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Corporate social responsibility and shareholder's value: an empirical analysis

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Abstract

In today's global economy, corporate social responsibility (CSR) is a core component of corporate strategy. Due in part to financial scandals, losses, and the diminished reputation of the affected listed companies, CRS is emerging as a crucial instrument for minimizing conflicts with stakeholders. While corporations are busy adopting and enhancing CSR practices, there is (beyond a very few notable exceptions) no established empirical research on its impact and relevance for the capital market. Our paper investigates this issue by tracing market reactions to corporate entry into and exit from the Domini 400 Social Index (a recognized CSR benchmark) between 1990 and 2004. Our paper highlights two main findings: i) a significant upward trend in absolute values of abnormal returns, irrespective of the event (entry/exit vis-à-vis the index) type; and ii) a significant negative effect on abnormal returns after announcement from the Domini index. The latter effect continues to persist even after controlling for concurring financial distress shocks and stock market seasonality.

Keywords: corporate social responsibility, event study

JEL classification numbers: G14, D21, L21

Yritysten yhteiskuntavastuu palkitaan osakemarkkinoilla

Suomen Pankin keskustelualoitteita 1/2009

Leonardo Becchetti – Rocco Ciciretti – Iftekhar Hasan
Rahapolitiikka- ja tutkimusosasto

Tiivistelmä

Yhteiskuntavastuu on tämän päivän globaalissa toimintaympäristössä keskeinen osa yritysten toimintastrategiaa. Rahoitustoimialan skandaalit, taloudelliset menetykset ja listautuneiden yritysten maineen huononeminen ovat osaltaan vaikuttaneet siihen, että yhteiskuntavastuusta on tullut tärkeä väline yritysten sidosryhmien välisten konfliktien minimoimisessa. Vaikka yritykset lisääntyvästi korostavat yhteiskuntavastuun merkitystä toimintastrategioitaan uudistaessaan, ei niiden yhteiskuntavastuun rahoitusmarkkinavaikutuksista ole muutamia poikkeuksia lukuun ottamatta tehty systemaattista empiiristä tutkimusta. Tässä työssä näitä vaikutuksia tutkitaan mittaamalla, miten rahoitusmarkkinat reagoivat siihen, että listautuneet yritykset liittyivät Domini 400 -yhteiskunnallisuusindeksiin ja poistuivat vuosien 1990 ja 2004 välisenä aikana. Tutkimustulokset tukevat kahta johtopäätöstä. Ensinnäkin indeksitapahtumat kasvattavat osakemarkkinoiden ylituottojen vaihtelua eli osakemarkkinoiden ylituotot kasvavat absoluuttisesti riippumatta siitä, aiheutuuko kirjaus indeksiin liittymisestä vai indeksistä poistumisesta. Toisaalta ilmoitukset yritysten poistumisesta Domini 400 -indeksistä pienentävät merkitsevästi osakemarkkinoiden ylituottoja. Tämä indeksistä poistumisen osakemarkkinoiden ylituottoja supistava vaikutus säilyy silloin, kun rahoitustoimialaa uhkaava lama ja osakemarkkinoiden kausivaihtelu otetaan huomioon estimoinneissa.

Avainsanat: yritysten yhteiskuntavastuu, tapahtumatutkimus

JEL-luokittelu: G14, D21, L21

Contents

1 Introduction

Recent financial scandals – eg, Enron, Parmalat, Worldcom etc – have forced corporate executives, globally, to contemplate a broader strategy beyond the focused view of stockholders wealth maximization. A general understanding is that the reputation of a company and the welfare of distinct stakeholders are crucial to stockholders wealth maximization and long-term survival.[1] In such scenarios, the ultimate value of shareholder wealth may be linked to 'maximizing *the sum of various stakeholder surpluses*.' The studies by Geczy, Stambaugh and Levin (2005) and Bauer, Koedijk and Otten (2006) reveal that investors are equally interested in such initiatives, as documented by the increased flow of funds in the industry of ethically managed mutual funds. Contemporary reports show that one of nine dollars invested in the market funds are invested in so called 'socially responsible' investment portfolios.[2] Similar trends are revealed in Europe where, in recent years, the number of socially screened mutual funds has nearly doubled, mainly in the United Kingdom, Sweden, France, and Belgium. However, none of these studies and reports focus on the perception of investors, or on the potential reaction in the capital market associated with such socially responsible actions/non-actions undertaken by corporations. This paper attempts to void the gap in the literature by investigating the potential link between CSR initiatives and the change in market value or price movements of companies following/rejecting CSR activities. We do so by investigating one of the most renowned stock market indexes of social responsibility, the Domini 400 Social

[1] Tirole (2001) argues that the concept of stakeholder value recognizes that corporate activity may create negative externalities which need to be counterbalanced, either by institutional rules or by corporations themselves.

[2] See, Report on Socially Responsible Investing Trends in the United States, 2003 and Cerulli Associate's European SRI Reports respectively for further details.

Index,[3] while tracking and evaluating the impact of a series of events – of inclusion and deletion from the index – on/in the financial market.[4] We hypothesize that investors do track these socially responsible companies and the indices, and that any substantial deviation or change announcement in the index is reflected in the abnormal return of these firms in the capital market. Employing an event study analysis of the 1990–2004 generation, we measure the perception and expectation of financial investors, and test the net effect of entry/exit from the CSR index, thus providing evidence on the CSR-corporate performance nexus. Our evidence portrays a significant upward trend in absolute value abnormal returns of the sample events, irrespective of changes (addition or deletion) in the index. Additionally, we find a significant negative effect on abnormal returns after the exit announcements from the Domini index. This negative relationship continues to persist even after controlling for concurring financial distress shocks, and stock market seasonality.

The reminder of the paper is organized as follows. In this section, we perform a series of robustness checks on our findings with nonparametric tests, abnormal returns based on alternative estimation models and exclusion of deletion rationales related to financial distress shocks. In section two, we briefly summarize the key theoretical and empirical literature. In section three, we report data, methodology, results and robustness checks. The final section concludes the paper.

[3] The Domini 400 Social Index [SM] is a market capitalization-weighted common stock index. It monitors the performance of 400 US corporations that pass multiple, broad-based social screens. The Index consists of approximately 250 companies included in the Standard & Poor's 500 Index, approximately 100 additional large companies not included in the S&P 500 but providing industry representation, and approximately 50 additional companies with particularly strong social characteristics. Inclusion in the index is based on the SR screening of Kinder, Lydenberg and Domini Research & Analytics, Inc. (KLD), the leading research group in providing ratings of corporate social performance to investors. KLD screens around 3,000 firms accounting for 98% of total market value of US public equities (Barnea-Rubin, 2005). The screening approach is in two steps. In the first step a group of firms is excluded if their activity is for a significant share in controversial industries (alcohol, tobacco, or gambling; companies that derive more than 2% of gross revenues from the production of military weapons; and electric utilities that own interests in nuclear power plants or derive electricity from nuclear power plants in which they have an interest). From the remaining group of firms a subset of SR firms is selected according to a series of qualitative indicators (community relations, product quality, workforce diversity, employee relations, environment, human rights, non-US operations, and product safety and use). The definition of the Domini CSR criteria is obviously questionable and open to debate. At the moment Domini information represents one of the most reliable sources on CSR and is therefore the reference for our econometric analysis.

[4] Entries or exits from the index are announced by the Domini the same day in which the event occurs. Hence, news and event timing coincide.

2 CSR and corporate performance: the state of art

Stock market prices should reflect the fundamental expected value of the stock, ie the discounted sum of the expected dividends accruing to the owners of shares. When investors are rational, and fully informed expected values are instantaneously revised with the arrival of news, if the news refers to an event affecting one or more factors determining the fundamental value of the stock (expected future cash flows, interest rates, risk premia, stock betas, etc). In this perspective, the impact of events, such as entries or exits from the Domini index should be predicted based on a theoretical framework, which evaluates the impact of the event itself on the different components of the formula of the fundamental value of the stock.

A crucial issue to consider when formulating our hypothesis on the effects of the announcement of an event related to the CSR choice is therefore, the investigation of the nexus between corporate social responsibility and corporate performance, and, more specifically in our case, the specific criterion of corporate performance represented by shareholder value.

Kinder, Lydenberg and Domini Research & Analytics, Inc. (KLD) divide CSR criteria analyzed for inclusion in the Domini 400 index into eight broad categories:[5] 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, the Domini index identifies strengths and weaknesses, and indicates a series of corporate actions falling under one of the two categories.

Overall, we find that most of the strengths and weaknesses in each of the eight domains are cost increasing, with the notable exception of the *product quality* section, and of rules limiting managerial compensation (in the *employee relations* section). Hence, we may be led to conclude that most of the SR criteria (see in particular those in the *employee relations*, *environment*, *community* and *human right* sections) involve a *shift of focus* from the maximization of shareholder value to the satisfaction of the interests of a broader set of stakeholders (shareholders but also local communities, workers, domestic and foreign subcontractors).[6]

On the other side, we must nonetheless consider that the CSR choice may have positive effects on market value by enhancing workers productivity, especially when it involves wage and non-wage benefits for firm employees. The productivity enhancing effect of such benefits is widely analyzed by the efficiency

[5] Details on Domini categories are omitted for reasons of space and available upon request.

[6] For a reference on the most famous positions in the historical debate evaluating causes and consequences of CSR see Friedman (1962) and Freeman (1984), while on the methodological problems arising when pursuing the goal of maximization of multiple stakeholders interests see Jensen (1986) and Tirole (2001).

wage literature (Yellen, 1984) in shirking (Stiglitz-Shapiro, 1984) and gift exchange models (Akerlof, 1982). Furthermore, the importance of intrinsic motivations in productivity, and the availability of workers to accept lower wages (and even voluntary work) when intrinsic motivations[7] are strong, suggests that the latter are partial substitutes for pecuniary transfers. Therefore, intrinsic motivations are a channel through which corporate social responsibility may reduce costs and increase productivity by fostering alignment between corporate goals and employee motivations.

Another 'value increasing' argument is set forth by Freeman (1984) who considers that CSR may be an optimal choice to minimize transaction costs and potential conflicts with stakeholders.[8] In this perspective, CSR may be seen as an effective tool for improving firm reputation, and reducing the risk of remaining victims of consumer activism and legal actions. The nexus between CSR and corporate performance is therefore complex and its complexity is confirmed by the empirical literature in the field which does not provide clear cut results.

In favor of a positive link, are those studies showing that: i) costs of having a high level of CSR are more than compensated by benefits in employee morale and productivity (Soloman and Hansen, 1985); ii) CSR is positively associated with financial performance (Pava and Krausz, 1996; and Preston and O'Bannon, 1997); iii) positive synergies exist between corporate performance and an excellent relationship with stakeholders (Stanwick and Stanwick, 1998; Verschoor, 1998); iv) change in CSR is positively associated with growth in sales and returns on sales with CSR for three financial periods (Ruf et al, 2001). Consider that many of these papers find evidence of a positive effect on economics, and not on financial performance (with the exception of Pava and Krausz, 1996; and Preston and O'Bannon, 1997). Hence, the corporate SR choice may be beneficial in terms of net sales or value added per worker, but not necessarily in terms of shareholder value.

Obviously, not all empirical analyses find a positive nexus. On the negative side, we have contributions of Preston and O'Bannon (1997) Freedman and Jaggi (1982), Ingram and Frazier (1983) and Waddock and Graves (1997). Inconclusive results are those of McWilliams and Siegel (2001) Anderson and Frankle (1980), Freedman and Jaggi (1986) and Aupperle, Caroll and Hatfield (1985). The limit common to most of these papers is in the adoption of estimation techniques which do not take into account problems of endogeneity and stationarity of time series and panel data.

