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MSc Economics & Business
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Impact investing in public equities

An analysis of financial and impact performance

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PREFACE AND ACKNOWLEDGEMENTS

This thesis is the result of months of hard work, concentration and passion. I have been very dedicated to find a feasible research question and quantitative research design within the field of impact investing. Spending seven months in Mexico after writing the bigger part of the thesis has shown me even more the importance of impact investing. Interviews with, among others, the Inter-American Investment Corporation (ICC) of the Inter-American Development Bank and the International Finance Corporation (IFC) of the World Bank have provided me with new insights on the future of impact investing as an instrument for development aid.

I am very grateful that Dr. Jan Lemmen stepped in as my supervisor. I would like to thank him for both his constructive feedback and for his personal confidence in this topic. I am also thankful to my friends and family, who, although they did not understand a word from the paper, have supported me very much mentally.

ABSTRACT

This paper is pioneering in the quantitative analysis of the financial and impact performance of impact investments in public equities. Impact investing is defined as investments with the intention to generate social and environmental outcomes alongside a financial return. I construct three different impact portfolios and compare them with matched traditional portfolios. Using the monthly Jensen's alpha of the Fama/French four factor model, I find that the impact portfolios yield higher positive abnormal returns than the traditional portfolios, although the ROA and ROE are generally lower. On average, the impact portfolios outperform the traditional portfolios on impact performance.

Keywords:

Impact investing, investment decisions, public equities, propensity score matching, Jensen's alpha

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1. Introduction

Impact investing, intended to generate a social and environmental impact alongside a financial return, is becoming more and more relevant in the asset management industry. As it is still quite a new concept within the field of responsible investing (RI), many books and industry reports have been published in recent years to inform and advice potential impact investors (e.g. Bugg-Levine & Emerson, 2011; Rodin & Brandenburg, 2014; Balkin, 2015). However, the quantitative academic field is hardly developed. Most academic writing has been on socially responsible investments (SRIs), corporate social performance (CSP) or sustainable investment (SI), where environmental, social and governance (ESG) criteria are taken into account. The difference between those asset classes and impact investing lies in the respectively passive versus active pursuance of positive impacts. In general, SRIs and ESG analyses merely take a "do no harm" approach (TriLinc Global, 2013), where financial returns are still prioritized above social or environmental returns (World Economic Forum, 2013). These activities therefore do not satisfy the impact investing definition, as they do not intentionally and explicitly set out the objective of social and environmental positive outcomes. Impact investing on the other hand actively seeks opportunities to create social or environmental outcomes and requires a transparent measurement and reporting of the actual impact performance (World Economic Forum, 2013). As Greene (2014) sets out, impact investing is not limited to nonprofits with revenue and earned income streams. Also in for-profit companies that have an explicit intent to have social or environmental impact via their business model or practices, impact investments can be made. In the for-profit sector case examples range from healthy food providers to sustainable agriculture to microfinance funds (Greene, 2014). In the nonprofit sector successful cases include Goldman Sachs' investment in New York's biggest jail Rikers Island (The Economist, 2012) and investments to encourage education for girls in India (Perakis, 2014). The latter examples are also called social impact bonds (SIBs), which function as a loan of which the return depends on the outcome of the program, a pay for results (PfR) approach. Also, both the public market and the private market are terrain for impact investments. Public markets are characterized by publicly traded equities and bonds, and in the private market common impact instruments are private equity, private debt, equity-like debt[1], real assets or PfR instruments (Saltuk et al., 2015).

[1] Equity-like debt is an instrument between debt and equity, such as mezzanine capital or deeply-subordinated debt. Commonly, this instrument offers profit participation, such as convertible debt, warrants, royalties or debt with equity kicker (MissionInvestors.org, 2015).

Hence, the required return on impact investments can range from capital preservation, such as the SIBs, to above market returns.

Most existing quantitative research on responsible investment (RI) tests the financial performance of SRIs or SIs. For example most papers find that on average SRI funds either do not outperform, or slightly underperform, conventional mutual funds (e.g. Hamilton et al., 1993; Renneboog et al., 2008). Research on SI, on the other hand, provided evidence for the hypothesis that investing in sustainable stocks might actually increase the average stock return (RobecoSAM, 2014; Eccles et al., 2011). Also the results of research on CSP, as bundled by Van Beurden and Gössling (2008), indicate that there is a positive correlation between corporate social responsibility (CSR) and financial performance.

The return and impact performance of public impact investments on the other hand have never been the scope of academic research before. This paper therefore is a pioneering work in this field. The focus of this paper is impact investing in public equities, as those research techniques are furthest developed and data is more widely available, compared to investments in private markets. We should however be aware that impact investing is also very eminent in private markets, such as through microfinance institutions. This paper explicitly does not aim to cover the full spectrum of impact investing but rather strives to create a basic framework for the quantitative analysis of public impact companies. This paper tests two hypotheses, with the following null hypotheses:

> *Hypothesis I*: The return performance of impact investments in public equities does not differ from traditional investments.
> *Hypothesis II*: The impact performance of impact investments in public equities does not differ from traditional investments.

Using clean energy indexes and the sector codes for health and education I construct respectively an *environmental impact* portfolio and a *social impact* portfolio. The sum of those two portfolios I call the *total impact* portfolio. I find that the return performance of the impact portfolios differs significantly from the traditional portfolios. Constructing the monthly Jensen's alpha, I find that both the impact portfolios and the traditional portfolios produce significantly positive abnormal returns in almost all models. The impact portfolios have a relatively higher positive abnormal return in all cases. However, analyzing the development of the accounting measures return on equity (ROE) and return on assets

(ROA), the traditional portfolios perform substantially better over almost the whole time period of 2007-2013.

The impact performance I measure by the absolute CO2 emission, the water withdrawal, and the percentage of female managers. The difference analysis, performed by matched t-tests, shows that the impact companies on average produce less CO2 emission, withdraw less water and have a higher percentage of female managers.

The results have clear implications for real investment decisions. This paper shows that an investor can make a considerable impact by investing in public impact companies, without compromising, i.e. even gaining, on the financial return.

First, the relevant existing literature is covered in Section 2, to create a theoretical framework. Next, the data collection and methodology is set out in Section 3. Section 4 shows the main results. The conclusion and discussion can be found in Section 5. Finally Section 6 covers the main limitations and suggestions for further research.

2. Literature review

To date there is limited academic work on impact investing, as Hebb (2013) confirms. I therefore also refer to industry-based reports.

2.1 Defining impact investing

To define impact investing, we should well establish its place within the responsible investing (RI) domain. As the Principles for Responsible Investments (PRI), a body of the United Nations (UN), states: "Responsible investment is an approach to investment that explicitly acknowledges the relevance to the investor of environmental, social and governance factors, and of the long-term health and stability of the market as a whole". The two distinct characteristics of RI are therefore the long-term, sustainable investment horizon and the attention to wider contextual factors such as the stability and health of the environment, economy and society (PRI, 2015). In this domain we find socially responsible investment (SRI), sustainable investments (SI) and impact investing.

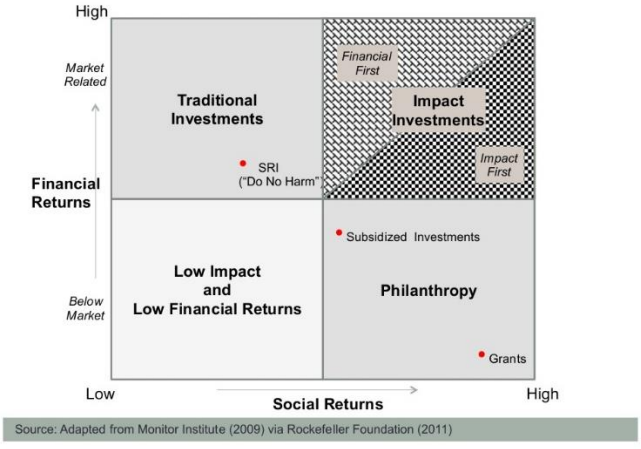
The most commonly accepted definition of impact investing is that of the Global Impact Investing Network (GIIN), which states that "impact investments are investments made into companies, organizations, and funds with the intention to generate social and environmental impact alongside a financial return" (website GIIN). This definition comprises the following key characteristics of impact investing: intentionality, (a range of) return expectations and measurable impact. Firstly, 'intentionality' means that the business in which the investment is made, which can be either a company or a fund, should be designed with the intention to make positive impact. Next, the investment should generate at least a return of capital, and strives to generate a return on capital. This return can range from below market returns (also called 'concessionary', as the investor makes concessions on the financial return) to risk-adjusted market returns, or even above. The 2014 survey of the GIIN reports that 55% of impact investors principally targets "competitive, market rate returns", 27% targets "below market rate returns: closer to market rate" and only 18% targets "below market rate returns: closer to capital preservation" (Saltuk et al., 2015). Lastly, measurability means that the social and environmental performance should be measured and reported as such. To standardize this procedure, the GIIN launched the Impact Reporting and Investment Standards (IRIS) initiative in 2009 (O'Donohoe et al., 2010). At this moment, 60% of the survey respondents is using metrics aligned with IRIS, 58% uses proprietary metrics (some use both) and only 1% is not using metrics (Saltuk et al., 2015).

Brest and Born (2013) take a slightly more narrow approach in defining impact investing, where they focus on the concepts of 'additionality' and 'concessionary'. With additionality they mean that an investor makes impact only if the beneficial outcomes would not have occurred if this investment did not take place, i.e. *beyond* what would otherwise have occurred. With concessionary they imply that impact investors should be willing to make concessions on their financial returns. With these perspectives in mind, they believe that investors cannot create impact in the publicly traded large cap markets, as they cannot add capital which would not be added by traditional investors. Their definition however does not explicitly exclude investments in public equities, as it is formulated as: "actively placing capital in enterprises that generate social or environmental goods, services, or ancillary benefits such as creating good jobs, with expected financial returns ranging from the highly concessionary to above market".

As the definitions indicate, impact investing comprises a broad range of investments. To visualize its position relative to other investments and to clarify the differences within the impact domain, Jackson and Harji (2013) designed Figure 1. Here we can see how the distinction is made between 'financial first' investors and 'impact first' investors, although some admit that this is a rather oversimplified breakdown and claim that we should see it more as a spectrum (Greene, 2014). In general, in this spectrum 'impact first' investors are investors willing to compromise on the financial return, in order to optimize the social or environmental return. On the other hand, 'financial first' investors primarily aim for a financial return, with a floor for social or environmental impact (Freireich & Fulton, 2009).

FIGURE 1. The relative position of impact investments

This figure visualizes the position of impact investments compared to other investment approaches. On the horizontal axis the social returns are predicted, where impact investments score higher than traditional investments. On the vertical axis the financial returns are predicted, where impact investments score higher than philanthropy. Source: Jackson and Harji (2013).



2.2 The impact investing domain

In the domain of impact investing many actors, asset classes, sectors and themes are involved. Firstly, the stakeholders can be categorized into four groups: asset owners, asset managers, demand side actors and service providers. Harji and Jackson (2012) list the actors in each group as follows. Asset owners who are interested in impact investing are for example wealthy individuals, corporations, governments, retail investors and foundations. Asset managers include investment advisors, fund managers, family offices, banks, development finance institutions, investment funds and government investment programs. The actors demanding capital are for example social enterprises, microfinance institutions or cooperatives. The actors providing the necessary services include impact networks, consulting firms, NGOs, universities and government programs.

Impact investing spans several asset classes, such as fixed income, absolute returns, private equity/venture capital, public equity and real assets (Greene, 2014). Most of these asset classes are positioned in the private markets, but some, such as green bonds or sustainable fixed income can also be found on the public markets. Also public equities, the focus asset class of this paper, are traded on the public markets. Some claim that impact investing is emerging as a separate asset class, as it requires a unique set of investment and risk management skills with corresponding organizational structures and standardized metrics, benchmarks and ratings (O'Donohoe et al., 2010).

There is ongoing discussion on whether investments in public markets can actually create impact. As mentioned before, Brest and Born (2013) posit that the public markets are in perfect equilibrium and individual investments can therefore not increase the beneficial outputs of publicly listed corporations. Wood (2013) responds to that by stating that there are time horizon and agency issues in public markets, which do actually create inefficiencies. First, an impact investing strategy focuses on long-term wealth creation rather than the common market's speculative short-term considerations. Second, impact investors can deploy shareholder engagement and shareholder activism to push corporations towards more socially beneficial practices. Also Thornley (2012) states that shareholder advocacy is the main strategy to connect ownership to impact in publicly listed companies. Both arguments imply that also in public markets impact investments can create outcomes that would otherwise not have occurred. Examples of impact funds that invest (either part or all of their capital) in public equity include for example Sonen Capital, KL Felicitas, DBL Investments and Generation IM. Recognized impactful listed companies include SolarCity, a residential solar installer, or Tesla Motors, a producer of electric cars. Hence, although the majority of impact investments is typically made in

private markets (O'Donohoe et al., 2010), public equity is certainly an acknowledged instrument.

Next, impact investments can be present in many different sectors. Greene (2014) for example lists community development, small business finance, health and wellness, education, microfinance and financial inclusion, sustainable consumer products and fair trade, natural resources and conservation, renewable energy and climate change, and sustainable agriculture and development as the main sectors for impact opportunities. From the GIIN survey we learn that also housing, habitat conservation and arts & culture are examples of sectors in which impact investors are active (Saltuk et al., 2015).

2.3 The return performance of responsible investing in public markets

In the whole spectrum of responsible investment (RI) there are contradicting findings concerning the financial performance. For example Hamilton et al. (1993), using the CAPM alpha, find that the mean excess return of social responsible mutual funds is not statistically different from conventional funds. Also Renneboog et al. (2008), performing a literature study on all existing SRI fund research, conclude that most SRI funds do not outperform, or slightly underperform, conventional mutual funds, using monthly or yearly Jensen's alphas. Brammer et al. (2006), analyzing corporate social responsibility (CSR) and stock performance, find that the portfolios with the lowest scores on CSR and especially environment and community, negatively correlate with stock returns. Sustainable investments on the other hand, looking more at the total ESG performance, seem to yield higher abnormal returns than traditional investments (Eccles et al., 2011).

Combining the well-developed research techniques for responsible investing, with the gap in the academic literature concerning impact investments in public equities, this paper aims to provide more evidence on this topic. Using the methodologies for socially responsible and sustainable investments in public equities and the theory on impact investing, I construct an innovative methodology to define and measure impact investments in public markets.

3. Data and methodology

3.1 Data collection

The data for the analysis of impact investing in public companies is collected from Thomson Datastream (TDS). The starting point is the ASSET4 ESG 'Global Active' database of TDS, which contains sustainability information on 4185 active companies, covering worldwide major indices of both developed and emerging markets. Each company is rated on four main pillars: environmental, social, corporate governance and economic. For each of these categories they receive a score on a scale from 0 to 100, where the median and average are always around 50, indicating that it is a relative rating. The ratings are based on over 750 individual data points, which are combined into over 250 key performance indicators (KPIs). As not all individual KPI results can be collected from TDS, I only use the category scores and just three KPIs as mentioned below.

Taking this list of 4185 companies as a starting point, I extract three categories of information for each of them: sustainability measures (SRI screens and ESG scores), financial measures and standard company characteristics. The sustainability data is available from 2002 onwards, but both the earliest and the most recent years do not have enough data available for a reliable panel analysis. I include the years in which more than half of the companies is rated. This is the case for the full years 2007 up to and including 2013.

First I collect the available YES/NO information on negative SRI screens from the ASSET4 database, following the list of screens that Renneboog et al. (2008) report as most used in ethical funds. The list of SRI screens that I use in this paper and their descriptions can be found in the first seven rows of the table in Appendix A, indicated by the Y/N datatype. Panel A of Table 1 at the end of this chapter shows the summary statistics of the used SRI screens. Next, I extract the sustainability scores on respectively Environment, Social and (corporate) Governance (ESG). Hence, I leave out the economic (and therefore also the total ASSET4) score. I also extract the available KPIs of absolute data points, which are the ones for CO2 emission, water withdrawal and the percentage of female managers. Lastly, I extract the company characteristics such as name, ISIN code, sector code (SIC) and the company financials: total assets (as a proxy for size), market-to-book ratio (MTBV), return on assets (ROA), return on equity (ROE) and the monthly stock prices. The TDS mnemonics and descriptions of all input variables can be found in Appendix A. Panel B of Table 1 at the end of this chapter shows the summary statistics of the ESG variables and financial measures.

3.2 Panel data

As almost all data is time-varying, I construct a panel database, which takes into account the changes per company over time. The time variable is a number that counts the months: seven years consist of 84 months, hence the database contains 84 time periods. The panel variable is a number for every company, i.e. 1 to 4185. Only the name, ISIN code and sector code remain constant over time.

As panel data takes into account time-varying variables, it is necessary to distinguish between a fixed effects (FE) analysis and a random effects (RE) analysis. An FE analysis takes into account that the individual characteristics of each panel entity - thus its error term - might be correlated with the other regressors (predictor or outcome variables). It assumes that these time-invariant characteristics are unique to every entity and should therefore not be correlated with other entity's characteristics. If the error terms are correlated, RE is preferred over FE.

The Hausman test can be used to test the null hypothesis that the individual effects are uncorrelated with the other regressors. If this null hypothesis is rejected (in case of a significantly high Chi statistic), it is safe to use the FE. If the null hypothesis is not rejected (not a significantly high Chi statistic), the RE model is favored over the FE model. In cases where the simple Hausman test yields a negative Chi statistic, I use the *sigmamore* option in STATA to ensure that the difference between the RE and FE model variances are positive definite. See for the results of the Hausman tests Appendix D.

For panel data, it is recommended to use cluster robust standard errors to correct for heteroskedasticity and autocorrelation. In STATA I use cluster-robust Huber/White standard errors by adding the term "vce(robust)" after both FE and RE regressions.

3.3 Constructing an impact portfolio

Using the data collected I can distinguish between 'impact companies' and others. The distinction I use in this paper is based on the selection criteria of Sonen Capital's impact fund for public equities, as described in their annual impact report over 2013 (Sonen Capital, 2014). It is a combination of three approaches: responsible, sustainable and thematic investing. The combination of the three assures that these companies comply with the impact investing definition as set out in Section 2.1. I construct three impact portfolios: an *environmental impact portfolio*, a *social impact portfolio* and a sum of those two, the *total impact portfolio*.

First, I detect all SRI violating companies, by creating a dummy variable *SRIPOSITIVE* which takes the value zero if the company is operating in one of the SRI violating sectors and one if otherwise. This means that all companies which are classified as producing (revenues from) tobacco, alcohol, gambling, armaments, nuclear activities, pornography and animal testing will be excluded from the impact companies.

