Does Greenness Matter? The Effect of Corporate Environmental Performance on Ownership Structure, Analyst Coverage and Firm Value*

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Abstract

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Keywords: Environmental Performance, Greenness, Ownership Structure, Firm value, Analyst coverage

JEL classification: D71, G11, G12, G32, Q50

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1. Introduction

The growing concern about environmental degradation and climate change has propelled an explosive growth in socially responsible investing (SRI)[1] and reinvigorated interest in corporate environmental performance.[2] While the finance literature has recently paid considerable attention to the performance of SRI portfolios,[3] we have very little understanding of how investors respond to corporate environmental performance which, in turn, could explain how and why greenness is related to the valuation and stock market performance of individual firms. In particular, the distinctions made by investors between firms that are considered greener because they engage in positive environmental performance (e.g., by adopting clean technologies, using renewable energy sources, etc.) and firms that are considered greener because they mitigate negative environmental performance (e.g., by reducing waste, minimizing the use and emission of toxic substances, etc.) have not been closely examined. The purpose of this paper is to help fill this void in the literature.

We examine how the ownership, analyst coverage and stock market valuation of U.S. firms vary with their positive ("green") and negative ("toxic") environmental performance.[4] We study potential ways in which corporate environmental performance can affect ownership and other firm variables. First, environmental performance serves as a SRI screen that shifts the portfolio allocations of some investors based on a firm's

[1] The Social Investment Forum (2007) estimates that $2.71 trillion or around 11 percent of assets under professional management in the U.S. meet the SRI criteria, which integrate environmental, social and governance factors into investment decisions.

[2] The Social Investment Forum (2003) reports 292 shareholder resolutions on social, environmental and ethical issues, with the largest number of resolutions being related to environmental issues.

[3] See, for example, Hamilton, Jo and Statman (1993), Statman (2000), Geczy, Stambaugh and Levin (2006), Brammer, Brooks and Pavelin (2006) and Kempf and Osthoff (2007).

[4] For the purpose of this study, we define "green" firms as firms that exclusively engage in positive environmental actions and "toxic" firms as firms that exclusively engage in negative environmental actions.

environmental performance. This suggests that investors whose portfolio allocations are influenced by negative and/or positive SRI screens (especially institutional investors such as university endowments and pension plans) will underweight toxic stocks and/or overweight green stocks in their portfolios. Second, some investors may judge a firm's investments in environmental performance from a shareholder value maximizing perspective. While such investors may view investments to reduce toxicity as being consistent with shareholder value maximization due to reductions in costs or risk,[5] they may perceive voluntary corporate expenditure to enhance positive environmental performance as detracting from shareholder value, causing them to also shun green stocks.[6] Third, and in contrast to institutional investors, recent studies of investor attention suggest that exceptional environmental performance (both green and toxic) could lead to net purchases by individual investors, since both green and toxic firms receive considerable publicity that attracts investor attention.[7] This argument implies a larger presence of individual investors in both green and toxic firms. The dispersion of environmental performance and ownership could also generate variations in analyst coverage and stock valuation. For example, analyst services may be more valuable for toxic firms due to the prudent-man rules associated with institutional investments

[5] See, for example, Bansal and Roth (2000), Buysse and Verbeke (2003) and Sharfman and Fernando (2008).

[6] See, for example, Friedman (1970), Mahapatra (1984), and Jensen (2001).

[7] Both green and toxic firms are frequently highlighted by a series of corporate environmental and sustainability rankings. Furthermore, corporate environmental performance is constantly monitored by the Environmental Protection Agency and other federal and state agencies, and publicized through various means including the EPA's Toxics Release Inventory. Additionally, private entities such as KLD Research & Analytics, Inc., RiskMetrics and the Social Investment Forum collect and disseminate information on corporate environmental performance, and the majority of large U.S. firms also provide regular reports on their environmental performance. Barber and Odean (2008) show that individual investors are much less likely to buy stocks that do not grab their attention and are more likely to buy rather than sell attention-grabbing stocks.

(O'Brien and Bhushan (1990)). Furthermore, if toxicity and/or greenness deter investment in stocks, these stocks will be relatively undervalued due to incomplete stock prices (Merton (1987)) and diminished risk sharing opportunities (Heinkel, Kraus and Zechner (2001)), while the opposite result would obtain if greenness and/or toxicity make stocks attractive to investors.

We test these predictions using the environmental performance measures from the KLD Research & Analytics, Inc. (KLD) social performance dataset. In addition to reviewing all major SEC filings (e.g., 10-K, annual reports and proxies), KLD has surveyed over 14,000 global news sources for firms in the S&P 500 and the Domini 400 Social Index (DS 400) since 1991, extending coverage to the Russell 1000 in 2001 and Russell 3000 in 2003. Serving both as a proxy for individual investor awareness and as a source of information for norm-constrained institutional investors, the KLD dataset is considered to be the single most comprehensive assessment of corporate environmental performance and is widely used in the academic literature.[8] For each stock, KLD provides seven sub-indicators for environmental strengths and seven sub-indicators for environmental concerns. If the firm meets or exceeds the KLD threshold in each sub-indicator category, it is assigned a value of one, and zero otherwise. We use the total number of environmental strengths and concerns reported in the KLD data to measure the environmental performance of the firms in our sample, which allows us to categorize firms into four groups: "green," "toxic," "gray," and "neutral." Green firms are positive environmental performers in the sense that they have at least one environmental strength

[8] In addition to recent papers in the finance literature such as Kempf and Ostoff (2007), Galema, Plantinga and Scholtens (2008) and Statman and Glushkov (2009), the KLD dataset has been used in over 40 peer-reviewed articles, representing a variety of academic fields including economics, management and sociology (http://www.kld.com/research/stats/index.html).

and no environmental concerns, while toxic firms are negative environmental performers, having at least one environmental concern and no environmental strengths. Gray firms have both environmental strengths and concerns, whereas neutral firms have neither strengths nor concerns. These classifications enable us to examine the effects of corporate environmental performance variations on ownership structure, analyst coverage, and stock market valuation.

We find a non-monotonic relationship between environmental performance and ownership characteristics. Green firms have a larger number of shareholders compared to neutral firms, while aggregate institutional ownership is significantly negatively related to environmental performance, suggesting that green firms are less attractive on average to institutional investors. We also find a similar pattern at the other end of the environmental performance spectrum, i.e., toxic firms also have a larger number of shareholders relative to neutral firms while having a smaller percentage of institutional holdings. Taken together, our finding that the total number of shareholders is higher at both ends of the environmental performance spectrum despite a lower number of institutional investors relative to environmentally neutral stocks suggests that individual investors drive the larger breadth of ownership for both green and toxic stocks. Both socially responsible investing (SRI) and shareholder value maximizing arguments may explain why institutions invest less in toxic firms. On the other hand, our finding that institutions also shun green stocks is clearly not consistent with a SRI rationale although it is consistent with a shareholder value maximizing rationale to the extent that corporate investments in greenness are seen by some investors as diminishing shareholder value. On the other hand, individual investors are attracted to both green and toxic stocks, and

fill the void left by the exodus of institutions from these stocks. The systematic ownership differences across our four environmental classifications persist when we control for firm size and age in our regression analysis.

Consistent with our results for aggregate institutional ownership, we find lower institutional investments in green, toxic and gray firms for all five institutional investor types. All institutional types except *other* institutions (including universities, pension plans and employee stock ownership plans) hold significantly smaller fractions of the shares of green firms. In contrast, only *other* institutions hold a significantly lower percentage of shares of toxic and gray firms. This finding is consistent with Hong and Kacperczyk (2009) who document that sin stocks are also less held by institutions such as pension funds whose investment activity is constrained by social norms.

While we find no significant difference in analyst coverage for green firms in our regression analysis, we find that analyst coverage is significantly higher for toxic firms and (especially) for gray firms. To the extent there are parallels between sin stocks and toxic stocks, our finding for analyst coverage is the opposite of what Hong and Kacperczyk (2009) find for sin stocks. Our finding is consistent with the notion that institutional prudency requirements may increase the demand for analyst coverage of toxic stocks (O'Brien and Bhushan (1990)).

We also find that both toxic and gray firms have lower valuation ratios (Tobin's Q) and higher portfolio returns relative to neutral firms. Our findings for toxic and gray firms are consistent with the lower valuations and higher portfolio returns of sin stocks in Hong and Kacperczyk (2009). They also are consistent with the prediction of Heinkel, Kraus and Zechner (2001). While we do not find a positive and significant effect of green

firms on valuations, we do find a positive and marginally significant effect of green stocks on portfolio returns, which is inconsistent with the notion that green stocks are overvalued.

