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The Effect of Ethical Fund Portfolio Inclusion on Executive Compensation

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ABSTRACT. This paper divides firms in the Standard and Poor's 500 (S&P 500) into two groups based on inclusion in or exclusion from the Domini Social Index (DSI). Inclusion in the DSI is interpreted as a positive indicator of ethical status. Using data for the 1992–2003 period, I provide evidence that chief executive officer (CEO) compensation, other executive compensation, and director compensation tend to be lower in DSI firms than in other firms in the S&P 500. This applies to the unconditional group averages (and medians) and is particularly striking given that DSI firms as a group had better financial performance than the other firms. This finding is also true in a regression framework that controls for other influences on compensation, including firm size and financial performance. In a regression context, the estimated discount for CEOs of DSI firms is approximately 12% for both current compensation (salary and bonuses) and total compensation (including the value of options). These results are consistent with the expectation that some senior executives require a ''compensating differential'' to accept positions in firms with less attractive ethical status. It is also consistent with the expectation that some firms with positive ethical status might use more restraint in setting executive compensation.

KEY WORDS: compensating differential, corporate social responsibility, Domini Social Index, ethical funds, executive compensation

ABBREVIATIONS: CEO: Chief Executive Officer; COMPUSTAT: Database on financial information maintained by Standard & Poor's; DSI: Domini Social Index – a portfolio of large American firms selected on ethical criteria; ROA: Return on Assets; S&P 500: Standard and Poor's list of 500 major American publicly traded firms; TRS: Total Return to Shareholders (based on dividends and capital gains)

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Introduction

Over the past two decades, mutual funds focusing on ethical investment have attracted increasing attention in the financial community. These funds, often referred to as ''ethical funds'' or ''socially responsible funds'', use a combination of fixed screening rules and discretionary judgments to determine their investment portfolios. Their influence is particularly significant in the United States where, according to Bauer et al. (2002), approximately $153 billion was under the management of such funds at the end of 2000. While this represented only 2.3% of total mutual fund assets in 2000, the absolute magnitude of such investments is large enough to make them of considerable interest, and they continue to grow in relative importance.[1]

A number of research papers have addressed the question of whether shareholders of ethical funds suffer a penalty in the form of lowered returns. This paper addresses the effect of ethical funds on a different set of ''stakeholders'' – the senior executives and directors of the firms included in ethical fund portfolios. More specifically, the principal objective of this paper is to assess whether senior executives and directors of companies identified as ''ethical'' or ''socially responsible'' receive higher or lower compensation than comparable executives and directors of other firms.

Inclusion in major ethical funds might have a variety of effects on the underlying firms. While opinions vary about the appropriate definition of

ethical conduct for corporations, inclusion in or exclusion from major ethical funds is likely to have an impact on the way firms are perceived. Private investors might be more inclined to invest in firms that are perceived as ethical or socially responsible, and some consumers might also be influenced by a firm's perceived ethical status. The motivation for this paper arises in part from the expectation that potential senior executives and directors might also be influenced by a firm's ethical standing. It is possible, for example, that potential directors and senior executives might be willing to accept less remuneration in order to obtain positions with firms that they or others perceive as ethical or socially responsible.

This research question is of particular interest in view of the recent emphasis placed by the business and popular press on the ethics of executive compensation. While this paper does not directly address whether executive compensation meets particular ethical standards, it does shed light on whether companies identified as socially responsible are characterized by different practices regarding executive and director compensation than are other firms.

Constructing an appropriate sample of ''ethically certified'' firms and an appropriate control group is a major issue in research design for this type of study. Fortunately, as described more fully in the data section of this paper, there is a very natural dataset for this purpose, at least for large American firms. Specifically, the best-known index of socially responsible investments in large American firms, originally created by KLD Research and Analytics, is the Domini 400 Social Index (DSI). Close to half the firms in the S&P 500 are in the DSI. I, therefore, divide the S&P 500 into a ''treatment group'' (i.e. firms in the DSI) and a ''control group'' (firms excluded from the DSI). This partition of the S&P 500 into two groups provides a very useful dataset for investigating the effect of ethical certification among large American firms.

Ethical standing is only one of many factors that might influence executive compensation, and some of these other factors might be correlated with ethical standing. It is, therefore, important to control for other significant factors such as firm size and financial performance. We would like to be able to assess whether compensation is lower in DSI firms even after adjusting for compensation differences due to variations in size, financial performance and other control variables. Information on executive compensation and relevant control variables is available in the Compustat Executive Compensation database, allowing the effect of ethical certification on executive and director compensation to be addressed in a regression framework.