Next, I classify the companies on sustainability scores. Only if a company is having a high score on either environmental, social or governance, it is eligible for the impact portfolios. To avoid ambiguity, where some companies only score high on a social level but might be harmful on an environmental level or vice versa, I add the condition of a score of 50 or higher on the other two pillars. So *ESGHIGH* takes the value 1 if the score on environmental sustainability is 75 or higher *and* the social and governance scores are 50 or higher. It also takes the value 1 if the score on social sustainability is 75 or higher *and* the environmental and governance scores are 50 or higher. And lastly it also takes 1 if the score on sustainable governance is 75 or higher *and* the environmental and social scores are 50 or higher. *ESGHIGH* is labeled zero otherwise.

The final step is to include intentional thematic investing, by only investing in companies that have an explicit intent to have social or environmental impact via their business model or practices. Greene (2014) claims this explicit intentionality is a prerequisite for impact investment. To this purpose, I create two thematic portfolios: one for *environmental impact* (clean energy) and one for *social impact* (education and health). First the environmental impact companies are distinguished by their inclusion in global clean energy indices. The constituents of three public indices, the S&P500 Clean Energy Index, the NASDAQ Green Energy Index and the Ardour Alternative Energy Index, are retrieved from their respective websites. I match the provided ticker codes with the corresponding ISIN codes through TDS. From the S&P500 Clean Energy Index 14 companies are included in the ASSET4 database. From the NASDAQ Green Energy Index 11 companies are rated by ASSET4. Lastly, from the Ardour Alternative Energy Index 28 companies are included. As there is some overlap between the three, we are left with a sample of 37 companies that take the value 1 for *CLEANENERGY*, all others left zero.

For the social impact on the other hand, there are no public indices available which specifically only take into account the social aspect of the ESG score. I therefore use the industry codes to determine in which sector each company is operating. The SIC code is a four-digit industry code which indicates in which business sector the company is generating most revenues from its activities. As the literature has set out that healthcare and education are common impactful sectors, I label the companies that have a SIC code

starting with "80.." ("health services") and with "82.." ("educational services") as *SOCIALSECTOR* by indicating a one, and zero otherwise.

The final step is to combine those three measures (SRI screens, ESG scores and sector information) into three impact variables, one for *environmental impact*, one for *social impact*, and one for a combination of the two called *total impact*. *ENVIMPACT* takes the value 1 if the company does not violate SRI screens, has a high ESG score and is operating in the clean energy sector. *SOCIMPACT* takes the value 1 if the company does not violate SRI screens, has a high ESG score and is operating in the health care or education sector. Lastly, *TOTIMPACT* combines these impact portfolios by taking the value 1 if the company does not violate SRI screens, has a high ESG score and is operating in either the clean energy sector or the health care or education sector. It is a simple sum of the environmental impact companies and the social impact companies. In Appendix C a list of all impact companies can be found, with a short description that offers a sanity check. This check confirms that all companies are operating in an impactful theme. In Panel C of Table 1 the summary statistics of all different portfolios can be found.

Like this, the impact companies satisfy the three conditions of the impact investing definition: according to the first step (excluding SRI violating companies), the impact companies 'do no harm'. Second, the impact companies have the highest ESG scores, which ensures sustainability. Third, the impact companies have an intentional impact character, ensured by only including companies with an explicit intent to generate social or environmental impact.

The *total impact* portfolio naturally has the biggest portfolio size, hence maximizes the power of the statistical tests. However, I analyze the separate environmental and social impact portfolios to distinguish their respective effects.

3.4 Winsorizing

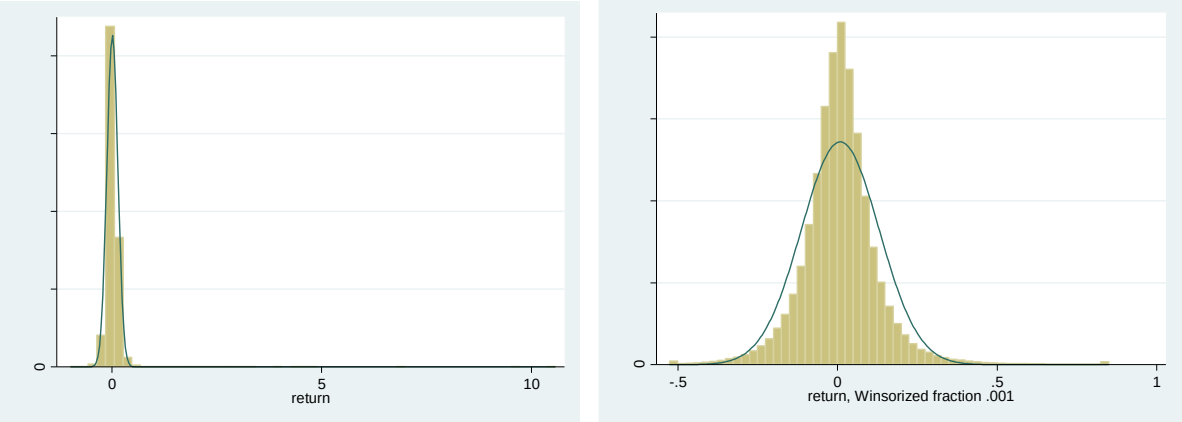
Ince and Porter (2006) address several issues with stock price data in TDS. Indeed the financial measures in the sample show extreme kurtosis and skewness, as is visible in Figure 2 below and Table 1 at the end of the chapter. I therefore have to winsorize the data. This means that the values of the top and bottom n^{th} percentiles are replaced by the value at the $(100\text{-}n)^{th}$ percentile. This is to be preferred over trimming the outliers, as deleting observations causes an unbalanced panel.

Following Bartram et al. (2012), I winsorize the top and bottom 0.1% of the return distribution. This brings the kurtosis and skewness back to under ten, and brings back

the minimum and maximum levels to five times a standard deviation from the median. The effect of winsorizing is clearly visible in Figure 2 below. The accounting measures are winsorized at the top and bottom 1%, which is necessary to bring down the kurtosis, skewness and minimum and maximum levels to the same acceptance levels. Only the market-to-book-value (MTBV) still shows some slight kurtosis and skewness and has a high maximum value, but for consistency reasons I keep the winsorizing level at the 1%. The winsorized variables are indicated in Panel B of Table 1 with a "w" added to the variable name.

FIGURE 2. A histogram of the return distribution

This figure shows the histograms of the raw return distribution (left-side) and the distribution of the winsorized return (right-side). In the winsorized return variable the 0.1% lowest and 0.1% highest values of return are replaced by the value at the 0.1th and 99.9th percentile. The horizontal axis indicates the value of the return, where 0.50 for example equals a return of 50%. The vertical axis indicates the frequency of the particular return value.



3.5 Matching

All matching below is based on the propensity score nearest neighbor matching procedure, executed by the psmatch2 package in STATA[2], which uses a probit regression to generate a propensity score. Matched sampling is a method of selecting observations out of the full sample to create a control group of modest size that is similar to the selected portfolio with respect to the distribution of observed covariates (Rosenbaum & Rubin, 1985). Based on earlier research on RI (Renneboog et al., 2008; Van Beurden & Gössling, 2008; Eccles et al., 2011), the observed covariates in this analysis are the company size, as indicated by the natural logarithm of total assets, and the industry code. After assigning a propensity

[2] I am aware that STATA developed the new package teffects which takes into account that the standard errors are based on estimated propensity scores. The reason I am not using this more recent package is technical limitations.

score to each treated observation (i.e. each observation from an impact company), the treated observations are matched to their nearest neighbors, i.e. its nearest match among all untreated observations. I use the 'no replacement' command to avoid using the same match multiple times, so as to make a control group of the same size as the treated group. Directly after this matching process, I label all observations with weight assigned as *MATCHEDSAMPLE*. This results in a matched sample of 4,978 observations for the *total impact* portfolio, 2,874 observations for the *environmental impact* portfolio and 2,104 observations for the *social impact* portfolio. Within each matched sample half of the observations is treated, i.e. in one of the impact portfolios, and the other half is untreated, i.e. in the (matched) control group. With the dummy variables representing those subsamples, I can run the regressions using only the impact portfolios or control portfolios.

In Appendix D the sample characteristics before and after the matching can be found. As is visible, the matched control groups exhibit more similarity with the impact portfolio in terms of size and sector than the unmatched samples.

3.6 Financial performance measures

3.6.1 Market-based measures and accounting-based measures

To compare the financial performance of responsible investments (RI) with traditional investments, there are two categories of measures: market-based measures and accounting-based measures. Market-based measures include stock returns, market returns, price per share, and all related measures (Van Beurden & Gössling, 2008). Accounting-based measures are for example return on assets, asset turnover and growth, which measure the internal efficiency of a company (Wu, 2006). Accounting-based measures might be a better predictor of social performance (Wu, 2006), but Davidson and Worrell (1990) prefer the market measurements when investigating shareholders' wealth. Van Beurden and Gössling (2008) report that approximately half of the empirical research on CSR uses market-based measures and half accounting-based measures. Renneboog et al. (2008) find that almost all research on SRI uses market-based measures, and specifically Jensen's alpha. Most used is the monthly Jensen's alpha (Renneboog et al., 2008; Eccles et al., 2012; Hamilton et al., 1993), and only some use the yearly Jensen's alpha (Renneboog et al., 2008). The Treynor ratio and Sharpe ratio, other common market measures, are hardly used in research on RI.

As this paper focuses on the shareholder return and as many research on RI use market measurements, I focus on market measurements. Following the methodology of

Eccles et al. (2011), who did their research on sustainable investing, I use the monthly Jensen's alpha, a predictor of abnormal returns, as the main financial measure, as explained in the next Section. In addition, still in line with Eccles et al. (2012), I perform some exploratory tests based on the accounting measures ROA and ROE. This methodology can be found in Section 3.6.3.

3.6.2 Market-based measures

First, I calculate the stock return (r_i) based on the closing prices of each month. Hence, the return for each month is calculated as the relative difference between the closing price on the last trading day of the month (p_t) and the first trading day of the month (p_{t-1}). This is also expressed in Formula 1, where (p_t) and (p_{t-1}) are as already defined, and i indicates the company.

$$r_{i,t} = \frac{(p_{i,t} - p_{i,t-1})}{p_{i,t-1}} \tag{1}$$

Then, to construct the monthly Jensen's alpha I use the Fama/French three-factor model (Fama & French, 1993), augmented by the Carhart momentum factor (Carhart, 1997). This means that I regress the excess return, measured as the stock return ($r_{i,t}$) minus the risk-free rate (rf_t), on a constant, the market risk premium factor (RMRF), a firm size factor (SMB), a firm value factor (HML) and a measure of momentum (WML), as in Formula 2.

$$r_{i,t} - rf_t = \beta_o + \beta_1 * RMRF_t + \beta_2 * SMB_t + \beta_3 * HML_t + \beta_4 * WML_t + \varepsilon_t \tag{2}$$

The data, which are equal for each company (except each company's return) are retrieved from the Kenneth French data library. I use the 'Fama/French Global Factors' database, which includes data on regional portfolios of 23 developed countries. The risk-free rate (rf_t) is the U.S. one month T-bill rate as provided to the Kenneth French data library by Ibbotson Associates. The constant (β_0) is called the abnormal return, and if it is significantly positive, the equity or portfolio is considered to yield above market risk-adjusted returns, and vice versa. The market risk premium factor $RMRF_t$ (rm minus rf) is the return on a region's value-weight market portfolio minus the U.S. one month T-bill rate. The size factor SMB_t (Small Minus Big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. The value factor HML_t (High Minus Low) is the monthly return on a hedge portfolio that mimics the stock returns of

high book-to-market minus low book-to-market firms. The momentum factor WML_t (Winners Minus Losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. Panel D of Table 1 at the end of this chapter shows the summary statistics of the Fama/French variables.

3.6.2 Accounting-based measures

The return on assets (ROA) and return on equity (ROE) are the most widely used accounting-based measures. Following the methodology of Eccles et al. (2012), I plot both measures over time in a line graph. Every graph shows the development of an impact portfolio and a traditional portfolio, with overlapping lines. The ROA and ROA used are the variables winsorized at the 1% level.

3.7 Impact performance measures

As the impact companies have a high total ESG score by construction, I cannot use one of the composite ESG scores to objectively measure impact. I therefore measure impact by the KPIs that are available in absolute numbers (rather than scores). Of all the environmental, social and governance KPIs, only the "*CO2 equivalents emission total*", "*Water withdrawal"*, and "*Pct women managers*" are sufficiently available in TDS. As the variables for *CO2 emissions* and *water withdrawal* contain large absolute numbers, I use the natural logarithm of those variables in the analyses.

3.8 Hypothesis testing

3.8.1 Testing the financial performance

To test Hypothesis I, which predicts that impact companies do not have different return performance than other investments, I examine both the stock market performance and the accounting-based performance.

I analyze the stock market performance based on the monthly Jensen's alpha, as explained in Section 3.6.2. I compare the Jensen's alpha of the impact portfolios with the Jensen's alpha of the matched control portfolio. To check the sensitivity of results to the small (matched) sample size, I repeat the main analyses without the matching procedure, i.e. using the original full sample. The results of these analyses can be found in Appendix E. To check the sensitivity of results to the arbitrary ESGHIGH variable, I repeat the main analyses with a different ESGHIGH cut-off point. In the main paper the cut-off point

is at a score of >75 for one of the pillars. The sensitivity check uses a cut-off point at a score of >90 for one of the pillars. These results can be found in Appendix F.

3.8.2 Testing the impact performance

To test *Hypothesis II*, which predicts that impact companies do not have different impact performance than other investments, I do both a matched sample treatment analysis, where the treatment factor is the *impact* variable (*TOTIMPACT*, *ENVIMPACT* and *SOCIMPACT*), and a regression analysis for each of the three portfolios. This is in line with the methodology that Eccles et al. (2012) use to test sustainable portfolios versus non-sustainable portfolios.

The mean comparison of the return measures for impact companies versus matched non-impact companies is done by the average treatment effect tests, of which the confidence interval is 95%. The matching is done based on company size, measured by the natural logarithm of total assets, and the industry code. The t-tests are performed using the full panel over seven years. A t-statistic of 1.96 equals a p-value of 0.05, so higher t-statistics mean that the difference is significant and lower t-statistics indicate an insignificant difference.

The regression analyses are performed by running regressions with the impact measurements (*CO2 emission*, *water withdrawal* and the *percentage of female directors*) as dependent variables and the indicator variable for the impact portfolios as the main independent variables. The company size (measured by the natural logarithm of total assets), market-to-book ratio and ROA are the used control variables, following Eccles et al. (2012).

TABLE 1. Summary statistics

Panel A: SRI screens

This panel reports the frequency statistics of the SRI screens. Each row indicates how many companies are involved in respectively alcohol production, tobacco production, gambling activities, armaments production, pornography production or distribution, nuclear reactors or nuclear energy production, and animal testing (see for a more extensive description Appendix A). A zero indicates a 'No' (no production/involvement etc) and a one indicates a 'Yes'. The 'Overall' column indicates the frequency and percentage of companies being in either of the two states over the full pooled sample. The 'Between' column indicates the frequency and percentage of companies that spent *any* time period in the indicated state. The 'Within' column indicates the (average) proportion of time that the companies that spent *any* time period in the particular state, spent in that state.

		Overall		**Between**		**Within**
		Freq.	**Percent**	**Freq.**	**Percent**	**Percent**
Alcohol	0	273181	98.40	4091	98.63	99.82
	1	4449	1.60	70	1.69	91.95
Tobacco	0	276388	99.55	4132	99.61	99.97
	1	1242	0.45	19	0.46	91.82
Gambling	0	272651	98.21	4090	98.60	99.71
	1	4979	1.79	76	1.83	91.85
Armaments	0	267079	96.20	4034	97.25	99.25
	1	10551	3.80	162	3.91	88.94
Pornography	0	274823	98.99	4128	99.52	99.62
	1	2807	1.01	44	1.06	80.86
Nuclear	0	262953	94.70	4003	96.50	98.80
	1	14713	5.30	233	5.62	82.91
Animal testing	0	265893	95.76	4025	97.03	99.20
	1	11773	4.24	176	4.24	88.23

Panel B: ESG scores and financial measures

This panel shows the summary statistics of the full sample and full panel, hence it covers all seven years and all 4185 companies. *Envscore* indicates the score on the environmental pillar, as determined by ASSET4. *Socscore* indicates the score on the social pillar, as determined by ASSET4. *Cgvscore* indicates the score on the corporate governance pillar, as determined by ASSET4. *CO2* indicates the natural logarithm of the CO2 emission in tons, *water* indicates the natural logarithm of absolute number of water withdrawal in cubic meters and *woman* indicates the percentage of female managers (see for a more extensive description of the impact variables Appendix A). *Logtotalassets* indicates the natural logarithm of the total assets accounting measure, *MTBV* indicates the market to book value, *ROE* indicates the return on equity and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). Return is the monthly return per company (see for a more extensive return construction Section 3.6.2). The "w" added to the end of a variable name means that the variable is winsorized: the accounting measures are all winsorized at the 1% level and the return measure is winsorized at the 0.1%.

