



Investment performance of “environmentally-friendly” firms and their initial public offers and seasoned equity offers [☆]



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ABSTRACT

We employ a sample of 748 environmentally-friendly (or “green”) firms listed on U.S. stock exchanges to extend studies of the effects of socially responsible investment (SRI) on stock investment returns and the performance of initial public offerings (IPOs) and seasoned equity offerings (SEOs). Our empirical tests document positive and statistically significant excess returns for our environmentally-friendly firms and their IPOs and SEOs, in contrast to our control IPO and SEO samples which underperform. In summary, a “green” equity premium is evident in returns calculated from a variety of benchmarks.

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1. Introduction

We investigate whether investment in environmentally-friendly companies and their IPOs and SEOs is good for your wealth. We examine this issue empirically, because existing theory makes equivocal predictions. Our empirical results show that environmentally-friendly firms have positive risk-adjusted returns in the majority of our empirical investigations. In short, these investments are good for your (risk-adjusted) wealth. Our portfolios of environmentally-friendly firms outperform by approximately 7% per annum. The frequently documented post-IPO performance decline is not present for environmentally-friendly IPOs, and the post-SEO drift is also not present. These drifts are however present in matched (control) samples of firms that do not qualify as environmentally-friendly.

Two hypotheses are frequently investigated when SRI and conventional fund returns are compared; an underperformance hypothesis and an over-performance hypothesis. In support of

arguments of having higher cost structures for environmentally-friendly practices, the underperformance hypothesis predicts that the risk-adjusted returns for the SRI firms should be lower than those of conventional firms because the investment opportunity set for SRI firms is restricted by non-financial criteria. SRI investors must accordingly be willing to accept suboptimal mean-variance efficient portfolios if they select companies with higher environmental, social responsibility, and corporate governance standards. This stock screening process violates classical finance theory which proposes that investors should maximize return subject to risk optimization. In contrast, the over-performance hypothesis indicates that this screening process may generate excess returns for SRI firms relative to conventional firms in the long run. The hypothesis argues that companies with higher corporate social responsibility standards can avoid potential costs of corporate social crises and environmental disasters. Hence, companies that ignore environmental responsibility may destroy long-term shareholders' wealth due to reputation losses or potential litigation costs, or both.

Prior studies have investigated the association between stock returns and environmental rankings. For example, Yamashita et al. (1999) report the relationship between environmental conscientiousness (EC) scores ranked by the 1993 Fortune magazine, and show that those companies with the worst EC scores have

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lower than average performance. Klassen and McLaughlin (1996) observe significant positive returns for strong environmental management as indicated by environmental performance awards, and significant negative returns for weak environmental management, indicated by environmental crises. Derwall et al. (2004) employ a Carhart (1997) four-factor model based on “eco-efficiency” scores provided by InnoVest Strategic Value Advisors and show that a portfolio of firms with high environmental scores outperformed a portfolio of firms with low scores by 6% per annum over the period 1997–2003. They argue that the market undervalues environmental news.

Previous research in the area of social responsibility has focused on SRI fund returns and the majority of these papers have either supported the underperformance hypothesis or found no significant difference in performance. For example, Hamilton et al. (1993) find that socially responsible mutual funds do not earn statistically significant excess returns and that their performance is statistically indistinguishable from conventional mutual funds. Cohen et al. (1997) construct two industry-balanced portfolios and compare accounting and market returns for a “high polluter” and “low polluter” portfolio. Overall, they find either no “penalty” for investing in the environmentally-friendly portfolio, or a positive return from green investing. Bauer et al. (2005) document evidence of insignificant differences in risk-adjusted returns between ethical and conventional funds. They adopt the Carhart (1997) multi-factor model. They suggest that ethical mutual funds undergo a “catching up phase” before achieving financial returns similar to those of conventional funds. Geczy et al. (2005) compare SRI portfolios to those constructed from the broader fund universe and reveal that the costs of imposing a SRI constraint are substantial. Renneboog et al. (2008) document that SRI funds in the U.S., the U.K., and in many continental European and Asia-Pacific nations underperform their domestic benchmarks by between –2.2% and –6.5%.

Instead of comparing returns of SRI funds and conventional funds, some papers investigate whether there is return difference in broad indexes. For instance, Sauer (1997) compares the raw and risk-adjusted performance of the Domini 400 Social Index (DSI) with two unrestricted, well-diversified benchmark portfolios and suggests that effect of social responsibility criteria on performance is negligible. Statman (2000) also finds that the DSI performs as well as S&P500. The risk-adjusted returns of the DSI are slightly lower than those of the S&P500, but the difference is not statistically significant.