[7] On the relationship between workers' intrinsic motivation and productivity see Ryan et al (1991), Frey and Oberholzer-Gee (1997) and Kreps (1997).

[8] By summing up information from various sources it is possible to calculate that, only in the year 2005, the top corporations in the US paid around 9 billion dollar settlements to avoid court judgment when sued by investors for financial scandals (www.endgame.org/corpfines3.html).

A more recent vintage of papers refines, significantly, the empirical methodology, and presents interesting findings. Among them, Barnea and Rubin (2005) demonstrate that the decision to invest in CSR is negatively related to insider ownership, and interpret this finding in the light of an overinvestment hypothesis. CSR is good for shareholder value, up to a given level, but insiders may have an interest to overinvest in it to improve their reputation, and they are more likely to do so when their ownership share is lower.

Two recent papers highlight the increasing diffusion of ethically managed funds, and provide theoretical framework and empirical analyses of their relative performance. Bauer, Koedijk and Otten (2002) compare active strategies of ethical and traditional investment funds, finding mixed results (not univocal prevalence of one over the other), but observe a learning process which gradually improves the performance of ethical investment fund managers. Geczy, Stambaugh and Levin (2003) calculate the cost of imposing socially responsible investment constraints in terms of risk adjusted returns, show their dependence on the share of SR investment, on views about asset pricing models (SR funds are less able to offer exposure to size and value factors than to the standard one CAPM factor), and on the ability of stock managers.

By considering the above mentioned theoretical and empirical considerations we expect different, and potentially conflicting, effects of addition and deletion from the Domini index. If the *shift of focus* hypothesis holds (and the cost increasing dominate over the cost decreasing effects), we should expect a negative (positive) abnormal return in case of an addition (deletion) announcement. If, on the other hand, we consider the growing volume of financial assets intermediated by socially responsible funds (and take into account that a relevant part of them follows the passive strategy of tracking a SR index), we would expect the opposite effect of a negative (positive) abnormal return in case of a deletion (addition) announcement, with such effect becoming stronger in the more recent years when the role of SR funds has become more significant.

As already observed and determined in balance sheet data, one of the main limits of all the analyses is the difficulty of controlling for endogeneity. In the CSR-corporate performance relationship, the problem is particularly severe as it is important to discern, for instance, in case of positive relationship, whether the move to CSR is an autonomous driver of improvement in corporate performance or, quite to the opposite, high cash flow and better performing firms are more likely to choose CSR due to their higher cash flow availability. A second, almost insurmountable limit is that balance sheet analyses of the CSR-corporate performance nexus do not provide a risk adjusted measure of performance.

Conversely, the two advantages of investigating the impact of CSR on corporate performance in financial markets are that, by calculating abnormal returns at the announcement date; i) we pick up the expected net effect of entry into/exit from CSR – and, hence we separate the effect of change in CSR on

corporate performance from the reverse causality effect – and, ii) we may calculate it net of measurable risk factors.

Of course, as it is well known, an event study analysis may present problems, such as sensitivity to waves of market optimism or pessimism, and a restrictive assumption that stock market reaction arises from rational fully-informed investors taking their choices on the basis of the maximization of their expected wealth. For the first point, an analysis in which events are scattered over a long span of time (13 years), and a robustness check, in which dummies for stock market seasonality are included in the estimate of the determinants of abnormal returns should reduce the problem. On the second point, we will see that when interpreting our findings, the case of SR investing is exactly one in which the hypothesis of investors choosing only on the basis of the maximization of their expected wealth may not apply. SR investors may in fact decide to sell a stock not because it is not going to be profitable, but because it no longer complies with CSR standards.

Finally, in our event study analysis, an observational equivalence issue related to the endogeneity problem in the relationship between CSR and corporate performance may still persist if exit from the Domini Index coincides with a financial distress shock. In such cases, the rationale of the observed negative abnormal returns would not be the exit from the Index, as both events would be jointly determined by the concurring financial distress shock. To rule out this possibility, we perform a robustness check by carefully examining the rationales for exclusion from the Domini 400 index, and by excluding from the analysis those likely to be related to financial distress.

3 Empirical findings

3.1 Empirical findings from the market model

We create a sample of 327 events of entries or exits from the Domini 400 Social Index concerning 278 firms (27 firms register a double event of entry and exit from the index in the sample period).

The Domini corporate screening identifies strengths and weakness for each of the following 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* (Details on chronology and motivation of each entry or exit event are omitted for reasons of space and are available upon request; brief summaries are shown in Appendix A). When the stock no longer passes the qualitative screening process (described in footnote 3), the stock is excluded from the index.

By looking at reasons for deletion, we find that the most frequent is *lack of financial and social representation* (12 cases), followed by *South Africa* (6 cases), *product concerns* (6 cases), *bankruptcy* (5 cases), and *military* (3 cases). On the entry side, we find, among CSR strengths, which motivate the event, *diversity* (85 times), *employee* (76), *environment* (40) and *community* (26). We eliminate from the sample, for obvious reasons, deletions determined by mergers and acquisitions, changes of ticker, changes of name, and decisions to go private.

It is important to consider that the index, by construction, has to maintain a constant number of constituents. Therefore it is evident that, while deletion is directly related to the information on the breach of the SR criteria, addition is only possible after deletion of a current constituent.[9] As a consequence, while deletion is always directly related to the breach of the Domini SR criteria, there may be lags between compliance of such criteria and addition to the index. For this reason, in case of addition, our event study is more likely to isolate the effect that inclusion in the index may generate on passive buy-and-hold strategies of ethically responsible investment funds.

To calculate abnormal returns, we use the market model under the following specification

$$R_t - R_f = \alpha_0 + \beta_o (R_m - R_f) + \varepsilon_t \qquad (3.1)$$

where R_t is the one-day compounded return, R_f is the risk free rate proxied by the one-month yield of the US Treasury Bill, and $(R_m - R_f)$ is the excess return of the stock market index. The advantage of this simple model is that its coefficients are generally always statistically significant, and therefore, the calculated abnormal returns are highly reliable. More sophisticated models (multi factor models, models which include day of the week effects, etc.) do not share this advantage, and scarcely improve goodness of fit with respect to the former (Brown-Warner, 1985; Campbell et al, 1997). To estimate the market model, we use an eight month window, but we perform a robustness check to control whether our results are confirmed with a different (2 month) window.

The first hypothesis we test is whether the impact of announcements of addition and deletion from the Domini index has risen over time. The rationale is that financial markets should be increasingly sensitive to CSR news for several reasons: i) interest of investors growing over time; ii) expected effects higher since investors perceive increased interdependence between CSR and corporate performance, or anticipate stronger reaction of concerned investors/consumers to

[9] This creates an additional problem in balance sheet analyses on the impact of CSR on corporate performance based on Domini affiliation since some of the (control sample) non Domini firms may possess all requirements needed to pass the Domini screen, but are not included in the index until a constituent is excluded.

the event; iii) volume of funds intermediated by 'ethical funds' with active or passive strategies on the Domini index having grown over time.

The estimated model is

$$\left|\mathrm{CAR}\right|_i = \alpha_0 + \alpha_1 \mathrm{Trendyear} + \varepsilon_t \qquad (3.2)$$

where, the dependent variable is the absolute (event window) CAR of the i-th stock for which an event of entry or exit from the Domini occurred and *Trendyear* is a linear trend variable.

Since, informational spillovers may occur before the announcement date we calculate abnormal returns in the following different intervals – AR(0), CAR(-1,0) – with 0 being the event date.

Our findings do not reject the hypothesis that the role of CSR funds has risen over time since the trend coefficient is positive and significant for three out of four combinations of event windows and estimation periods considered (Table 1).

The second hypothesis we want to test is whether addition or deletion is associated to significant abnormal returns.

A graphical inspection of the dynamics of cumulative abnormal returns, aggregated for deletion and addition events under different estimation windows, shows that deletion CARs, calculated with the market model, generally exhibit a drop (up to 4 per cent) in the proximity of the event date (Figures 1a–1f). The drop is reabsorbed in a period ranging between 11 and 24 days. Addition event CARs remain quite stable, around zero, before and after the event date.

To test whether the observed patterns document significant differences in stock market reaction to deletion and addition events, we regress in a cross-sectional estimate the (cumulative) abnormal returns for each event on a constant and on a dummy taking the value of one if the event is a deletion and zero otherwise (Table 2). We calculate abnormal returns in the following different event windows – AR(0), AR(-1), CAR(-1,+3), CAR(-1,+1) and CAR(-1,0) – with 0 being the event date.

Our findings document that deletion from the Domini index has a significant and negative effect around the announcement date for all the different event windows considered, while the same does not occur for addition events.[10] The significance of the deletion event is weaker in the (-1,+3) estimation window, consistently with the hypothesis that financial markets efficiently incorporate new information without large time delays. When we split our sample in two periods, we find that the deletion effect is significant only in the second interval (1999–2004) and not in the first (Tables 3b–3c).This last finding does not contradict the evidence on the increasing significance of CSR events over time.

[10] Results are omitted and available upon request.

The result of the significance of the deletion events in the cross-sectional regression estimate in which (cumulative) abnormal returns are the dependent variable, is confirmed when we alternatively test the hypothesis with J_1 and J_2 tests (Table 2). Remember that in the J_1 test, abnormal returns are first aggregated within the event window for each individual stock, then aggregated across stocks, and finally standardized, while in the J_2 test the last two operations (aggregation across stocks and standardization) are inverted. The consequence is that the J_2 test gives more weight to low variance securities with respect to the J_1 test.

3.2 Robustness check on the model used for estimating abnormal returns

As already mentioned, the market model is usually the most followed estimation benchmark for calculating abnormal returns in event studies. The rationale for using it is that more sophisticated approaches do not add much in terms of goodness of fit, with the risk of introducing regressors which are, in many cases, weakly, or not at all significant. The consequence (especially in event studies in which we need to obtain reliable abnormal returns) is the introduction of undesired noise originated by the excessive weight given to factors, which are actually not significant in the calculation of predicted returns.

In spite of these considerations, it is not possible to ignore that model misspecification may generated autocorrelated residuals and biased abnormal returns, and that, at least for a robustness check of our previous findings, the base market return model could be implemented in two main directions: i) introduction of additional risk factors orthogonal to systematic nondiversifiable risk represented by market excess returns; ii) consideration of autoregressive conditional heteroskedasticity of stock market returns.

To this purpose, we re-compute abnormal returns by adopting the following procedure for each event: i) LM test of the null hypothesis of homoskedastic and non autocorrelated residuals in the market model; ii) in case of rejection of the above tested hypothesis, estimation of a multi-CAPM GARCH (p,q) model in which the mean equation includes the three Fama-French (1995) risk factors as regressors; iii) identification of a parsimonious specification for the final model by eliminating regressors which are not significant in the mean equation and by selecting the proper lag for the GARCH (p,q) model;[11] iv) LM test on the standardized residuals of the GARCH (p,q) model to check for the validity of the GARCH structure of the model.

[11] The default is the GARCH (1,1) model. If residuals from the model pass the ARCH LM test we stop here. If not, we choose the proper parsimonious lag structure for regressors of the variance equation leading to successful post estimate diagnostics at step iv).

