by a company with nuclear power involvement. **Ownership of a Nuclear Power Company.** The company owns more than 20% of another company with nuclear power involvement. If company ownership of company with nuclear power involvement is greater than 50%, KLD treats subsidiary as a consolidated subsidiary. **(NUC-con-C): Design.** The company derives identifiable revenues from the design of nuclear power plants. This category does not include companies providing construction or maintenance services for nuclear power plants [existed just through 2002; it was re-instated as Construction & Design of Nuclear Power Plants under the code NUC-con-A in 2005]. **(NUC-con-D): Fuel Cycle/Key Parts.** The company mines, processes, or enriches uranium, or is otherwise involved in the nuclear fuel cycle. Or, the company derives substantial revenues from the sale of key parts or equipment for generating power through using nuclear fuels. [existed just through 2002; it was re-instated as Nuclear Power Fuel and Key Parts under the code NUCcon- A]. **(NUC-con-X): Nuclear Power Other Concern.** The company is involved in the production of Nuclear Power [existed just through 2002].