Variable	**Mean**	**Median**	**St.dev.**	**Min**	**Max**	**Kurtosis**	**Skewness**
Envscore	50.1557	48.59	32.0764	8.16	95.06	1.37	0.05
Socscore	50.3458	49.51	31.1080	3.43	98.07	1.51	0.03
Cgvscore	51.5134	58.37	30.2036	1.13	97.12	1.66	-0.29
CO2	12.8141	12.73	2.4706	2.30	20.25	2.98	-0.02
Water	15.1132	15.01	2.8263	4.76	24.50	3.19	0.18
Women	25.1520	23.00	14.9314	0	89.73	3.25	0.69
Logtotalassets	16.6999	16.24	2.8891	5.36	27.31	3.20	0.50
Logtotalassets-w	16.6988	16.24	2.8360	10.77	24.16	2.88	0.49
MTBV	2.6390	1.77	119.5465	-22600	3854.35	26000	-146.60
MTBV-w	2.5899	1.77	2.8468	-1.58	19.26	17.54	3.38
ROE	13.4533	11.92	114.8400	-7240	10400	3980.72	28.81
ROE-w	12.4414	11.92	22.3580	-81.59	102.95	9.45	-0.15
ROA	5.8229	5.39	12.3585	-636.10	377.98	309.51	-6.56
ROA-w	5.9531	5.39	9.0538	-32.73	36.14	7.86	-0.47
Return	0.0087	0.0058	0.1308	-0.9942	10.5686	280.8873	5.3825
Return-w	0.0082	0.0058	0.1220	-0.5265	0.8500	9.1114	0.7083

Panel C: The impact portfolios

This panel reports the frequency statistics of the impact portfolios. A zero indicates a 'No' (no inclusion in the particular portfolio) and a one indicates a 'Yes'. *SRIpositive* indicates whether or not a company is operating in one of the SRI violating industries. *ESGHIGH* indicates whether a company has a high score (i.e. > 75) on one of the three ESG pillars, combined with a higher than average score (i.e. > 50) on the other two pillars. *Cleanenergy* indicates whether a company is listed on a clean energy index, i.e. either the S&P500 Clean Energy Index, the NASDAQ Green Energy Index or the Ardour Alternative Energy Index. *Socialsector* indicates whether a company is operating in a social sector, i.e. healthcare or education. *Envimpact* indicates companies that satisfy the three conditions for environmental impact: not violating SRI screens, a high ESG score and a listing on a clean energy index. *Socimpact* indicates companies that satisfy the three conditions for social impact: not violating SRI screens, a high ESG score and operating in a socially valuable sector. *Totimpact* indicates all companies that satisfy either the conditions for environmental or for social impact, hence the total impact portfolio. The 'Overall' column indicates the frequency and percentage of companies being in either of the two states over the full pooled sample. The 'Between' column indicates the frequency and percentage of companies that spent *any* time period in the indicated state. The 'Within' column indicates the (average) proportion of time that the companies that spent *any* time period in the particular state, spent in that state.

		Overall		**Between**		**Within**
		Freq.	**Percent**	**Freq.**	**Percent**	**Percent**
SRI positive	0	45922	13.06	704	16.82	77.65
	1	305618	86.94	3902	93.24	93.24
ESGHIGH	0	206582	58.76	3677	87.86	66.88
	1	144958	41.24	3331	79.59	51.81
Clean energy	0	348432	99.12	4148	99.12	100.00
	1	3108	0.88	37	0.88	100.00
Social sector	0	347844	98.95	4141	98.95	100.00
	1	3696	1.05	44	1.05	100.00
Environmental impact	0	277082	99.48	4144	99.90	99.68
	1	1461	0.52	35	0.84	49.69
Social impact	0	277536	99.57	4148	100.00	99.66
	1	1196	0.43	32	0.77	44.49
Total impact	0	276952	99.05	4144	99.90	99.33
	1	2657	0.95	67	1.62	47.21

Panel D: The Fama/French factors

This panel shows the summary statistics of the Fama/French factors. *RMRF* is the return on a region's value-weighted market portfolio minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. *RF* indicates the risk-free rate: the U.S. one month T-bill rate. The 'Overall' rows indicate the statistics of all observations, irrespective of company differences nor time differences. The 'Within' rows indicate the statistics over the time periods.[3]

Var		Mean	Median	SD	Min	Max	Kurtosis	Skewness	Obs.
RMRF	overall	.4574	1.0800	5.3869	-19.46	11.42	4.3039	-0.7617	N = 351540
	within			5.3869	-19.46	11.42			T = 84
SMB	overall	.0048	-0.1750	1.4635	-3.52	3.78	2.7331	0.0179	N = 351540
	within			1.4635	-3.52	3.78			T = 84
HML	overall	-.0202	-0.0050	1.7578	-4.79	4.34	3.1842	0.1142	N = 351540
	within			1.7578	-4.79	4.34			T = 84
WML	overall	.3437	0.8600	4.1037	-23.89	9.22	16.0981	-2.6255	N = 351540
	within			4.1037	-23.89	9.22			T = 84
RF	overall	.0008	0.0001	.0014	0.000	0.0044	4.3653	1.6916	N = 351540
	within			.0014	0.000	0.0044			T = 84

[3] The 'Between' statistics, which indicate the statistics of the panel variable (i.e. the companies), are not relevant in this case, as the market values are equal for each company.

4. Results

4.1 Financial performance: market measure

As explained in Sections 3.6.2 and 3.8.1, I perform Fama/French four factor regression analyses that control for the market, size, value and momentum factors. The constant in the models is the abnormal stock return for the average month. The main results are generated using a matched sample. Note that the coefficients of the matched control group (Model 3) and therefore also the matched sample (Model 1) can differ each time the regression is run. This is due to the random sort order in the nearest neighbour matching process.

Panel A of Table 2 at the end of this chapter presents the estimates for the matched *total impact* portfolio. I find that both the impact portfolio and the matched control group (and therefore also the full matched sample) yield a significantly positive abnormal return. The total impact portfolio exhibits a relatively higher abnormal performance (1.21%) than its matched control group (0.58%). This means that for companies with the same size and in the same sector, on average the impact companies yield a higher risk-adjusted return. Panel A of Table A1 in Appendix E replicates the estimates using the full sample, as opposed to the matched sample, to check the sensitivity of the results to the matching process. The impact portfolio exhibits exactly the same results (1.21% abnormal return), but the abnormal return for all others is even a bit lower than that of the matched control group (0.18% abnormal return). The conclusion that the total impact portfolio outperforms a non-impact portfolio therefore stays valid. Also another *ESGHIGH* cut-off point, as tested in Table A3 of Appendix E, provides the same general conclusion: both the total impact portfolio and the matched control group outperform the market, but on average the impact portfolio outperforms the market *more* than the traditional portfolio.

Panel B of Table 2 at the end of this chapter shows that the *environmental impact* portfolio exhibits a significantly positive abnormal return of 1.16%. The matched control group on the other hand exhibits a significantly negative abnormal return of -0.18%. This means that traditional companies with the same size and in the same sector as environmental impact companies underperform the market, while the impact companies outperform the market. If the traditional portfolio is not matched on size and sector, as in Panel B of Table A1 in Appendix E, it does significantly outperform the market, by 0.18%. The results of the sensitivity analysis on the *ESGHIGH* cut-off points yield similar estimates as the original matched sample analysis: the environmental impact portfolio significantly outperforms the market by 1.25% and the matched control group significantly underperforms the market by -0.28% (see Panel B of Table A3).

Panel C of Table 2 at the end of this chapter presents the results of the analyses on the *social impact* portfolio. I find that both the social impact portfolio and its matched control group yield a significantly positive abnormal return. As with the total impact portfolio, the social impact portfolio has a relatively higher abnormal return (1.23%) than the traditional portfolio (0.73%). The same results hold for the sensitivity analysis on the full sample. Compared to the matched traditional portfolio, the full traditional portfolio yields a lower, but still significantly positive abnormal return of 0.18%, as visible in Panel C of Table A1 in Appendix E. Using a different cut-off point for the *ESGHIGH* variable (see Panel C of Table A3), leads to a slight change in the matched control group, which then yields no significant abnormal return, while the social impact portfolio still exhibits a significantly positive abnormal return of 1.26%.

In the matched models, not all Fama/French risk factors exhibit significant coefficients. Only the market factor yields significant coefficients in all cases. This lack of significance could be due to the small sample size, as the full sample does exhibit significance at the 1% level for all risk factors, as visible in Table A1 in Appendix E. Also the R-squared is slightly higher for the full sample models (16-24%) than for the matched sample models (10-24%). The generally low R-squared is probably due to the characteristics of a panel data set. A panel data set exhibits characteristics of both a time series and a cross-sectional data set. As Sanchez (n.d.) sets out, the R-squared of a cross-sectional CAPM analysis are consistently lower than the R-squared of a time series CAPM analysis. The expected R-squared depends on the market volatility, the variance of the market beta, the market risk premium and the variance of the residual. For example if the market variance is consistently higher than the average return variance, R-squared is lower. The high volatility in the markets over the period 2007-2013 due to the financial crisis of 2008, could therefore very well explain the low R-squared in the Fama/French models.

4.2 Financial performance: accounting measure

Following the research techniques of Eccles et al. (2012) I only perform some exploratory tests on the accounting measures of financial performance, by plotting the ROE and the ROA of the impact portfolios versus the matched traditional portfolios in overlapping graphs.

In Figure 3 at the end of this chapter it is visible that in general the total impact and environmental impact portfolios have a lower ROA and ROE performance than their matched traditional portfolios. Only around the beginning of 2008 the ROA and ROE of

traditional companies drops suddenly, and the impact portfolios yield higher accounting returns in those months. The social impact portfolio, in Panel C of the same Figure, has a matched traditional portfolio that yields considerably different results. The ROA and ROE of the matched control group do not drop in 2008, but peak in that year. The company size and sector are thus very important indicators of the ROA and ROE. The social impact performance consistently underperforms its matched control portfolio in terms of ROA and ROE.

4.3 Impact performance: Difference analysis

To test the impact performance of the impact portfolio versus a matched control group, I first perform matched t-tests. Panel A1 of Table 3 at the end of this chapter shows the estimates for the *total impact* portfolio. For the unmatched sample, the impact portfolio scores significantly better on CO2 emission (i.e. less emission), water withdrawal (i.e. less withdrawal) and female managers (i.e. more female managers). The average treatment effect on the treated (ATT), which indicates the effect of 'becoming' an impact company for the companies within the impact portfolio, is not significantly different between the impact and the control group for the CO2 emission. The water withdrawal and percentage of female managers yield results equal to the unmatched sample, only slightly weaker. The overall average treatment effect (ATE) is also in the advantage of the impact companies, where the impact portfolio shows less CO2 emission (by 0.97 in natural logarithm), less water withdrawal (by 1.58 in natural logarithm) and more female managers (by 1.76%).

Panel B1 of Table 3 at the end of this chapter presents the results for the *environmental impact* portfolio. In the unmatched sample, the environmental impact companies have a significantly lower average CO2 emission (by 0.90 in natural logarithm), withdraw less water (by 1.65 in natural logarithm) and employ more female managers (by 9.62%). The ATT is insignificant for the CO2 emission, but the water withdrawal is significantly lower and the percentage of female managers significantly higher when a company is an impact company. Again, also on the ATE the impact companies score better than their matched control portfolio with lower CO2 emissions (by 1.16 in natural logarithm), lower water withdrawal (by 1.98 in natural logarithm) and more female managers (by 1.76%).

Panel C1 of Table 3 at the end of this chapter presents the estimates for the *social impact* portfolio. For the unmatched sample, the impact portfolio scores significantly better on CO2 emission (2.19 less), water withdrawal (0.95 less) and female managers (44.90% more). The ATT is -1.44 for the CO2 emissions, insignificant for the water

withdrawal and 39.36% for the percentage of female managers. The ATE is in the advantage of the impact companies for all three variables, where the social impact portfolio shows less CO2 emission (by 3.98 in natural logarithm), less water withdrawal (by 0.81 in natural logarithm) and more female managers (by 34.78%).

4.4 Impact performance: Regression analysis

The results of the multivariate analysis of the effect of being in the *total impact* portfolio are shown in Panel A2 of Table 3 at the end of this chapter. Within the matched sample, the total impact companies seem negatively related to the CO2 emission in the bivariate analysis. However, this correlation loses its significance when the control variables are added in a multivariate model. Being a company in the total impact portfolio significantly increases the water withdrawal and decreases the percentage of female managers, in bivariate as well as in multivariate analyses.

Panel B2 of Table 3 at the end of this chapter presents the estimates for the *environmental impact* portfolio. In this matched sample, being an impact company does not significantly influence the three impact performance measures.

Panel C2 of Table 3 at the end of this chapter presents the estimates for the *social impact* portfolio. Being a social impact company does not have a significant effect on the CO2 emission. However, water withdrawal seems significantly higher for these impact companies, and the percentage of female managers seems significantly lower.

The replication of results using the full sample can be found in Table A2. However, this break-down of the sample (a small impact portfolio and a large control group) hardly yields significant results. Only the environmental impact companies employ significantly less female managers.

The replication of results using the matched sample, but based on a higher *ESGHIGH* cut-off point, can be found in Table A4. Based on this higher ESG score, the *total* and *environmental* impact companies produce significantly less CO2 emission. On the other hand, environmental impact companies employ significantly less female managers. The *social impact* portfolio has a significantly positive correlation with the water withdrawal and a significantly negative correlation with the percentage of female managers, both in the bivariate analysis. Both relationships lose their significance when the control variables are added in the multivariate analysis.

However, it is difficult to trust the interpretation of the results from all those impact regression analyses. Firstly, the models hardly show significant estimates and when they do, these estimates predict the opposite effects of the mean analysis and

correlation estimates. Moreover, the R-squared of these models is extremely low, and the model F-statistic is in most cases not even significant. Also, the models are not robust to the sensitivity checks, as the latter yield considerably different results than the original analysis. Taking all these red flags in mind, we should conclude that the models are not a good fit to predict the impact performance and therefore we should take caution in interpreting the results.

TABLE 2. Results financial performance: market measures

These tables provide the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the matched sample. Panel A shows the results of the *total impact* portfolio, Panel B shows the results of the *environmental impact* portfolio and Panel C shows the results of the *social impact* portfolio.

Panel A: Total impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the matched sample of the total impact portfolio (*TOTIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are selected based on propensity score matching on sector and size, where (1) is the total matched sample, (2) only includes the treated observations, i.e. the total impact portfolio, and (3) only includes the matched control group. The model is estimated for the period 2007-2013.

VARIABLES	(1) Matched sample	(2) Total impact portfolio	(3) Matched control group
RMRF	0.0102***	0.0114***	0.0088***
	(0.0006)	(0.0010)	(0.0006)
SMB	0.0029**	0.0047***	0.0005
	(0.0012)	(0.0018)	(0.0014)
HML	-0.0001	-0.0020	0.0023
	(0.0013)	(0.0023)	(0.0015)
WML	-0.0017**	-0.0003	-0.0035***
	(0.0007)	(0.0007)	(0.0012)
Constant	0.0082***	0.0121***	0.0058***
	(0.0004)	(0.0003)	(0.0006)
Observations	4,635	2,176	2,459
R-squared	0.2082	0.2028	0.2298
Number of panelvar	288	62	231

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B: Environmental impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the matched sample of the environmental impact portfolio (*ENVIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are selected based on propensity score matching on sector and size, where (1) is the total matched sample, (2) only includes the treated observations, i.e. with environmental impact, and (3) only includes the matched control group. The model is estimated for the period 2007-2013.

	(1)	(2)	(3)
VARIABLES	**Matched sample**	**Environmental impact portfolio**	**Matched control group**
RMRF	0.0117***	0.0140***	0.0095***
	(0.0008)	(0.0013)	(0.0009)
SMB	0.0044**	0.0072***	0.0015
	(0.0017)	(0.0025)	(0.0021)
HML	0.0005	-0.0021	0.0027
	(0.0021)	(0.0036)	(0.0021)
WML	-0.0007	-0.0001	-0.0013
	(0.0008)	(0.0009)	(0.0012)
Constant	0.0045***	0.0116***	-0.0018***
	(0.0004)	(0.0005)	(0.0006)
Observations	2,694	1,263	1,431
R-squared	0.2263	0.2351	0.2340
Number of panelvar	165	33	132

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Social impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the matched sample of the social impact portfolio (*SOCIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are selected based on propensity score matching on sector and size, where (1) is the total matched sample, (2) only includes the treated observations, i.e. with social impact, and (3) only includes the matched control group. The model is estimated for the period 2007-2013.

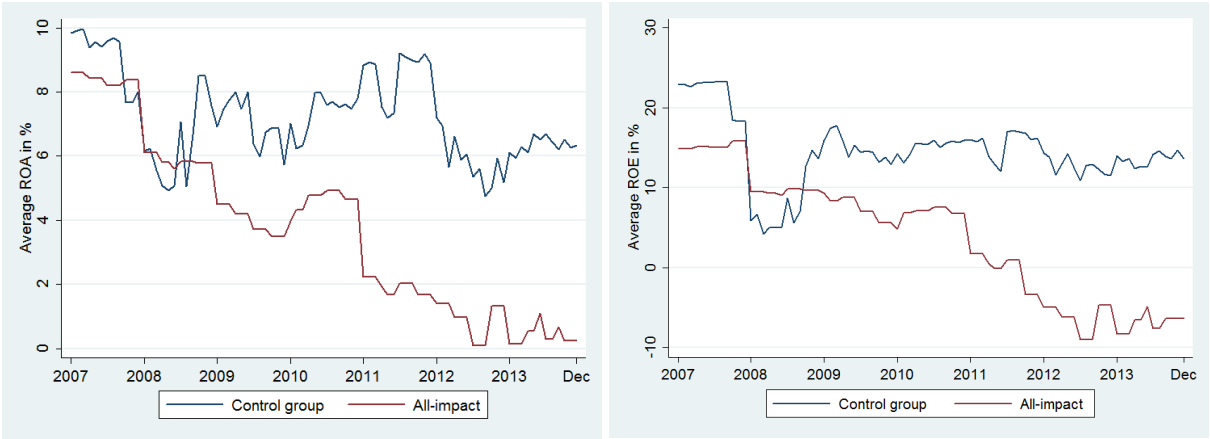
	(1)	**(2)**	**(3)**
VARIABLES	**Matched sample**	**Social impact portfolio**	**Matched control group**
RMRF	0.0069***	0.0078***	0.0059***
	(0.0007)	(0.0009)	(0.0009)
SMB	0.0017	0.0017	0.0016
	(0.0016)	(0.0022)	(0.0028)
HML	0.0012	-0.0021	0.0044**
	(0.0015)	(0.0020)	(0.0022)
WML	-0.0010	-0.0006	-0.0014
	(0.0010)	(0.0008)	(0.0016)
Constant	0.0095***	0.0123***	0.0073***
	(0.0005)	(0.0002)	(0.0011)
Observations	1,950	913	1,037
R-squared	0.1258	0.1648	0.1027
Number of panelvar	55	29	50

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

FIGURE 3. Results financial performance: accounting measures

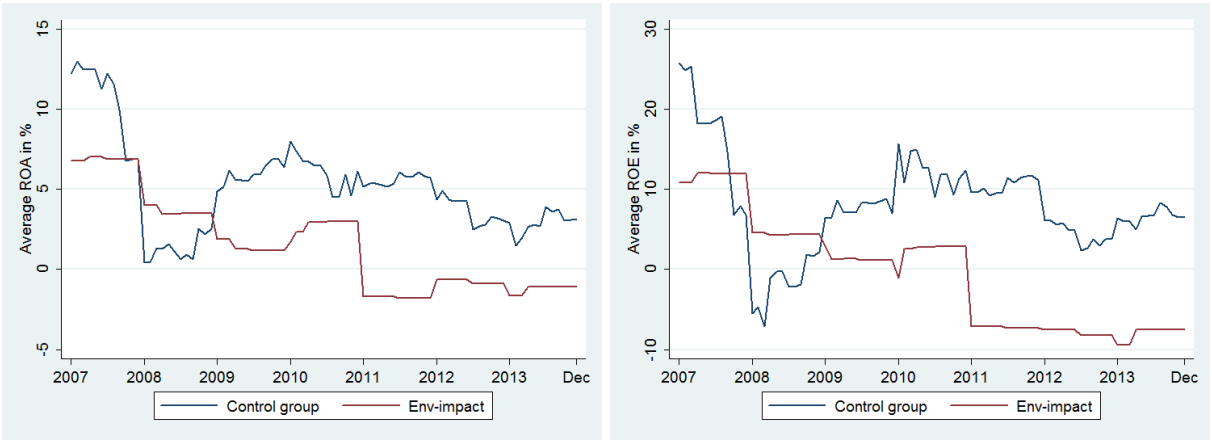
Panel A: Total impact portfolio

The four graphs below show the ROA and ROE development for the total impact portfolio. The horizontal axis presents the years of the analysis (2007-2013). The vertical axis shows the average ROA (left-side) and ROE (right-side) in percentages. The winsorized variable of these measures is used. The red line represents the total impact portfolio in the matched sample (*TOTIMPTREATED* = 1) in all graphs. The blue line represents the control group (*TOTIMPCONTROL* = 1), hence the traditional portfolio.