Our findings also provide new insights into the inconsistent findings in the studies on socially responsible investing (SRI). Specifically, Hamilton, Jo and Statman (1993), Statman (2000) and Bauer, Koedijk and Otten (2005) find no difference in the performance of SRI portfolios while Brammer, Brooks and Pavelin (2006) and Geczy, Stambaugh and Levin (2006) document underperformance of SRI portfolios and Kempf and Osthoff (2007) find overperformance of SRI portfolios. As managerial skills and fund expenses confound the performance of mutual funds, the inconclusive evidence based on mutual funds is further clouded by differences among mutual funds. Examining environmental performance at the firm level rather than at the mutual fund level allows us to exclude fund-specific factors that are unrelated to socially responsible investing,[9] and thereby generate a more accurate estimate of the returns from socially responsible investing. We show that investment strategies that screen out firms with environmental concerns from fund portfolios will underperform the overall market since toxic and gray firms have significantly higher risk-adjusted returns. When viewed in conjunction with our finding that green stocks are not overvalued, this finding suggests that differences across investment screens may partially explain the inconclusive evidence on returns to SRI portfolios even in the absence of variation in managerial skills and mutual fund expenses.

[9] Statman and Glushkov (2009) and Kempf and Osthoff (2007) also use firm-level socially responsible investing data.

While previous studies focus on differences in corporate social performance at the industry level (e.g., Hong and Kacperczyk (2009)), we examine the influence of differences in environmental performance at both the firm and industry levels on variables of interest, which allows us to detect within and between industry effects. Specifically, we document that within-industry variation in environmental performance has an important influence on variables of interest. Furthermore, our study considers a full spectrum of firms (both good and bad environmental performers) whereas Hong and Kacperczyk (2009) examine the influence of poor social performers only. In particular, our findings reveal considerable parallels in the ways institutional investors perceive sin stocks and toxic stocks, which can be attributed to social norms and, in the case of toxic stocks, explicit SRI screens. While our finding that some institutional investors are repelled by green firms is the opposite of what a socially responsible investing rationale would predict, it is consistent with the view advanced by Friedman (1970) and Jensen (2001) that voluntary expenditures to enhance a firm's positive environmental performance detracts from shareholder value.

We discuss the literature and frame our empirical questions in the next section. Section 3 discusses our data and methodology. Section 4 presents our empirical findings on the relations between environmental performance and ownership, analyst following and stock market valuation. Section 5 concludes.

2. Should Corporate Environmental Performance Matter?

Environmental performance may influence investment decisions of individual and institutional investors in a variety of ways. First, environmental performance is a key

element of socially responsible investing screens, with negative SRI screens specifically identifying toxic firms and positive SRI screens specifically identifying green firms. The application of SRI screens to investment would suggest that investors whose investment decisions are subject to public scrutiny and whose portfolio allocations are either explicitly (as in the case of SRI funds) or implicitly (as in the case of university endowments and pension plans) influenced by negative and/or positive SRI screens will underweight toxic stocks and/or overweight green stocks in their portfolios.[10] Such investment norms that bind the investment decisions of certain types of institutional investors are distinct from the self-imposed norm constraints on individual investors.[11] Since a significant percentage of institutional investors are subject to explicit or implicit investment norms pertaining to environmental performance, we hypothesize that on average, norm-constrained institutional investors will shun stocks with poor environmental performance. They also may tend to over-invest in green stocks due to positive SRI screens or to gain the rewards (e.g., public recognition) of investing in these firms.

Friedman (1970) famously argued that "the social responsibility of business is to increase its profits."[12] Some investors may judge a firm's investments in environmental performance strictly from a shareholder value maximizing perspective as opposed to the broader stakeholder value maximizing perspective implied by socially responsible investing. There is evidence to suggest that investments in reducing toxicity do have the

[10] See, for example, Social Investment Forum (2007) and their website, http://www.socialinvest.org for details.
[11] Individual investors do not face a social penalty for deviation from social norms. This, in turn, generates a wide spectrum of individual investing, with some individual investors being attracted to green stocks because they feel good about investing in such stocks while other investors may derive no utility from green investing and will not constrain their investment choices based on environmental performance.
[12] See also Jensen (2001).

potential to increase shareholder value by reducing costs/enhancing efficiency (Bansal and Roth (2000), Buysse and Verbeke (2003)) or reducing a firm's risk exposure (Fernando and Sharfman (2008)). Therefore, a shareholder value maximizing rationale would also predict a decreased investor interest in toxic firms. In contrast, investors that apply a strict shareholder value maximizing screen to green firms may perceive voluntary corporate expenditure to enhance positive environmental performance as being inconsistent with shareholder value maximization, causing them to reduce their investment in such firms.[13]

Finally, firms with exceptional environmental performance (both positive and negative) receive considerable publicity that may affect equity investment in these firms. For example, both green and toxic firms are frequently highlighted by a series of corporate environmental and sustainability rankings, including the Dow Jones Sustainability Index, Newsweek's Green Rankings of America's 500 Largest Corporations, The Global 100 Most Sustainable Corporations in the World rankings and the Toxic 100 Air Polluters Index. Furthermore, corporate environmental performance is constantly monitored by the Environmental Protection Agency and other federal and state agencies, and publicized through various means including the EPA's Toxics Release Inventory. Additionally, private entities such as KLD Research & Analytics, Inc. (KLD), RiskMetrics and the Social Investment Forum collect and disseminate information on corporate environmental performance, and the majority of large U.S. firms also provide regular reports on their environmental performance. This extensive publicity suggests that all else equal, firms that engage in both good and bad environmental practices are

[13] See, for example, Mahapatra (1984).

more likely to attract the attention and awareness of individual investors who, unlike institutional investors, are limited in the time and other resources they can devote to gathering and processing information about stocks. Awareness plays an important role in investors' investment decisions. Merton (1987) notes that investors need to be aware of the existence of a security before buying or acquiring further information about the security. Although individual investors do not buy *all* stocks that attract their attention, they are much less likely to acquire stocks that do not grab their attention (Barber and Odean (2008)). Furthermore, Barber and Odean (2008) show that individual investors are more likely to buy rather than sell attention-grabbing stocks, which is also consistent with the evidence provided by Lee (1992) and Hirshleifer et al. (2008) that individual investors are net buyers subsequent to both positive and negative earnings surprises. Collectively, these arguments imply a larger presence of individual investors in both green and toxic firms.

If environmental performance is a determinant of investment decisions, it is also likely to influence stock prices. Heinkel, Kraus and Zechner (2001) suggest that the boycott of polluting firms by some investors will reduce the number of investors who are able to hold the stocks of these firms. Having a lower number of investors reduces risk sharing opportunities for investors of polluting firms. Therefore, Heinkel, Kraus and Zechner (2001) predict a higher required return on stocks of polluting firms. Using a model based on investor information, Merton (1987) also suggests higher required rates of return for firms with fewer investors. Specifically, Merton argues that the rate of return of a stock is inversely related to the number of investors who are informed about the firm, since a higher number of informed investors causes the stock price to become more

informationally complete. To the extent that norm-constrained investors act as if they do not know anything about toxic firms, this lack of awareness could also cause the same increase in required rate of return that Heinkel, Kraus and Zechner (2001) predict. On the other hand, this line of reasoning would suggest that if green firms experience an influx of investors, they would be rewarded by a lowering in their required rate of return.

In addition to reducing the required rate of return of green stocks due to improved risk sharing, exclusionary investing by investors in green stocks may cause the returns on these stocks to be depressed even further if the supply of acceptable green investment opportunities does not keep up with the demand from green investors.[14] Any such overvaluation of green stocks may generate a migration of investors (especially better-informed and profit-motivated institutional investors who are not restricted by an SRI constraint) out of green stocks, thereby making way for the influx of green investors. However, institutional investors who are constrained by ethical investment criteria may still (selectively) invest in green stocks. Therefore, exclusionary investing by green investors may not only generate dispersion of ownership between individual and institutional investors, but also lead to ownership dispersion within the institutional investor community.

The dispersion of ownership directly affects analyst following, and vice versa.[15] Additionally, a firm's environmental performance may also determine the demand for and supply of analyst services. Prudency requirements imposed on institutional investors may increase the demand for analyst coverage of polluting firms, since these firms are

[14] The Social Investment Forum (2007) documents that the growth of SRI assets has significantly outpaced the growth of the broader universe of all investment assets under professional management.
[15] See Fernando, Gatchev and Spindt (2010) for a discussion of the relation between institutional ownership and analyst following.

exposed to a significantly higher risk of litigation, fines and other costs associated with their poor environmental performance, which translate into lower returns to shareholders.[16] Additionally, analysts may be more likely to follow the stocks of poor environmental performing firms if these stocks generate higher returns for better-informed and solely profit-motivated investors, especially if these firms cater to analysts by making it more attractive for them to follow their stocks.[17] In the case of green stocks, analysts may play an important role for investors who tilt their portfolios toward green stocks. This is likely to be the case for institutional investors who are subject to ethical investment criteria and need to selectively invest in green stocks. Thus, green stocks may also attract a larger number of analysts as the interest in socially responsible investing grows.

We examine these questions and their implications for stock market valuation and performance of green and toxic stocks in Section 4, after discussing our data and methodology in the next section.