The central finding of this paper is that CEO compensation, other executive compensation, and director compensation are all lower in DSI firms than in the excluded firms. This is true using sample averages or medians, and is also true using regression analysis to control for other influences on compensation.

Literature review

This paper is related to three streams of published research. One stream concerns the financial returns to investment in ethical funds. Three particularly useful papers in this area include Bauer et al. (2002), Cummings (2000), and Sauer (1997) (which uses the Domini Social Index as the primary identifier for ethical investments, as is done here). The main finding of this literature is that ethical funds seem no worse than other funds in their financial performance, although there is some variation depending on the precise sample of firms chosen for study. Orlitzky et al. (2003) argues that, while most individual studies are inconclusive, combining data on the link between social responsibility and financial performance in a ''meta-analysis'' allows inference of a modest positive relationship. For the sample of firms used here I find that, in contrast to most previous studies but consistent with the finding of Orlitzky et al. (2003), ethically selected firms have significantly better financial performance over the sample period (1992–2003) than excluded firms.

A second stream of related research concerns the determinants of executive compensation, particularly compensation of the chief executive officer (CEO). This is a large literature that I will not attempt to review here. A valuable survey is provided by Murphy (1999). A central question in this literature concerns the sensitivity of CEO compensation to firm financial performance. A useful meta-analysis of this question is provided by Tsoi et al. (2000), which reports the consensus finding that good financial performance has a positive but surprisingly small

impact on CEO compensation. Most variation in CEO compensation is due to other factors. See also Palia (2001) and Hubbard and Palia (1995). The primary contribution of the current paper to the literature on executive compensation is the identification of a firm's ethical standing as a significant determinant of executive compensation.

This paper is also related to the literature on the ethics of executive compensation. One basic question in this literature concerns whether CEO compensation levels are excessive from an ethical point of view, see, for example, Nichols and Subramanian (2001). In addition, much of this literature, including Perel (2003), draws attention to conflicts of interest on the part of directors that might give rise to excessive CEO compensation. The current paper does not explicitly address whether there is evidence of director conflict of interest, but it does provide information about causal factors for both executive and director compensation.

Hypothesis development

The primary hypothesis is as follows.

Hypothesis: Firms identified as ''ethical'' will, other things equal, tend to pay lower compensation to executives and directors than other firms.

The reasoning underlying this hypothesis is based in part on the economic theory of compensating differentials as described, for example, in Borjas (2002, Ch. 6). A compensating differential is normally defined as the extra amount an employer must pay to ''reimburse'' a worker for an undesirable job characteristic relative to the financial return available in otherwise equivalent jobs without the undesirable characteristic. A firm's exclusion from a relevant ethical certification would be an undesirable job characteristic that would lead to compensating differentials for CEOs, other executives, and directors. Thus, some executives and directors would, other things equal, need to be paid more to work for firms that lack ethical certification.

In addition to executives and directors who would require a compensating differential, there are some who would not accept positions at all with firms they regard as ethically questionable. For example, some potential executives will not accept positions at tobacco companies. This self-selection would reduce the supply of potential executives for firms with low ethical status and would therefore put upward pressure on the equilibrium compensation for executives at such firms. In addition, it is possible that firms with high ethical status might have a stronger commitment to avoiding excessive executive compensation than other firms. If so this would affect the willingness to pay for executives by firms with high ethical status and would put downward pressure on the equilibrium compensation to executives at such firms. Thus, both these effects: self-selection by executives away from firms with low ethical status and lower willingness to pay by firms with high ethical status also contribute to the conceptual foundation for this paper's central hypothesis.

Data description

The main data source for this paper is the Compustat executive compensation database as accessed in April 2005, providing information through the 2003 year. Compustat provides information on executive compensation, director compensation, financial performance, size measures, and other variables for large American firms. The firms studied consist of those in the database that were also in the S&P 500 as of December 2003. Data on these firms was available from 1992 to 2003. All financial variables were converted to real terms using the consumer price index with 2003 as the base year and are therefore denominated in 2003 U.S. dollars.

This paper uses two measures of (annual) executive compensation. One is called ''current compensation'' and comprises annual base salary and any bonus that is paid. This compensation measure is transparent and predictable. It is readily understood by executives themselves and by shareholders, analysts, and other interested parties. It is a ''hard'' number that is difficult to distort or misrepresent. The second measure used here is ''total compensation'', which is the sum of current compensation and the annual value of other forms of compensation. These other forms include, but are not restricted to, pension plan contributions, the value of concessionary loans to senior executives, grants of

stock, and, most importantly, options. Options and stock are granted in a given year but, typically, are not cashed in or realized in that year, hence their distinction from "current" compensation. However, non-current compensation is valued on an annual basis even though it is not realized on an annual basis. For example, options are valued (using the Black-Scholes formula) as contributing to compensation the year they are granted, even if the options are not exercised that year.