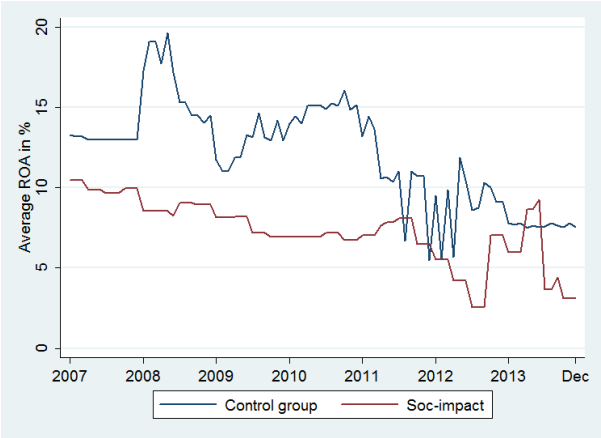
Panel B: Environmental impact portfolio

The four graphs below show the ROA and ROE development for the environmental impact portfolio. The horizontal axis presents the years of the analysis (2007-2013). The vertical axis shows the average ROA (left-side) and ROE (right-side) in percentages. The winsorized variable of these measures is used. The red line represents the environmental impact portfolio in the matched sample (*ENVIMPTREATED* = 1) in all graphs. The blue line represents the control group (*ENVIMPCONTROL* = 1), hence the traditional portfolio.



Panel C: Social impact portfolio

The four graphs below show the ROA and ROE development for the social impact portfolio. The horizontal axis presents the years of the analysis (2007-2013). The vertical axis shows the average ROA (left-side) and ROE (right-side) in percentages. The winsorized variable of these measures is used. The red line represents the social impact portfolio in the matched sample (*SOCIMPTREATED* = 1) in all graphs. The blue line represents the control group (*SOCIMPCONTROL* = 1), hence the traditional portfolio.



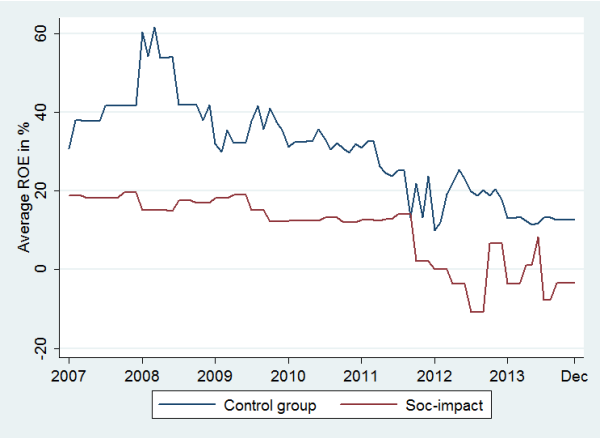


TABLE 3. Results impact performance

Panel A1: Total impact portfolio - Difference analysis

This panel reports the results of the matched treatment effect of being in the total impact portfolio. The first row of every variable indicates the number of observations ("no of obs") in that particular analysis. The *CO2* variable indicates the natural logarithm of the CO2 emission in tons, *Water* indicates the natural logarithm of the water withdrawal in cubic meters and *Woman* indicates the percentage of female managers (see for a more extensive description of the impact variables Appendix A). ATT is the average treatment effect on the treated, ATU is the average treatment effect on the untreated and ATE is the average treatment effect. The Impact and Control portfolios are selected based on propensity score matching on sector and size.

Variable	Sample	Impact	Control	Difference	T-stat
CO2 – no of obs		633	128,620		
	Unmatched	11.7165	12.8178	-1.1012	-11.19
	ATT	11.7165	12.1737	-.4571	-1.33
	ATU	12.8178	11.8479	-.9699	.
	ATE	.	.	-.9674	.
Water – no of obs		521	94,936		
	Unmatched	13.5380	15.1153	-1.5773	-12.72
	ATT	13.5380	14.3108	-.7728	-2.32
	ATU	15.1153	13.5289	-1.5863	.
	ATE	.	.	-1.5819	
Women – no of obs		284	62,983		
	Unmatched	34.7486	25.1244	9.6242	10.84
	ATT	34.7486	27.1961	7.5525	2.14
	ATU	25.1244	26.8606	1.7362	.
	ATE	.	.	1.7623	

Panel A2: Total impact portfolio - Regression analysis

This panel reports the results of the matched multivariate analysis of the effect of inclusion in the total impact portfolio on impact measures. The model uses xtreg with fixed or random effects for panel analysis. The observations included are only the observations which are part of the total impact portfolio and a control group with their direct matches, based on sector and size (using only the observations for which the dummy variable *MATCHEDSAMPLE* = 1). In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *TOTIMPACT* is a dummy variable which indicates whether a company is part of the total impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures, (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Women	Women
TOTIMPACT	-0.0082***	-0.0232	0.1195***	0.1098***	-1.6389***	-2.4501***
	(0.0028)	(0.0151)	(0.0288)	(0.0289)	(0.0100)	(0.0837)
TOTALASSETS	.	0.1435	.	-0.0616	.	3.9991***
		(0.1428)		(0.0926)		(0.5101)
MTBV	.	0.0121	.	-0.0024	.	0.0136
		(0.0225)		(0.0269)		(0.0328)
ROA	.	-0.0029	.	-0.0059	.	0.0659*
		(0.0036)		(0.0053)		(0.0343)
Constant	11.8080***	9.4995***	13.4936***	14.5666***	32.5040***	-32.5514***
	(0.2179)	(2.3020)	(0.3167)	(1.6024)	(2.7721)	(8.3811)
Observations	1,439	1,396	993	950	772	760
R-squared	.	.	.	.	.	0.6740
Number of panelvar	89	88	56	55	54	54

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B1: Environmental impact portfolio - Difference analysis

This panel reports the results of the matched treatment effect of being in the environmental impact portfolio. The first row of every variable indicates the number of observations ("no of obs") in that particular analysis. The *CO2* variable indicates the natural logarithm of the CO2 emission in tons, *Water* indicates the natural logarithm of the water withdrawal in cubic meters and *Woman* indicates the percentage of female managers (see for a more extensive description of the impact variables Appendix A). ATT is the average treatment effect on the treated, ATU is the average treatment effect on the untreated and ATE is the average treatment effect. The Impact and Control portfolios are selected based on propensity score matching on sector and size.

Variable	Sample	Impact	Control	Difference	T-stat
CO2 – no of obs		536	128,717		
	Unmatched	11.9148	12.8161	-.9013	-8.43
	ATT	11.9148	12.1948	-.2800	-0.70
	ATU	12.8161	11.6563	-1.1598	.
	ATE	.	.	-1.1562	.
Water – no of obs		464	94,993		
	Unmatched	13.4623	15.1147	-1.6524	-12.58
	ATT	13.4623	14.4749	-1.0126	-2.88
	ATU	15.1147	13.1332	-1.9815	.
	ATE	.	.	-1.9767	.
Women – no of obs		284	62,983		
	Unmatched	34.7486	25.1244	9.6242	10.84
	ATT	34.7486	27.1961	7.5525	2.14
	ATU	25.1244	26.8606	1.7362	.
	ATE	.	.	1.7623	.

Panel B2: Environmental impact portfolio - Regression analysis

This panel reports the results of the matched multivariate analysis of the effect of inclusion in the environmental impact portfolio on impact measures. The model uses xtreg with fixed or random effects for panel analysis. The observations included are only the observations which are part of the total impact portfolio and a control group with their direct matches, based on sector and size (using only the observations for which the dummy variable *MATCHEDSAMPLE* = 1). In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *ENVIMPACT* is a dummy variable which indicates whether a company is part of the environmental impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures, (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Women	Women
ENVIMPACT	-1.0222	-0.9974	-1.2186	-1.2391	-5.6249	-4.7868
	(0.6988)	(0.6654)	(1.0285)	(1.0187)	(5.5311)	(6.3880)
TOTALASSETS	.	0.1863	.	-0.0468	.	3.4844***
		(0.1584)		(0.1164)		(1.0623)
MTBV	.	-0.0071	.	-0.0432	.	0.0371
		(0.0217)		(0.0468)		(0.0437)
ROA	.	-0.0002	.	-0.0005	.	0.0599
		(0.0027)		(0.0072)		(0.0387)
Constant	13.2981***	10.3333***	15.1751***	16.0343***	25.8666***	-31.7916*
	(0.4026)	(2.5790)	(0.4668)	(1.9848)	(2.8840)	(17.5589)
Observations	1,057	1,033	947	923	479	467
R-squared	.	.	.	.	.	.
Number of panelvar	60	59	53	52	30	29

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C1: Social impact portfolio - Difference analysis

This panel reports the results of the matched treatment effect of being in the social impact portfolio. The first row of every variable indicates the number of observations ("no of obs") in that particular analysis. The *CO2* variable indicates the natural logarithm of the CO2 emission in tons, *Water* indicates the natural logarithm of the water withdrawal in cubic meters and *Woman* indicates the percentage of female managers (see for a more extensive description of the impact variables Appendix A). ATT is the average treatment effect on the treated, ATU is the average treatment effect on the untreated and ATE is the average treatment effect. The Impact and Control portfolios are selected based on propensity score matching on sector and size.

Variable	Sample	Impact	Control	Difference	T-stat
CO2 – no. of obs		97	129,156		
	Unmatched	10.6208	12.8140	-2.1932	-8.74
	ATT	10.6208	12.0566	-1.4358	-2.82
	ATU	12.8140	8.8297	-3.9843	.
	ATE	.	.	-3.9824	.
Water – no of obs		57	95,400		
	Unmatched	14.1543	15.1072	-.9529	-2.55
	ATT	14.1543	12.9751	1.1792	1.29
	ATU	15.1072	14.2925	-.8147	.
	ATE	.	.	-.8135	.
Women – no of obs		81	63,186		
	Unmatched	70.0100	25.1101	44.8999	27.19
	ATT	70.0100	30.6504	39.3596	6.85
	ATU	25.1101	59.8884	34.7782	.
	ATE	.	.	34.7841	.

Panel C2: Social impact portfolio - Regression analysis

This panel reports the results of the matched multivariate analysis of the effect of inclusion in the social impact portfolio on impact measures. The model uses xtreg with fixed or random effects for panel analysis. The observations included are only the observations which are part of the total impact portfolio and a control group with their direct matches, based on sector and size (using only the observations for which the dummy variable *MATCHEDSAMPLE* = 1). In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *SOCIMPACT* is a dummy variable which indicates whether a company is part of the social impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures, (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Women	Women
SOCIMPACT	-0.0088	-0.0239	0.118***	0.109**	-1.647***	-2.451***
	(0.0278)	(0.0293)	(0.0419)	(0.0451)	(0.196)	(0.104)
TOTALASSETS	.	0.1420***	.	-0.0680**	.	3.999***
		(0.0185)		(0.0307)		(0.135)
MTBV	.	0.0121***	.	-0.0025	.	0.0137
		(0.0027)		(0.0051)		(0.0113)
ROA	.	-0.0029***	.	-0.0060***	.	0.0659***
		(0.0007)		(0.0012)		(0.0035)
Constant	11.76***	9.451***	13.44***	14.53***	33.56***	-32.55***
	(0.0125)	(0.2980)	(0.0225)	(0.497)	(0.0741)	(2.200)
Observations	1,439	1,396	993	950	772	760
R-squared	0.000	0.072	0.008	0.039	0.090	0.674
Number of panelvar	89	88	56	55	54	54

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

5. Discussion and conclusions

The results in the previous section show slightly contradicting conclusions. Based on the market-based measure of the Jensen's alpha, all impact portfolios generate higher positive abnormal returns than the traditional portfolios. However, based on the accounting-based measures, on average the impact portfolios underperform the traditional portfolios. In any case, Hypothesis 1, which claims that the return performance of impact investments in public equities does not differ from traditional investments, should be rejected. For an average shareholder the return is actually significantly higher when investing specifically in clean energy, health or education. On the other hand for the average impact company their return on assets and equity is lower.

It should be noted that also the full ASSET4 database, without selecting an impact portfolio, yields a significantly positive abnormal return of 0.38%, as visible in Appendix E, Table A1 (Model 1). This might be because the ASSET4 database is an active database, hence only includes companies that still operate. This might have led to a survivorship bias in the return calculations. However, the relative performance difference between the impact portfolios and the traditional portfolios is not affected by this bias, as they both contain surviving companies by construction.

Hypothesis II, which claims that the impact performance of impact investments in public equities does not differ from their traditional counterparts, should also be rejected, based on the results in this paper. The matched t-tests yield the most reliable results in this analysis, showing that the impact portfolios exhibit significantly less CO2 emission, less water withdrawal and that they employ significantly more female managers. This indicates that impact companies outperform traditional companies on impact performance.

These results imply that for an investor in public equities it is possible to obtain a higher financial return by selecting impact companies, as opposed to random stock-picking. Specifically, excluding SRI violating companies, including companies with a high ESG score and only selecting stocks from clean energy indexes or from the healthcare or education sector, should generate a positive abnormal return of around 1.20%. Besides those three selection criteria, the impact companies perform better in terms of CO2 emission, water withdrawal and the percentage of female managers employed. I therefore conclude that is possible to make a considerable impact by investing in public impact companies, without compromising, i.e. even gaining, on the financial return.

6. Limitations

Due to both time and data analysis limitations, not all the possibly interesting analyses have been performed in this paper, limiting the validity of results.

One of the suggested improvements to this research is a t-test on the difference between the Fama/French constants. This would give conclusive results on the difference between the positive abnormal returns of the impact portfolio versus the positive abnormal returns of the traditional portfolio.

Besides, as already mentioned as one of the reasons for the low R-squared in the Fama/French models, I would suggest to repeat all analyses for subsamples over time. Due to the financial crisis in 2008 (and onwards) the market return has been very volatile. Breaking down the time period into subsamples of before, during and after the crisis would provide additional insights.

As I found the Jensen's alpha of either the CAPM model or the Fama/French four-factor model as most used in prior literature, I only analyzed the monthly Jensen's alpha as a market performance measure. Additional measures, such as the Treynor ratio, Sharpe ratio, buy-and-hold returns, or yearly, 2-yearly or 3-yearly Jensen's alphas, would give more insight in the short-term versus the long-term returns.

So far, in the quantitative research on responsible investing the fifth factor of the Fama/French model, sentiment, has hardly been taken into account. However, it might very well be that the sentiment of the market explains the volatility of the market of the past few years. I would therefore suggest to repeat the Fama/French analyses using sentiment as a fifth risk factor.

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APPENDIX A. Data description

This list presents the description of the data that is extracted from Thomson DataStream. The first seven rows indicate the negative SRI screens, the subsequent three rows consider the ESG scores, the next three rows contain the descriptions of the impact KPIs and the last six rows describe the company characteristics.

Variable name	Mnemonic	Description	Data type
Tobacco	SOPRDP043	Does the company produce tobacco?	Y/N
Alcohol	SOPRDP039	Does the company produce alcoholic beverages?	Y/N
Gambling	SOPRDP041	Does the company generate revenues from gambling?	Y/N
Armaments	SOPRDP045	Does the company produce vehicles, planes, armaments or any combat materials used by the military?	Y/N
Nuclear	ENPIDP040	Does the company construct nuclear reactors, produce nuclear energy or extract uranium?	Y/N
Pornography	SOPRDP047	Does the company produce or distribute pornography?	Y/N
Animal testing	ENPIDP057	Is the company involved in animal testing?	Y/N
Environmental	ENVSCORE	The environmental pillar measures a company's impact on living and non-living natural systems, including the air, land and water, as well as complete ecosystems. It reflects how well a company uses best management practices to avoid environmental risks and capitalize on environmental opportunities in order to generate long term shareholder value.	Rating between 0-100
Social	SOCSCORE	The social pillar measures a company's capacity to generate trust and loyalty with its workforce, customers and society, through its use of best management practices. It is a reflection of the company's reputation and the health of its license to operate, which are key factors in determining its ability to generate long term shareholder value.	Rating between 0-100
Corporate governance	CGVSCORE	The corporate governance pillar measures a company's systems and processes, which ensure that its board members and executives act in the best interests of its long term shareholders. It reflects a company's capacity, through its use of best management practices, to direct and control its rights and responsibilities through the creation of incentives, as well as checks and balances in order to generate long term shareholder value.	Rating between 0-100
CO2 equivalents emission total	ENERDP023	Total CO2 and CO2 equivalents emission in tonnes.	Number (tonnes)

Water withdrawal	ENRRDP054	Total water withdrawal in cubic meters.	Number (tonnes)
Pct women managers	SODODP019	Percentage of female managers	Percentage
SIC code 1	WC07021	SIC CODES were developed by the U.S. government to provide a standard industry classification that covers all the economic activities of the United States. They are derived from the 1987 edition of the Standard Industrial Classification Manual compiled by the Executive Office of the President of the United States, Office of Management and Budget. […] If a sales breakdown for segments is available SIC Code 1 would represent the business segment which provided the most revenue. […] If a sales breakdown is not available the SIC Code is assigned according to the best judgement of Worldscope.	4-digit code
Stock price	P	Datatype (P) represents the official closing price.	Value in $
Market to book value	MTBV	This is defined as the market value of the ordinary (common) equity divided by the balance sheet value of the ordinary (common) equity in the company (at the security level).	Ratio
Total assets	WC02999	Total assets represent the sum of total current assets, long term receivables, investment in unconsolidated subsidiaries, other investments, net property plant and equipment and other assets.	Value in $
Return on assets	WC08326	(Net Income – Bottom Line + ((Interest Expense on Debt-Interest Capitalized) * (1-Tax Rate))) / Average of Last Year's and Current Year's Total Assets * 100	Percentage
Return on equity total %	WC08301	(Net Income – Bottom Line - Preferred Dividend Requirement) / Average of Last Year's and Current Year's Common Equity * 100	Percentage

APPENDIX B. Results of the Hausman test

The table below presents the Chi2's of the Hausman tests for all the panel regressions. The null hypothesis in this test is that the individual effects are uncorrelated with the other regressors in the model. If the null hypothesis is not rejected (low Chi2 and Prob>Chi2 larger than .05), they are indeed uncorrelated and a random effect model is favored over its fixed counterpart. If the null hypothesis is rejected (high Chi2 and Prob>Chi2 smaller than 0.05), the effects are correlated and a fixed effects model should be used.