By performing step i) we observe that, in most cases (around 92 per cent of deletion and addition events), regression residuals from the market model exhibit conditional heteroskedasticity.[12] We therefore, move to step ii), and choose the following multi CAPM-GARCH (p,q) specification in which the mean equation is represented by

$$R_t - R_f = \alpha_0 + \beta_o(R_m - R_f) + \beta_1 SMB + \beta_2 HML + \varepsilon_t \tag{3.3}$$

where R_t is the one-day compounded return, R_f is the risk free rate proxied by the one month yield of the US treasury bill, $(R_m - R_f)$ is the excess return of the stock market index, and SMB and HML are the two Fama-French (1995) risk factors[13] measuring two additional risk components related to size and book-to-market value of the firm.[14] $\varepsilon_t \sim (0, h_t)$ is the zero mean error term $\varepsilon_t \sim (0, h_t)$ has a conditional variance h_t that is modeled by the following equation

$$h_t = \alpha_0 + \sum_{i=1}^{p} \gamma_i h_{t-i} + \sum_{j=i}^{q} \delta_j \varepsilon_{t-j}^2 \tag{3.4}$$

where h_t is the conditional variance of the error term in (3.3), ε_{t-1}^2 measures the impact of squares of lagged shocks on the conditional variance, h_{t-1} is the first lag of the conditional variance, with its coefficient measuring persistence of the dependent variable. We estimate the model for each of the event-related stocks in the 8 month estimation window,[15] and choose the more parsimonious multi-

[12] Results of this test are omitted for reasons of space and available from the authors upon request.

[13] The risk factors are computed as follows. We first divide the two samples each month into two subgroups: the 50% largest firms (group B) and the 50% smallest firms (group S). These two subgroups are then divided in turn into three subgroups containing respectively the largest 30% (group BH and SH), the mid 40% (group BM and SM) and the smallest 30% (group BL and SL) market to book values. SMB is then calculated, by using subgroup average returns, as ((SH+SM+SL)/3)–((BH+BM+BL)/3) and HML as (SL+BL)/2)–(SH+BH)/2).

[14] The rationale for adopting a multifactor capital asset pricing model is that some risk factors, to which small firms or financially distressed firms are particularly exposed, are not captured by sensitivity to the stock market index. Shocks in asset values may for instance reduce the value of the collateral affecting both solvency of financially distressed firms and the capacity to obtain credit of small firms in a framework of imperfect information (Bernanke and Gertler, 1990). Debt deflation negatively affects financially distressed (low MTBV) firms more than others. Expectations of liquidity squeezes, in economies in which the three Kashyap, Lamont and Stein (1993) conditions for the existence of a 'credit channel' may be applied, may generate negative effects on price and quantity of credit available to financially distressed firms, to firms with low earnings per share (and then low self-financing capacity) and to small firms that are more likely to be victims of financial constraints (Devereux and Schiantarelli, 1989).

[15] Results when using the alternative estimation window of 2 months are not substantially different. They are omitted for reasons of space and available upon request. See Appendix 3 for some details on these alternative results.

CAPM conditional heteroskedasticity model by eliminating all insignificant regressors from the specification.[16]

Based on these new estimates, we decide to perform a robustness check of the analysis of the effects of entries and exits from the index in the following way: i) we exclude from the sample 10 exit and 19 entry events for which the variance stationarity condition in the conditional variance equation $-\sum_{i=1}^{p}\gamma_i + \sum_{j=i}^{q}\delta_j < 1$ – is not satisfied. ii), we recalculate abnormal returns from the multifactor models, and iii) use heteroskedasticity robust standard errors to tackle the conditional heteroskedasticity problem evidenced by GARCH estimates.

Descriptive evidence of CARs obtained from residuals extracted with this robustness check exercise is provided in Figures 2a–2b. It shows that the pattern of aggregate addition and deletion CARs in proximity of the event date is substantially unchanged with respect to the one extracted from the market model abnormal returns (Figures 2a–2b). A difference in this case arises when we look at further distances from the event date since the gap between aggregate addition and deletion CARs is bridged only 90 days after the event date. This evidence suggests that the relative performance of deletion stock gets worse when conditional heteroskedasticity is taken into account.

We finally extract from our best GARCH (p,q) multi CAPM specification the series of abnormal returns, which are regressed as before on an intercept, and on a (deletion/addition) dummy in a cross-sectional estimate. The findings we obtain are quite similar to those shown when using the market model, including those related to subsample splits (Tables 4 and 5a–5b). Deletion events have a significant negative effect on abnormal returns, which remains significant only in the second sub-sample estimate, while addition events are not significant. J_1 and J_2 tests performed on the subgroup of deletion events reject again the null hypothesis confirming the significant negative effect of deletion on abnormal returns (Tables 4 and 5a–5b).

[16] Results are omitted for reasons of space and available upon request. We can observe from them that only in some cases the size and book to market variables in the mean equation, and the one period lagged conditional variance in the variance equation, are significant. The LM test performed after the estimate of the GARCH (p,q) multi CAPM model confirms that squared residuals are no more correlated with their lagged values for the large majority of stocks. See Appendix 3 for some details on these alternative results.

3.3 Robustness check on the determinants of entry and exit from the Domini 400

In a further robustness check of our findings, we explore the impact of various motivations given for entries and exits into the index. This exercise is important to test whether the significant negative effect of deletion persists after controlling for a concurring financial distress shock.

A first obvious candidate among deletion rationales for the concurring shock interpretation is *bankruptcy* (5 cases). A second candidate is the *lack of social and financial representation* (12 cases). In this last category KLD considers two different rationales for exclusion: i) loss of social strength (*lack of social representation*) and ii) fall of market capitalization below the minimum requirement established by KLD to make index constituents financially representative (*lack of financial representation*) (see footnote 1). Both rationales are sufficient conditions for exclusion, but the information we have does not allow the specification of the two rationales applied. To err on the side of caution, we replicate our estimates after removing from our sample exclusions caused by these two motivations. Table 6 shows, that our results are unchanged, and that the deletion effect remains negative and significant under both (market and multi CAPM) normal return models.

Furthermore, to demonstrate that our findings are independent from the functional form assumed for our residuals, we perform nonparametric sign, and rank tests on the sub-sample of events excluding the bankruptcy and lack of social and financial representation motivations. Results are provided in Table 7, and confirm, once more, the joint significance of deletion events.

A final robustness check looks at the sensitivity of our findings to stock market seasonality. We introduce two dummies picking up phases of market pessimism and optimism. To do so, we follow the approach of the Commodity Research Bureau Stock Market Momentum Indicator, focusing on the price strength of the stocks in the S&P 500 Index. We compute the ratio of the percentage of designated stocks currently trading above their respective 50-day moving averages. On the basis of this indicator, we create two dummies denominated bull (bear), which take the value of one when the indicator is above 65 per cent (below 40 per cent), and zero otherwise.

Tables 9 and 10 show that when we re-estimate for different event period intervals normal returns with the market and multi-CAPM models, with and without inclusion of the deletion rationales of *bankruptcy and lack of social and financial representation*, the significance of the deletion variable on abnormal returns is unchanged after adding the bull and bear dummies. Our main findings, therefore, do not seem to be affected or determined by stock market seasonality.

All these robustness checks confirm that the significance of deletion events is concentrated in the second sample subperiod.

3.4 Further interpretation of our findings

To provide a tentative interpretation of our findings, consider again that in case of deletion, the event of a change in SR coincides with news of corporate exit from the Domini. On the other hand, new entries are allowed only to maintain a constant number of constituents after exits and therefore, in case of addition, the event of a change in SR does not coincide with news of corporate exit from the Domini.

Consequently, in correspondence of deletion announcements, we may have i) a selling reaction of individual SR savers, ii) a portfolio rebalance of SR investment fund portfolios using passive strategies on the Domini index or following different criteria related to CSR indicators, iii) a concurring negative shock (ie financial distress requiring layoffs) coinciding or anticipating exit from the index. Each of these three effects is consistent with a drop in the stock market price.

On the other hand, in correspondence of entry announcements, we may have purchases from individuals and investment funds adopting passive strategies on the Domini 400 Social Index but not from those following other SR criteria, given that the change in SR of the observed stock anticipates and does not coincide with the event of entry into the index. Furthermore, the concurring shock rationale does not apply to entry events.

These considerations should explain why the impact of exits is much stronger than that of entries. Finally, it does not seem that the concurring shock rationale can entirely explain exit findings. In the large majority of event definitions we do not find reference to a concurring shock, and the strong recovery of deletion CARs in the month following the announcement date is not consistent with it. Furthermore, to exclude that the concurring shock rationale may explain the deletion result, we discriminate between different exit motivations, and observe that net of the effect of those, which are likely to be related to financial distress (bankruptcy and lack of social and financial representation), the negative effect of exits on abnormal returns still applies.

4 Conclusions

Corporations are increasingly more involved in CSR activities. However, with few notable exceptions discussed above, the finance literature lacks any significant empirical research on this topic, especially from the perspectives of investors and capital market. This paper contributes to the literature by tracking the stock market reaction to entries and exits from an established SR index. The attempt provides interesting insights on the impact of CSR on shareholder value, and the preferences of financial investors.

Our main findings document that the impact of SR-related events (and, more specifically, additions and deletions from the Domini index) has risen over time, and that the abnormal returns around the event date are significantly negative in case of exit from the Domini index. This result is robust to: i) the adoption of different parametric/non parametric methods; ii) stock market seasonality; changes in iii) the estimation window, iv) the event window; v) the model used for estimating abnormal returns. It finally persists when calculated net of the impact of exits presumably related to financial distress.

When tracking the dynamics of cumulative abnormal returns after the event date, we also find that the gap between CARs from deletion and addition events tends to bridge in an interval of between 11 and 24 days, when we estimate the market model, and of around 90 days when we use the GARCH (p,q) multi-CAPM model. These findings, when considered collectively, suggest that the penalty for exit from social responsibility might depend more from the reaction of ethically screened funds than from an expected negative shock on shareholder value. This interpretation is consistent with the growth of volumes intermediated by SR funds, with their behavior on financial markets (violation of ethical criteria should lead to sell a stock independently from its expected performance), and with the *shift of focus* hypothesis. The findings establish that CSR leads corporations to refocus their strategic goals from the maximization of shareholder value, to the maximization of the goals of a broader set of stakeholders.

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Figures 1a–1f **The dynamics of addition/deletion CARs around the event date (normal returns estimated with the market model)**

Figures 1a–1b: (4;+4) addition/deletion CARs. Figures 1c–1d: (-4;+8) addition/ deletion CARs. Figures 1e–1f: (-4;+12) addition/deletion CARs.

Figure 1a

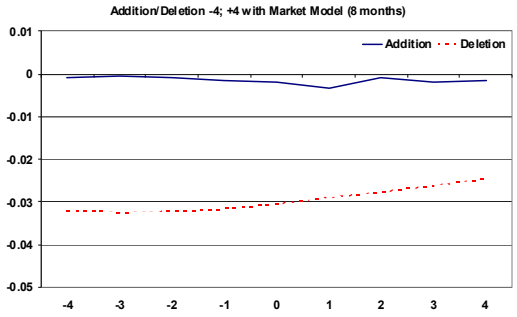


Figure 1b

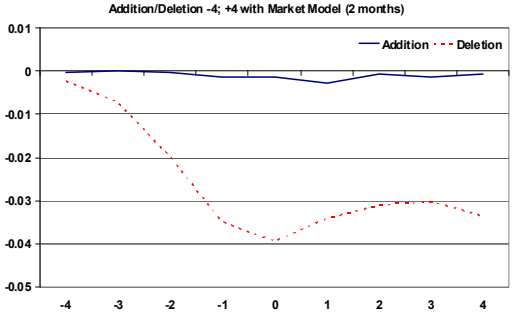


Figure 1c

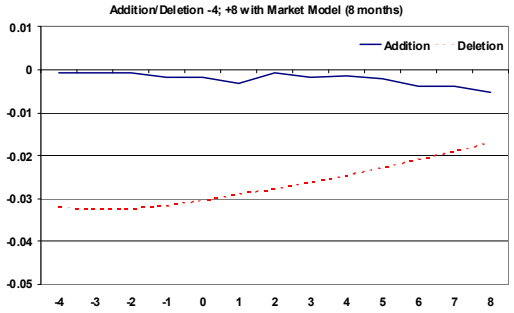
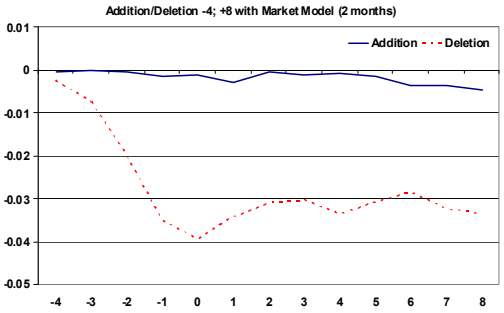