3. Data and Methodology

We obtain our environmental performance measures from the KLD Research & Analytics, Inc. (KLD) social performance dataset. KLD is a financial advisory firm that provides social screening of firms to clients via its reports and socially screened mutual funds. The KLD dataset is the most widely used dataset in academic studies to measure

[16] See Badrinath, Gay and Kale (1989) and Del Guercio (1993) for a discussion of prudency requirements imposed on institutional investors and their effect. O'Brien and Bhushan (1990) observe that institutional investors predominantly rely on analyst reports in legal hearings as evidence of care and prudence, citing as an example the case of the Bank of California that successfully demonstrated its prudence and care by documenting its reliance on analyst reports in investment decisions in *Beach v. Carter et al.* (1975).
[17] See, for example, Brennan and Hughes (1991).

corporate social and environmental performance.[18] Graves and Waddock (1994) argue that the KLD data is the best single source of social and environmental performance measures because of the expertise and objectivity of the analysts who assign the KLD ratings and the wide range of attributes across which these ratings are assigned. For example, in addition to reviewing all major SEC filings (e.g., 10-K, annual reports and proxies), KLD has surveyed over 14,000 global news sources for S&P 500 firms since 1991. It extended its coverage to Russell 1000 firms in 2001 and Russell 3000 firms in 2003. Therefore, the KLD dataset serves both as a proxy for individual investor awareness and as a source of information for norm-constrained institutional investors. There are seven sub-indicators for environmental strengths and seven sub-indicators for environmental concerns. The sub-indicators of strengths include the extent to which the firm has environmentally beneficial products and services, uses clean energy, provides open communication about its environmental program and engages in extensive recycling. The concerns indicate if the firm releases hazardous waste, agriculture chemicals and ozone depleting chemicals, has regulatory problems, has substantial emissions and contributes to climate change. If the firm meets or exceeds the KLD threshold in each area, it is assigned a value of one, and zero otherwise.

In this paper, we use the total number of environmental strengths and concerns reported in the KLD data to measure the environmental performance of the firms in our sample. Although these variables are available since 1991, the firm identification variable (CUSIP) is only available from 1996. Therefore, our analysis covers the period between

[18] See, for example, Graves and Waddock (1994), Sharfman (1996), Mattingly and Berman (2006), Kempf and Osthoff (2007), Galema, Plantinga and Scholtens (2008) and Statman and Glushkov (2009).

1996 and 2007.[19] Using the total number of strengths and concerns allows us to categorize firms into four groups: green, toxic, gray and neutral. Green (toxic) firms have at least one environmental strength (concern) while having no environmental concerns (strengths). Gray firms have both environmental strengths and concerns, whereas neutral firms have neither strengths nor concerns. We also define green and toxic industries. Green (toxic) industries are industries with the percentage of green (toxic) firms greater than 10% while the percentage of toxic (green) firms within the industry is less than 10%. These classifications enable us to examine the effects of environmental performance variations between and within industries on ownership structure, analyst coverage, and stock market valuation and performance.

We obtain accounting measures from Compustat, stock prices from CRSP, analyst coverage from I/B/E/S and governance variables from the IRRC dataset on governance and directors. We also extract institutional holdings measures from the CDA/Spectrum 13F Holdings database. As most companies file semi-annually, we confine our attention to year-end reports for institutional holdings (Hong and Kacperczyk (2009)). Consistent with previous studies, we set institutional holdings to zero for firms that do not have institutional investors reported in the dataset. In order to eliminate outliers generated by small and narrowly held firms, we exclude firms if they have less than 500 shareholders,

[19] There are two sub-indicators added to the KLD during the sample period: climate change in 1999 and management systems strengths in 2006. Estimations over the period between 2000 and 2005 yield qualitatively similar results.

have a stock price less than $5 and have market capitalization less than $200 million.[20] The final sample has 7118 firm-years ranging between 1997 and 2007.[21]

4. Empirical Results

Table 1 reports the descriptive statistics for our sample. Firms in our sample are large on average, with a mean market capitalization (Market Value) of $11.182 billion. Green firms constitute 9% of the sample while 13% and 7% of the firms in the sample are classified as toxic and gray, respectively. Of the sample, 17% fall in green industries and 15% are categorized in toxic industries. The number of shareholders (NS) has a mean of 38,920 with a standard deviation of 92,700, indicating considerable variation across our sample. Although the mean percentage of institutional investors relative to the total number of investors is only 6%, institutional investors hold 72% of the shares outstanding, on average. Analysts cover 80% of the firms in our sample, and the average number of analysts per firm is 9.15. Of the firms in our sample 56% are in the S&P 500 index.

[Place Table 1 about here]

4.1 Univariate analysis

Table 2 reports mean and median values for variables of interest in subsamples of green, toxic, gray and neutral firms. The table also shows the differences between the means and medians as well their t or z statistics. It presents preliminary evidence that there are systematic differences across sub-samples of green, toxic, gray and neutral firms. For

[20] We obtain similar results when we do not apply these restrictions. These results are not reported, but are available upon request.
[21] Our sample starts in 1997 since the first available lagged value of environmental performance is in 1996.

example, relative to neutral firms both green and toxic firms have a higher number of shareholders, lower ratios of institutional investors, and lower percentages of shares held by institutions. We also find systematic differences in analyst coverage, stock market valuation and other characteristics across the different subsamples. Gray firms have the highest analyst coverage (97%) followed by toxic firms (90%), green firms (85%) and neutral firms (76%) and we observe a similar pattern in the average number of analysts following each firm. Additionally, both the mean and median values of Tobin's Q of toxic firms are significantly lower than for neutral firms. However, we also find significant differences in size and age across these different subsamples that may explain the differences in ownership, analyst coverage and stock market valuation. We control for these differences in our multivariate analysis.

[Place Table 2 about here]

Both green and toxic firms have higher Gompers-Ishii-Metrick (2003) (GIM) indices than neutral firms, indicating poorer governance, while they also have higher likelihoods of independent boards relative to neutral firms, indicating better governance.[22] In addition, toxic firms have lower CEO/Chair duality, suggesting that managers of toxic firms are less likely to be entrenched. Collectively, the conflicting findings on corporate governance suggest that the differences generated by green and toxic firms are less likely to be driven by variations in corporate governance.

[22] See, for example, Weisbach (1988), Rosenstein and Wyatt (1990), Byrd and Hickman (1992) and Brickley, Coles and Terry (1994) for the role of independent boards in corporate governance.

4.2 Environmental performance and the breadth of ownership

Table 3 reports the coefficient estimates for our multivariate regressions of environmental performance on the breadth of ownership. Standard errors are robust to heteroscedasticity and to clustering within firm over time. In these regressions, we account for several factors that may affect the breadth of ownership. For instance, larger and older firms are more likely to attract the attention of a larger number of investors. Thus, we include the natural logarithm of the market value of equity (Market Value) to control for the effect of firm size.[23] As older firms have established track records, they are less prone to risk and therefore, may attract a larger number of investors. In order to account for the influence of S&P 500 membership, we include a S&P500 dummy in our analysis. We use a Nasdaq dummy to control for differences across stock exchanges. We also control for corporate governance measures which potentially affect the breadth of ownership and environmental performance by including a CEO/Chairman duality dummy, the GIM index and an Independent Board dummy in the regressions.[24] As market based measures are correlated, we successively add Tobin's Q, stock return, standard deviation of stock return, turnover and the inverse of stock price in the regression. Finally, we run a regression that includes all these variables. As in Hong and Kacperczyk (2009), we control for (but do not report) 1-digit SIC and year dummies in these regressions.

[Place Table 3 about here]

[23] We also include size and age variables separately, and continue to find similar results.

[24] Jensen (2001) and Tirole (2001) associate a high level of socially responsible corporate behavior with agency problems, suggesting that managers of green companies use company resources wastefully. Including governance measures in the multivariate regressions allows us to disentangle the agency issues that may be associated with corporate environmental performance.

We find significant effects of environmental performance on the number of shareholders (NS). Specifically, green and toxic firms have 1,670 and 1,650 more investors on average, respectively, relative to neutral firms (Model 1). These are equivalent to 4.3% and 4.2% increases in NS, respectively, relative to the sample average. Gray firms also attract a larger number of investors. We continue to find significant effects of green, toxic and gray firms when we successively add market-based measures in the regression. Collectively, these findings are consistent with our univariate analysis, and provide strong support for our previous notion that there is a non-monotonic relationship between environmental performance and the breadth of ownership.

Several of our control variables also have explanatory power in the regressions. We find that older and larger firms attract a larger number of investors. Furthermore, the number of shareholders decreases with turnover, stock price and volatility. Good corporate governance practices (e.g., independent boards and CEO/Chair separation) also improve the breadth of ownership.

In order to capture the effect of environmental performance on institutional investors relative to its effect on individual investors, we conduct similar regressions for both the ratio of the number of institutional investors to the total number of shareholders, and the ratio of shares held by institutions to the total shares outstanding. Models 7-12 in Table 3 report the regressions in which the dependent variable is the logarithm of the ratio of number of institutional investors to NS. Regardless of the model specification, we observe decreases in the ratio of institutional investors that are statistically significant at the 1% level when firms are classified as green, toxic or gray.