Table I provides descriptive statistics on current and total executive compensation, subdivided into CEO compensation and other executive compensation. The other executives consist, for the vast majority of firms, of the next 4–7 most senior executives in the firm after the CEO. Table 1 provides data for 1992 and 2003, and the average over the full period. The entries are in thousands of U.S. dollars per year and are converted to constant (2003) dollars using the consumer price index to adjust for inflation.

Table I illustrates several points about the data. First, CEO compensation in S&P 500 companies is rather generous as average annual CEO compensation over the period was $8.694 million, and median compensation was $4.715 million. Furthermore, CEO compensation grew sharply over the 1992–2003 period in real terms (i.e. even after adjusting for inflation). For example, median real CEO compensation grew from $2.756 million in 1992 to $4.715 million in 2003 – far faster than U.S. growth in per capita real income. A third noteworthy fact is that averages significantly exceed medians, caused in part by a handful of exceptionally large annual compensation packages.[2] In addition, current compensation (salary plus bonus) comprised a modest and shrinking share of total compensation over the 1992–2003 period, falling from almost 50% of total CEO compensation in 1992 to about 25% as of 2003. The most important single element in compensation is options, which account for most of the difference between total and current compensation.

As noted in the introduction, the identifier for ethical status is obtained from the Domini Social Index. This index was first created in late 1989 and early 1990 by the firm KLD Research & Analytics and is used as the portfolio for the Domini Social Equity Fund. It is based on the S&P 500 in that the S&P 500 firms are all considered for the index. Just over half of the S&P 500 firms are excluded and slightly less than half are included. The basis for exclusion includes significant interests in tobacco, military weapons, nuclear power, gaming, or alcohol, along with an assessment of the firm's record in the areas of the environment, diversity, and employee relations. Positive aspects of the firm's product offerings are also considered. Other (i.e. non-S&P 500) firms are added to bring the total number of firms in the index up to 400 using the same criteria used to assess S&P 500 firms. The non-S&P firms are not used in the analysis of this paper. Turnover in the Index is low. For this paper I took the Domini 500 Index from the Domini website (http://www.domini.com) as of April 2004 and divided the S&P 500 into those firms that were in the Domini Index and those that were not.

In addition to executive compensation, I also investigate differences in director compensation. For directors, the most important form of compensation is an annual retainer. In addition, most firms pay directors a certain amount per meeting for each board meeting attended. The sum of the retainer and payment for meetings provides a total comparable to

TABLE I

S&P 500 Annual Real Executive Compensation: 1992–2003 (000s of 2003 $US)

Period	CEO current		CEO total		Other exec current		Other exec total	
	Median	Average	Median	Average	Median	Average	Median	Average
1992	1442	1768	2756	3677	557	698	1073	1587
2003	2153	2694	6681	8883	852	1149	2082	3109
1992–2003	1654	2118	4715	8694	654	895	1624	3072

Source: Compustat executive compensation database as updated December, 2004.

current compensation for executives. Like executives, directors may also receive grants of stock, options and other benefits, but the value of non-current compensation for directors is not available in Compustat. There is information on the frequency and quantity of options and stock grants. The median director received no stock or options and even at the 75th percentile, few options or stocks are granted. Therefore, for directors (unlike executives), current compensation should be close to total compensation. Average annual real current compensation for directors of S&P 500 firms over the 1992–2003 period was just over $39,000 (in 2003 dollars) and median compensation was only slightly less at just under $39,000.

The Compustat dataset is a widely used dataset of high quality. However, it has some minor drawbacks. First, although 493 of the 500 firms in S&P 500 in 2003 are in the data, there is some missing data for some of these firms, especially in early years. Also, a few of the firms were not publicly traded for some years and are therefore absent from the data for those years. However, over 400 firms have complete CEO data for all years but 1992, 1993 and 1994 and there is no reason to think that the pattern or quantity of missing data[3] would significantly bias or undermine the results. Appendix 1 contains a list of the Compustat variable names used in this paper.

Empirical methods

The data used here correspond to what is sometimes referred to as a ''quasi-experiment'' (see Wooldridge, 2003, p. 436), in that we have well-defined treatment and control groups, distinguished from each other by an exogenous identifier (which, in this case, is inclusion in or exclusion from the DSI). It differs from a true experiment in that assignment to the treatment group and the control group is not done on a randomized basis that would create two otherwise equivalent groups. It is therefore important to control for factors other than the treatment variable that might explain outcome differences between the two groups. However, it is useful to start with a simple *t*-test of the type that might be used in a true experiment, as this provides a summary of the differences in executive and director compensation between ethically selected and ethically excluded firms. A regression analysis seeking to control for other factors is provided subsequently.