Figure 1d



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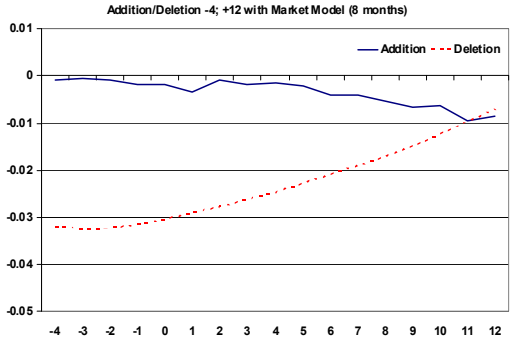
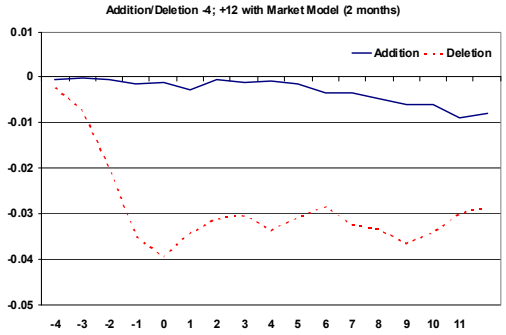


Figure 1f



Figures 2a–2c **The dynamics of addition/deletion CARs around the event date (normal returns estimated with the multi-CAPM GARCH (p,q) model**

Figure 2a: (-4;+4) addition/deletion CARs. Figure 2b: (-4;+8) addition/deletion CARs. Figure 2c: (-4;+150) addition/deletion CARs.

Figure 2a

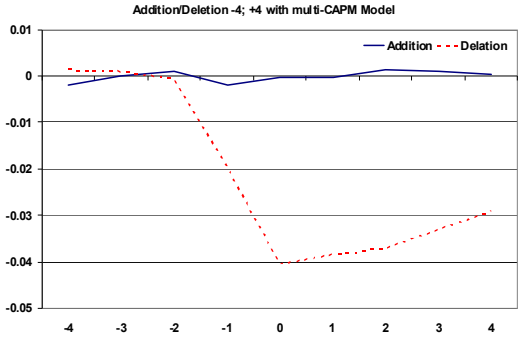


Figure 2b

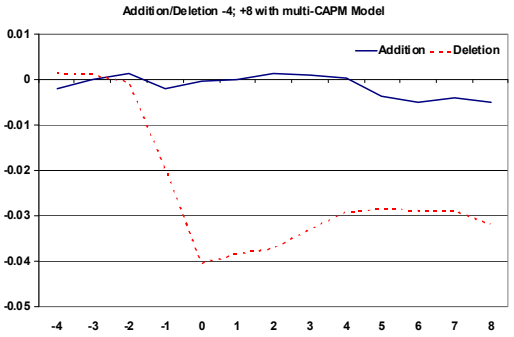


Figure 2c

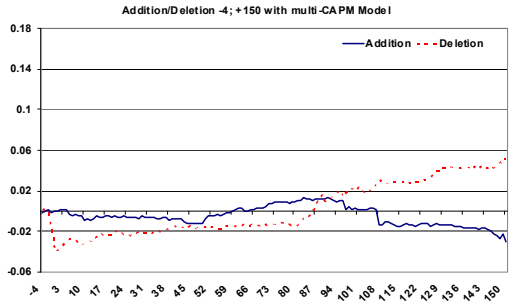


Table 1 **The impact of time trend on absolute abnormal returns for events of addition and deletion from the Domini 400 Social Index**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). Social responsibility criteria considered for inclusion in the Domini 400 Social Index are illustrated in the Appendix 2.

The estimated model is $|CAR|_i = \alpha_0 + \alpha_1 Trendyear + \varepsilon_t$, where, the dependent variable is the absolute AR (CAR) of the i-th stock for which an event of entry or exit from the Domini occurred and Trendyear is linear trend variable.

AR(-1)	2 months	8 months	CAR(-1,0)	2 months	8 months
Trendyear	0.001	0.001	Trendyear	0.001	0.001
	(1.99)	(1.69)		(2.08)	(1.26)
Constant	0.0001	0.01	Constant	0.0001	0.05
	(0.24)	(1.02)		(0.42)	(1.26)
Adj. R^2	0.01	0.01	Adj. R^2	0.01	0.00
Obs	275	263	Obs	275	263
F-test	3.94	2.86	F-test	4.32	1.59
(Prob>F)	0.05	0.09	(Prob>F)	0.04	0.21

Table 2 **The effects of deletion from the Domini index**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). The Table illustrates regression findings of the model when the abnormal return is calculated with the market model according to different windows (AR = abnormal return; CAR = cumulative abnormal return). Del is a dummy taking the value of one if the event is a deletion from the Domini 400 Social Index and zero otherwise. T-stats on heterosdedasticity robust standard errors are reported in round brackets. We alternatively test the significance of (cumulative) abnormal returns on the subgroup of deletion events with J_1 and J_2 tests, whose formulas are, respectively

$$J_1 = \frac{\overline{CAR}(\tau_1,\tau_2)}{\left[\overline{\sigma}^2(\tau_1,\tau_2)\right]^{1/2}} \approx N(0,1) \quad \text{and} \quad J_2 = \left(\frac{N(L_1-4)}{L_1-2}\right)^{1/2} \overline{SCAR}(\tau_1,\tau_2) \approx N(0,1)$$

where $CAR_i(\tau_1,\tau_2) = \sum_{t=\tau_1}^{\tau_2} AR_i$, with AR_i being the abnormal return of a given day in the event window considered for the i-th event and τ_1 and τ_2 are the two extremes of the event window, $\overline{CAR}(\tau_1,\tau_2) = \frac{1}{N}\sum_{i=1}^{N} CAR_i(\tau_1,\tau_2)$ and $VAR\left[\overline{CAR}(\tau_1,\tau_2)\right] = \overline{\sigma}^2(\tau_1,\tau_2) = \frac{1}{N^2}\sum_{i=1}^{N}\sigma_i^2(\tau_1,\tau_2)$. For the definition of the J_2 test consider that the 'standardized' CAR calculated for each security is $SCAR_i(\tau_1,\tau_2) = \frac{CAR_i(\tau_1,\tau_2)}{\hat{\sigma}_i(\tau_1,\tau_2)}$ and $\overline{SCAR}(\tau_1,\tau_2) = \frac{1}{N}\sum_{i=1}^{N} SCAR_i(\tau_1,\tau_2)$. In the J_1 test abnormal returns are first aggregated within the event window for each individual stock, then aggregated across stocks and finally standardised, while in the J_2 test the last two operations (aggregation across stocks and standardisation) are inverted. As a consequence the J_2 test gives more weight to low variance securities with respect to the J_1 test.

Abnormal return	Cons	Del	Adj. R^2	Obs	F-test	(Prob>F)	J_1*	J_2*
AR(-1)	0.0001	-0.02	0.03	289	9.24	0.00		
	(0.21)	(-3.04)						
AR(0)	0.0001	-0.01	0.05	289	15.77	0.00		
	(1.59)	(-3.97)						
CAR(-1;+3)	0.0001	-0.01	0.01	289	3.13	0.08	-.61	-3.07
	(0.05)	(-1.77)						
CAR(-1;+1)	0.0001	-0.03	0.05	289	15.86	0.00	-2.03	-11.91
	(0.08)	(-3.98)						
CAR (-1;0)	0.0001	-0.02	0.05	289	16.58	0.00	-4.83	-29.09
	(0.44)	(-4.87)						

*Deletion events only.

Table 3 **The effects of deletion from the Domini index – subsample split (market model)**

Our sample includes 263 events of addition and deletion from the Domini index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). The Table illustrates regression findings of the model when the abnormal return is calculated with the market model according to different event windows (AR = abnormal return; CAR = cumulative abnormal return). Del is a dummy taking the value of one if the event is a deletion from the Domini 400 Social Index and zero otherwise. T-stats on heteroskedasticity robust standard errors are reported in round brackets. Cross-sectional estimates are run on on two subsample splits (1990–1998, Table 3a, and 1999–2004, Table 3b). For the specification of the J_1 and J_2 tests see Table 2 legend.

Table 3a (sample period 1990–1998)

Abnormal return	Cons	Del	Adj. R^2	Obs	F-test	(Prob>F)	J_1*	J_2*
AR(-1)	0.001	0.001	0.00	134	0.01	0.94		
	(0.03)	(0.1)						
AR(0)	0.001	0.001	0.00	134	0.37	0.54		
	(-0.13)	(0.61)						
CAR(-1;+3)	0.001	0.011	0.00	134	0.49	0.49	-.12	-.73
	(0.65)	(0.7)						
CAR(-1;+1)	0.001	0.001	-0.01	134	0.14	0.71	-.28	-1.23
	(0.03)	(0.37)						
CAR (-1;0)	0.0001	0.0001	0.00	134	0.58	0.45	-1.46	-6.59
	(0.94)	(0.76)						

*Deletion events only.

Table 3b (sample period 1999–2004)

Abnormal return	Cons	Del	R-sq adjusted	Obs	F-test	(Prob>F)	J_1*	J_2*
AR(-1)	0.0001	-0.02	0.05	155	8.30	0.00		
	(0.46)	(-2.88)						
AR(0)	0.0001	-0.02	0.10	155	17.48	0.00		
	(0.91)	(-4.18)						
CAR(-1;+3)	0.0001	-0.02	0.05	155	8.68	0.00	-.79	-3.28
	(0.6)	(-2.95)						
CAR(-1;+1)	0.0001	-0.04	0.11	155	19.93	0.00	-2.70	-13.86
	(0.07)	(-4.46)						
CAR (-1;0)	0.0001	-0.04	0.10	155	17.95	0.00	-6.13	-31.23
	(0.15)	(-4.24)						

*Deletion events only.

Table 4 **The effects of deletion from the Domini 400 Social Index (multi CAPM model)**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). Social responsibility criteria considered for inclusion in the Domini index are illustrated in the Appendix 1. Del is a dummy taking the value of one if the event is a deletion from the Domini 400 Social Index and zero otherwise. The Table illustrates regression findings when the abnormal return is calculated with a multi CAPM specification which takes into account the conditional heteroskedasticity of the residuals in the market model (for details see section 3.2). For the specification of the J_1 and J_2 tests see Table 2 legend.

Abnormal return	Cons	Del	Adj. R^2	Obs	F-test	(Prob>F)	J_1*	J_2*
AR(-1)	0.0001	-0.03	0.03	260	12.58	0.00		
	(0.13)	(-3.66)						
AR(0)	0.0001	-0.01	0.05	260	16.06	0.00		
	(1.18)	(-4.05)						
CAR(-1;+3)	0.0001	-0.01	0.01	260	2.98	0.09	-.31	-5.53
	(0.03)	(-1.62)						
CAR(-1;+1)	0.0001	-0.03	0.05	260	15.12	0.00	-.98	-10.08
	(0.09)	(-3.94)						
CAR (-1;0)	0.0001	-0.03	0.05	260	16.82	0.00	-1.81	-14.78
	(0.38)	(-4.98)						

*Deletion events only.