Table 4 reports regressions of institutional holdings where the dependent variable is the ratio of shares held by all institutional investors to total shares outstanding. The effects of green, toxic and gray firms on total institutional holdings are negative and significant. They are also economically significant. Specifically, Model 6 documents that the share of institutional holdings in green, toxic and gray firms decreases by 2.8%, 2.8% and 3.0%, respectively. Since the average institutional holding percentage in our sample is 72%, these decreases correspond to reductions of 3.9%, 3.9% and 4.2% for a representative firm in our sample. Taken together with our findings documenting larger ownership breadth in green, toxic and gray firms relative to neutral firms, the larger presence of individual investors in these stocks indicates that the reported breadth of ownership is primarily driven by individual investors who are net-buyers of stocks with positive and negative environmental performance.

[Place Table 4 about here]

We also observe that institutional holdings increase with turnover and stock price, which is consistent with the findings of Gompers and Metrick (2001). Furthermore, firms listed on the S&P 500 index and firms that have higher average monthly stock returns also have larger relative institutional holdings. While firms with independent boards also attract larger institutional holdings (albeit statistically significant only at the 10% level), institutional holdings are unrelated to the GIM index or CEO/Chairman duality.

We also study the holdings of institutions differentiated by their various types. Corporate 13-F filings report five institutional investor types: banks, insurance companies, mutual funds, independent investment advisors (e.g., hedge funds) and *others* (e.g., universities, pension plans and employee ownership plans). This classification

scheme allows us to test whether environmental performance influences investments of norm-constrained institutional investors (e.g., universities, pension plans and employee stock ownership plans).[25] As the classification scheme for institution types changed after 1997, we separately report institutional holdings by various types for 1997 and 1998-2007 in Panels A and B of Table 5, respectively. The estimates based on the sub-sample of observations in 1997 indicate that the ratio of institutional investors to total number of investors is lower for green firms in all categories of institutions. However, we fail to find significant effects of toxic and gray firms as well as of green and toxic industries. Furthermore, environmental performance does not affect the fraction of shares held by institutional investors. These results are likely to be driven by the relatively small number of observations (382) for 1997. Panel B reports significant effects of environmental performance on holdings of various institutional investors over 1998 and 2007. Consistent with our previous results for aggregate institutional ownership, we find smaller ratios of institutional investors in green, toxic and gray firms for all five institutional investor types in this sub-sample. All institutional types except *other* institutions (including universities, pension plans and employee ownership plans) hold significantly smaller fractions of the shares of green firms. In contrast, only *other* institutions hold a significantly lower percentage of shares of toxic and gray firms. These findings are in line with the view that norm-constrained institutional investors (e.g., universities, endowments and pension plans) shun stocks with poor environmental performance (e.g., toxic and gray firms). However, we fail to find a significant effect of

[25] Anecdotal evidence suggests that pension funds, in particular, promote socially responsible investing. For example, the California Public Employees' Retirement System, the largest pension fund in the world, is well known for its socially responsible investment strategy.

green stocks on norm-constrained investors, suggesting that penalties for deviations from social norms, rather than rewards for behaving in accordance with social norms, play the more important role in investment decisions of norm-constrained investors. This may occur because the costs of deviating from social norms (e.g., loss of reputation or being a target of social activists) are considerably higher than the rewards for investing *exclusively* in green stocks (e.g., public recognition).[26] Additionally, it is possible that some institutional investors may have a negative view of green stocks from the standpoint of shareholder value maximization (Friedman (1970), Jensen (2001)).

[Place Table 5 about here]

We also document the variation of institutional holdings across the different institutional types for green and toxic industries. For example, only banks have significantly lower holdings of firms in green industries. Furthermore, only *other* institutions have significantly lower holdings of firms in toxic industries. This finding is consistent with the binding role of industry environmental performance on norm-constrained investors.[27] Collectively, these results indicate considerable variation in the preference for environmental performance across the different institutional types.

4.3 Environmental performance and analyst coverage

Table 6 presents results from the regressions relating analyst coverage to environmental performance. The dependent variables are the natural logarithm of the number of analysts covering the underlying stock in models 1-6 and the dummy variable

[26] Geczy et al.(2006) find an investment penalty of at least 30 basis points a month in foregone returns for exclusively socially responsible investors.
[27] See also Hong and Kacperczyk (2009) for discussion of the binding role of sin industries on investments of norm-constrained institutional investors.

for analyst coverage in models 7-12. We use OLS for the former and employ probit analysis for the latter. As coefficient estimates are hard to interpret in probit models, we report marginal effects in models 7-12. We do not find a significant effect of green firms on the number of analysts. In contrast, four of our six models report a significant positive effect for toxic firms, suggesting that analyst coverage is higher for toxic firms. Furthermore, gray firms also have a significantly larger number of analysts covering their stocks. Specifically, the estimate for the gray firm dummy in model 6 is 0.304, which is equivalent to a 4% increase relative to a representative firm in our sample. Model 7 reports significant effects of toxic and gray firms on the likelihood of analyst coverage (7.1% and 14.5%), whereas the effect of green firms is statistically insignificant. The significant effects of toxic and gray firms correspond to 9% and 18% increases, respectively, relative to a representative firm in the sample. These findings suggest that analysts have a higher propensity to serve investors in toxic and gray stocks. This finding is consistent with the notion that institutional prudency requirements may increase the demand for analyst coverage of toxic stocks. Since toxic and gray stocks are more prone to environmental litigation, penalties and other costs that lower investor returns, institutional investors are more likely to rely on analyst reports when they invest in toxic and gray stocks as proof of their care and prudence in stock selection. Additionally, analyst services may be more in demand if toxic and gray stocks are perceived as being undervalued and providing higher returns to investors, a possibility that we examine in Section 4.5.

[Place Table 6 about here]

It is important to emphasize that the above results are obtained after controlling for other factors that are known to drive analyst coverage. Analyst coverage is significantly and positively related to firm size, age and S&P 500 index membership. We also find that firms with independent boards have a higher likelihood of analyst coverage and that firms with a higher GIM index receive more analyst coverage. The relationships we document between environmental performance and analyst coverage persist after these controls.

4.4 The effect of industry environmental performance on analyst coverage, and breadth and depth of ownership

In this section, we examine whether environmental performance of an industry affects the variables of interest. Hong and Kacperczyk (2009) document that institutional investors and analysts shy away from sin stocks. As Hong and Kacperczyk classify sin stocks based on the firm's (or one of the segment's) industry grouping, their findings suggest that industry environmental performance may play an important role in investment choices and analyst coverage.

Our findings are reported in Table 7. In order to disentangle the effects of firm and industry, we include green and toxic industry variables in the basic regressions. We continue to find that firm environmental performance measures (i.e., green, toxic and gray) are significant while the effects of green and toxic industry dummies are insignificant. The findings on ownership breadth indicate that firm environmental performance, rather than industry environmental performance, plays an important role in attracting the attention of individual investors. Therefore, within industry variation is an

important determinant of ownership dispersion. Furthermore, the insignificant effects of industry environmental performance and significant effects of firm environmental performance on institutional holdings and analyst coverage suggest that overall, institutional investors and analysts also pay more attention to firm environmental performance than to industry environmental performance.[28]

[Place Table 7 about here]

4.5 Environmental performance and stock market valuation

In previous sections, we document that environmental performance has economically meaningful effects on investor holdings and analyst coverage. In this section, we examine whether such effects also impact stock market valuations, specifically Tobin's Q and portfolio returns. Table 8 shows that toxic and gray firms are negatively associated with Tobin's Q after controlling for factors considered in previous studies. Specifically, coefficients on toxic and gray firms are -0.083 and -0.108, respectively, and are statistically significant at the 1% level (Model 1). These findings substantiate the findings from our univariate analysis (Table 2) and suggest that toxic and gray stocks have lower Tobin's Q relative to neutral firms by nearly 8% and 10%, respectively. We fail to find a positive and significant effect of green firms on Tobin's Q. Therefore, our findings do not lend support to the view that green stocks are overvalued. Industry environmental performance measures also lack statistical significance. Model 2 adds industry environmental performance measures and shows an insignificant effect of these variables.

[28] It is important to note that this finding reflects the overall behavior of institutional investors. In Table 5, we document variation across different institutional investor types.

Collectively, these findings suggest that while the market punishes toxic firms by assigning significantly lower valuations to them, it also does not reward green firms.

[Place Table 8 about here]

Our findings for the control variables are consistent with previous studies. Firms with larger investments in R&D and higher profitability have higher values of Tobin's Q. Firms listed in the S&P 500 index also have higher Tobin's Q's. Furthermore, the GIM Index is negatively associated with Tobin's Q (Gompers, Ishii and Metrick (2003)).

Finally, we construct value-weighted monthly portfolios for green, toxic and gray firms to examine the influence of corporate environmental performance on stock valuations. We regress the returns of these portfolios minus the value-weighted neutral firm portfolio returns on four factors from the Fama and French (1992) and Carhart (1997) models. The intercept terms of the regressions of the net returns on the four factors indicate abnormal returns (*Alpha*) and are reported in Table 9.