Model 1 indicates the models where the dependent variable is the natural logarithm of the CO2 emission in tons and the main independent variable is the *totimpact* dummy. Model 2 indicates the models where the dependent variable is the natural logarithm of absolute number of water withdrawal in cubic meters and the main independent variable is the *totimpact* dummy. Model 3 indicates the models where the dependent variable is the percentage of female managers and the main independent variable is the *totimpact* dummy. Model 4 indicates the models where the dependent variable is the excess return and the independent variables are the Fama French factors.

Model 5 indicates the models where the dependent variable is the natural logarithm of the CO2 emission in tons and the main independent variable is the *envimpact* dummy. Model 6 indicates the models where the dependent variable is the natural logarithm of absolute number of water withdrawal in cubic meters and the main independent variable is the *envimpact* dummy. Model 7 indicates the models where the dependent variable is the percentage of female managers and the main independent variable is the *envimpact* dummy. Model 8 indicates the models where the dependent variable is the excess return and the independent variables are the Fama French factors.

Model 9 indicates the models where the dependent variable is the natural logarithm of the CO2 emission in tons and the main independent variable is the *socimpact* dummy. Model 10 indicates the models where the dependent variable is the natural logarithm of absolute number of water withdrawal in cubic meters and the main independent variable is the *socimpact* dummy. Model 11 indicates the models where the dependent variable is the percentage of female managers and the main independent variable is the *socimpact* dummy. Model 12 indicates the models where the dependent variable is the excess return and the independent variables are the Fama French factors.

Total impact	**(1) CO2**	**(2) Water**	**(3) Women**	**(4) Fama/French**
Matched sample: bivariate	0.12	0.41	2.44[1]	.
Matched sample: multivariate	0.90	5.96[1]	13.09[1]**	63.81***
Matched sample: only impact	.	.	.	72.46[1]***
Matched sample: only control	.	.	.	50.90***
Full sample: bivariate	0.95	3.36*	2.13	.
Full sample: multivariate	97.14***	112.93***	532.43[1]***	1519.54***
Full sample: only impact	.	.	.	72.46[1]***
Full sample: all others	.	.	.	4462.50[1]***
Environmental impact	**(5) CO2**	**(6) Water**	**(7) Women**	**(8) Fama/French**
Matched sample: bivariate	.[2]	.[2]	.[2]	.
Matched sample: multivariate	110.52[3]***	7.56*	67.99[3]***	77.53***
Matched sample: only impact	.	.	.	62.01[1]***
Matched sample: only control	.	.	.	73.72***
Full sample: bivariate	0.47	3.30*	0.22	.
Full sample: multivariate	94.82***	110.59***	87.10***	1519.54***
Full sample: only impact	.	.	.	62.01[1]***
Full sample: all others	.	.	.	4493.11[1]***
Social impact	**(9) CO2**	**(10) Water**	**(11) Women**	**(12) Fama/French**
Matched sample: bivariate	0.05	2.64[1]	14.67[1]***	.
Matched sample: multivariate	5.49	83.82[1]***	212.83***	23.38[1]***
Matched sample: only impact	.	.	.	22.83[1]***
Matched sample: only control	.	.	.	48.50***
Full sample: bivariate	1.50	0.16	25.28***	.
Full sample: multivariate	93.18***	101.39***	1222.31***	1519.54***
Full sample: only impact	.	.	.	22.83[1]***
Full sample: all others	.	.	.	4570.51[1]***

*** Prob>chi2 < 0.01, ** Prob>chi2 < 0.05, * Prob>chi2 < 0.1

[1] To avoid a negative sign (arises if different estimated of the error variance are used in forming the variances), these Hausman statistics are estimated with the *sigmamore* option, which specifies that both covariance matrices are based on the (same) estimated disturbance variance from the efficient estimator.

[2] Fixed effects model yields collinearity in the *envimpact* coefficient and therefore the Hausman test gives an error. I use the random effects model in this case.

[3] Even though the Hausman test advises a fixed effects model in this case, a fixed model yields collinearity in the *envimpact* variable and therefore gives no reliable results. In these cases, I use the random effects model.

APPENDIX C. Descriptions of impact companies

This list presents the description of the companies that are included in the impact portfolio at some point in time. Some companies are included in the impact portfolio all 84 months of the panel, some are only included in 12 time periods (one year). In this list I do not distinguish between them. The descriptions are retrieved from TDS, with mnemonic WC06092.

Name	Description
VERBUND	VERBUND AG is an Austria-based electricity company active in the areas of electricity generation, trade, transmission and sales. The Company generates, trades and sells electricity to market participants from energy exchanges, traders, energy supply companies and industrial companies, as well as households and commercial customers. In addition, the Company trades and sells gas to market participants from energy exchanges, traders and households, and provides energy-related services. The Company operates the Austrian transmission grid through Austrian Power Grid AG and holds equity interests in foreign and domestic energy supply companies. The Company produces hydropower, wind power and thermal power.
G8 EDUCATION	G8 Education Ltd. is an Australia-based child care center operator. The Company provides quality care and education facilities across Australia and Singapore through a range of brands. The principal activities of the Company were: operation of child care centers owned by the group and ownership of childcare center franchises. The Company has acquired approximately 403 centers. The Company operates in one reportable segment, management of child care centers. The group operates under 13 brands. The Company has acquired 86 child care centers during 2013. The Company's subsidiaries include Grasshoppers Early Learning Centre Pty Ltd, Togalog Pty Ltd, Bourne Learning Pty Ltd, RBWOL Holding Pty Ltd, Ramsay Bourne Licences Pty Limited, G8 KP Pty Ltd and World Of Learning Pty Limited, among others.
JAPARA HEALTHCARE	Japara Healthcare Limited is engaged in the aged care and retirement industry. The Company offers a variety of living arrangements, amenities, services, meal plans, social activities and care options. The Company provides independent living, low and high care, Dementia and Alzheimer care, respite and extra services care. The Company operates through an aged care organization, ACSAG and Japara Retirement living. The Company's ACSAG provides Aged Care through a range of nursing homes with about 30 residences across Australia. The Company offers high care, low care, respite care, dementia specific care and ageing in place, among others at its residences. The Japara Retirement living is part of the Japara Group and is a private sector enterprise in the aged care and retirement living industry. The Company owns and operates about 35 aged care facilities and around 4 retirement complexes. The Company has its operations throughout Victoria, South Australia, New South Wales and Tasmania.
NAVITAS	Navitas Limited is an Australia-based education provider that offers a range of educational services. The Company operates in four business segments: university programs, School of Audio Engineering (SAE), Professional and English Programs (PEP) and corporate. The university programs business delivers education programs, through pathway colleges and managed campuses, to students requiring a university education. The SAE business delivers education programs in the area of creative Media including courses in audio, film and media. The PEP division delivers English language tuition, jobs skills training and higher and vocational education in health, security and psychology. The corporate division is the aggregation of the Company's corporate functions. The Company offers its services across a network of over 130 colleges and campuses in 27 countries.
PRIMARY HEALTH CARE	Primary Health Care Limited is an Australia-based healthcare company. The Company is engaged in providing medical and healthcare services. The Company operates in four operating segments which includes, Medical Centers - This division provides a range of services and facilities to general practitioners, specialists and other health care providers; Pathology - This division provides pathology services; Imaging - This division provides imaging and scanning services from standalone imaging sites and from within the consolidated entity's medical centers; Health Technology - This division develops, sells and supports health-related software products. The Company's subsidiaries

	include Idameneo (No. 123) Pty Ltd, Idameneo (No. 124) Pty Ltd, PHC (No. 01) Pty Limited, Abbott Pathology Pty Ltd, among others.
RAMSAY HEALTH CARE	Ramsay Health Care Limited is an Australian company engaged in operating private hospitals and has three reportable operating segments being Asia Pacific, UK and France. The Company owned and operated 117 hospitals and day surgery facilities across Australia, the United Kingdom, France and Indonesia. The Company's facilities cater for a range of health care needs from day surgery procedures to surgery, as well as psychiatric care and rehabilitation. As of June 30, 2014, the Company had approximately circa 14,500 beds and treated over one million patients per annum. In United Kingdom it has a network of 38 acute hospitals and day procedure centers. In May 2013, Ramsay Health Care Ltd acquired Peel Health Campus. In June 2013, the Company's French subsidiary Ramsay Sante acquired almost 90% of Clinique de l'Union. In December 2013, it announced that its subsidiary Ramsay Sante acquired Medipsy, from Generale de Sante.
SONIC HEALTHCARE	Sonic Healthcare Limited is engaged in the provision of medical diagnostic services and the provision of administrative services and facilities to medical practitioners. The Company provides vital healthcare services and infrastructure in eight countries, across three continents. It produces education information and conduct seminars. It provides vocational training positions for pathologists, radiologists and (through its medical center and occupational health subsidiary, IPN) general practitioners. The Company operates in three segments: pathology which includes pathology/clinical laboratory services provided in Australia, New Zealand, the United Kingdom, the United States of America, Germany, Switzerland, Belgium and Ireland; imaging which provides diagnostic imaging services in Australia, and other, which includes the corporate office function, medical center operations and occupational health services (IPN) and other minor operations.
VIRTUS HEALTH	Virtus Health is an Australia-based company. The Company provides clinical, scientific, diagnostic and day surgery services. The Company provides a health network which specializes in Reproductive Health Care, Specialist Day Hospitals, Specialist Diagnostic & Embryology, and Fertility Industry Consultancy. Reproductive Health Care, provides team of fertility specialists, scientists, nurses and counseling professionals in IVFAustralia, Melbourne IVF, Queensland Fertility Group, The Fertility Centre and Sims IVF. Specialist Day Hospitals, manages six specialist day hospitals across Australia with plastic surgeons, urologists, gynecologists, ophthalmologists, dental surgeons and hand surgeons. Specialist Diagnostics & Embryology, provides in-house testing and diagnostics as well as diagnostic fertility assessments. Fertility Industry Consultancy, provides consulting to IVF providers and advise to develop new clinics, laboratories and other fertility services.
DIAGNOSTICOS DA AMERICA ON	Diagnosticos da America SA (DASA) is a Brazil-based company engaged in the provision of diagnostic support service. The Company's services are structured into three units: Ambulatory and Hospital, which provides clinical analyses and diagnostic imaging; Laboratory support, which provides services for small and medium-sized laboratories, and Public Health Sector, in which the Company operates through the CientificaLab brand, which focuses on providing auxiliary diagnostic support services for the public health sector. In addition, the Company is engaged in activities related to tests in food and substances to evaluate risks for the human being; import, for its own use, of medical-hospital equipment, sets for diagnostics and related material in general, and granting and administration of business franchising, including advertising and publishing fund, training and selection of labor, supplying of equipment and research material suppliers, among others.
KROTON EDUCACIONAL ON	Kroton Educacional SA (Kroton), formerly Opportunity Officepar Participacoes SA, is a Brazil-based company active in the private education sector. The Company and its subsidiaries are engaged in the management of preschool, elementary, secondary and college preparatory schools, as well as higher, professional and post-graduation education, courses and other related educational activities. In addition, it is involved in the wholesale, retail, distribution, import and export of textbooks, course books, magazines and other publications related to preschool, elementary, secondary and adult education, as well as higher, professional and post-graduation education. Kroton operates in both the On-Campus and Distance Learning business, primarily through its 53 Postsecondary units and 447 active Undergraduate Distance Learning centers, as well as cooperates with approximately 800 Associated Schools in basic education. On July 3, 2014, Anhanguera became wholly-owned subsidiary of Kroton.

ODONTOPREV ON	Odontoprev SA is a Brazil-based company primarily engaged in the provision of dental care services. The Company is involved in the management, sale and provision of private dental care plans and services. It offers services to individual and corporate customers. The Company organizes its dental care services into three main segments: Collective Pre-paid Plans, Collective Post-paid Plans and Individual Pre-paid Plans. Through its indirect subsidiary Easy Software Ltda, the Company is also active in the development of computer software for the dental industry. Odontoprev SA holds shares in various direct subsidiaries, such as Clidec - Clinica Dentaria Especializada Cura Dar's Ltda, Odontoprev Servicos Ltda, Garcia Pedrosa Ltda and Adcon Administradora de Convenios Odontologicos Ltd. Furthermore, It is a subsidiary of Bradesco Saude SA, a unit of Banco Bradesco SA's Bradesco Seguros e Previdencia SA.
EXTENDICARE	Extendicare Inc. is a provider of senior care and services throughout Canada. The Company, through its subsidiaries, operates long-term care (LTC) centers in Canada and provides home health care services in Ontario, Canada. The Company has two operating segments within its Canadian operations: long-term care and home health care operations. In the long-term care segment, the Company owns and operates 57 LTC centers in Canada. In the home health care segment, the Company provides home health care services through its ParaMed division. The Company's other Canadian operations consisted of its management and group purchasing services. The Company's U.S. continuing operations consists of Virtual Care Provider, Inc. (VCPI), which provides information technology hosting and professional services to long-term and post-acute health care providers, and Captive Insurance Company, which self-insures certain risks related to general and professional liability of its U.S. operations.
INNERGEX RENEWABLE EN.	Innergex Renewable Energy Inc. (Innergex) is a Canada-based developer, owner and operator of renewable power-generating facilities with a focus on hydroelectric, wind power and solar photovoltaic (PV) projects. The Company is engaged in developing, owning, and operating run-of-river hydroelectric facilities, wind farms, and solar photovoltaic farms and carry out operations in Quebec, Ontario, British Columbia, and Idaho, United States. The Company had four operating segments: hydroelectric generation, wind power generation, solar power generation and site development. Through its hydroelectric, wind power and solar power generation segments, the Company sells electricity produced by its hydroelectric, wind and solar facilities to publicly owned utilities or other counterparties. Through its site development segment, Innergex analyzes potential sites and develops hydroelectric, wind and solar facilities up to the commissioning stage.
WESTPORT INNVNS.	Westport Innovations Inc. is a provider of engine and fuel system technologies utilizing gaseous fuels. The Company operates through six segments: Westport Applied Technologies Business Unit, Westport On-Road Systems Business Unit, Westport Off-Road Systems Business Unit, Corporate and Technology Investments Business Unit, Cummins Westport Inc and Weichai Westport Inc. Westport Applied Technologies Business Unit designs, produces, and sells compressed natural gas and liquefied petroleum gas components and subsystems for natural gas vehicles. Westport On-Road Systems Business Unit engineers, designs, assemble and sell natural gas engine and vehicle systems. Westport Off-Road Systems Business Unit engineers, designs, and markets the Company's natural gas technologies. Cummins Westport serves the medium- to heavy-duty engine markets with spark ignited natural gas engines. Weichai Westport develops, manufactures, and sells advanced, alternative fuel engines and parts.
DONGFANG ELECTRIC 'A'	Dongfang Electric Corporation Limited is principally engaged in the manufacture and distribution of energy generation equipment. The Company's main products consist of thermal power generation equipment, including heating steam turbines, air-cooled steam turbines, air-cooled heating steam turbines and air-cooled turbine generators; hydroelectric power generation equipment, including mixed flow generators, axial flow generators, impact generators, and tubular-type turbine generators, as well as wind power generation equipment, nuclear power generation equipment, and gas power generation equipment. The Company is also engaged in related project and services. The Company also involves in the research, manufacture and distribution of flue gas desulfurization and denitrification equipment for power plant boilers. The Company distributes its products within domestic market and to overseas markets.
CHIN.LONGYUAN PWR.GP.'H'	China Longyuan Power Group Corporation Limited, along with its subsidiaries, is engaged in the design, development, construction, management and operation of wind farms in areas with abundant

	wind resources in the People's Republic of China (PRC), and the sales of electricity to the local grid companies. The Company operates in two segments: wind power segment, which constructs, manages and operates wind power plants and generates electric power for sale to external power grid companies, and coal power segment, which constructs, manages and operates coal power plants and generates electric power for sale to external power grid companies, as well as engages in the coal trading business.
SOLARWORLD K	SolarWorld AG is a Germany-based company, operating in the crystalline solar power sector. The Company's core business activity is the production and distribution of solar power applications and ready-to-assembly solar kits for roof installation and large-scale solar power plants. The Company operates in the area of on-grid and off-grid technology. It also provides recycling services. The Company divides its activities into four operational segments: Production Germany, which deals with wafer production; Production U.S., which deals with mono-crystalline modules production; Trade, which deals with products distribution; as well as Other, which deals with research and development. The Company operates through its subsidiaries in Europe, Asia, Africa and the United States. As of December 31, 2011, the Company's subsidiaries included SolarWorld Innovations GmbH, Sunicon GmbH, Deutsche Solar GmbH, SolarFactory GmbH, SolarWorld Industries America Inc, SolarWorld Americas LLC, among others.
VESTAS WINDSYSTEMS	Vestas Wind Systems A/S is a Denmark-based company active within the wind power industry. The Company operates within four business areas: Finance, Sales, Manufacturing & Global Sourcing, and Technology & Service Solutions. The Finance business area focuses on business support services. The Sales business area is divided into six geographical units: Americas, Asia Pacific & China, Central Europe, Mediterranean, Northern Europe and Offshore. The Manufacturing & Global Sourcing business area is engaged in the manufacturing of assembly, blades, components, controls and generators. The Technology & Service Solutions business area is responsible for the engineering solutions, platform and product management, as well as service engineering, among others. As of December 31, 2012, the Company operated globally through a network of subsidiaries located in Denmark, Germany, Italy, China, the United States, Spain, Estonia, Sweden and Norway.
EDP RENOVAVEIS	Edp Renovaveis SA, also known as EDPR, is a Spain-based company active in the renewable energy sector. The Company concentrates on the production of energy from renewable resources. The Company's activities comprise the development, operation and maintenance of such electric power stations as hydroelectric, wind, solar, tidal, biomass and waste plants, among others. It operates in Spain, Portugal, Belgium, France, Italy, Poland, Romania, the United Kingdom, Brasil, the United States, as well as Canada.
GAMESA CORPN.TEGC.	Gamesa Corporacion Tecnologica SA is a Spain-based holding engaged in the renewable energy sector. The Company specializes in the promotion and development of wind farms; as well as the engineering, design, manufacturing and sale of wind turbines. It divides its business into five lines: Wind Turbines, which designs and develops wind turbines; Operation and maintenance services, which provides maintenance services for its products; Wind Farms, which implements wind energy generation facilities, Gamesa Venture Capital, which invests in new businesses and in the areas of renewable energy and energy efficiency; and Gamesa Electric, which manufactures electric motors and generators. The Company is operational in such countries as the United Kingdom, Australia, Brazil, Bulgaria, Chile, China, Denmark, the Dominican Republic, Egypt, France, Germany, Greece, Hungary, India, Italy, Mexico, Morocco, Poland, Portugal, Romania, Singapore, Spain, Sweden, Turkey and the United States.
SYNERGY HEALTH	Synergy Health Plc delivers a range of specialist outsourced services to healthcare providers and other customers concerned with health management. The Company offers services, including hospital sterilization services, applied sterilization technologies, reusable surgical solutions, laboratory services, pharmaceutical laboratories and linen management services. The Company operates its business in four operating segments: the United Kingdom and Ireland, Europe and Middle East, the Americas and, Asia and Africa. The Company's product offerings include infection prevention and control solutions; patient hygiene solutions; surgical solutions, and wound care solutions. The Company has operations at around 39 sites in the United Kingdom and Ireland; 49 sites in France, the Netherlands, Switzerland, Germany and the United Arab Emirates; 30 sites in the United States and Costa Rica, and nine sites in South Africa, Malaysia, Thailand, Hong Kong and China.