Table 5 **The effects of addition and deletion from the Domini 400 Social Index – subsample split (multi CAPM model)**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). Del is a dummy taking the value of one if the event is a deletion from the Domini 400 Social Index and zero otherwise. The Table reports regression findings when the abnormal return is calculated with a multi CAPM specification which takes into account the conditional heteroskedasticity of the residuals in the market model (see section 3.2). Cross-sectional estimates are run on the overall period (Table 1a) and on two subsample splits (1990–1998 and 1999–2004) (Tables 2a–2b). Cross-sectional estimates are run on on two subsample splits (1990–1998, Table 5a, and 1999–2004, Table 5b). For the specification of the J_1 and J_2 tests see Table 2 legend.

Table 5a (sample period 1990–1999)

Abnormal return	Cons	Del	Adj. R^2	Obs	F-test	(Prob>F)	J_1*	J_2*
AR(-1)	0.001	0.001	0.00	122	0.01	0.94		
	(0.06)	(0.08)						
AR(0)	0.001	0.001	0.00	122	0.37	0.54		
	(0.1)	(0.48)						
CAR(-1;+3)	0.001	0.01	0.00	122	0.49	0.49	.10	-.19
	(0.7)	(0.98)						
CAR(-1;+1)	0.001	0.001	-0.01	122	0.14	0.71	.03	-1.80
	(0.03)	(0.54)						
CAR (-1;0)	0.001	0.001	0.00	122	0.58	0.45	.37	.93
	(0.86)	(0.64)						

*Deletion events only.

Table 5b (sample period 1999–2004)

Abnormal return	Cons	Del	Adj. R^2	Obs	F-test	(Prob>F)	J_1*	J_2*
AR(-1)	0.0001	-0.02	0.05	138	8.30	0.00		
	(0.46)	(-2.98)						
AR(0)	0.0001	-0.03	0.10	138	17.48	0.00		
	(0.62)	(-4.22)						
CAR(-1;+3)	0.0001	-0.03	0.05	138	8.68	0.00	-.56	-7.03
	(0.64)	(-3.18)						
CAR(-1;+1)	0.0001	-0.04	0.11	138	19.93	0.00	-1.58	-11.62
	(0.07)	(-4.22)						
CAR (-1;0)	0.0001	-0.04	0.10	138	17.95	0.00	-1.92	-20.01
	(0.12)	(-4.12)						

*Deletion events only.

Table 6 **Robustness check on the effects of deletion from the Domini 400 Social Index (market model and multi-CAPM model)**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on chronology and motivation of entries and exits see Appendix 1). We exclude from the sample deletions caused by bankruptcy (5 cases) and lack of social and financial representation (12 cases) to eliminate deletion events which may have been generated by concurring financial distress. The Table illustrates regression findings of the model when the abnormal return is calculated with the market model according to different windows (AR = abnormal return; CAR = cumulative abnormal return). T-stats on heteroskedasticity robust standard errors are reported in round brackets. For details on the construction of the J_1 and J_2 tests see Table 2 legend.

Market model

	1990–2004				1999–2004			
	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)
Del	-0.02	-0.08	-0.04	-0.01	-0.02	-0.11	-0.05	-0.01
	(-2.54)	(-2.30)	(-2.14)	(-1.69)	(-2.28)	(-2.05)	(-2.07)	(-1.98)
Constant	-0.001	-0.01	-0.001	-0.001	-0.001	-0.01	-0.01	-0.001
	(-0.23)	(-0.45)	(-0.57)	(-0.55)	(-0.55)	(-0.40)	(-0.49)	(-0.10)
R^2	0.03	0.02	0.02	0.01	0.03	0.02	0.02	0.02
Adj. R^2	0.02	0.02	0.01	0.00	0.02	0.02	0.02	0.02
Obs.	247	247	247	247	171	171	171	171
F-test	6.45	5.28	4.60	2.84	5.22	4.21	4.30	3.92
(Prob>F)	0.01	0.02	0.03	0.01	0.02	0.04	0.04	0.05
J_1*	–	-4.84	–	-1.84	–	-7.34	–	-3.00
J_2*	–	-21.88	–	-8.15	–	-23.66	–	-9.94

* Deletion events only

Multi-CAPM model

	1990–2004				1999–2004			
	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)
Del	-0.01	-0.02	-0.01	-0.03	-0.02	-0.05	-0.03	-0.04
	(-3.04)	(-4.07)	(-3.94)	(-3.98)	(-2.87)	(-4.21)	(-4.01)	(-4.01)
Constant	-0.001	0.001	0.001	-0.001	-0.001	-0.001	0.001	-0.001
	(-0.21)	(0.44)	(1.57)	(-0.08)	(-0.58)	(-0.01)	(0.65)	(-0.35)
R^2	0.03	0.05	0.05	0.05	0.06	0.12	0.11	0.11
Adj. R^2	0.03	0.05	0.05	0.05	0.05	0.11	0.10	0.10
Obs.	289	289	289	289	131	131	131	131
F-test	9.24	16.58	15.55	15.86	8.24	17.71	16.10	16.09
(Prob>F)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
J_1*	–	-1.81	–	-0.98	–	-1.92	–	-1.58
J_2*	–	-14.78	–	-10.08	–	-20.01	–	-11.62

* Deletion events only

Table 7 **Robustness checks with nonparametric sign and rank tests on the effects of deletion from the Domini 400 Social Index (market model – 8 month estimation window)**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). We exclude from the sample deletions caused by bankruptcy (5 cases) and lack of social and financial representation (12 cases) to eliminate negative abnormal returns which may have been generated by concurring financial distress. The nonparametric sign test (J_3) is calculated as $J_3 = \left[\frac{N^{*(-)}}{N} - 0{,}5\right]\frac{N^{1/2}}{0{,}5} \approx N(0,1)$. Where N is the total number of events and $N^{(-)}$ is the number of events with negative (cumulative) abnormal returns. The null hypothesis of the absence of significant abnormal returns in presence of deletion events is rejected when $J_3 > \Phi^{-1}(\alpha)$ or $J_3 > 1.645$. The Corrado rank test is calculated as $J_4 = \frac{1}{N}\sum_{i=1}^{N}\left(K_{iCAR(\tau_1,\tau_2)} - \frac{L_2+1}{2}\right)/S(L_2)$ where $K_{iCAR(\tau_1,\tau_2)}$ is the rank of the CAR in the $\tau_1 - \tau_2$ interval for the i-th event, $S(L_2) = \sqrt{\frac{1}{L_2}\sum_{t=T_{0+1}}^{T_2}\left(\frac{1}{N}\sum_{i=1}^{N}\left(K_{iCAR(\tau_1,\tau_2)} - \frac{L_2+1}{2}\right)\right)^2}$ and $\frac{1}{N}\sum_{i=1}^{N}\left(K_{iCAR(\tau_1,\tau_2)} - \frac{L_2+1}{2}\right)$ is the average of the differences between the rank of the abnormal return at the announcement date and the security median rank, with all event and estimation window abnormal returns being ranked. L_2 is the number of ranks varying according to the event window. N is the number of events and $\frac{1}{L_2}\sum_{t=T_{0+1}}^{T_2}\left(\frac{1}{N}\sum_{i=1}^{N}\left(K_{iCAR(\tau_1,\tau_2)} - \frac{L_2+1}{2}\right)\right)$ is the average of the differences between the rank of the abnormal returns and the security median rank in the T_{0+1}, T_2 (estimation window + event window) interval.

8 month estimation window – All deletions

	Overall sample period		1990 < t ≤ 1999		1999 < t ≤ 2004	
AR/Car	J_3*	J_4*	J_3*	J_4*	J_3*	J_4*
AR(-1)	1.64	-.14	1.64	1.40	1.72	-2.18
AR(0)	2.14	-3.28	2.14	.53	1.41	-4.42
CAR(-1;+3)	-.12	-1.87	-.12	-1.59	-.46	-1.18
CAR(-1;+1)	1.38	-1.49	1.38	-.21	1.41	-1.70
CAR(-1;0)	1.89	-2.83	1.89	-.91	1.09	-2.94

* Deletion events only

8 month estimation window – Bankruptcy and loss of financial and social representation deletion excluded

	Overall sample period		1990 < t ≤ 1999		1999 < t ≤ 2004	
AR/Car	J_3*	J_4*	J_3*	J_4*	J_3*	J_4*
AR(-1)	1.64	-.14	1.64	1.40	1.72	-2.18
AR(0)	2.14	-3.28	2.14	.53	1.41	-4.42
CAR(-1;+3)	-.12	-1.87	-.12	-1.59	-.46	-1.18
CAR(-1;+1)	1.38	-1.49	1.38	-.21	1.41	-1.70
CAR(-1;0)	1.89	-2.83	1.89	-.91	1.09	-2.94

* Deletion events only

Table 7 (follows) **Robustness check with sign an rank nonparametric tests on the effects of deletion from the Domini 400 Social Index (market model – 2 month estimation window)**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). We exclude from the sample deletion events caused by bankruptcy (5 cases) and lack of social and financial representation (12 cases) to eliminate negative abnormal returns which are likely to be generated by concurring financial distress.

2 month estimation window – All deletions

	Overall sample period		1990 < t ≤ 1999		1999 < t ≤ 2004	
AR/Car	J_3*	J_4*	J_3*	J_4*	J_3*	J_4*
AR(-1)	1.05	-.27	-.62	-1.64	1.86	.97
AR(0)	-.53	-1.72	.22	1.71	-.85	-3.33
CAR(-1;+3)	-.60	-.39	-.73	.54	-.16	-1.04
CAR(-1;+1)	-.77	.36	.00	1.59	-1.03	-1.07
CAR(-1;0)	-.25	-1.75	-1.46	.18	.80	-2.43

* Deletion events only

2 month estimation window – Bankruptcy and loss of financial and social representation deletion excluded

	Overall sample period		1990 < t ≤ 1999		1999 < t ≤ 2004	
AR/Car	J_3*	J_4*	J_3*	J_4*	J_3*	J_4*
AR(-1)	1.04	-.21	-.63	-.64	2.13	1.32
AR(0)	-.46	-0.59	.22	1.71	-.85	-2.43
CAR(-1;+3)	.00	.16	-.73	.54	.82	-.36
CAR(-1;+1)	-.44	.83	.00	1.59	-.66	-.71
CAR(-1;0)	-.15	-.88	-1.46	.18	1.22	-1.50

* Deletion events only

Table 8 **Robustness check with sign and rank nonparametric tests on the effects of deletion from the Domini 400 Social Index (multi CAPM model – 8 months estimation window)**

The sample is represented by 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). From this sample we exclude from the sample deletion caused by bankruptcy (5 cases) and lack of social and financial representation (12 cases) to eliminate negative abnormal returns which are likely to be generated by concurring financial distress. For details on the construction of the J_3 and J_4 tests see Table 7 legend.