Differences in average and median executive compensation

Table II reports *t*-test results for differences in average executive compensation between ethically selected and ethically excluded firms. Differences in median income are also shown.

Table II shows that executives and directors in DSI firms earn lower average and median incomes than executives and directors in non-DSI firms. These differences are economically significant as illustrated, for example, by the finding that CEOs in DSI firms in the S&P 500 earn, on average, $677,000 dollars per year less than non-DSI CEOs for S&P 500 firms. These differences are statistically significant at the 0.01 significance level for CEOs and directors.[4] For other executives, only the difference in average current compensation is statistically significant. The differences shown in Table II are consistent with the hypothesis that non-DSI firms pay higher compensation than DSI firms.

Control variables

Simply comparing average compensation in DSI and non-DSI firms neglects to control for other factors that might affect compensation. Perhaps, the most obvious factor to correct for is size, as we expect executives in larger firms to receive higher levels of compensation. If DSI firms tended to be smaller than non-DSI firms, this could explain some of the difference in compensation. One way of checking for size effects is to redo the analysis of Table II using scaled variables (i.e. compensation divided by a measure of size). Table III provides this analysis for compensation scaled by sales and indicates that DSI firms pay lower levels of compensation per unit of sales than non-DSI firms.

As compensation is measured in thousands and sales in millions, we can see, for example, that CEOs in non-DSI firms received, on average, current compensation of about $610 dollars for every million dollars of sales for the firm. CEOs at DSI firms

TABLE II

Differences in average and median executive compensation – DSI (ethical) firms and other S&P 500 firms: 1992–2003, real 2003 dollars (thousands)

	CEO current comp.		CEO total comp.		Other exec current comp		Other exec total comp		Director current comp	
	Median	Average	Median	Average	Median	Average	Median	Average	Median	Average
Non-DSI firms	1726	2247	4879	8489	661	939	1642	3088	39.8	39.9
DSI firms	1595	1975	4468	7812	647	844	1597	2994	37.9	38.3
Difference	131***	272***	411**	677*	14	95***	55	94	1.9***	1.6***
t-stat		4.95		1.93		6.13		1.22		3.52
Non-DSI obs.	2679		2657		15570		12354		2612	
DSI obs	2427		2390		13726		10916		2387	

***, **, *Significance at 0.01 level, 0.05 level, and 0.10 level respectively

TABLE III

Differences in average executive compensation scaled by sales – DSI (ethical) firms and other S&P 500 firms: 1992–2003; ratio of compensation to sales

	CEO current comp/sales.	CEO total comp/sales.	Other exec current comp/sales	Other exec total comp/sales
Non-DSI firms	0.61	3.32	0.31	1.21
DSI firms	0.53	2.26	0.27	0.95
Difference	0.08***	1.06***	0.04***	0.26***
t-stat	3.31	2.72	3.71	4.24
Non-DSI obs.	2679	2656	15516	12325
DSI obs	2489	2390	13685	10898

***Significance at 0.01 level; compensation is in thousands, sales are in millions.

received significantly less – about $530 for every million dollars of sales for the firm.

Another factor of interest is financial performance. The most relevant measure of financial performance to shareholders is the 5-year total return to shareholders (TRS). This return measure consists of capital gains and dividends and treats dividends as though they are reinvested in the firm's stock. The 5-year TRS shows the percentage total return over 5 years. Another standard measure is the one-year return on assets (ROA). Table IV provides some information about financial differences with respect to these two measures using a *t*-test framework for averages and a comparable test for medians. The difference in financial returns is not the focus of this paper and has been done more carefully by others adjusting for, among other things, variations in risk across firms. Its relevance here lies largely in assessing the need to control for financial performance in explaining the effect of ethical certification on executive compensation, although the difference in financial returns between DSI and non-DSI firms is also of interest in itself.

Table IV indicates that DSI firms earned significantly higher financial returns than non-DSI firms. The total return to shareholders exhibits an average difference of almost 2 percentage points over a 5-year period. The difference is even stronger for the return on assets-which has a difference of 1.75 percentage points per year. Tables III and IV suggest that

TABLE IV

Differences in average and median financial performance – DSI (ethical) firms and other S&P 500 firms: 1992–2003 (rates of return)

	5-year total return to shareholders		Annual return on assets (ROA)	
	Median	Average	Median	Average
Non-DSI firms	13.49	15.78	3.99	4.71
DSI (ethical) firms	15.62	17.74	6.15	6.46
Diff (Std. error)	−2.13***	−1.96***	−2.16***	−1.75***
t-stat: H_a:$\mu_e \neq \mu_x$		3.67		8.23
Non-DSI obs.	2470		2670	
DSI obs	2282		2422	

***Significance at 0.01 level.

controlling for both size and financial performance is appropriate in assessing the effect of DSI inclusion on executive compensation.