CHINA EVERBRIGHT INTL.	China Everbright International Limited is an investment holding company. Through its subsidiaries, the Company's principal activities are environmental energy project construction and operation, including waste-to-energy power plants, industrial solid and hazardous waste landfill; environmental water project construction and operation, including waste-water treatment plants, reusable and surface water treatment plants; alternative energy project construction and operation, including methane-to-energy power plants, photovoltaic energy projects, biomass power generation plants and waste water source heat pump projects; environmental technology and construction management, and toll bridge operation, as well as property investments and others.
EATON	Eaton Corporation PLC is a power management company providing energy-efficient solutions to manage electrical, hydraulic and mechanical power. The Company sells products to customers in more than 175 countries. The Company operates in four segments: electrical systems and services consists of electrical components, industrial components, residential products, single phase power quality, emergency lighting, fire detection, wiring devices, structural support systems, circuit protection, and lighting products. Hydraulics segment offers hydraulics components, systems and services for industrial and mobile equipment. Aerospace segment supplies aerospace fuel, hydraulics, and pneumatic systems for commercial and military use. Vehicle segment is engaged in the design, manufacture, marketing, and supply of drivetrain and powertrain systems and critical components that reduce emissions and improve fuel economy, stability, performance, and safety of cars, light trucks and commercial vehicles.
APOLLO HOSPS.ENTERPRISE	Apollo Hospitals Enterprise, Ltd. is a provider of healthcare services. The Company's healthcare facilities comprise of primary, secondary, and tertiary care facilities. The tertiary care hospitals provides advanced levels of care in over 50 specialties, including cardiac sciences, oncology, neurosciences, critical care, orthopedics, radiology, gastroenterology, and transplants. In addition, it is focused on technology based treatment areas such as minimally invasive surgery, robotics and technology for cancer. It operates over 8,617 beds across 50 hospitals, 1,632 pharmacies, over 100 primary care and diagnostic clinics, 115 telemedicine units across 10 countries, 15 academic institutions and a research foundation with a focus on global clinical trials, epidemiological studies, stem cell and genetic research. It also operates retail healthcare centres including dental clinics and lifestyle birthing centres. It also offers health insurance services and projects consultancy.
ENEL GREEN POWER	Enel Green Power SpA is an Italy-based company active in the development and management of energy generation from renewable sources. The Company generates wind, solar, geothermal, hydroelectric water flow and biomass energies at an international level, with a presence in Spain, Portugal, France, Italy, Romania, Bulgaria, Greece, Mexico, Guatemala, El Salvador, Costa Rica, the United States, Canada, Chile, Panama and Brazil, among others. The Company operates through numerous subsidiaries, including Enel Green Power International BV, Enel Green Power Portoscuso Srl, Enel Green Power North America Inc, Enel Green Power Bulgaria EAD, Enel Green Power Romania Srl, International Wind Parks of Achaia SA and Blue Energy Srl, among others. In June 2014, Enel Green Power Canaro and Enel Green Power Cutro started to be a wholly owned by Enel Green Power SpA.
KURITA WATER IND.	Kurita Water Industries Ltd. is engaged in the provision of water treatment-related products, technology and maintenance services. The Company has two business segments. The Water Treatment Chemical segment manufactures and sells water treatment-related chemicals and equipment for boiler-, cooling water- and air conditioning-related treatment, petroleum refining, pulp and paper processing-related, wastewater treatment, civil engineering-related treatment, heavy metal fixative and others. This segment also provides water treatment chemical-related maintenance and analysis services. The Water Treatment Equipment segment manufactures and sells high-purity water production systems, drinking water treatment equipment, water and wastewater treatment equipment in various industries, seawater desalination equipment and others. It is also engaged in the supplying of ultrapure water, the provision of maintenance service, the operation and management of water treatment facilities.
ELEC.POWER DEV.	Electric Power Development Co., Ltd. mainly operates in electricity wholesale business. The Electricity segment is engaged in the electricity supply, electricity wheeling and power generation by wind. The Electricity-Related segment is engaged in the design, installation, maintenance and repair of electrical power equipments, the port operation of fuel and coal ash, the coal mine

	development, the import of coal, the procurement and manufacture of biomass fuel, the operation of public health facilities, as well as the provision of computer services. The Overseas Operation segment is engaged in the operation of electrical power generation investment business and other related businesses, engineering and consulting businesses in overseas. The Others segment is engaged in the operation of new electricity business, environment-related business, information and communication business, coal sales, and others.
MIRACA HDG.	Miraca Holdings Inc. is a Japan-based holding company. The Company operates in three business segments. The Clinical Diagnostic segment is engaged in the manufacture and sale of clinical diagnostics. The Entrusted Clinical Examination segment is involved in the special clinical examination, the general clinical examination, as well as the maintenance, management and development of clinical testing systems. The Healthcare segment is engaged in the provision of sterilization services and clinical trial services. In addition, the Company involves in the operation of medical offices, as well as the provision of rental of nursing care products. On July 1, 2013, the Company merged with a wholly owned subsidiary, which engaged in planning, development and operation of system.
BENESSE HOLDINGS	Benesse Holdings, Inc. is a holding company engaged in the provision of education services. The Company operates in six segments. Domestic Education segment operates personal coaching schools and private preparatory schools, and provides practice tests for university entrance exams and English proficiency exams. Overseas Education segment provides correspondence education services for children overseas. Life segment is engaged in the publishing, the online sales, and the provision of foodstuff home-delivery services. Senior and Care segment operates old age homes and provides home nursing care services, nursing training and nursery management, as well as staffing services. Language and Global Human Resource Education segment offers language education and translation services. Others segment provides telemarketing and information processing services, as well as develops and sells systems. As of March 31, 2014, the Company had 37 subsidiaries and four associated companies.
CHINA HISPD.TNSM.EQU.GP.	China High Speed Transmission Equipment Group Co., Ltd. is an investment holding company. The Company and its subsidiaries are engaged in research, design, development, manufacture and distribution of a range of mechanical transmission equipment. Its products include wind gear transmission equipment, marine gear transmission equipment, transmission equipment for high-speed locomotives and urban light rails, traditional transmission products and computer numerical controlled products. Customers of its wind power business include the major wind turbine manufacturers in the People's Republic of China, as well as renowned international wind turbine manufacturers, such as GE Energy, Vestas, REPower, Nordex, Fuji Heavy. Its traditional gear transmission equipment products are mainly provided for customers from industries, including metallurgy, construction materials, traffic, transportation, petrochemicals, aerospace and mining.
CONSOLIDATED WT.	Consolidated Water Co. Ltd. develops and operates seawater desalination plants (that utilize reverse osmosis technology) and water distribution systems in areas where naturally occurring supplies of potable water are scarce or non-existent. The Company operates in three segments: retail water operations, bulk water operations and services operations. The Company's retail water operations supply water to end users, including residential, commercial and government customers. Its bulk water operations supply water to government-owned distributors. The Company's retail and bulk operations serve customers in the Cayman Islands, The Bahamas, Belize, the British Virgin Islands and Indonesia. Its services operations provide engineering and management services, which include the design and construction of desalination plants and the management and operation of desalination plants owned by affiliated companies.
GCL-POLY ENERGY HOLDINGS	GCL-Poly Energy Holdings Limited, together with its subsidiaries, is engaged in the manufacturing of polysilicon and wafers for the solar industry, the development, management and operation of environmental friendly power plants, as well as the operation of solar system integration business. It has three segments: solar material business, which manufactures and sells polysilicon and wafer to companies operating in the solar industry; power business, which comprises the development, construction, management and operation of power plants and sales of coals, and overseas solar power plant business, which comprises the development, construction, management, operation and sales of overseas solar plants. Power plants include coal fuelled cogeneration plants, resources

	comprehensive utilization cogeneration plants, gas fuelled cogeneration plants, biomass fuelled cogeneration plants, an incineration plant, a wind power plant and others.
IHH HEALTHCARE	IHH Healthcare Bhd is a private healthcare provider. It operates an integrated healthcare business and related services. The Company operates through five operating segments including, Parkway Pantai, a hospital operator and healthcare service provider in Asia; Acibadem Holdings, a hospital operator and healthcare service provider in CEEMENA and investment holding companies owning ASYH; IMU Health, an education service provider in Malaysia; PLife REIT, a real estate investment trust, and others, which includes the corporate office. The Company has operations in Singapore, Malaysia, Turkey, China, Hong Kong, India, Brunei, Vietnam, United Arab Emirates, Macedonia and Iraq. The Company's subsidiaries include Radiology Consultants Pte Ltd, Gleneagles Development Pte Ltd, Nippon Medical Care Pte Ltd and Parkway Shenton International Holdings Pte. Ltd.
REC SILICON	REC Silicon ASA, formerly Renewable Energy Corp ASA (REC), is a Norway-based company active in the solar energy sector. In November 2013, the Company changed its name as a part of demerger in two separate entities: REC Silicon ASA and REC Solar ASA, which comprises the solar panel operations and distribution. REC Silicon ASA is engaged in production of advanced silicon materials to customers in the solar and electronics industry. It offers three types of products: solar grade polysilicon for production of solar panels; electronic grade polysilicon for semiconductor industry and green energy technologies; and silane gases for semiconductor industry, flat panel displays and thin film technologies. The Company uses three technologies: Siemens process, based on decomposition of silane and deposition of elemental silicon; Fluidized Bed Reactor (FBR) technology, aimed at production of polysilicon at lower cost; and REC Business System (RBS) to manufacture gas and liquid silicon molecules.
MIGHTY RIVER POWER	Mighty River Power Limited invests in, develops and produces electricity from renewable and other energy sources and to sell energy and energy related services and products to retail and wholesale customers. The Company's operating segments include Energy Markets and other segments. The energy markets segment encompasses activity associated with the production, sale and trading of energy and related services and products, and generation development activities. Other segments include metering, upstream gas, international geothermal development and other corporate support activities. The Company's direct subsidiaries include Mighty River Power Geothermal Limited, Mighty River Power Gas Investments Limited, Mercury Energy Limited, Metrix Limited, ECNZ International Limited, Bosco Connect Limited.
RYMAN HEALTHCARE	Ryman Healthcare Limited is a New Zealand-based company engaged in provision of integrated retirement villages for the elderly people. The Company has over 7,500 residents at its facilities. Ryman Healthcare Limited operates in New Zealand and Australia. The Company provides living and care options, offering its residents the retirement village living and aged care. Its villages provide a range of retirement living and care options, including Independent Townhouses and Apartments, Serviced Apartments and a Care Centre providing the resthome, hospital, and dementia level care. The Company also has resort style facilities, lounges and bar, indoor swimming pool and spa, gym, beauty salon, bowling green, library, internet cafe and movie theatres at its facilities.
ENERGY DEVELOPMENT	Energy Development Corporation explores, develops and operates geothermal energy and other indigenous renewable energy projects in the Philippines, and utilizes geothermal energy and other indigenous renewable energy sources for electricity generation. The Company's geothermal power projects engage in two principal activities: production of geothermal steam for use at its geothermal power plants, and generation and sale of electricity through the geothermal power plants pursuant to take-or-pay power offtake arrangements. Its segments include Leyte Geothermal Business Unit, Negros Island Geothermal Business Unit, Bacon-Manito Geothermal Business Unit, Mt. Apo Geothermal Business Unit, Pantabangan/Masiway, Wind-Ilocos Norte Business Unit and All others. It conducts commercial operations through four of its 14 geothermal contract areas, which include Tongonan, Kananga, Leyte; Southern Negros, Valencia, Negros Oriental; Bacon-Manito, Albay and Sorsogon, and Mt. Apo, Kidapawan, Cotabato.
RAFFLES MEDICAL GP.	Raffles Medical Group Ltd is a Singapore-based healthcare provider. The Company has three segments, which include Healthcare services, Hospital services and Investment holdings. Healthcare services segment is engaged in the operations of medical clinics and other general medical services;

	provision of health insurance, trading in pharmaceutical and nutraceutical products and diagnostic equipment, and provision of management and consultancy services. Hospital services segment is engaged in the provision of specialized medical services and operation of hospital and business of medical laboratory and imaging center. The Company's subsidiaries include Raffles Hospital Pte Ltd, Raffles Research Labs Pte Ltd, Coors Consultants Limited, Shenzhen Investments Pte Ltd, and Raffles Health Insurance Pte Ltd, among others.
BANGKOK DUSIT MED.SVS.	Bangkok Dusit Medical Services Public Company Limited is a Thailand-based company engaged in hospital business. The Company and its subsidiaries operate two business segments, which consist of hospital operations and other businesses that support hospital business including central lab services, the manufacture and distribution of medicine and pharmaceutical products, assets management for healthcare business, restaurants and distribution of health food products, facility management, technology and information services, accounting services, training business, health insurance and life insurance brokerage. Its subsidiaries comprise Samitivej PCL., Bangkok Hospital Hatyai Co., Ltd., Bangkok Phuket Hospital Co., Ltd., BNH Medical Center Co., Ltd., Bangkok Phrapradaeng Hospital Co., Ltd., Bangkok Pattaya Hospital Co., Ltd., Bangkok Rayong Hospital Co., Ltd. and Bangkok Samui Hospital Co., Ltd., among others.
EVERLIGHT ELECTRONICS	Everlight Electronics Co., Ltd. is principally engaged in the research, development, manufacture and distribution of optoelectronic components. The Company's main products include light emitting diode (LED) lamps, LED backlighting products, digit/dot matrix displays, surface mounted device (SMD) type LED, infrared LEDs, LED modules, photo sensor modules, photo transistors, photo couplers, optoelectronic integrated circuits (ICs) and photo sensor modules, among others. It also provides liquid crystal displays (LCDs) and related components. The Company's products are mainly applied in electronic products, household products, cellular phones, lighting products, computer products and others.
SIMPLO TECHNOLOGY	Simplo Technology Co Ltd. Simplo Technology Co., Ltd. is a Taiwan-based company primarily engaged in the manufacture and distribution of lithium battery packs. The Company mainly offers lithium battery packs for notebook computers, tablet personal computers (PC), smart mobile phones, industrial computers, wearable electronics, convertible power supplies and light electric bicycles, among others. The Company mainly distributes its products within domestic market and to overseas markets, including the rest of Asia, the Americas and Europe.
MOTECH INDUSTRIES	Motech Industries, Inc. is engaged in the manufacture and distribution of solar cells and related products. The Company also provides solar modules, solar portable power boxes, solar power converters and others. The Company also offers consulting, integrating, technical development and training services of solar power generation systems. The Company distributes its products within the domestic market and to overseas markets, including the Mainland China, the United States and Japan, among others.
AVX	AVX Corporation (AVX), is a manufacturer and supplier of a broad line of passive electronic components and related products. All types of electronic devices use AVX's passive component products to store, filter or regulate electric energy. The Company's passive electronic component products include ceramic and tantalum capacitors, film capacitors, varistors, filters and other components manufactured in its facilities throughout the world and passive components manufactured by Kyocera Corporation of Japan (Kyocera). It also manufactures and sells electronic connectors and inter-connect systems and distribute and sell certain electronic connectors manufactured by Kyocera. It is organized by product line with five main product groups. AVX operates in three segments: Passive Components, Kyocera Electronic Devices (KED Resale) and Interconnect. In February, 2013, it acquired tantalum solid electrolytic capacitor related businesses from NICHICON CORP.
APOLLO EDUCATION GP.'A'	Apollo Education Group, Inc. is a private education services provider. The Company through the education platforms, it offers undergraduate, graduate, professional development and other non-degree educational programs and services, online and on-campus, to working learners in the United States and abroad. The Company's learning includes domestic and International platforms. The Universities in domestic platform include University of Phoenix, Inc.; Western International University, Inc.; The College for Financial Planning Institutes Corporation; Carnegie Learning, Inc., and Apollo Lightspeed. The International platform offers educational programs outside the United