8 months estimation window – All deletions

	Overall sample period		1990 < t ≤ 1999		1999 < t ≤ 2004	
AR/Car	J_3*	J_4*	J_3*	J_4*	J_3*	J_4*
AR(-1)	2.92	.52	.35	-1.45	3.59	1.78
AR(0)	1.52	-2.36	-.70	1.04	2.65	-3.74
CAR(-1;+3)	2.69	-.22	-.35	.06	3.90	-.32
CAR(-1;+1)	1.99	-.04	-.70	.07	3.28	-.58
CAR(-1;0)	3.16	-1.64	.70	-.27	3.59	-1.90

* Deletion events only

8 months estimation window – Bankruptcy and loss of financial and social representation deletion excluded

	Overall sample period		1990 < t ≤ 1999		1999 < t ≤ 2004	
AR/Car	J_3*	J_4*	J_3*	J_4*	J_3*	J_4*
AR(-1)	2.10	.33	.35	-1.45	2.76	1.90
AR(0)	.78	-1.17	-.70	1.04	1.96	-2.64
CAR(-1;+3)	1.83	.33	-.35	.06	3.13	.42
CAR(-1;+1)	1.31	.39	-.70	.73	2.74	-.12
CAR(-1;0)	2.36	-1.87	.70	-.27	2.74	-2.43

* Deletion events only

Table 9 **The effects of deletion from the Domini 400 Social Index – robustness check for stock market seasonality (market model)**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on the chronology and motivation of entries and exits see Appendix 1). We exclude from the sample deletions caused by bankruptcy (5 cases) and lack of social and financial representation (12 cases) to eliminate negative abnormal returns which are likely to be generated by concurring financial distress shocks. The Table illustrates regression findings of the model when the abnormal return is calculated with the market model according to different windows (AR = abnormal return; CAR = cumulative abnormal return). T-stats on heteroskedasticity robust standard errors are reported in round brackets. Bull: dummy which takes the value of one when more than 65 percent of stocks in the S&P 500 Index trade above their respective 50-day moving average; Bear: dummy which takes the value of one when less than 40 percent of stocks in the S&P 500 Index trade above their respective 50-day moving average. For details on the construction of the J_1 and J_2 tests see Table 2 legend.

	1990–2004	Market model			1990–2004	Market model*		
	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)
Del	-0.019	-0.102	-0.083	-0.050	-0.018	-0.086	-0.067	-0.039
	(-2.70)	(-2.72)	(-2.66)	(-2.67)	(-2.45)	(-2.30)	(-2.22)	(-2.14)
Bull	0.022	-0.044	-0.061	-0.017	0.022	-0.043	-0.061	-0.018
	(-1)	(-0.38)	(-0.68)	(-0.31)	(-1.03)	(-0.42)	(-0.78)	(-0.38)
Bear	-0.002	-0.023	-0.021	-0.006	-0.002	-0.026	-0.025	-0.012
	(-0.11)	(-0.29)	(-0.34)	(-0.17)	(-0.11)	(-0.38)	(-0.45)	(-0.38)
Constant	-0.001	-0.005	-0.003	-0.003	-0.001	-0.005	-0.004	-0.003
	(-0.34)	(-0.25)	(-0.22)	(-0.35)	(-0.36)	(-0.30)	(-0.26)	(-0.39)
R-sq	0.033	0.030	0.028	0.027	0.030	0.022	0.022	0.020
R-Adj.	0.022	0.017	0.017	0.016	0.018	0.010	0.010	0.007
Obs.	263	263	263	263	247	247	247	247
F-test	2.920	2.510	2.460	2.400	2.500	1.850	1.850	1.610
(Prob>F)	0.034	0.060	0.063	0.068	0.060	0.138	0.140	0.187
J_1		-4.836		-2.032		-4.843		-1.848
J_2		-29.091		-11.917		-21.884		-8.154

* Bankruptcy and loss of financial and social representation deletion excluded.

Table 10 **The effects of deletion from the Domini 400 Social Index – robustness check for stock market seasonality (CAPM model)**

Our sample includes 263 events of addition and deletion from the Domini 400 Social Index occurred between January 1990 and December 2004 (for details on chronology and motivation of entries and exits see Appendix 1). We exclude from the sample deletions caused by bankruptcy (5 cases) and lack of social and financial representation (12 cases) to eliminate negative abnormal returns which are likely to be generated by concurring financial distress shocks. The Table illustrates regression findings of the model when the abnormal return is calculated with the market model according to different windows (AR = abnormal return; CAR = cumulative abnormal return). T-stats on heteroskedasticity robust standard errors are reported in round brackets. Bull: dummy which takes the value of one when more than 65 percent of stocks in the S&P 500 Index trade above their respective 50-day moving averages; Bear: dummy which takes the value of one when less than 40 percent of stocks in the S&P 500 Index trade above their respective 50-day moving averages (Commodity Research Bureau Stock Market Momentum Indicator). For details on the construction of the J_1 and J_2 tests see Table 2 legend.

	1990–2004	Multi CAPM model			1990–2004	Multi CAPM model*		
	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)	AR(-1)	CAR(-1,0)	AR(0)	CAR(-1,1)
Del	-0.019	-0.102	-0.083	-0.050	-0.018	-0.086	-0.067	-0.039
	(-2.70)	(-2.72)	(-2.66)	(-2.67)	(-2.45)	(-2.30)	(-2.22)	(-2.14)
Bull	0.022	-0.044	-0.061	-0.017	0.022	-0.043	-0.061	-0.018
	(-1)	(-0.38)	(-0.68)	(-0.31)	(-1.03)	(-0.42)	(-0.78)	(-0.38)
Bear	-0.002	-0.023	-0.021	-0.006	-0.002	-0.026	-0.025	-0.012
	(-0.11)	(-0.29)	(-0.34)	(-0.17)	(-0.11)	(-0.38)	(-0.45)	(-0.38)
Constant	-0.001	-0.005	-0.003	-0.003	-0.001	-0.005	-0.004	-0.003
	(-0.34)	(-0.25)	(-0.22)	(-0.35)	(-0.36)	(-0.30)	(-0.26)	(-0.39)
R-sq	0.033	0.030	0.028	0.027	0.030	0.022	0.022	0.020
R-Adj.	0.022	0.017	0.017	0.016	0.018	0.010	0.010	0.007
Obs.	263	263	263	263	247	247	247	247
F-test	2.920	2.510	2.460	2.400	2.500	1.850	1.850	1.610
(Prob>F)	0.034	0.060	0.063	0.068	0.060	0.138	0.140	0.187
J_1		-4.836		-2.032		-4.843		-1.848
J_2		-29.091		-11.917		-21.884		-8.154

* Bankruptcy and loss of financial and social representation deletion excluded.

Appendix 1

List of Domini 400 addition/deletion events in our sample period

Date Effective	Addition	Reason
05/31/1990	Claire's Stores	Diversity
05/31/1990	Biomet on	Employee
08/31/1990	Wesco Financial	Product/Quality
08/31/1990	Cintas	Industry
09/15/1990	Fastenal	Product/Quality
09/30/1990	Cabot Corporation	Industry
10/15/1990	Dollar General	Community
10/31/1990	Measurex	Industry
12/31/1990	Tellabs	Employee
03/01/1991	CoreStates	Diversity
04/15/1991	Alza	Industry
05/31/1991	Charming Shoppes	Diversity
05/31/1991	Zurn Industries	Environment
07/01/1991	Eastern Enterprises	Environment
09/30/1991	Alaska Airlines	Industry
10/31/1991	Sunrise Medical	Diversity
02/28/1992	Cooper Industries	Industry
04/02/1992	BET Holdings	Diversity
04/02/1992	Cisco Systems	Industry
05/01/1992	Borland International	Employee
05/01/1992	Cincinnati Financial	Product/Quality
08/19/1992	Novell	Employee
10/01/1992	Turner Broadcasting	Diversity
11/01/1992	El Paso Natural Gas	Environment
12/01/1992	Raychem	Industry
02/01/1993	Whole Foods Market	Employee
02/15/1993	Oklahoma Gas & Electric	Industry
02/15/1993	Quarterdeck Office Systems	Diversity
04/30/1993	Praxair	Environment, Industry
07/31/1993	Fifth Third Bancorp	Community
09/30/1993	Johnson & Johnson	Industry, South Africa Lifted
09/30/1993	Hewlett-Packard	Industry, South Africa Lifted
10/31/1993	Allergan	Industry, South Africa Lifted
10/31/1993	Autodesk	Industry, South Africa Lifted
10/31/1993	Digital Equipment	Industry, South Africa Lifted
10/31/1993	Lotus Development	Industry, South Africa Lifted
10/31/1993	Nalco Chemical	Industry, South Africa Lifted
11/01/1993	Schering Plough on 12/1/93	Industry, South Africa Lifted
12/01/1993	Colgate-Palmolive on 1/1/94	Industry, South Africa Lifted
06/29/1994	Kennetech	Environment
07/01/1994	Spartan Motors	Product/Quality
08/15/1994	American Power Conversion	Employee, Product/Quality
09/21/1994	NYNEX	Employee
09/21/1994	Kellogg	South Africa Lifted
10/07/1994	Avery Dennison	Industry
12/07/1994	Xilinx	Employee
05/11/1995	Scholastic Corporation	Community, Diversity
05/22/1995	United American Healthcare	Diversity
07/06/1995	Solectron	Diversity, Product/Quality
07/21/1995	International Business Machines	Community
08/06/1995	Odwalla, Inc.	Employee, Product/Quality
12/01/1995	First Chicago NBD	Industry (Merger of First Chicago and NBD)
12/01/1995	Starbucks	Community, Employee
12/12/1995	Kimberly Clark	Industry, Acquired Scott
12/29/1995	Oxford Health Plans	Community, Industry
01/05/1996	Banta Corp.	Industry
01/08/1996	Boston Scientific	Industry
01/23/1996	National Semiconductor	Diversity, Employee
02/20/1996	Gerber Scientific	Product/Quality
03/07/1996	3Com	Employee, Industry
03/07/1996	Case Corporation	Employee, Industry
03/07/1996	Ruby Tuesday	Industry (Retained from Morrison split-up)
04/03/1996	Roadway Express	Industry (Retained from Roadway split-up)
04/17/1996	Marquette Electronics	Diversity, Employee