In the literature on executive compensation, size and financial return are the primary control variables used. Hubbard and Palia (1995) is one of several papers to use only size and financial return as explicit control variables.[5] However, there are several other variables that might reasonably be used as controls. I use three additional variables: leverage, a firm's stock price volatility over the previous 5 years as provided by Compustat, and CEO experience. (The experience of other executives is not available.)

Leverage is measured as the (percentage) ratio of long-term debt (i.e. debt with a maturity exceeding one year) to assets, and therefore represents the percentage share of assets accounted for by long-term debt. This is typically on the order of 20%. There are two reasons for using leverage. First, leverage might be viewed as a component of financial performance. In addition, firms with higher leverage might be more cash-constrained and therefore more inclined to limit bonuses and other payments to executives. Volatility in the firm's stock price might also be viewed as a negative aspect of financial performance. Table V, shows a correlation matrix for the explanatory variables considered here. Each entry shows the pair-wise correlation coefficient for the variables in the corresponding row and column.

The correlations in Table V are generally low except that sales and employment have a very high pair-wise correlation, and sales also has a high correlation with assets. It is, as a result, no surprise that

TABLE V

Correlation matrix for explanatory variables

	Assets	Empl.	Sales	TRS	ROA	Lev.	Vol.	Exp.	DSI
Assets	1								
Employment	0.29	1							
Sales	0.52	0.77	1						
TRS	0.01	−0.05	−0.04	1					
ROA	−0.14	−0.02	−0.05	0.33	1				
Leverage	−0.02	0.10	0.04	−0.25	−0.22	1			
Volatility	−0.07	−0.11	−0.12	0.04	−0.2	−0.10	1		
CEO Exp.	−0.02	−0.04	−0.07	0.12	0.09	−0.04	−0.01	1	
DSI Ind.	−0.02	−0.02	−0.08	0.05	0.10	−0.17	−0.01	0.09	1

sales, employment, and assets together have a very high level of multicollinearity. I therefore use only assets and employment to control for size. This has the advantage of being consistent with economic theory in that assets and employment are good proxies for the two major input categories – capital and labor. In addition to the explanatory variables in Table V, I also use a time trend to adjust for the otherwise unexplained general increase in executive compensation that occurred over the sample period.

Regression specification

The basic structure of the regression equations is as follows, where C is a set of control variables, D is an indicator variable that takes on value 1 for firms in the DSI and value 0 for other firms, and ε represents a random error. β_1 is the coefficient of primary interest, showing the effect of DSI inclusion on compensation, and β_2 is a vector of coefficients on the control variables.

$$\text{Compensation} = \beta_0 + \beta_1 D + \beta_2 C + \varepsilon \qquad (1)$$

As always with regression analysis there are several specification issues to consider (in addition to the selection of control variables), including functional form. I briefly describe here the specification choices made. A fuller explanation of the reasons for and implications of these choices is provided in Appendix 2. Equation (1) is written as if compensation is a linear function of the various explanatory variables. This form is often used in the analysis of executive compensation, but it is probably more common to use a log-linear form in which equation (1) is reinterpreted such that the level of compensation and appropriate control variables, such as assets, are replaced by their (natural) logarithms. Whether logarithms or levels are used makes little difference to the executive compensation results, and I report just the log-linear form. I use logarithms of compensation, assets, employment, and experience and, following normal practice, use the unlogged or ''level'' form of the indicator variable and variables already in a scaled form, including the ROA, TRS, leverage, and volatility.

A second specification issue relates to possibly ''lagging'' control variables. We might, for example, expect executive compensation to be more closely related to lagged assets (i.e. last year's assets) rather than to current assets, which are not known when base salary is determined. Similarly, it is likely that the lagged ROA and lagged leverage will be more relevant than current year values. On the other hand, we would expect the ''current'' 5-year total shareholder return to be appropriate as it is already based on the previous 5 years. The same is true for volatility. The Compustat executive compensation database goes back to 1992. When one-year lags are used, the sample period therefore starts in 1993, with lagged values from 1992 included as control variables.