[Place Table 9 about here]

Abnormal returns to toxic and gray firms relative to neutral firms are positive in Models 2 and 3, confirming the undervaluation of these stocks documented by lower Tobin's Q's in Table 8. These findings are consistent with the possibility that the boycott of toxic and gray firms by investors generate lower stock prices and higher expected returns for these firms. Surprisingly, we find a positive, albeit weakly significant, effect of green stocks on abnormal portfolio returns. This finding is inconsistent with the notion that green firms are overvalued; on the contrary, these stocks also have a slightly higher required rate of return.

We next examine the role of SRI investment screens on abnormal portfolio returns. Investors may employ positive and negative SRI investment screens simultaneously. That is, they may over-invest in green stocks while boycotting stocks with poor environmental performance. In order to assess the effect on returns of such investment screening, we examine value-weighted green firm portfolio returns minus toxic firm portfolio returns in Model 4 of Table 9. In Model 5 we study returns to a portfolio that is long in green and short in toxic plus gray firms. These portfolios generate insignificant abnormal returns, indicating that simultaneous positive and negative investment screens do not generate underperformance. Finally, we examine the returns to negative screens, i.e., excluding toxic or gray firms in portfolios. Models 6 and 7 indicate that excluding toxic and/or gray firms from the portfolios generate negative returns. Collectively, these findings confirm the undervaluation of toxic and gray stocks while indicating that the manner in which investment screens are applied (for example, excluding or underweighting toxic stocks versus overweighting or exclusively investing in green stocks) plays an important role in determining returns to socially responsible investors even in the absence of managerial skills and mutual fund expenses.

5. Conclusions

We examine whether corporate environmental performance matters by studying how it is related to ownership structure, analyst coverage and stock market valuation of a sample of U.S. firms. Green, toxic and gray firms have a larger number of shareholders relative to neutral firms, but a smaller percentage of institutional owners and ownership stakes, suggesting that the relation between ownership structure and environmental performance is non-monotonic across the environmental performance spectrum. Both socially

responsible investing (SRI) and shareholder value maximizing arguments may explain why institutions invest less in toxic firms. On the other hand, our finding that institutions also shun green stocks is clearly not consistent with a SRI rationale although it is consistent with a shareholder value maximizing rationale to the extent that corporate investments in greenness are seen by some investors as diminishing shareholder value. In contrast, individual investors are clearly attracted to both green and toxic stocks, and fill the void left by the exodus of institutions from these stocks. Our findings are consistent with the notion that both good and bad environmental performance grabs the attention of individual investors, increasing their propensity to become net buyers of green, toxic and gray stocks. Our aggregate institutional ownership results persist when we examine the five institutional categories, except for *other* institutions (including university endowments, pension funds and employee stock ownership plans) that hold a significantly lower percentage of toxic and gray firms while not under investing in green stocks. In the case of toxic and gray firms, our aggregate results for *other* institutions are consistent with these institutions being subject to social investment norms and explicit SRI investment screens that discourage or prohibit investment in toxic firms. In contrast, we find no evidence that similar institutional social norms are binding when it comes to actively encouraging institutional investment in green firms.

While we find no significant difference in analyst coverage for green firms, analyst following is significantly higher for toxic firms and gray firms. In conjunction with stricter prudency requirements for institutions investing in polluting stocks, this finding suggests that investors place a higher value on analyst coverage of toxic and gray stocks. Toxic and gray firms have lower market valuations (Tobin's Q) and provide

higher market-adjusted returns relative to neutral firms. In contrast, green firms are not valued significantly differently than neutral firms. These findings suggest that the differences in corporate environmental performance which generate ownership dispersion also induce variation in stock market valuations and returns.

While our findings on institutional ownership and stock market valuation for toxic firms are consistent with prior studies for sin stocks, our findings for green firms are without precedent. While social norms may explain why institutions stay away from toxic firms, it is possible that some institutional investors perceive corporate spending on greenness as a waste of resources. Our study has only scratched the surface of this issue; much more research is needed to understand both the similarities and the differences in the ownership patterns of green and toxic firms plus the dichotomous behavior of institutional and individual investors when it comes to the way they perceive corporate environmental performance.

Our findings provide a mixed message for firms that may be seeking to improve their environmental performance. Toxic firms could realize benefits from becoming environmentally neutral, including a higher valuation and a lower cost of equity capital, consistent with the arguments in Merton (1987) and Heinkel, Kraus and Zechner (2001) and the findings in Sharfman and Fernando (2008). We find no such evidence that neutral firms benefit significantly by becoming green. Greener firms can expect to reap the benefits of a larger investor base despite some evidence that they may have lower analyst coverage relative to toxic firms. However, the decline in institutional investment has the potential to reduce monitoring benefits for firms. Our findings suggest that, all else equal,

firms that place a lower value on institutional investment will be more likely to become green firms.

This study complements the growing literature on socially responsible investment by providing a much-needed investor perspective on corporate environmental performance. Our findings provide several new insights and point to a fruitful new line of research that is likely to grow in importance as environmental performance takes a more central place in the way firms run their businesses and investors perceive them.

Appendix A – Variable Definitions

(in alphabetical order)

Advisors are independent investment advisors and correspond to institutional investor type 4 in the CDA/Spectrum 13F Holdings database.

Age refers to the number of years between the year of estimation and the year in which the firm is first listed in CRSP dataset.

Alpha is the intercept of monthly return on the portfolio less the one-month Treasury bill rate on Fama-French three-factors plus momentum factor.

Analyst Coverage takes value one if the firm is covered by an analyst in the I/B/E/S dataset.

Average Inst. Investor Holdings is the ratio of *Fraction of Shares Held by Inst. Investors* to the *Number of Institutional Investors*.

Average Monthly Stock Return is the mean monthly holding period return.

Banks refers to institutional investor type 1 in CDA/Spectrum 13F Holdings database.

Book Debt is the sum of total debt in current liabilities (Compustat item *DLC*) and total long-term debt (Compustat item *DLTT*).

CEO/Chairman Dummy takes the value one if CEO is chairman of the board of directors.

EBITD/TA is operating income before depreciation (Item *OIBDP*) over *Total Assets* (Item *AT*).

Excess Return on Market refers to monthly return on the value-weighted market portfolio of NYSE, NASDAQ and AMEX stocks less the one-month Treasury bill rate.

Fraction of Shares Held by Inst. Investors is ratio of shares held by institutional investors to shares outstanding.

GIM Index refers to the number of antitakeover provisions reported in IRRC dataset.

Gray Firm Dummy takes the value one if the firm has one or more environmental strengths as well as one or more environmental concerns.

Green Firm Dummy takes the value one if the firm has one or more environmental strengths and has no environmental concerns.

Green Industry Dummy takes value one if 10 percent or more of the industry consists of Green Firms and the percentage of Toxic Firms is less than 10 percent.

High-Minus-Low Return refers to the difference between the returns on portfolios of high- and low Book Equity/Market Equity stocks.

Independent Board Dummy takes value one if the ratio of independent board members is greater than 50 percent.

Insurance refers to insurance companies and is identified as institutional investor type 2 in the CDA/Spectrum 13F Holdings database.

Investment refers to mutual funds and is identified as institutional investor type 3 in the CDA/Spectrum 13F Holdings database.

Market Value refers market capitalization (shares outstanding (Compustat item *CSHO*) times stock price (Compustat item *PRCC_F*)).

Market Leverage is *Book Debt* over *Total Assets* minus book value of equity *(*Compustat item *CEQ)* plus *Market Value* of equity.

Nasdaq Dummy takes value one if the firm trades at the NASDAQ Stock Exchange.

Neutral Firm takes value one if the firm does not have any environmental strength or concerns.

Neutral Industry takes value one if the industry is not classified as *Toxic* or *Green Industry*.

Number of Analysts refer to the number of analysts covering the company.

Number of Environmental Concerns is the number of environmental concerns reported in the KLD dataset. The concerns indicate if the firm releases hazardous waste, agriculture chemicals and ozone depleting chemicals, has regulatory problems, has substantial emissions and contributes to climate change. If the firm meets the KLD threshold in each area, it is assigned a value of one, and zero otherwise.

Number of Environmental Strengths is the number of environmental strengths reported in the KLD dataset. The sub-indicators of strengths include the extent to which the firm has environmentally beneficial products and services, uses clean energy, provides open communication about its environmental program and engages in extensive recycling. If the firm meets the KLD threshold in each area, it is assigned a value of one, and zero otherwise.

Number of Shareholders (NS) refers to number of shareholders of the company (Compustat item *CSHR*).

Other refers to institutional investors including pension plans, endowments and employee stock ownership plans and corresponds to institutional investor type 5 in the CDA/Spectrum 13F Holdings database.

R&D Missing Dummy is a dummy variable that takes a value of one if Compustat reports R&D expense (Compustat item *XRD*) as missing, and of zero otherwise.