	States through its Apollo Global, Inc. subsidiary. The Company's Apollo Global education network includes: BPP Holdings Limited, Open Colleges Australia Pty Ltd, Universidad Latinoamericana, Milpark Education (Pty) Ltd., Apollo Global Chile S.A. and India Education Services Private Ltd.
BROOKDALE SENIOR LIVING	Brookdale Senior Living Inc. operates senior living communities in the United States. The Company operates independent, assisted living and dementia-care communities, and continuing care retirement centers (CCRCs). The Company has five operating segments: Retirement Centers; Assisted Living; CCRCs - Rental; Brookdale Ancillary Services, and Management Services. The Company's Retirement Centers segment provides senior independent and assisted living services in its retirement center communities. The Company's Assisted Living segment offers housing and assisted living services to mid-acuity frail and elderly residents. The Company's CCRCs - Rental segment provides living arrangements and services for various types of health. The Brookdale Ancillary Services segment provides home health, therapy and other ancillary services, and education and wellness programs. The Management Services segment operates communities owned by third parties or by the Company's unconsolidated ventures.
CAREER EDUCATION	Career Education Corporation (CEC) through its colleges, institutions and universities offers education to students in a range of career-oriented disciplines through online, on-ground and hybrid learning program offerings. The Company operates through four segments: University Group, Career Colleges Group, Transitional Group and Corporate and Other. The Company serves students from campuses throughout the United States, offering programs that lead to doctoral, master's, bachelor's and associate degrees, as well as to diplomas and certificates. The Company's institutions include both universities that provide degree programs through the master or doctoral level and colleges that provide programs through the associate and bachelor level. The University group includes American InterContinental University (AIU) and Colorado Technical University (CTU), serving students online with career-focused degree programs.
COMMUNITY HEALTH SYSTEMS	Community Health Systems, Inc. is a hospital company and an operator of acute care hospitals in communities across the United States. The Company provides healthcare services through the hospitals that it owns and operates in non-urban and selected urban markets throughout the United States. It operates in two operating segments: hospital operations and home care agencies operations. Its hospital operations include the Company's acute care hospitals and related healthcare entities that provide inpatient and outpatient healthcare services. Its home care agencies operations provide in-home outpatient care. Services provided through its hospitals and affiliated businesses include general acute care, emergency room, general and specialty surgery, critical care, internal medicine, obstetrics, diagnostic, psychiatric and rehabilitation services. It provides a range of hospital healthcare services and other outpatient services to patients in the communities in which the Company is located.
COVANTA HOLDING	Covanta Holding Corporation is a holding company. Through its subsidiaries, the Company owns and operates infrastructure for the conversion of waste to energy, as well as other waste disposal and renewable energy production businesses. Energy-from-waste (EfW) serves two markets as both a sustainable waste management solution and as a source of clean energy. The Company operate and/or have ownership positions in 46 EfW facilities, which are primarily located in North America, and 11 additional energy generation facilities, including other renewable energy production facilities in North America (wood biomass and hydroelectric). In total, these assets produce approximately 10 million megawatt hours (MWh) of baseload electricity. The Company also operates a waste management infrastructure, including 18 transfer stations. The Company also operates, and in some cases has ownership interests in, transfer stations and landfills.
CREE	Cree, Inc. is a manufacturer of lighting-class light emitting diode (LED) products, lighting products and semiconductor products for power and radio-frequency (RF) applications. The Company's products are targeted for applications such as indoor and outdoor lighting, video displays, transportation, electronic signs and signals, power supplies, inverters and wireless systems. The Company's three segments are LED Products, Lighting Products, and Power and RF Products. The Company's LED products consist of LED components, LED chips and silicon carbide (SiC) materials. The Company's Lighting Products consist of LED lighting systems and bulbs. The Company's power products are made from SiC. The Company's RF devices are made from gallium nitride (GaN).

DAVITA HEALTHCARE PTNS.	DaVita HealthCare Partners Inc. consists of two divisions, Kidney Care and HealthCare Partners (HCP). Kidney Care is a provider of dialysis services in the United States, treating patients with chronic kidney failure and end stage renal disease (ESRD). Kidney Care division develops innovative clinical care, offers integrated treatment plans, personalized care teams and health-management services. As of December 31, 2014, we provided dialysis and administrative services in the U.S. through a network of 2,179 outpatient dialysis centers in 46 states and the District of Columbia, serving a total of approximately 173,000 patients. HealthCare Partners division is a patient- and physician-focused integrated health care delivery and management company. HealthCare Partners manages and operates medical groups and affiliated physician networks in Arizona, California, Nevada, Florida and New Mexico. As of December 2014, HealthCare Partners had approximately 837,000 members under its care.
DEVRY EDUCATION GROUP	DeVry Education Group Inc. (DeVry Group) is a provider of educational services. DeVry Group's institutions offer an array of programs in business, healthcare and technology, and serve students in postsecondary education as well as accounting and finance professionals. DeVry Group operates through three segments: Business, Technology and Management, Medical and Healthcare, and International and Professional Education. The Company's Business, Technology and Management segment comprises the operation of DeVry University; the Company's Medical and Healthcare segment includes the operations of DeVry Medical International, which operates three institutions: American University of the Caribbean School of Medicine (AUC), Ross University School of Medicine (RUSM) and Ross University School of Veterinary Medicine, and the Company's International and Professional Education segment includes the operations of DeVry Brasil and Becker.
EDUCATION MANAGEMENT	Education Management Corporation. Education Management Corporation (EDMC) is a provider of post-secondary education in North America, with approximately 151,200 enrolled students as of October 2011. It offers academic programs to its students through campus-based and online instruction. Its educational institutions offer students undergraduate and graduate degrees, including doctoral degrees, and certain specialized non-degree diplomas in a range of disciplines. These disciplines include media arts, health sciences, design, psychology and behavioral sciences, culinary, business, fashion, legal, education and information technology. Each of the its schools located in the United States is licensed or permitted to offer post-secondary programs in the state in which it is located, accredited by a national or regional accreditation agency and certified by the United States Department of Education, which enables students to access federal student loans, grants and other forms of public and private financial aid.
FAIRCHILD SEMICON.INTL. 'A'	Fairchild Semiconductor International, Inc. is focused on developing, manufacturing and selling power management solutions. The Company is engaged in power analog and design, as well as packaging. It also makes non-power semiconductor and micro-electro-mechanical systems (MEMS)-based solutions. Its products are used in various end market applications, including industrial, home appliance, automotive, mobile, server and cloud computing, lighting, and consumer electronics. It develops a range of power and signal path products for industrial, appliance, cloud computing and automotive applications. The Company's segments include Mobile, Computing, Consumer and Communication (MCCC); Power Conversion, Industrial and Automotive (PCIA), and Standard Discrete and Standard Linear (SDT).
FIRST SOLAR	First Solar, Inc. is a global provider of solar energy solutions. The Company designs, manufactures and sells photovoltaic (PV) solar modules, and also develops, designs, constructs and sells PV solar power solutions. The Company operates through two segments: components and systems. The Company's components segment involves the design, manufacture and sale of solar modules, which convert sunlight into electricity. The systems segment provides turn-key PV solar power systems or solar solutions for systems primarily using its solar modules. The Company also manufactures crystalline silicon solar modules and single-axis mounting systems with tracking capabilities. The Company offers its products and services for residential, commercial and industrial applications, including solar power system project developers, system integrators and solar plant operators, throughout the Americas, Asia, Australia, the Middle East and Africa.
ITT EDUCATIONAL SVS.	ITT Educational Services, Inc. is a provider of postsecondary degree programs in the United States. As of June 30, 2014, the Company offered master, bachelor and associate degree programs to

	approximately 55,000 students at ITT Technical Institute and Daniel Webster College locations, and short-term information technology and business learning solutions for career advancers and other professionals. As of June 30, 2014, the Company had approximately 148 college locations (including 146 campuses and two learning sites) in 39 states and two training facilities. The Company designs its education programs, after consultation with employers and other constituents, to help graduates prepare for careers in various fields involving their areas of study. It provided career-oriented education programs since 1969 under the ITT Technical Institute name and since June 2009 under the Daniel Webster College name.
ITC HOLDINGS	ITC Holdings Corp. is an independent electricity transmission company in the United States. The Company operates, maintains and invests in transmission infrastructure. The Company's customers include investor-owned utilities, municipalities, cooperatives, power marketers and alternative energy suppliers. Its regional infrastructure includes four North Central Multi-Value Projects (MVPs) and the Thumb Loop Project. The Company's subsidiaries operations include asset planning; engineering, design and construction; maintenance, and real time operations. The Asset Planning group uses system models and load forecasts to develop its system expansion capital plans. The Engineering, Design and Construction group is engaged in the design, equipment specifications, maintenance plans and project engineering for capital, operation and maintenance work. The Company develops and tracks preventive maintenance plans. Its real time operations include system and local balancing authoring operations.
ITRON	Itron, Inc. (Itron) is a technology and service company, offering metering solutions to electric, natural gas, and water utilities around the world. The Company provides solutions that measure, manage, and analyze energy and water use. The Company operates in three segments: Electricity, which is the is the supplier of electricity metering solutions, including standard meters and advanced and smart metering systems; Gas, which is the supplier of gas metering solutions, including standard meters and advanced and smart metering systems, and Water, which is the supplier of standard and advanced water meters and communication modules. Its applications include residential and commercial industrial markets for water and heat. Its services include licensing meter data management and analytics software, managed services, software-as-service (hosted software), technical support services, licensing hardware technology and consulting services.
LIFEPOINT HOSPITALS	LifePoint Health, Inc., formerly LifePoint Hospitals, Inc. provides healthcare services. Through its subsidiaries, the Company operates general acute care hospitals primarily in non-urban communities in the United States. Its hospitals provide a range of medical and surgical services in hospitals in non-urban markets. The Company's services include general surgery, internal medicine, obstetrics, emergency room care, radiology, oncology, diagnostic care, coronary care, rehabilitation services and pediatric services. In some of its hospitals, the Company offers services, such as open-heart surgery, skilled nursing, psychiatric care and neuro-surgery. LifePoint provides outpatient services, such as same-day surgery, laboratory, x-ray, respiratory therapy, imaging, sports medicine and lithotripsy. The Company operates approximately 67 hospital campuses in 21 states, having a total of approximately 8,254 licensed beds.
MEDNAX	MEDNAX, Inc. (MEDNAX) is a provider of physician services, including newborn, maternal-fetal and other pediatric subspecialty care. The Company provides clinical care to babies born prematurely or with complications within specific hospital units, primarily neonatal intensive care units (NICUs). It provides anesthesia care at more than 90 hospitals, 100 ambulatory surgery centers and office-based practices with over 950 of its affiliated anesthesiologists. It provides acute and chronic pain management services in over 20 pain management centers through its network of physicians and physician assistants. It provides inpatient and office-based clinical care to expectant mothers and their unborn babies through its over 245 affiliated maternal-fetal medicine subspecialists, as well as obstetricians and other clinicians. Its network includes other pediatric subspecialists, such as pediatric intensivists, pediatric hospitalists and pediatric surgeons.
NEW ORIENTAL ED.& TECH. GP.ADS 1:1	New Oriental Education & Technology Group Inc. is a provider of private educational services in China based on the number of program offerings, total student enrollments and geographic presence. The Company operates in five segments: language training and test preparation courses, primary and secondary school education, content development and distribution, online education, and overseas studies consulting. The Company offers a range of educational programs, services and products consisting primarily of English and other foreign language training, test preparation courses for

	admissions and assessment tests in the United States, the People's Republic of China and Commonwealth countries, primary and secondary school education, development and distribution of educational content, software and other technology, and online education. It provides educational services under its New Oriental brand.
ON SEMICONDUCTOR	ON Semiconductor Corporation offers a portfolio of analog, digital and mixed signal ICs, image sensors and custom devices for customers to solve their design challenges in electronic systems and products. The company operates through four segments: Application Products Group designs and develops analog, mixed-signal and logic ASIC and ASSP solutions for end-users in the automotive, consumer electronics, computing, industrial, communications, medical and military/aerospace markets. Image Sensor Group designs and develops CMOS and CCD image sensors and image processors for end-users in the automotive, industrial, consumer electronics, wireless, medical, and military/aerospace markets. Standard Products Group offers discrete and integrated semiconductor products that perform multiple application functions. System Solutions Group designs and develops analog and mixed signal ICs, DSPs, analog and digital tuners, intelligent power modules, memory and discrete semiconductors.
ORMAT TECHNOLOGIES	Ormat Technologies, Inc. is engaged in the geothermal and recovered energy power business. The Company designs, develops, builds, owns and operates geothermal and recovered energy-based power plants various countries, including the United States of America, Kenya and Guatemala. The company's equipment manufacturing operations are located in Israel. The Company conducts its business activities in two business segments: Electricity Segment and Product Segment. The Product Segment designs, manufactures and sells equipment for geothermal and recovered energy-based electricity generation, remote power units and other power generating units, and provide services relating to the engineering, procurement, construction, operation and maintenance of geothermal, and recovered energy-based power plants. The Company's customers include Southern California Edison, Sierra Pacific Power Company, Nevada Power Company, HELCO and SCPPA.
POLYPORE INTERNATIONAL	Polypore International, Inc. is a high-technology filtration company that develops, manufactures and markets specialized microporous membranes used in separation and filtration processes. The Company's products and technologies are used in two primary businesses: energy storage and separations media. The energy storage business produces and markets membranes and consists of two sub-segments. The electronics and EDVs segment produces and markets membranes for lithium batteries that are used in portable electronic devices, cordless power tools, electric drive vehicles (EDVs) and emerging applications. The transportation and industrial segment produces and markets membranes for lead-acid batteries. The separations media business produces and markets membranes and membrane modules used in hemodialysis, blood oxygenation, plasmapheresis, other medical applications and various high-performance microfiltration, ultrafiltration and gasification/degasification applications.
QUEST DIAGNOSTICS	Quest Diagnostics Incorporated is a provider of diagnostic testing information services. The Company consists of two businesses: Diagnostic Information Services and Diagnostic Solutions. Diagnostic Information Services business, consists of two parts, develops and delivers diagnostic testing, information and services to patients, physicians, health plans, hospitals, accountable care organizations (ACOs), integrated delivery networks (IDNs), other commercial laboratories, patients and other customers. Diagnostics Information Services business also provides diagnostic information services, which includes providing clinical testing services, such as routine testing, gene-based and esoteric testing, anatomic pathology services and drugs-of-abuse testing. Diagnostic Solutions includes the Company's other businesses, including central laboratory testing for pharmaceutical and medical device clinical trials, risk assessment services, diagnostic products and healthcare information technology.
STRAYER EDUCATION	Strayer Education, Inc. is an education services holding company that provides post-secondary education services. The Company offers a range of academic programs through its wholly owned subsidiary, Strayer University, Inc. (the University). The University offers undergraduate and graduate degree programs in business administration, accounting, information technology, education, health services administration, public administration and criminal justice at approximately 80 physical campuses, located in the Mid-Atlantic and Southern regions of the United States, and online. Strayer University also offers an executive Master of Business Administration (MBA) online through its Jack Welch Management Institute. Strayer University offers business,

	information technology and professional curricula to equip students with specialized and practical knowledge and skills for careers in business, industry and government.
SUNEDISON	Sunedison Inc. SunEdison, Inc. (SunEdison) is a developer and seller of photovoltaic energy solutions, an owner and operator of clean power generation assets, and a developer and manufacturer of silicon wafers. The Company operates in three segments: Solar Energy, TerraForm Power and Semiconductor Materials through SunEdison Semiconductor Ltd. (SSL). The Company's Solar Energy segment provides solar energy services that integrate the design, installation, financing, monitoring, operations and maintenance portions of the downstream solar market for the Company's customers. The Company's TerraForm Power segment owns and operates clean power generation assets, both developed by the Solar Energy segment and acquired through third party acquisitions that sell electricity through long-term power purchase agreements to utility, commercial, and residential customers. The Company's Semiconductor Materials segment includes the manufacture and sale of silicon wafers to the semiconductor industry.
SUNPOWER	SunPower Corporation (SunPower) is a global energy company. The Company provides design, manufacturing, installation, ongoing maintenance and monitoring and adjacent services. The Company provides solar technology to residential, commercial and utility customers worldwide. The Company operates through three segments: the Americas Segment, the EMEA Segment and the APAC Segment. The Company offers solar power components, solar power systems and residential leases. The Company sells panels and balance of system components, primarily to dealers, system integrators and distributors. The Company designs, manufactures, and sells rooftop and ground-mounted solar power systems under construction and development agreements. The Company offers post-installation systems monitoring and maintenance in connection with its construction contracts and commercial power purchase.
TENET HEALTHCARE	Tenet Healthcare Corporation is a healthcare services company. The Company operates regionally focused, integrated healthcare delivery networks in large urban and suburban markets. As of December 31, 2014, it operated 80 hospitals, 210 outpatient centers, six health plans and Conifer Health Solutions, LLC (Conifer), which provides healthcare business process services in the areas of revenue cycle management, value-based care and patient communications. It provides operational management for revenue cycle functions, including patient access, health information management, revenue integrity and patient financial services. It also offers communications and engagement solutions to optimize the relationship between providers and patients. Conifer operates a management services business that supports value-based performance through clinical integration, financial risk management and population health management. It has two operating segments: Hospital Operations and other, and Conifer.
TESLA MOTORS	Tesla Motors, Inc. designs, develops, manufactures and sells electric vehicles, electric vehicle powertrain components and stationary energy storage systems. The Company also designs, develops, manufactures and sells electric vehicle powertrain components to other automotive manufacturers. Its products include Model S and The Tesla Roadster. The Company uses energy management technologies and manufacturing processes developed for its vehicle powertrain systems and develops stationary energy storage products for use in homes, commercial sites and utilities. It designs its battery packs. The Company's technology includes cooling systems, safety systems, charge balancing systems, battery engineering for vibration and environmental durability, robotic manufacturing processes, customized motor design and the software and electronics management systems necessary to manage battery and vehicle performance.
UNIVERSAL HEALTH SVS.'B'	Universal Health Services, Inc. is a holding company. The Company operates through its subsidiaries, which owns and operates acute care hospitals, behavioral health centers, surgical hospitals, ambulatory surgery centers and radiation oncology centers. The Company's segments include acute care hospital services, behavioral health care services and Other. The Company's ambulatory treatment centers division includes managing and/or owning or in partnerships with physicians, five surgical hospitals and surgery and radiation oncology centers located in four states. Its services include general and specialty surgery, internal medicine, obstetrics, emergency room care, radiology, oncology, diagnostic care, coronary care, pediatric services, pharmacy services and/or behavioral health services. It provides capital resources, as well as various management services to its facilities. The Company's subsidiary is UHS of Delaware, Inc.