Date Effective	Addition	Reason
06/19/1996	Edmark Corporation	Diversity, Product/Quality
12/02/1996	Microsoft	Industry, Large S&P
12/31/1996	Consolidated Freightways Corporation	Spinoff
01/16/1997	Merix Corporation	Diversity, Product
01/23/1997	Sonat	Environment
01/27/1997	Ikon Office Solutions, Inc.	Name change
02/14/1997	Western Atlas	Industry, Large S&P
04/02/1997	Granite Construction	Product
05/28/1997	Hutchinson Technologies	Product, Diversity
06/11/1997	Providian Financial Corporation	Spun-off from Providian Corporation
06/20/1997	Black & Decker	Product/Large S&P
06/20/1997	Broderbund Software	Employee
08/18/1997	Central Louisiana Electric Company, Inc.	Environment,Diversity
08/29/1997	QuickResponse Services, Inc.	Community,Diversity,Employee, Product
09/15/1997	Champion Enterprises, Inc.	Diversity, Employee
10/02/1997	Northwest Natural Gas Company	Employee, Environment,Other
10/10/1997	Interface, Inc.	Strong Environmental Record, CERES Signatory
10/27/1997	Dell Computer Corporation	innovative product, Employee
12/09/1997	Guidant Corporation	innovative product
01/08/1998	Wendy's International	Diversity, Employee Involvement, Environment-Recycling
01/14/1998	LSI Logic Corporation	Employee strength
03/09/1998	Mallinckrodt Inc	Industry Diversification
03/23/1998	Texas Instruments	Diversity and Employee Strength
04/29/1998	Caraustar Industires, Inc	Environment-Recycling
04/30/1998	Ault Incorporated	Diversity and Employee Strength
05/08/1998	Synovus Financial Corp.	Employee strength
06/30/1998	Adaptec, Inc.	Diversity, Employee Strengths
07/01/1998	Scientific-Atlanta, Inc.	Industry Diversification
07/30/1998	Emerson Electric Co.	Environment, Quality
08/07/1998	The Vincam Group, Inc	Diversity, Product
08/12/1998	Gillette Company	Diversity, Environment
08/14/1998	Lucent Technologies Inc.	Diversity, Employee
08/19/1998	Staples, Inc.	Product
09/21/1998	AirTouch Communications	Diversity
10/05/1998	ADAC Laboratories	Employee, Quality, Industry Representation
10/05/1998	Symantec Corporation	Diversity, Employee
10/13/1998	PeopleSoft, Inc.	Diversity, Employee, Product
10/13/1998	Ecolab Inc.	Community, Employee, Environment, Product
11/02/1998	Aquarion Company	Diversity
11/05/1998	Osmonics Inc.	Diversity, Environment
11/24/1998	Questar Corporation	Employee, Environment
11/24/1998	First Tennessee National Corporation	Diversity, Employee
12/18/1998	Wild Oats Markets, Inc.	Diversity, Employee, Environment
01/12/1999	McKesson HBOC, Inc.	Industry Representation
02/26/1999	Cascade Natural Gas Corporation	Environment, Diversity, Other
03/10/1999	Compuware Corporation	Employee, Diversity Strengths
03/11/1999	Darden Restaurants, Inc.	Diversity Strengths
03/16/1999	Minerals Technologies Inc.	Employee, Environment, Product Strengths
03/24/1999	Tupperware Corporation	Diversity Strengths
05/28/1999	Chittenden Corporation	Community Strengths
06/04/1999	Firstar Corporation	Community Strengths
06/22/1999	AutoZone, Inc.	Product Strengths
06/23/1999	Capital One Financial Corporation	Diversity, Employee Strengths
06/28/1999	Arrow Electronics, Inc.	Employee, Diversity, Product Strengths
07/27/1999	Delphi Automotive Systems Corp.	Employee Strength, Industry Representation
08/09/1999	Paychex, Inc.	Diversity, Employee Strengths
08/16/1999	Steelcase Inc.	Employee Strengths
08/19/1999	Qualcomm, Inc.	Diversity, Employee Strengths
10/01/1999	Lexmark International Group, Inc.	Diversity , Employees Strengths
10/04/1999	National Fuel Gas Company	Environment Strength
10/27/1999	Watson Pharmaceuticals, Inc.	Diversity Strengths
11/15/1999	Donnelly Corporation	Employee Strength, Industry Representation
11/17/1999	Stillwater Mining Company	Environment, Employee Strengths, Industry Representation
12/23/1999	Northern Trust Corporation	Community, Diversity, Employee Strengths, Industry Representation, Large Market Capitalization
01/06/2000	Manor Care, Inc.	Industry Representation
01/10/2000	National City Corporation	Community, Diversity, Employee Strengths, Industry Representation, Large Market Capitalization
01/31/2000	AstroPower, Inc.	Environment Strength
03/02/2000	Yahoo! Inc.	Diversity & Employee Strengths, Large Market Capitalization
04/17/2000	America Online	Market Capitalization and Employee Strength
04/20/2000	Horizon Organic Holding Corp.	Environment Strength
05/09/2000	Quintiles Transnational Corp.	Industry Representation and Diversity Strength
05/19/2000	Citizens Communications Company	
06/07/2000	Kansas City Southern Industries, Inc.	Industry Representation, Large Market Capitalization
06/12/2000	Univision Communications Inc.	Diversity Strengths, Industry Representation, Large Market Capitalization

Date Effective	Addition	Reason
06/12/2000	Tribune Company	Community and Product Strengths, Market Capitalization
06/21/2000	Comerica Incorporated	Industry Representation, Market Capitalization, Community and Employee Strengths
07/12/2000	Stilwell Financial Inc.	Market Capitalization and Industry Representation
07/14/2000	Pulte Corporation	Industry Representation
07/14/2000	AmSouth Bancorporation	Industry Representation, Market Capitalization, Diversity and Employee Strengths
07/27/2000	Palm, Inc.	Market Capitalization, Spin-off from 3Com (a DSI company)
08/29/2000	Devon Energy Corporation	Market Capitalization, Industry Representation
08/31/2000	Amgen Inc.	Market Capitalization, Industry Representation, Community, Diversity, & Employee Strengths
09/01/2000	Advent Software, Inc.	Diversity and Employee Strengths
09/25/2000	Houghton Mifflin Company	Diversity Strengths
10/02/2000	MedImmune, Inc.	Market Capitalization, Industry Representation
10/17/2000	Andrew Corporation	Industry Representation, Diversity Strength
11/09/2000	Mitchell Energy & Development Corp.	Employee and Environment Strengths, Industry Representation
11/21/2000	EOG Resources, Inc.	Market Capitalization, Industry Representation, Environment and Employee Strengths
11/27/2000	Baxter International, Inc.	Market Capitalization, Sector Representation, Diversity & Environment Strengths
11/28/2000	Charter One Financial, Inc.	Market Capitalization, Industry Representation, and Diversity Strengths
12/08/2000	Franklin Resources, Inc.	Market Capitalization, Industry Representation
12/11/2000	Aon Corporation	Market Capitalization, Industry Representation
12/13/2000	Hartford Financial Services Group	Market Capitalization, Sector Representation, and Diversity Strengths
12/15/2000	Sapient Corporation	Industry Representation, Diversity and Employee Strengths
01/08/2001	NiSource, Inc.	Market Capitalization, Sector Representation, Diversity and Environment Strengths
01/11/2001	Radio One, Inc.	Industry Representation, Diversity and Other Strengths
02/01/2001	Minnesota Mining and Manufacturing Company	Industry Representation, Market Capitalization, Diversity, Employee, Environment and Product Strengths
02/26/2001	GreenPoint Financial	Industry Representation, Community and Diversity Strengths
03/30/2001	Ceridian (i.e., New Ceridian)	Larger of the two companies resulting from Old Ceridian Spin-off
05/11/2001	Visteon Corporation	Industry Representation, Diversity and Product Strengths
05/11/2001	Emmis Communication Corporation	Employee Strength
05/31/2001	State Street Corporation	Market Capitalization, Community, Diversity and Non-US Strengths
06/22/2001	Imation Corporation	Diversity, Employee Relations, and Environment Strengths
07/06/2001	Green Mountain Coffee, Inc.	Community and Non-US Operations Strengths
07/11/2001	Lubrizol Corporation	Industry Representation and Environment Strengths
08/02/2001	Robert Half International	Diversity Strength and Market Capitalization
08/22/2001	Noble Affiliates, Inc.	Industry Representation, Environment and Employee Relations Strengths
08/28/2001	Mirant Corporation	Market Capitalization, Industry Representation, Diversity and Environment Strengths
08/29/2001	Engelhard Corporation	Industry Representation and Environment Strength
08/30/2001	Wachovia Corporation	Market Capitalization, Community, Diversity and Employee Relations Strengths
09/05/2001	Electronic Data Systems	Market Capitalization and Diversity Strengths
10/11/2001	Waters Corporation	Market Capitalization, Sector Representation, Diversity and Environment, and Product Strengths
10/16/2001	Hain Celestial Group, Inc.	Environment Strength
10/16/2001	Masco Corporation	Market Capitalization and Industry Representation
11/29/2001	Madison Gas & Electric Company	Community, Diversity, Environment and Other Strengths
12/06/2001	Zimmer Holdings, Inc.	Market Capitalization, Sector Diversification, and Diversity Strengths
12/06/2001	Rohm and Haas Company	Market Capitalization, Industry Diversification & Community, Diversity and Employee Relations Strengths
12/12/2001	Harley-Davidson, Inc.	Market Capitalization and Employee Relations Strengths
01/04/2002	King Pharmaceuticals	Market Capitalization, Sector Representation, and Employee Relations Strength
01/17/2002	Family Dollar Stores, Inc.	Market Capitalization, Sector Representation, Product and Other Strengths
01/18/2002	Bright Horizons Family Solutions, Inc.	Diversity, Employee Relations, and Other Strengths
01/24/2002	Bank of America Corporation	Market Capitalization, Community, Diversity, Employee Relations, and Environment Strengths
01/29/2002	Biogen, Inc.	Market Capitalization, Sector Representation, Diversity and Employee Relations Strengths
01/29/2002	Cooper Cameron Corporation	Sector Representation
03/18/2002	United Natural Foods, Inc.	Environment and Other Strengths
03/18/2002	Lincoln Electric Holdings, Inc.	Diversity and Employee Relations Strengths and Sector Representation
05/03/2002	United Parcel Service, Inc.	Market Capitalization, Community and Diversity Strengths
06/10/2002	Invacare Corporation	Diversity Strength and Sector Representation
07/22/2002	Safeway Inc.	Market Capitalization and Diversity Strength
08/27/2002	Thermo Electron	Diversity, Employee Relations, Environment and Product Strengths
08/27/2002	GAIAM, Inc.	Diversity and Environmant Strengths
09/03/2002	Invitrogen Corporation	Sector Representation and Diversity Strengths
10/01/2002	eBay, Inc.	Market Capitalization, Diversity and Product Strengths
10/01/2002	Bausch & Lomb Incorporated	Sector Representation and Diversity Strengths
11/18/2002	Comcast Corporation	Liquidity and Voting Rights
12/13/2002	Pixar	Diversity, Employee Relations, and Product Strengths
12/23/2002	Electronic Arts, Inc.	Market Capitalization, Diversity and Employee Relations Strengths
03/03/2003	Allied Capital Corporation	Employee Relations & Product Strengths
03/03/2003	Airgas, Inc.	Sector Representation
03/31/2003	Foot Locker	Ticker Change from Z to FL
06/05/2003	JetBlue Airways Corporation	Product Qaulity
07/02/2003	Johnson Controls, Inc.	Market Capitalization, Sector Representation, Beneficial Products & Services & Product Quality.
07/15/2003	Valspar Corporation	Sector Representation
07/24/2003	Valassis Communications, Inc.	Family Benefits, Promotion, Cash Profit Sharing and Employee Involvement
08/15/2003	Coherent, Inc.	Gay & Lesbian Policies, Promotion, Cash Profit Sharing, R&D/Innovation

Date Effective	Addition	Reason
09/15/2003	Wausau-Mosinee Paper Corporation	Sector Representation, Environment: Other Strength
09/25/2003	Synovis Life Technologies, Inc.	Limited Compensation, CEO, Promotion, Sector Representation
12/11/2003	Entegris, Inc.	Beneficial Products & Services strength
12/23/2003	Red Hat, Inc.	R&D/Innovation Strength
01/02/2004	Ambac Financial Group, Inc.	Market Capitalization, Employee Involvement, & Benefits to Economically Disadvantaged strengths
02/24/2004	Kadant Inc.	Sector Representation, Limited Compensation & Beneficial Products & Services Strengths
05/11/2004	Medallion Financial Corporation	Community & R&D/Innovation Strengths
06/24/2004	Novellus Systems, Inc.	Board of Directors & Employee Involvement Strengths
07/27/2004	Pioneer Natural Resources Company	Sector Representation, Cash Profit Sharing, Employee Involvement, and Retirement Benefit Strengths
07/30/2004	UnitedHealth Group, Inc.	Promotion, Board of Directors, Gay & Lesbian Policy strengths, Market Capitalization and Sector Representation
08/31/2004	Polycom, Inc.	Promotion and Support for Education Strengths
09/28/2004	Schnitzer Steel Industries	Limited Compensation and Recycling Strengths
09/30/2004	Affymetrix, Inc.	Promotion and R&D/Innovation Strengths
11/12/2004	Convergys Corporation	Promotion, Cash Profit Sharing, and Employee Involvement Strengths
11/12/2004	General Growth Properties, Inc.	Market Capitalization, Sector Representation, & Limited Compensation Strengths