R&D/TA is defined as R&D expenses (Compustat item *XRD*) over *Total Assets* (Compustat item AT).

S&P 500 Dummy takes value one if the firm is listed in the S&P 500 Index.

Small-Minus-Big Return refers to the difference between the returns on portfolios of small and big stocks

Std of Daily Stock Return is the standard deviation of daily holding period stock returns.

Tobin's Q is the ratio of *Total Assets* minus book value of equity *(*Compustat item *CEQ)* plus *Market Value* of equity to *Total Assets.*

Total Assets (TA) is measured as the book value of assets (Compustat item *AT*).

Toxic Firm Dummy takes value one if the firm has one or more environmental concerns and has no environmental strengths.

Toxic Industry Dummy takes value one if 10 percent or more of the industry consists of *Toxic Firms* and the percentage of *Green Firms* is less than 10 percent.

Turnover is average monthly trading volume over shares outstanding.

1/Stock Price is one over the stock price at the beginning of the fiscal year.

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Table1
Descriptive Statistics
This table reports summary statistics of the sample. Variable definitions are in Appendix A.

	N	Mean	Std. Dev.	5th Percentile	95th Percentile
Market Value ($ mil)	7118	11182.13	24542.13	404.15	50125.88
Age	7118	28.61	14.99	7.00	54.00
Number of Shareholders (NS) (Thousand)	7118	38.92	92.70	0.78	179.17
Total No. of Inst. Investors x 1000/ NS	7118	59.77	84.88	1.78	253.78
Fraction of Shares Held by Inst. Investors	7118	0.72	0.21	0.36	1.00
Number of Analysts	7118	9.15	7.56	0.00	23.00
Analyst Coverage	7118	0.80	0.40	0.00	1.00
S&P500 Dummy	7118	0.56	0.50	0.00	1.00
Tobin's Q	7118	2.01	1.24	1.02	4.63
Market Leverage	7118	0.16	0.13	0.00	0.41
Average Monthly Return	7118	0.01	0.03	-0.03	0.06
1/Price	7118	0.04	0.02	0.01	0.08
Std of Daily Stock Return	7118	0.02	0.01	0.01	0.04
Turnover	7118	1.58	1.32	0.42	4.39
CEO/Chairman Dummy	7118	0.40	0.49	0.00	1.00
Independent Board Dummy	7118	0.90	0.31	0.00	1.00
GIM Index	7118	9.67	2.54	5.00	14.00
Number of Environmental Stregths	7118	0.21	0.51	0.00	1.00
Number of Environmental Concerns	7118	0.38	0.86	0.00	2.00
Green Firm Dummy	7118	0.09	0.29	0.00	1.00
Toxic Firm Dummy	7118	0.13	0.34	0.00	1.00
Gray Firm Dummy	7118	0.07	0.26	0.00	1.00
Green Industry Dummy	7118	0.17	0.38	0.00	1.00
Toxic Industry Dummy	7118	0.15	0.36	0.00	1.00

Table 2
Univariate Analysis
This table reports mean (Panel A) and median (Panel B) values of variables for Green, Toxic, Gray and Neutral Firms. Variable definitions are in Appendix A. *, ** and *** indicate 10%, 5% and 1% significance, respectively.

Panel A. Mean Values

	Green Firm	Toxic Firm	Gray Firm	Neutral Firm				
	1	2	3	4	1-4	2-4	3-4	1-2
Number of Observations	664	957	531	4966				
Market Value ($ mil)	13388	15274	23978	8731	4657 ***	6543 ***	15247 ***	-1886
Age	32.556	38.833	42.207	24.656	7.899 ***	14.176 ***	17.551 ***	-6.277 ***
Number of Shareholders (NS) (Thousand)	61.628	66.622	93.793	24.674	36.954 ***	41.947 ***	69.118 ***	-4.994
Total Number of Inst. Investors x 1000/NS	34.666	37.044	17.990	71.970	-37.304 ***	-34.926 ***	-53.980 ***	-2.378
Fraction of Shares Held by Inst. Investors	0.661	0.689	0.670	0.732	-0.072 ***	-0.044 ***	-0.062 ***	-0.028 ***
Log(# Analysts)	1.910	2.074	2.424	1.779	0.131 ***	0.295 ***	0.645 ***	-0.164 ***
Analyst Coverage	0.848	0.901	0.968	0.756	0.092 ***	0.145 ***	0.212 ***	-0.053 ***
Tobin's Q	1.972	1.636	1.717	2.124	-0.152 ***	-0.489 ***	-0.407 ***	0.337 ***
S&P500 Dummy	0.566	0.643	0.868	0.507	0.060 ***	0.136 ***	0.362 ***	-0.076 ***
Turnover	1.221	1.355	1.173	1.710	-0.488 ***	-0.355 ***	-0.536 ***	-0.133 **
CEO/Chairman Dummy	0.401	0.326	0.345	0.427	-0.026	-0.100 ***	-0.082 ***	0.075 ***
Independent Board Dummy	0.923	0.950	0.976	0.873	0.051 ***	0.077 ***	0.103 ***	-0.027 **
GIM Index	10.230	10.103	9.932	9.490	0.740 ***	0.613 ***	0.442 ***	0.127

Panel B. Median Values

	Green Firm	Toxic Firm	Gray Firm	Neutral Firm				
	1	2	3	4	1-4	2-4	3-4	1-2
Number of Observations	664	957	531	4966				
Market Value ($ mil)	2825	4437	8771	2941	-116	1496 ***	5831 ***	-1612.0 ***
Age	32	44	48	23	9.00 ***	21.00 ***	25.00 ***	-12.00 ***
Number of Shareholders (NS) (Thousand)	16.500	25.850	39.021	6.458	10.042 ***	19.392 ***	32.563 ***	-9.350 ***
Total Number of Inst. Investors x 1000/NS	14.056	11.747	9.838	34.167	-20.111 ***	-22.420 ***	-24.329 ***	2.309 **
Fraction of Shares Held by Inst. Investors	0.693	0.701	0.681	0.768	-0.075 ***	-0.067 ***	-0.087 ***	-0.008 **
Log(# Analysts)	2.197	2.303	2.565	2.197	0.000	0.105 ***	0.368 ***	-0.105 ***
Analyst Coverage	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Tobin's Q	1.608	1.359	1.430	1.659	-0.050	-0.300 ***	-0.228 ***	0.249 ***
S&P500 Dummy	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Turnover	0.898	1.027	0.909	1.250	-0.352 ***	-0.222 ***	-0.341 ***	-0.130 ***
CEO/Chairman Dummy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Independent Board Dummy	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
GIM Index	10.000	10.000	10.000	9.000	1.000 ***	1.000 ***	1.000 ***	0.000

Table 3
Environmental Performance and the Breadth of Ownership
This table reports regressions of breadth of ownership. The dependent variables in these regressions are number of shareholders and ratio of number of institutional investors to total number of investors. Variable definitions are as in Appendix A. The p-values are given in parentheses and are based on standard errors corrected for heteroscedasticity and clustering of firms over years. *, ** and *** indicate 10%, 5% and 1% significance, respectively.

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	Log(NS)						Log (# Inst. Investors / NS)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Green Firm	0.513***	0.536***	0.510***	0.516***	0.492***	0.441***	-0.473***	-0.498***	-0.474***	-0.479***	-0.446***	-0.405***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Toxic Firm	0.501***	0.549***	0.536***	0.530***	0.541***	0.474***	-0.494***	-0.551***	-0.537***	-0.531***	-0.540***	-0.484***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Gray Firm	0.670***	0.732***	0.718***	0.718***	0.705***	0.641***	-0.648***	-0.721***	-0.706***	-0.707***	-0.688***	-0.636***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log (Market Value)	0.597***	0.558***	0.550***	0.634***	0.564***	0.666***	-0.195***	-0.142***	-0.142***	-0.222***	-0.158***	-0.243***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log (Firm Age)	0.114*	0.132**	0.100*	0.131**	0.062	0.041	-0.132**	-0.148**	-0.122*	-0.152**	-0.070	-0.052
	(0.058)	(0.029)	(0.098)	(0.030)	(0.302)	(0.492)	(0.034)	(0.018)	(0.050)	(0.015)	(0.254)	(0.395)
S&P500 Dummy	-0.093	-0.070	-0.058	-0.138*	-0.037	-0.132	0.159*	0.118	0.120	0.196**	0.093	0.169*
	(0.253)	(0.391)	(0.477)	(0.090)	(0.642)	(0.101)	(0.072)	(0.180)	(0.172)	(0.026)	(0.280)	(0.052)
Nasdaq Dummy	-0.074	-0.136	-0.082	-0.155*	0.015	0.045	0.086	0.163*	0.107	0.177*	-0.019	-0.030
	(0.382)	(0.108)	(0.342)	(0.066)	(0.861)	(0.594)	(0.369)	(0.089)	(0.275)	(0.066)	(0.839)	(0.748)
CEO/Chairman Dummy	-0.082**	-0.086**	-0.080*	-0.084**	-0.077*	-0.067*	0.109**	0.116**	0.107**	0.111**	0.102**	0.097**
	(0.043)	(0.036)	(0.050)	(0.040)	(0.058)	(0.094)	(0.021)	(0.014)	(0.023)	(0.019)	(0.029)	(0.036)
Independent Board Dummy	0.175**	0.173**	0.167**	0.177**	0.188**	0.183**	-0.164*	-0.161*	-0.157*	-0.166*	-0.180**	-0.175**
	(0.029)	(0.033)	(0.038)	(0.028)	(0.021)	(0.021)	(0.057)	(0.063)	(0.071)	(0.057)	(0.040)	(0.039)
GIM Index	0.002	0.003	-0.001	0.009	-0.001	0.002	-0.011	-0.012	-0.008	-0.017	-0.007	-0.010
	(0.868)	(0.815)	(0.959)	(0.501)	(0.922)	(0.886)	(0.416)	(0.390)	(0.534)	(0.194)	(0.602)	(0.445)
Tobin's Q	-0.093***					-0.065**	0.108***					0.055*
	(0.000)					(0.016)	(0.000)					(0.060)
Average Monthly Stock Return		0.439				0.871*		3.899***				3.403***
		(0.347)				(0.099)		(0.000)				(0.000)
Std of Daily Stock Return			-12.328***			-13.895***			11.782***			10.861***
			(0.000)			(0.000)			(0.001)			(0.004)
1/Stock Price				8.201***		8.866***				-7.783***		-8.272***
				(0.000)		(0.000)				(0.000)		(0.000)
Turnover					-0.154***	-0.096***					0.181***	0.128***
					(0.000)	(0.000)					(0.000)	(0.000)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7118	7118	7118	7118	7118	7118	7118	7118	7118	7118	7118	7118
R-squared	0.477	0.473	0.476	0.487	0.486	0.503	0.251	0.249	0.248	0.258	0.265	0.283