Regression results

The central hypothesis of the paper relates to the sign, magnitude, and statistical significance of β_1 in expression (1). Specifically, if executives and directors of the S&P 500 firms in the DSI ethical index receive less compensation than executives and directors of other S&P 500 firms, then β_1 should take on a negative sign.

The same basic specification applies to all four executive compensation measures: current CEO compensation, total CEO compensation, current other executive compensation, and total other executive compensation. A simplified version is used for director compensation. The equations are estimated using ordinary least squares (corrected for heteroskedasticity), as implemented in the STATA8 statistical software package. The main results are shown in Table VI.

In interpreting Table VI, the most important observation is that the coefficient on the DSI indicator indicates that CEOs of ethically selected (DSI) firms earned approximately 12% less[6] in current compensation and in total compensation than CEOs of other firms. For other executives the effect is smaller, but it is both economically and statistically significant. The coefficients on the other variables are plausible in magnitude, statistically significant in almost all cases, and of considerable interest in themselves.

The coefficient on a logged control variable shows the percentage effect of a 1% change in the control variable. Therefore, a 1% increase in assets is associated with current compensation that is about

TABLE VI

The effect of ethical selection on executive compensation: 1993–2003 – The dependent variable is the natural logarithm of compensation in $US thousands

	CEO current compensation	CEO total compensation	Other exec. current compensation	Other exec. total compensation
DSI indicator	−0.117 *** (0.031)	−0.118*** (0.032)	−0.033*** (0.008)	−0.025** (0.011)
ln(assets) – lagged	0.151 *** (0.014)	0.226*** (0.014)	0.194*** (0.005)	0.248*** (0.006)
ln(employ.) – lagged	0.095*** (0.013)	0.149*** (0.014)	0.073*** (0.004)	0.121*** (0.005)
5-year total return to shareholders	0.0054*** (0.001)	0.0141*** (0.001)	0.0051*** (0.0003)	0.012*** (0.0004)
return on assets – lagged	0.0052 (0.003)	0.013** (0.003)	0.0077*** (0.0007)	0.014*** (0.001)
Leverage–lagged	−0.0041*** (0.0015)	−0.0032** (0.0013)	−0.0026*** (0.0003)	−0.0040*** (0.0005)
Stock price volatility	−0.887*** (0.188)	1.07*** (0.163)	0.102*** (0.039)	1.42*** (0.058)
ln(experience)	0.061*** (0.015)	0.043*** (0.017)		
Time	0.027*** (0.005)	0.087*** (0.005)	0.019*** (0.002)	0.060*** (0.002)
Constant	5.78*** (0.173)	4.80*** (0.150)	4.43*** (0.045)	3.87*** (0.058)
Adj. R^2	0.14	0.30	0.27	0.35
observations	4057	4047	20116	17727

Standard errors are in parentheses; ***, **significance at 0.01 and 0.05 levels respectively.

0.15% higher and with total compensation that is about 0.23% higher. Effects of a 1% increase in employment are about 0.1% for current compensation and 0.15% for total compensation. An increase in firm size would normally be reflected in both increased assets and increased employment. If, for example, a 10% increase in firm size were associated with proportionate increases in assets and employment, then estimated current CEO compensation would be about 1% + 1.5% = 2.5% higher and estimated total CEO compensation would be increased by 3.8%. Thus, firm size is found to have an important but far from proportionate effect on CEO compensation, as is consistent with prior work.

For continuous but unlogged control variables, the coefficient shows the estimated percentage effect (after multiplying by 100) of a one unit change in the control variable. Thus if the 5-year total return to shareholders were to rise by 1 point, this would be associated with an estimated 0.5% increase in CEO current compensation. Both financial return variables have positive effects on compensation, as expected. Higher leverage has a negative impact, also as expected, possibly reflecting a cash constraint or possibly reflecting less desirable financial performance. Financial volatility has a significant negative effect on current compensation for CEOs, as would be consistent with high stock price volatility being viewed as a negative performance indicator. However, the effect on total compensation is positive, implying that higher stock price volatility is associated with high values for options given to senior executives.[7]

Experience has a significant positive effect of plausibly modest magnitude. The time trend indicates that, after adjusting for other factors, CEO current compensation rose in real terms by about 2.8% per year while total compensation rose by the much larger amount of about 9% per year. This reflects the shift toward options and other indirect methods of compensation over the sample period.