Contrary to the previous literature, our results support the over-performance hypothesis. This paper makes the following contributions to the existing literature: First, instead of comparing SRI and conventional fund returns, this paper constructs a pool of environmentally-friendly companies based on the constituents of environmental service indices or exchange-traded (ETF) funds listed on U.S. stock exchanges. This approach avoids the confounding effects of transaction costs and management fees that are prevalent when mutual fund returns are compared. While prior research (Derwall et al., 2004) obtains eco-efficiency scores for companies from InnoVest Strategic Value Advisors, we create a database based on publicly available information, thus reducing the search costs to discover environmentally-oriented companies. We find that these portfolios, when investigated using a Carhart (1997) model, have approximately 7% excess returns per annum.

Second, this paper extends the investigation of environmentally-friendly investment to IPOs and SEOs. We select “control” companies which are matched with our environmentally-friendly IPO and SEO companies based on firm-specific characteristics. Astonishingly, long-term underperformance exists for the “control” sample, while no such evidence is found for our environmentally-friendly (or “green”) IPOs and SEOs. For example, the one-year mean BHARs for the environmentally-friendly and “control” IPOs are 12.4% and

–7.1% respectively, while the one-year BHARs for the environmentally-friendly and “control” SEOs are 2.5% and –3.5% respectively, after controlling for size, book-to-market and momentum. A “green premium” exists primarily because environmentally-friendly investments have lower risks than “control” firms.

Third, we perform cross-sectional regressions for the environmentally-friendly and “control” samples and test several IPO and SEO hypotheses that have been advanced to explain short-term underpricing and longer-term underperformance. We include a “green” dummy variable and examine whether the environmentally-friendly sample behaves differently to the “control” sample. For the long-term performance of IPOs and SEOs (i.e., 12 months or more), the coefficients for our environmentally-friendly dummy variable are always positive and statistically significant, while there is no evidence of short-term underpricing differences for both our IPO and SEO samples.

This remainder of this paper is organized as follows: Data selection methods for the environmentally-friendly and “control” samples and empirical methods are described in Section 2. Section 3 presents the results for the portfolio returns for the environmentally-friendly companies. Section 4 presents the IPO and SEO results based on size, book-to-market, and momentum adjusted portfolios returns and cross-sectional regressions to explain both short-term and long-term equity returns. Conclusions and suggestions are offered in Section 5.

2. Data and methodology

2.1. Data selection

We develop a comprehensive database of all environmentally-friendly companies and their IPOs and SEOs in the period 1990–2012. Our environmentally-friendly observations are selected based on constituents in environmentally-friendly (or “green”) exchange-traded funds (ETFs) or indices which are listed on the New York Stock Exchange (NYSE), American Stock Exchange (AMEX) and NASDAQ. Our sample also considers stocks which are listed in global indices. However, we only study those global environmentally-oriented companies which are listed in the U.S. in the form of common shares or American Depository Receipts (ADRs). Descriptions of each environmentally-friendly index or exchange-traded fund are shown in Appendix A. A company is included as a sample observation if it is a constituent in one of the environmentally-friendly indices at the date this index is first published. Going forward in time, the company remains as a valid observation until it is dropped from the index. On the other hand, we retain an observation going backward in time for our return analysis if the observation does not change its Standard & Poor’s Industry Classification Codes (SICCD). Since the earliest inception date of an environmentally-friendly index is 31 December 1999, the return calculations in the pre-1999 period are returns for a sample of firms that are based on an assumption that if they were environmentally-friendly in 1999 (for example) and they do not change the fundamental nature of their SICs, then they are also environmentally-friendly prior to 1999.¹ The main reasons for

¹ We recognize that our sample selection for the period prior to an index development involves a strategy that is not implementable in actual trading, however our main purpose is to investigate whether environmentally-friendly firms have returns in excess of their risk-adjusted expectation. As a robustness test, we also conducted our analysis where this backward identification is eliminated. By definition, IPOs cannot be modelled, because all firms must be listed before they are included in an environmentally-friendly fund. The return analysis for this reduced sample is highly consistent with our results reported in Table 1. The results for this reduced set of SEOs are structurally similar to those in Table 3, through somewhat weaker in statistical significance. These results are available on request to the corresponding author.

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