Table 4
Environmental Performance and Institutional Ownership
This table reports regressions of institutional ownership. The dependent variables in these regressions are the fraction of shares held by total. Variable definitions are as in Appendix A. The p-values are given in parentheses and are based on standard errors corrected for heteroscedasticity and clustering of firms over years. *, ** and *** indicate 10%, 5% and 1% significance, respectively.

	Fraction of Shares Held by Inst. Investors					
	(1)	(2)	(3)	(4)	(5)	(6)
Green Firm	-0.036***	-0.035***	-0.033***	-0.033***	-0.027**	-0.028**
	(0.003)	(0.004)	(0.006)	(0.006)	(0.022)	(0.015)
Toxic Firm	-0.028**	-0.026**	-0.025**	-0.024*	-0.024**	-0.028**
	(0.023)	(0.034)	(0.042)	(0.051)	(0.039)	(0.016)
Gray Firm	-0.032**	-0.030**	-0.028*	-0.028*	-0.024*	-0.030**
	(0.031)	(0.046)	(0.055)	(0.057)	(0.096)	(0.037)
Log (Market Value)	-0.016***	-0.017***	-0.017***	-0.026***	-0.019***	-0.022***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log (Firm Age)	-0.036***	-0.035***	-0.033***	-0.035***	-0.022***	-0.024***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.004)	(0.002)
S&P500 Dummy	0.045***	0.045***	0.045***	0.053***	0.040***	0.043***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)
Nasdaq Dummy	-0.042***	-0.044***	-0.049***	-0.042***	-0.074***	-0.063***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
CEO/Chairman Dummy	0.008	0.008	0.007	0.007	0.006	0.006
	(0.226)	(0.223)	(0.275)	(0.251)	(0.361)	(0.309)
Independent Board Dummy	0.025*	0.025*	0.025*	0.024*	0.022*	0.021*
	(0.056)	(0.056)	(0.053)	(0.058)	(0.085)	(0.086)
GIM Index	-0.001	-0.001	-0.001	-0.002	-0.000	-0.001
	(0.502)	(0.527)	(0.644)	(0.329)	(0.847)	(0.545)
Tobin's Q	-0.003					-0.010***
	(0.326)					(0.007)
Average Monthly Stock Return		0.308***				0.334***
		(0.001)				(0.001)
Std of Daily Stock Return			1.111**			-0.509
			(0.036)			(0.375)
1/Stock Price				-0.819***		-0.741***
				(0.000)		(0.000)
Turnover					0.030***	0.030***
					(0.000)	(0.000)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7118	7118	7118	7118	7118	7118
R-squared	0.302	0.303	0.303	0.308	0.325	0.333

Table 5
Institutional Ownership by Different Types of Institutions
This table reports regressions of institutional ownership. The dependent variables in these regressions are the ratio of number of institutional investors to total number of investors, the fraction of shares held by total and average institutional investors. Variable definitions are as in Appendix A. The p-values are given in parentheses and are based on standard errors corrected for heteroscedasticity and clustering of firms over years. *, ** and *** indicate 10%, 5% and 1% significance, respectively.

Panel A. Institutional ownership by type: 1997

	Log (# Inst. Investors / NS)					Fraction of Shares Held by Inst. Investors				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Banks	*Insurance*	*Investment*	*Advisors*	*Other*	*Banks*	*Insurance*	*Investment*	*Advisors*	*Other*
Green Firm	-0.209**	-0.180**	-0.137*	-0.240**	-0.190**	-0.012	-0.005	0.006	-0.005	0.002
	(0.035)	(0.010)	(0.052)	(0.024)	(0.012)	(0.130)	(0.219)	(0.471)	(0.695)	(0.502)
Toxic Firm	-0.002	-0.028	-0.020	-0.037	-0.034	-0.012	-0.001	0.015	-0.008	0.007
	(0.985)	(0.709)	(0.788)	(0.740)	(0.662)	(0.188)	(0.915)	(0.161)	(0.514)	(0.197)
Gray Firm	-0.075	-0.029	-0.030	-0.085	-0.055	-0.004	-0.001	0.003	-0.025*	0.006
	(0.479)	(0.687)	(0.678)	(0.487)	(0.452)	(0.621)	(0.814)	(0.783)	(0.063)	(0.226)
Green Industry	-0.044	-0.011	-0.016	0.026	-0.013	-0.008	-0.006	0.011	-0.014	0.001
	(0.718)	(0.900)	(0.849)	(0.840)	(0.900)	(0.275)	(0.189)	(0.261)	(0.240)	(0.835)
Toxic Industry	-0.076	-0.002	-0.015	-0.030	0.012	0.001	-0.005	0.005	0.013	-0.007**
	(0.505)	(0.986)	(0.853)	(0.819)	(0.892)	(0.956)	(0.316)	(0.669)	(0.363)	(0.036)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	382	382	382	382	382	382	382	382	382	382
R-squared	0.374	0.432	0.431	0.390	0.408	0.270	0.125	0.218	0.284	0.095

Panel B. Institutional ownership by type: 1998-2007

	Log (# Inst. Investors / NS)					Fraction of Shares Held by Inst. Investors				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Banks	*Insurance*	*Investment*	*Advisors*	*Other*	*Banks*	*Insurance*	*Investment*	*Advisors*	*Other*
Green Firm	-0.300***	-0.175***	-0.117***	-0.297***	-0.417***	-0.005**	-0.004***	-0.001*	-0.005**	-0.017
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.032)	(0.007)	(0.085)	(0.048)	(0.135)
Toxic Firm	-0.340***	-0.171***	-0.114***	-0.325***	-0.501***	-0.004	0.001	-0.001	0.001	-0.025**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.178)	(0.432)	(0.148)	(0.724)	(0.023)
Gray Firm	-0.465***	-0.243***	-0.173***	-0.457***	-0.658***	-0.001	-0.000	-0.000	0.001	-0.033**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.737)	(0.949)	(0.824)	(0.806)	(0.010)
Green Industry	0.009	-0.004	-0.008	-0.012	0.016	-0.005**	0.002	0.000	-0.002	-0.012
	(0.861)	(0.900)	(0.708)	(0.802)	(0.806)	(0.022)	(0.182)	(0.613)	(0.394)	(0.134)
Toxic Industry	-0.037	-0.038	-0.022	-0.065	-0.034	-0.001	-0.000	0.001	-0.002	-0.013*
	(0.391)	(0.157)	(0.276)	(0.142)	(0.550)	(0.486)	(0.893)	(0.342)	(0.354)	(0.063)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6736	6736	6736	6736	6736	6736	6736	6736	6736	6736
R-squared	0.224	0.284	0.261	0.334	0.287	0.288	0.119	0.079	0.643	0.347

Table 6
Environmental Performance and Analyst Coverage
This table reports regressions of analyst coverage. The dependent variables in these regressions are the natural logarithm of number of analysts covering the underlying firm and the dummy variable for analyst coverage. Variable definitions are as in Appendix A. The p-values are given in parentheses and are based on standard errors corrected for heteroscedasticity and clustering of firms over years. *, ** and *** indicate 10%, 5% and 1% significance, respectively.