Turning to director compensation, there is one observation on director compensation for each firm for each year. This compensation equals the annual retainer and per meeting payment available to all directors of that firm in that year. Regressions were run including the same explanatory variables as for executive compensation, but the estimated effects of financial performance differences were economically trivial and statistically insignificant. Accordingly, I ran regressions using just size variables and time as control variables. The log-linear form yielded a

statistically insignificant (although negative) effect of DSI inclusion on director compensation. On the other hand, the linear form yielded a statistically significant negative effect, indicating that DSI firms paid directors just over $1000 dollars less per year, after adjusting for size, than non-DSI firms. Overall, while effects of DSI inclusion on director compensation are suggestive, they are far from definitive. This reflects the fact that the level of director compensation tends to be very standard across S&P 500 firms and showed little variation over the time period studied.

Summary

This paper uses the Domini Social Index (DSI) to divide firms in the S&P 500 into two subsets according to their inclusion in the index. The index defines the portfolio for the Domini Social Equity Fund, which is a prominent ethical mutual fund. For firms in the S&P 500, exclusion from the DSI provides a signal of questionable (or negative) ethical status. Conversely, inclusion in the DSI might act as an ethical "certification" that would have a positive impact on the way a firm is perceived by investors, consumers, and employees.

It is possible that some potential executives of DSI firms might be willing to accept less remuneration to work at such firms. It is also possible that firms in the DSI might be more sensitive to the ethical concerns commonly raised about the level of executive compensation and might therefore show more restraint in setting executive compensation than other firms. These ideas give rise to the hypothesis that executive compensation might be lower in DSI firms than in a comparable set of other firms.

This paper provides evidence that CEO compensation, other executive compensation, and director compensation do in fact tend to be lower in DSI firms than in other firms in the S&P 500. This is based on annual data from the 1992 to 2003 period. The finding applies to simple group averages and is statistically significant in a *t*-test framework. This result also arises using a regression analysis that controls for other influences on compensation, such as firm size, financial returns, and CEO experience. In the regression framework, the average compensation discount for CEOs in DSI firms is about 12%. This applies to both current compensation (salary and bonuses) and total compensation (including the value of options and stock grants). The results are strongest for CEOs but are also clear for other executives. As far as directors are concerned, compensation packages among S&P 500 firms are very standard so there is not much variation by DSI categorization or anything else. Still, even for directors, the results are at least suggestive.

The effects of control variables on executive compensation are also of interest. Executive compensation tends to increase with firm size, but the increase is much less than proportionate. For example, a 10% increase in size (reflected in both assets and employment) is associated with just under a 4% increase in total CEO compensation. Similarly, increasing experience has a modest positive effect on CEO compensation and increasing leverage (as measured by the ratio of long-term debt to assets) has a modest negative affect.

In addition, improved financial performance is, other things equal, also associated with higher executive compensation. More specifically, among ethically selected firms as a group, lagged financial performance is positively associated with executive compensation. Similarly, within the group of ethically excluded firms, financial performance is also positively associated with compensation. Therefore, after controlling for ethical status (and other factors), executive compensation is increasing in lagged financial performance, suggesting that executives of firms with strong financial performance tend to be rewarded with higher compensation. However, it is worth emphasizing that paying less to senior executives did not hurt the financial performance of ethically selected firms as a group, as these firms outperformed the ethically excluded firms in total return to shareholders and in return on assets by a significant margin. In any case, the level of executive compensation is a significant point of distinction between ethically selected firms and ethically excluded firms that is likely to contribute to the continuing debate on the ethics of executive compensation.

Appendix 1. Data used

Most of the data used in this study is from the Compustat Executive Compensation (EC) database. Leverage is constructed from the corresponding

TABLE A1

Assets	ASSETS ($ Million)
Current compensation	TCC ($Thousands)
Director compensation	This is the sum of ANNDIRRE (director retainer) and the product of the director meeting fee (DIRMTGFE) times the number of board meetings (NUMMTGS)
Employment	EMPL (Thousands)
Experience	YEAR + 1–BECAMECE (year became CEO) The BECAMECE variable indicates when a CEO began his or her current spell as CEO. Some CEOs served an earlier term as CEO. Experience was adjusted to include earlier terms.
Leverage	Constructed from the compustat industrial annual database using the ratio of data item 9 (Long-term debt) to data item 6 (Assets).
Return on Assets	ROA
Return to shareholders	TRS5YR
Total compensation	TDC1 ($Thousands)
Volatility	BS_Volat (60 month stock price volatility)

Compustat Industrial Annual (IA) database. The data was downloaded in April 2005 using the Wharton Research Data Services interface. The databases were last updated on December 31, 2004. Data was available from 1992 to 2003. The Compustat Executive Compensation Database uses abbreviations to identify data series. The Compustat abbreviations of the data series used are in Table A1.

All financial variables were converted to real 2003 dollars using the consumer price index (CPI).