Date Effective	Deletion	Reason
05/31/1990	Johnson Controls	Military
08/31/1990	Black & Decker	Military
09/30/1990	Prime Motor Inns	Financial
12/31/1990	Acme Cleveland	Nuclear
03/01/1991	Paccar	Employee, South Africa
04/15/1991	Thermo Instrument Systems	Nuclear
07/01/1991	America West	Financial
10/31/1991	Cross & Trecker	Dropped by S&P
02/28/1992	Corning	Product/Quality; breast implants
09/01/1992	Northern Telecom	South Africa
12/01/1992	Sara Lee	Tobacco
02/01/1993	Microsoft	South Africa
02/15/1993	Lotus	South Africa
02/15/1993	Autodesk	South Africa
04/30/1993	Measurex	South Africa
04/30/1993	Tambrands	South Africa
07/31/1993	Digital Equipment Corp.	South Africa
10/31/1993	Baxter International	Product, Other (Arab Boycott)
10/31/1993	National Medical Enterprises	Product/Quality (Criminal Investigations)
10/31/1993	Monarch Machine Tools	Industry, Other (Dropped by S&P)
09/30/1994	Safety-Kleen	Environment (Regulatory Problems)
01/23/1996	Archer-Daniels-Midland	Alcohol, Other
02/20/1996	Petrie Stores	Financial
03/07/1996	Knight-Ridder	Employee (Labor Problems)
04/03/1996	Caliber Systems	Roadway Services split-up
12/31/1996	Consolidated Freightways, Inc.	Spinoff
01/23/1997	KENETECH	Financial difficulties
01/23/1997	Briggs & Stratton	Labor and community
08/18/1997	BET Holdings	Labor
10/10/1997	Thermo Electron Corporation	Substantial Military Involvement
12/09/1997	NIKE, Inc	International Labor Controversies
03/23/1998	ONEOK, Inc	Large ownership by Western Resources, a nuclear utility
03/16/1999	MidAmerican Energy Holdings Company	Derives power from nuclear; joint owner of nuclear plant
08/09/1999	Battle Mountain Gold Company	Community controversy
08/09/1999	Nalco Chemical Company	Pending acquisition by Suez Lyonnaise des Eaux
12/23/1999	Hasbro, Inc.	Licenses Brand Name to Gambling Services Company
06/12/2000	Marriott International Inc.	Gambling
06/21/2000	Alcoa, Inc.	Military
09/25/2000	United American Healthcare Corporation	Financial
11/28/2000	Sunrise Medical Inc.	Going Private
01/11/2001	Echo Bay Mines Ltd.	Lack of Social and Financial Representation
02/01/2001	Moore Corporation	Lack of Social and Financial Representation
03/30/2001	Arbitron (i.e., Old Ceridian) (ARB)	Smaller of the two companies resulting from Old Ceridian Spin-off
05/11/2001	Federal Mogul Corporation	Lack of Social and Financial Representation
05/11/2001	Huffy Corporation	Lack of Social and Financial Representation
07/06/2001	Ryerson Tull, Inc.	Lack of Social and Financial Representation
08/28/2001	Bergen Brunswig Corporation	Acquired by AmeriSource Health Corporation
09/05/2001	Springs Industries	Going Private
10/11/2001	Polaroid Corporation	Imminent Bankruptcy
10/16/2001	Brown Shoe Company	Lack of Social and Financial Representation
10/16/2001	El Paso Corporation	Product, Environment, and Other Concerns
11/29/2001	Enron Corporation	Lack of Social and Financial Representation

Date Effective	Deletion	Reason
01/18/2002	Handleman Company	Lack of Social and Financial Representation
03/18/2002	The Sherwin-Williams Company	Environment and Product Safety Concerns
04/15/2002	Skyline Corporation	Lack of Social and Financial Representation
06/10/2002	Service Corporation International	Product and Other Concerns
07/22/2002	Torchmark Corporation	Diversity and Product Concerns
08/27/2002	Avnet, Inc.	Military Weapons Contracting
08/27/2002	Great Atlantic and Pacific Tea Company	Lack of Social and Financial Representation
09/03/2002	Consolidated Freightways Corporation	Bankruptcy
10/01/2002	Computer Associates	Corporate Governance Concerns
10/01/2002	Schering-Plough	Product Concerns
11/18/2002	Comcast Corporation	Liquidity and Voting Rights
12/23/2002	Household International, Inc.	Community Relations Concerns
03/03/2003	H & R Block, Inc.	Marketing & Contracting Concerns, Investment Controversies
03/03/2003	Watts Industries	Lack of Social and Financial Representation
03/31/2003	Foot Locker, Inc.	Ticker Change from Z to FL
04/03/2003	Fleming Companies, Inc.	Bankruptcy
07/15/2003	Mirant Corporation	Bankruptcy
07/24/2003	AstroPower, Inc.	Delisted from Nasdaq
09/15/2003	NorthWestern Corporation	Bankruptcy
09/25/2003	Quintiles Transnational Corp.	The company is going private
12/23/2003	Stillwater Mining Company	Ownership Concern
02/24/2004	Dillard's, Inc.	Diversity Concerns
03/05/2004	Cintas Corporation	Union Relations Concern
03/31/2004	Bank of America Corporation	Marketing/Contracting Concerns
05/11/2004	Oneida Ltd.	Delisted from NYSE
07/27/2004	Angelica Corporation	Lack of Social and Financial Representation
08/31/2004	Aon Corporation	Burma and other concerns, lack of social story
09/10/2004	Wausau-Mosinee Paper Corporation	Changed ticker to WPP
12/27/2004	Luby's, Inc.	Lack of Social and Financial Representation

Appendix 2

Criteria of KLD social ratings

Social issue ratings

Community

Strengths *Charitable Giving*. 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. *Innovative Giving.* 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. *Non-US Charitable Giving*. The company has made a substantial effort to make charitable contributions abroad, as well as in the US. To qualify, a company must make at least 20% of its giving, or have taken notably innovative initiatives in its giving program, outside the US. *Support for Housing.* The company is a prominent participant in public/private partnerships that support housing initiatives for the economically disadvantaged, eg, the National Equity Fund or the Enterprise Foundation. *Support for Education.* 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. *Other Strength.* The company has either an exceptionally strong volunteer program, in-kind giving program, or engages in other notably positive community activities.

Concerns *Investment Controversies.* 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.* 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. *Other Concern.* 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.* 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.* 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. *Other Strength.* 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.

Concerns *High Compensation.* 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 $10 million per year for a CEO or $100,000 per year for outside directors. *Tax Disputes.* The company has recently been involved in major tax disputes involving more than $100 million with the Federal, state, or local authorities. *Ownership Concern.* 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. *Other Concern.* 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

Strengts *CEO.* The company's chief executive officer is a woman or a member of a minority group. *Promotion.* 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.* 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.* The company has outstanding employee benefits or other programs addressing work/life concerns, eg, childcare, elder care, or flextime. *Women & Minority Contracting.* 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.* The company has implemented innovative hiring programs, other

innovative human resource programs for the disabled, or otherwise has a superior reputation as an employer of the disabled. *Gay & Lesbian Policies.* 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. *Other Strength.* The company has made a notable commitment to diversity that is not covered by other KLD ratings.

Concerns *Controversies.* 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.* The company has no women on its board of directors or among its senior line managers. *Other Concern.* The company is involved in diversity controversies not covered by other KLD ratings.

Employee relations

Strengths *Cash Profit Sharing.* The company has a cash profit-sharing program through which it has recently made distributions to a majority of its workforce. *Employee Involvement.* 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. *Health and Safety Strength.* The company is noted by the US Occupational Health and Safety Administration for its safety programs. *Retirement Benefits Strength.* The company has a notably strong retirement benefits program. *Union Relations.* The company has a history of notably strong union relations. *Other Strength.* The company has strong employee relations initiatives not covered by other KLD ratings.

Concerns *Union Relations.* The company has a history of notably poor union relations. *Health and Safety Concern.* 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.* 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.* The company has either a substantially underfunded defined benefit pension plan, or an inadequate retirement benefits program. *Other Concern.* The company is involved in an employee relations controversy that is not covered by other KLD ratings.

Environment

Strengths *Beneficial Products and Services.* The company derives substantial revenues from innovative remediation products, environmental services, or products that promote the efficient use of energy [costa], 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.) *Clean Energy.* 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. *Communications.* 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. *Pollution Prevention.* The company has notably strong pollution prevention programs including both emissions reductions and toxic-use reduction programs. *Recycling.* 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. *Other Strength.* The company has demonstrated a superior commitment to management systems, voluntary programs, or other environmentally proactive activities.

Concerns *Hazardous Waste.* The company's liabilities for hazardous waste sites exceed $50 million [vantaggio per le SR], or the company has recently paid substantial fines or civil penalties for waste management violations. *Regulatory Problems.* 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.* The company is among the top manufacturers of ozone depleting chemicals such as HCFCs, methyl chloroform, methylene chloride, or bromines. *Substantial Emissions.* 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.* The company is a substantial producer of agricultural chemicals, ie, pesticides or chemical fertilizers. *Climate Change.* 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.* The company has been

involved in an environmental controversy that is not covered by other KLD ratings.

Human rights

Strengths *Indigenous Peoples Relations Strength.* The company has established relations with indigenous peoples near its proposed or current operations (either in or outside the US) that respect the sovereignty, land, culture, human rights, and intellectual property of the indigenous peoples. *Labor Rights Strength.* The company has outstanding transparency on overseas sourcing disclosure and monitoring, or has particularly good union relations outside the US. *Other Strength.* 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.

Concerns *Burma Concern.* The company has operations or investment in, or sourcing from, Burma. *Labor Rights Concern.* The company's operations outside the US have had major recent controversies related to employee relations and labor standards or its US operations have had major recent controversies involving sweatshop conditions or child labor. *Indigenous Peoples Relations Concern.* The company has been involved in serious controversies with indigenous peoples (either in or outside the US) that indicate the company has not respected the sovereignty, land, culture, human rights, and intellectual property of indigenous peoples. *Other Concern.* The company's operations outside the US have been the subject of major recent human rights controversies not covered by other KLD ratings.

Product

Strengths *Quality.* The company has a long-term, well-developed, company-wide quality program, or it has a quality program recognized as exceptional in US industry. *R&D/Innovation.* 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.* The company has as part of its basic mission the provision of products or services for the economically disadvantaged. *Other Strength.* The company's products have notable social benefits that are highly unusual or unique for its industry.

Concerns *Product Safety.* 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*

Controversy. 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. *Antitrust.* 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.* The company has major controversies with its franchises, 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.

Controversial business issues

Adult entertainment

Distributors. The report includes publicly traded US companies that derive 15% or more of total revenues from the *rental, sale, or distribution* (wholesale or retail) of adult entertainment media products. *Owners and Operators.* The report includes publicly traded US companies that own and/or operate adult entertainment establishment. *Producers.* The report includes publicly traded US companies that produce adult media products including movies, magazines, books, calendars, and websites. *Providers.* The report includes publicly traded US companies that offer pay-per-view adult entertainment. *Ownership of an Adult Entertainment Company.* The company owns more than 20% of another company with adult entertainment involvement. (When a company owns more than 50% of company with adult entertainment involvement, KLD treats the adult entertainment company as a consolidated subsidiary.) *Ownership by an Adult Entertainment Company.* The company is more than 50% owned by a company with adult entertainment involvement.

Alcohol

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 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.) *Ownership by an Alcohol Company.* The company is more than 50% owned by a company with alcohol involvement.

Firearms

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 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.) *Ownership by a Firearms Company.* The company is more than 50% owned by a company with firearms involvement.

Gambling

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 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.) *Ownership by a Gambling Company.* The company is more than 50% owned by a company with gambling involvement.

Military

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 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.) *Ownership by a Military Company.* The company is more than 50% owned by a company with military involvement.

Nuclear power

Ownership of Nuclear Power Plants. Companies that own nuclear power plants. *Ownership of a Nuclear Power Company.* The company owns more than 20% of another company with nuclear power involvement. (When a company owns more than 50% of company with nuclear power involvement, KLD treats the nuclear power company as a consolidated subsidiary.) *Ownership by a Nuclear Power Company.* The company is more than 50% owned by a company with nuclear power involvement.

Tobacco

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 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.) *Ownership by a Tobacco Company.* The company is more than 50% owned by a company with tobacco involvement.

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