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	Log(1 + # Analysts)						P(Analyst Coverage=1)					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Green Firm	0.082	0.089	0.093	0.088	0.107	0.088	0.043	0.044	0.039	0.045	0.041	0.039
	(0.354)	(0.315)	(0.297)	(0.324)	(0.221)	(0.310)	(0.158)	(0.143)	(0.208)	(0.134)	(0.186)	(0.217)
Toxic Firm	0.108	0.123*	0.125*	0.122*	0.127*	0.101	0.072***	0.074***	0.072***	0.074***	0.073***	0.071***
	(0.116)	(0.075)	(0.070)	(0.079)	(0.066)	(0.142)	(0.004)	(0.003)	(0.004)	(0.002)	(0.003)	(0.005)
Gray Firm	0.301***	0.320***	0.322***	0.320***	0.331***	0.304***	0.145***	0.147***	0.146***	0.147***	0.146***	0.145***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Log (Market Value)	0.270***	0.258***	0.258***	0.263***	0.254***	0.276***	0.019	0.016	0.014	0.011	0.017	0.014
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.142)	(0.190)	(0.225)	(0.418)	(0.163)	(0.314)
Log (Firm Age)	-0.249***	-0.244***	-0.240***	-0.244***	-0.216***	-0.228***	-0.066***	-0.065***	-0.072***	-0.064***	-0.071***	-0.074***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
S&P500 Dummy	0.155**	0.162**	0.161**	0.158**	0.150**	0.130*	0.012	0.014	0.016	0.019	0.016	0.019
	(0.046)	(0.036)	(0.037)	(0.046)	(0.049)	(0.099)	(0.694)	(0.649)	(0.621)	(0.557)	(0.612)	(0.564)
Nasdaq Dummy	0.065	0.046	0.038	0.044	-0.015	0.010	-0.037	-0.041	-0.029	-0.039	-0.029	-0.022
	(0.442)	(0.595)	(0.665)	(0.606)	(0.867)	(0.910)	(0.237)	(0.194)	(0.368)	(0.211)	(0.370)	(0.500)
CEO/Chairman Dummy	-0.014	-0.015	-0.016	-0.015	-0.019	-0.015	-0.005	-0.005	-0.004	-0.005	-0.005	-0.004
	(0.715)	(0.692)	(0.672)	(0.694)	(0.614)	(0.691)	(0.737)	(0.727)	(0.789)	(0.728)	(0.753)	(0.787)
Independent Board Dummy	0.165**	0.165**	0.165**	0.165**	0.159**	0.155**	0.074**	0.074**	0.074**	0.074**	0.076***	0.075**
	(0.021)	(0.022)	(0.021)	(0.021)	(0.026)	(0.030)	(0.011)	(0.011)	(0.012)	(0.012)	(0.010)	(0.011)
GIM Index	0.021*	0.021*	0.022*	0.021*	0.023**	0.022**	0.003	0.003	0.003	0.003	0.003	0.002
	(0.066)	(0.063)	(0.057)	(0.058)	(0.043)	(0.049)	(0.469)	(0.462)	(0.573)	(0.509)	(0.509)	(0.612)
Tobin's Q	-0.029					-0.033	-0.005					-0.006
	(0.287)					(0.265)	(0.584)					(0.567)
Average Monthly Stock Return		0.160				0.079		-0.161				-0.086
		(0.722)				(0.877)		(0.323)				(0.652)
Std of Daily Stock Return			1.642			-6.744*			-2.607**			-1.694
			(0.628)			(0.075)			(0.034)			(0.233)
1/Stock Price				0.586		1.400				-0.538		-0.412
				(0.577)		(0.205)				(0.166)		(0.323)
Turnover					0.061**	0.086***					-0.011	-0.006
					(0.010)	(0.002)					(0.146)	(0.488)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7118	7118	7118	7118	7118	7118	7118	7118	7118	7118	7118	7118
(Pseudo) R-square	0.297	0.296	0.296	0.296	0.300	0.302	0.181	0.181	0.183	0.182	0.182	0.184

Table 7
The Effect of Industry Environmental Performance on Analyst Coverage and Breadth of Ownership
This table reports the effect of industry environmental performance on variables of interest. Variable definitions are as in Appendix A. The p-values are given in parentheses and are based on standard errors corrected for heteroscedasticity and clustering of firms over years. *, ** and *** indicate 10%, 5% and 1% significance, respectively.

	Log(NS)	Log (# Inst. Investors / NS)	Fraction of Shares Held by Inst. Investors	Log (1+# Analysts)	P(Analyst Coverage=1)
	(1)	(2)	(3)	(4)	(5)
Green Firm	0.446***	-0.407***	-0.028**	0.091	0.039
	(0.000)	(0.000)	(0.017)	(0.292)	(0.208)
Toxic Firm	0.462***	-0.478***	-0.028**	0.095	0.071***
	(0.000)	(0.000)	(0.018)	(0.166)	(0.005)
Gray Firm	0.635***	-0.634***	-0.031**	0.300***	0.145***
	(0.000)	(0.000)	(0.033)	(0.000)	(0.000)
Green Industry	-0.040	-0.004	-0.015	-0.047	-0.008
	(0.477)	(0.950)	(0.111)	(0.416)	(0.705)
Toxic Industry	0.037	-0.037	-0.010	-0.005	-0.006
	(0.496)	(0.518)	(0.191)	(0.908)	(0.775)
Controls	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Observations	7118	7118	7118	7118	7110
(Pseudo)-R-square	0.503	0.283	0.334	0.302	0.184

Table 8
Environmental Performance and Tobin's Q
This table reports the effects of industry and firm environmental performance on the natural logarithm of Tobin's Q. Variable definitions are in Appendix A. The p-values are given in parentheses and are based on standard errors corrected for heteroscedasticity and clustering of firms over years. *, ** and *** indicate 10%, 5% and 1% significance, respectively.

	(1)	(2)
Green Firm	-0.033	-0.031
	(0.139)	(0.163)
Toxic Firm	-0.083***	-0.088***
	(0.000)	(0.000)
Gray Firm	-0.108***	-0.110***
	(0.000)	(0.000)
Green Industry		-0.007
		(0.701)
Toxic Industry		0.020
		(0.152)
Log (Firm Age)	-0.021	-0.021
	(0.107)	(0.104)
S&P500 Dummy	0.127***	0.127***
	(0.000)	(0.000)
Nasdaq Dummy	0.121***	0.121***
	(0.000)	(0.000)
CEO/Chairman Dummy	-0.008	-0.009
	(0.428)	(0.405)
Independent Board Dummy	-0.022	-0.022
	(0.329)	(0.333)
GIM Index	-0.007**	-0.007**
	(0.012)	(0.011)
R&D/TA	3.054***	3.067***
	(0.000)	(0.000)
R&D Missing Dummy	-0.034	-0.033
	(0.110)	(0.122)
Std of Daily Stock Return	-1.900**	-1.929**
	(0.029)	(0.026)
EBITD/TA	3.505***	3.506***
	(0.000)	(0.000)
Year FE	Yes	Yes
Industry FE	Yes	Yes
Observations	7118	7118
R-squared	0.588	0.588

Table 9
Environmental Performance and Portfolio Returns
This table reports the effects of firm environmental performance on stock price performance. In Model 1, the dependent variable is long Green (monthly return for a value-weighted portfolio of green firms) and short Neutral Firm (monthly return for a value-weighted portfolio of neutral firms). In Model 2, the dependent variable is long Toxic (monthly return for a value-weighted portfolio of toxic firms) and short Neutral Firm (monthly return for a value-weighted portfolio of neutral firms). In Model 3, the dependent variable is long Gray (monthly return for a value-weighted portfolio of gray firms) and short Neutral Firm (monthly return for a value-weighted portfolio of neutral firms). Variable definitions are as in Appendix A. Standard errors are corrected for serial correlation using the Newey-West method with three lags. The p-values are given in parentheses and *, ** and *** indicate 10%, 5% and 1% significance, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Excess Return on Market	0.01371***	0.01019***	0.01301***	0.00352*\	0.00966***	0.01106***	0.00455***
	(0.000)	(0.000)	(0.000)	(0.076)	(0.000)	(0.000)	(0.000)
Small-Minus-Big Return	-0.00074	-0.00739***	-0.00388**	0.00666***	0.00186	-0.00763***	-0.00277***
	(0.528)	(0.000)	(0.044)	(0.000)	(0.165)	(0.000)	(0.000)
High-Minus_Low Return	0.00024	0.00222	0.00152	-0.00197	-0.00117	0.00164	0.00105
	(0.878)	(0.148)	(0.526)	(0.360)	(0.475)	(0.289)	(0.117)
Momentum Factor	-0.00400***	0.00093	-0.00302**	-0.00493***	-0.00390***	0.00097	-0.00003
	(0.002)	(0.250)	(0.041)	(0.001)	(0.002)	(0.243)	(0.906)
Alpha	0.00008*	0.00010***	0.00013***	-0.00003	0.00004	0.00011***	0.00004***
	(0.099)	(0.006)	(0.005)	(0.630)	(0.440)	(0.005)	(0.001)