APPENDIX 2. Specification and estimation issues

(a) Linear, log-linear, and semi-log functional forms

One important specification issue concerns whether to estimate equation (1) in linear or log-linear (or some other) form. I use the log of compensation as the dependent variable and the log of assets, employment and experience as control variables. One reason for using logarithms is that compensation, size measures, and experience are all skewed in the sense of having a few very large values. Taking logarithms reduces this skewness and therefore reduces the influence of outliers.

A second reason relates to the expected relationship between the dependent variable and explanatory variables. If the linear form with unlogged variables is used, a given absolute change in employment is associated with a constant absolute change in compensation. For example, we would estimate that an additional 1000 employees is always associated with an additional $17,000 per year for CEO total compensation. The log-linear form implies that this premium declines on a per-employee basis as the number of employees rises such that the ''elasticity'' is constant, which means that a given percentage change in assets is associated with a constant percentage change in compensation. Thus, for example, we are able to say that a 1% increase in employment is associated with a 0.15% increase in CEO current compensation.

If employment were logged and compensation were left unlogged (referred to as a ''semi-log'' specification), a given percentage change in employment would be associated with a constant absolute change in the level of compensation. While not suitable for employment or assets, the semi-log form is natural for variables already in percentage form. In this case, for example, we can say that a 1 (percentage) point increase in the total return to shareholders is associated with a 1.4% increase in total compensation. See Wooldridge (2003), p. 46 for a discussion of interpreting coefficients in log-linear and semi-log specifications.

In this case, it seems most reasonable and most consistent with common practice to use logarithms of compensation, assets, employment, and experience, and unlogged levels of ROA, TRS, volatility, and time, along with the DSI indicator variable. It is of course also important to consider which form is the better approximation to the actual data under consideration. In this case, the proposed (logarithmic) form does well in specification testing, although the pure linear form would also be reasonable.

(b) Industry fixed effects

When estimating wage or income equations, it is not uncommon to use industry fixed effects to capture unexplained industry-level differences in compensation. That would be inappropriate in this case as a significant part of the selection for inclusion in the DSI is done on an industry basis (as, for example, with tobacco companies). Accordingly, ''correcting'' for industry differences would be expected to leave out an important part of the effect of ethical status on compensation. In short, ethical status varies by industry and we would not want to abstract from that effect.

(c) Panel data issues

A second point to consider is that the data used in this study is panel data in the sense that there is a set of cross-sectional units (firms), each of which is tracked for a period of time (12 years). Our estimates make use of both cross-sectional and time-series variation (and there is a substantial amount of time-series variation in total and current compensation for virtually every firm). However, it is not appropriate to use standard fixed effects or random effects panel estimation because, by construction, there is no time-series variation in the DSI indicator for any given firm. Time-series variation does contribute in an important way to estimates of the sensitivity of compensation to the various control variables, however. Accordingly, the most suitable approach is simply to use all the observations in a standard regression estimated using ordinary least squares.

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Notes

[1] The Social Investment Forum (2003) estimates that investment in ethical mutual funds was about $151 billion in 2003, representing an increase in relative importance from 2000 given the decline in total mutual fund assets. Using an alternative and broader measure of ethical investment – investment in all professionally managed portfolios using socially responsible strategies – the Forum estimated relevant investment at $2.16 trillion 2003, about 11% of total professionally managed U.S. funds.

[2] Recall that the large outliers are NOT caused by the practice of cashing out several years' stock or option grants in a single year, as the compensation given here is based on when options and stock are awarded. To avoid excessive influence from a few extreme values, for subsequent analysis I drop the handful of observations with total annual compensation of more than $200 million.

[3] Observations with missing data and the handful with anomalous values for certain variables are dropped from the analysis for any particular tests using those variables. This has virtually no impact on the results relative to other methods for handling missing or anomalous observations.

[4] Use of statistical significance assumes that the dataset can be viewed as a sample from some underlying population or process. Significance levels for averages are obtained using a standard *t*-test (allowing for unequal variances) as implemented in STATA8. Median difference significance levels are also calculated within STATA.

[5] Hubbard and Palia (1995) also use firm fixed effects and year effects as implicit proxies for other control variables.

[6] The DSI indicator variable is not logged. This implies that the coefficient, when multiplied by 100, is approximately equal to the estimated percentage effect of DSI inclusion on compensation.

[7] The Black–Scholes formula used to determine option values implies that option values are increasing in stock price volatiliy. However, this does not explain the regression result as volatility should be taken into account by compensation committees. The number of options and the exercise price can be adjusted accordingly to achieve a particular target value for options

granted. Therefore, this result should be interpreted as reflecting firm-level decisions concerning compensation.

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