NETCARE	Netcare Limited is a South Africa-based investment holding company. The Company, through its subsidiaries, operates a private hospital network in South Africa and the United Kingdom. Netcare operates a private hospital group, a primary care network and a medical emergency service in South Africa. Netcare is the private acute care hospital provider in the United Kingdom. Netcare offers private hospital and trauma services through owned facilities and Public Private Partnerships. Netcare 911 provides critical medical care in emergency situations. The primary care division offers medical and dental services through Medicross family medical and dental centers and Prime Cure clinics, as well as a managed care service. In the United Kingdom, General Healthcare Group operates under the brand of BMI Healthcare. Its hospital division owns and manages over 54 hospitals; 9,424 registered beds, and 1,601 intensive care and high care beds.
ADVTECH	Advtech Limited is a South Africa-based company engaged in the provision of education, training and staff placement. The Company operates in three segments: Schools Tertiary and Resourcing. The Schools division offers pre-primary, primary and secondary education. The Tertiary division offers education on diploma, degree and postgraduate levels. The Resourcing division is a force in areas of the placement industry, which include information technology (IT), finance and engineering.
MEDICLINIC INTERNATIONAL	Mediclinic International Limited, formerly Medi-Clinic Corporation Limited, is an international private hospital group. The Company focused on providing multi-disciplinary hospital services and related service offerings. The Company's segments include Hospital Services, in which it operates multi-disciplinary private hospitals, and Hospital Properties, which rents hospitals to hospital services. Its three brands include Mediclinic Southern Africa, Hirslanden and Emirates Healthcare. Mediclinic Southern Africa operated 49 private hospitals throughout South Africa and three in Namibia, with 7,614 beds in total; Hirslanden operated 14 private hospitals with 1,567 beds in Switzerland, and Emirates Healthcare operated two hospitals with 334 beds and eight clinics in Dubai in the United Arab Emirates. In June 2014, the Company's Swiss business, Hirslanden acquired 100% interest in operating business of Clinique La Colline.
LIFE HEALTHCARE GP.HDG.	Life Healthcare Group Holdings Limited is a healthcare company engaged in acute hospital care. The Company is engaged in two divisions which are hospital division; which provides services primarily to the private medically insured market and includes its acute care hospital business, comprising general hospital facilities of various sizes that include intensive care units, high care units, operating theatres, emergency units, maternity units and cardiac units, as well as other specialized facilities that provide either inpatient or outpatient services in the areas of acute rehabilitation, chronic renal dialysis, mental healthcare services and radiation and chemotherapy oncology, and healthcare services division; which includes the provision of acute and long term chronic hospitalization services to state patients, as well as the provision of primary and occupational healthcare services to employer groups in commerce, industry, parastatels, mining and correctional services.

APPENDIX D. Results of the matching procedure

This table presents the results of the matching processes for all three impact variables, as executed by the STATA package psmatch2 (with the command 'pstest'). The first panel, indicated by 'Total impact', provides the results for the matching process based on total impact portfolio (i.e. the sum of the environmental impact companies and the social impact companies). The second panel, indicated by 'Environmental impact', provides the results of the matching process based on the sample of only the environmental impact companies. The third panel, indicated by 'Social impact', provides the results of the matching process based on the sample of only the social impact companies. Siccode is the variable name which indicates the industry code of each company. Logtotalassets is the variable name for the natural logarithm of the total assets, winsorized at the 1% level. U stands for unmatched, M stands for matched.

	Unmatched	**Mean**		**%reduct**		**t-test**	
Variable	**Matched**	**Treated**	**Control**	**%bias**	**|bias|**	**t-stat**	**p>|t|**
Total impact							
Siccode	U	5691.6	4372.3	63.6	.	33.07	0.000
	M	5691.6	5654.7	1.8	97.2	0.61	0.544
Logtotalassets	U	15.4	16.867	-61.7	.	-26.90	0.000
	M	15.4	15.349	2.1	96.6	0.88	0.379
Environmental impact							
Siccode	U	3911.1	4374.1	-30.7	.	-8.85	0.000
	M	3911.1	4189.2	-18.4	39.9	-5.02	0.000
Logtotalassets	U	15.681	16.867	-51.9	.	-16.54	0.000
	M	15.681	15.517	7.2	86.1	2.62	0.009
Social impact							
Siccode	U	8123.7	4371.3	268.0	.	61.53	0.000
	M	8123.7	8133.7	-0.7	99.7	-1.74	0.082
Logtotalassets	U	15.015	16.865	-74.8	.	-22.09	0.000
	M	15.015	14.897	4.8	93.6	1.26	0.206

APPENDIX E. Sensitivity analysis matched sample

In this Appendix the results of the analyses based on the full sample (as opposed to the matched sample) can be found. Table A1 shows the results of the market-based financial performance analyses. Figure A1 shows the results of the accounting-based financial performance analyses. Table A2 shows the results of the impact performance analyses.

TABLE A1. Results financial performance - Full sample

Panel A: Total impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the original, full sample and the *total impact* portfolio (*TOTIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are based on the full sample, where (1) is the total sample, (2) only includes the observations for which *TOTIMPACT* equals one and (3) only includes the observations for which *TOTIMPACT* equals zero, hence all others. The model is estimated for the period 2007-2013.

	(1)	(2)	(3)
VARIABLES	**Full sample**	**Total impact**	**Others**
RMRF	0.0095***	0.0114***	0.0092***
	(0.0001)	(0.0010)	(0.0001)
SMB	0.0021***	0.0047***	0.0019***
	(0.0001)	(0.0018)	(0.0002)
HML	-0.0005***	-0.0020	0.0008***
	(0.0002)	(0.0023)	(0.0002)
WML	-0.0025***	-0.0003	-0.0025***
	(0.0001)	(0.0007)	(0.0001)
Constant	0.0038***	0.0121***	0.0018***
	(0.0000)	(0.0003)	(0.0000)
Observations	332,483	2,176	273,780
R-squared	0.2102	0.2028	0.2223
Number of panelvar	4,160	62	4,122

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B: Environmental impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the original, full sample and the *environmental impact* portfolio (*ENVIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return mins the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are based on the full sample, where (1) is the total sample, (2) only includes the observations for which *ENVIMPACT* equals one and (3) only includes the observations for which *ENVIMPACT* equals zero, hence all others. The model is estimated for the period 2007-2013.

	(1)	(2)	(3)
		Environmental	
VARIABLES	**Full sample**	**impact**	**Others**
RMRF	0.0095***	0.0140***	0.0092***
	(0.0001)	(0.0013)	(0.0001)
SMB	0.0021***	0.0072***	0.0019***
	(0.0001)	(0.0025)	(0.0002)
HML	-0.0005***	-0.0021	0.0008***
	(0.0002)	(0.0036)	(0.0002)
WML	-0.0025***	-0.0001	-0.0025***
	(0.0001)	(0.0009)	(0.0001)
Constant	0.0038***	0.0116***	0.0018***
	(0.0000)	(0.0005)	(0.0000)
Observations	332,483	1,263	273,910
R-squared	0.2102	0.2351	0.2222
Number of panelvar	4,160	33	4,122

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Social impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the original, full sample and the social impact portfolio (*SOCIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return mins the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are based on the full sample, where (1) is the total sample, (2) only includes the observations for which *SOCIMPACT* equals one and (3) only includes the observations for which *SOCIMPACT* equals zero, hence all others. The model is estimated for the period 2007-2013.

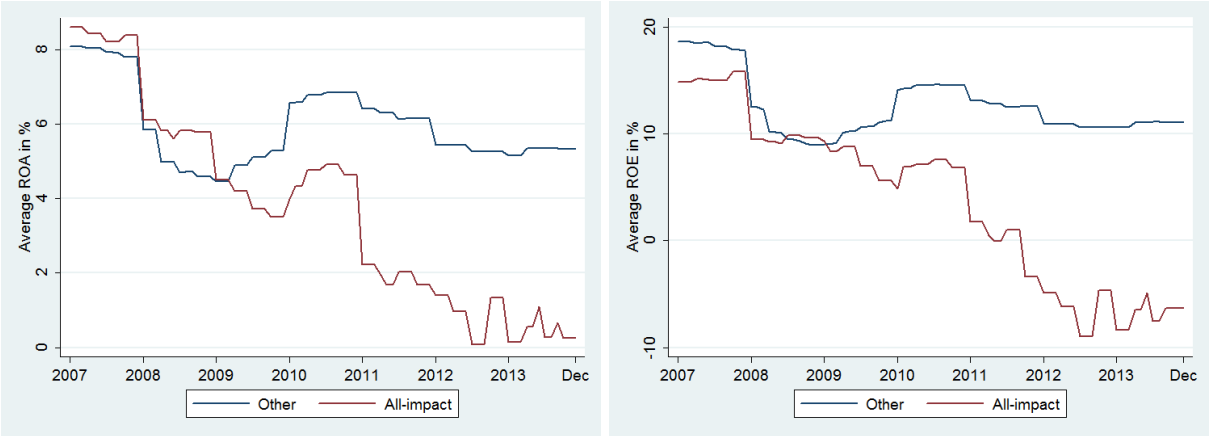
	(1)	**(2)**	**(3)**
VARIABLES	**Full sample**	**Social impact**	**Others**
RMRF	0.0095***	0.0078***	0.0092***
	(0.0001)	(0.0009)	(0.0001)
SMB	0.0021***	0.0017	0.0020***
	(0.0001)	(0.0022)	(0.0002)
HML	-0.0005***	-0.0021	0.0008***
	(0.0002)	(0.0020)	(0.0002)
WML	-0.0025***	-0.0006	-0.0025***
	(0.0001)	(0.0008)	(0.0001)
Constant	0.0038***	0.0123***	0.0018***
	(0.0000)	(0.0002)	(0.0000)
Observations	332,483	913	274,364
R-squared	0.2102	0.1648	0.2223
Number of panelvar	4,160	29	4,126

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

FIGURE A1. Results financial performance: accounting measures

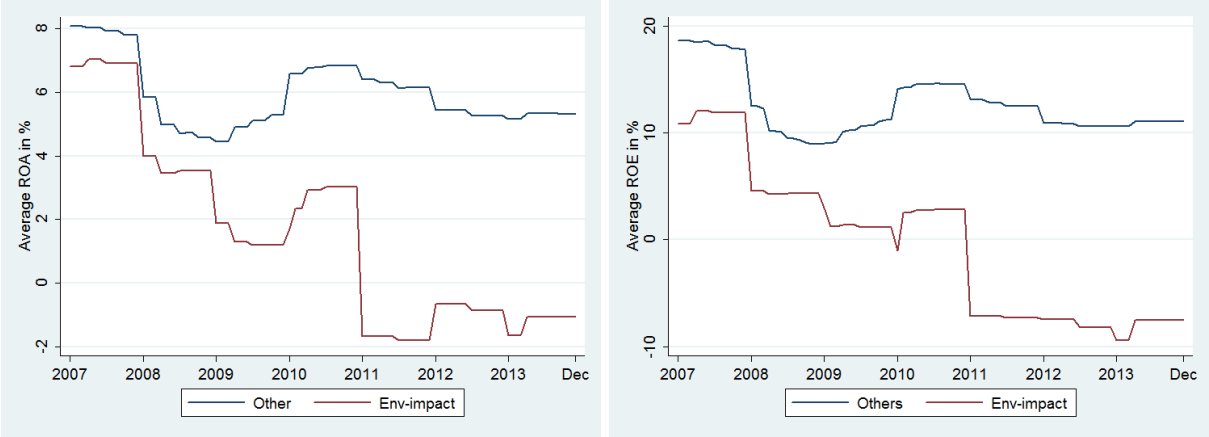
Panel A: Total impact portfolio

The graphs below show the ROA and ROE development for the total impact portfolio. The horizontal axis presents the years of the analysis (2007-2013). The vertical axis shows the average ROA (left-side) and ROE (right-side) in percentages. The winsorized variable of these measures is used. The red line represents the total impact portfolio (*TOTIMPACT* = 1). The blue line represents all other companies, hence the traditional portfolio (*TOTIMPACT* = 0).



Panel B: Environmental impact portfolio

The graphs below show the ROA and ROE development for the environmental impact portfolio. The horizontal axis presents the years of the analysis (2007-2013). The vertical axis shows the average ROA (left-side) and ROE (right-side) in percentages. The winsorized variable of these measures is used. The red line represents the environmental impact portfolio (*ENVIMPACT* = 1). The blue line represents all other companies, hence the traditional portfolio (*ENVIMPACT* = 0).



Panel C: Social impact portfolio

The graphs below show the ROA and ROE development for the social impact portfolio. The horizontal axis presents the years of the analysis (2007-2013). The vertical axis shows the average ROA (left-side) and ROE (right-side) in percentages. The winsorized variable of these measures is used. The red line represents the social impact portfolio (*SOCIMPACT* = 1). The blue line represents all other companies, hence the traditional portfolio (*SOCIMPACT* = 0).

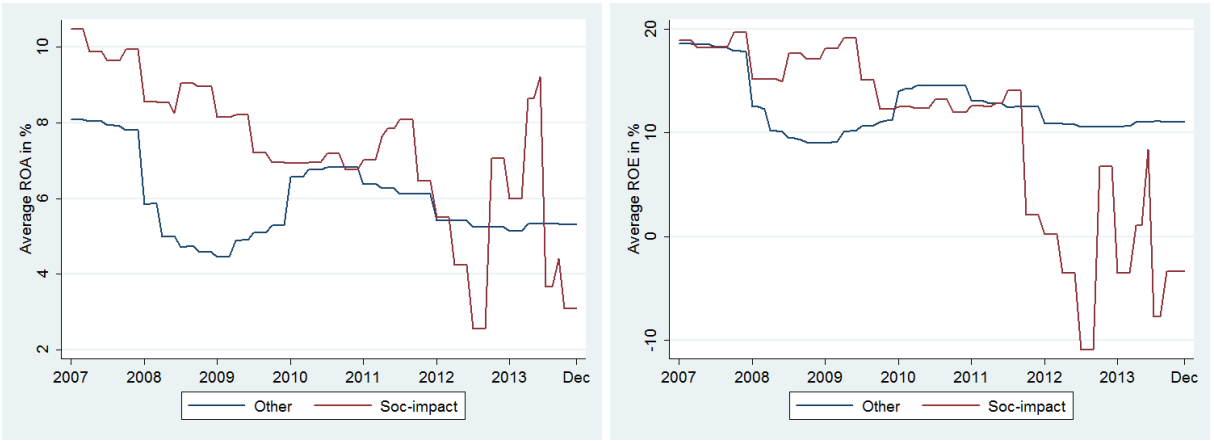


TABLE A2. Results impact performance - full sample - Regression analysis

Panel A: Total impact portfolio

This panel reports the results of the unmatched, i.e. full sample regression analyses of the effect of inclusion in the total impact portfolio on impact measures. The models use xtreg with fixed effects or random effects for panel analysis and standard errors are cluster-robust Huber/White standard errors. In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *TOTIMPACT* is a dummy variable which indicates whether a company is part of the total impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures, (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Woman	Woman
TOTIMPACT	0.0470	0.0298	0.0973	-0.0107	8.3101	7.3424
	(0.0830)	(0.0774)	(0.0889)	(0.0760)	(6.0825)	(5.9069)
TOTALASSETS	.	0.4586***	.	0.5009***	.	2.9349***
		(0.0380)		(0.0704)		(0.5400)
MTBV	.	0.0032	.	-0.0003	.	-0.0259
		(0.0025)		(0.0063)		(0.0371)
ROA	.	-0.0017	.	-0.0027	.	-0.0319
		(0.0012)		(0.0019)		(0.0253)
Constant	12.4882***	4.8338***	14.8216***	6.2238***	24.1583***	-25.1341***
	(0.0526)	(0.6636)	(0.0693)	(1.2509)	(0.3749)	(9.2661)
Observations	129,750	124,943	95,805	92,093	63,492	60,771
R-squared	.	0.0429	.	0.0307	.	0.0196
Number of panelvar	2,291	2,242	1,693	1,661	1,528	1,482

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B: Environmental impact portfolio

This panel reports the results of the unmatched, i.e. full sample regression analyses of the effect of inclusion in the environmental impact portfolio on impact measures. The models use xtreg with fixed effects or random effects for panel analysis and standard errors are cluster-robust Huber/White standard errors. In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *ENVIMPACT* is a dummy variable which indicates whether a company is part of the environmental impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures, (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Woman	Woman
ENVIMPACT	0.1215	0.0846	0.1194	-0.0088	-1.1806***	-0.8772***
	(0.1304)	(0.1208)	(0.1158)	(0.0978)	(0.3514)	(0.0283)
TOTALASSETS	.	0.4585***	.	0.5009***	.	2.9646***
		(0.0381)		(0.0704)		(0.5424)
MTBV	.	0.0032	.	-0.0003	.	-0.0236
		(0.0025)		(0.0063)		(0.0376)
ROA	.	-0.0017	.	-0.0027	.	-0.0327
		(0.0012)		(0.0019)		(0.0255)
Constant	12.4880***	4.8349***	14.8216***	6.2241***	24.2095***	-25.6090***
	(0.0526)	(0.6637)	(0.0693)	(1.2509)	(0.3753)	(9.3080)
Observations	129,750	124,943	95,805	92,093	63,492	60,771
R-squared	.	0.0429	.	0.0307	.	0.0180
Number of panelvar	2,291	2,242	1,693	1,661	1,528	1,482

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Social impact portfolio

This panel reports the results of the unmatched, i.e. full sample regression analyses of the effect of inclusion in the social impact portfolio on impact measures. The models use xtreg with fixed effects or random effects for panel analysis and standard errors are cluster-robust Huber/White standard errors. In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *SOCIMPACT* is a dummy variable which indicates whether a company is part of the social impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures, (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Woman	Woman
SOCIMPACT	-0.0431	-0.0427	0.0324	-0.0174	10.9400	9.8606
	(0.0840)	(0.0791)	(0.0537)	(0.0537)	(6.9249)	(6.6878)
TOTALASSETS	.	0.4586***	.	0.5009***	.	2.9227***
		(0.0380)		(0.0704)		(0.5399)
MTBV	.	0.0032	.	-0.0003	.	-0.0268
		(0.0025)		(0.0063)		(0.0370)
ROA	.	-0.0017	.	-0.0027	.	-0.0316
		(0.0012)		(0.0019)		(0.0253)
Constant	12.4885***	4.8333***	14.8220***	6.2245***	25.1380***	-24.9011***
	(0.0526)	(0.6636)	(0.0693)	(1.2499)	(0.0088)	(9.2658)
Observations	129,750	124,943	95,805	92,093	63,492	60,771
R-squared	.	0.0429	.	0.0307	0.0025	0.0202
Number of panelvar	2,291	2,242	1,693	1,661	1,528	1,482

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

APPENDIX F. Sensitivity analysis ESGHIGH

In this Appendix the main results are replicated, using a different *ESGHIGH* cut-off point. In the main paper companies are labeled *ESGHIGH* when the ESG score is >75 on one of the pillars and >50 on the other two. To check the robustness of these results, in this Appendix I repeat all (matched) analyses using a cut-off point at a ESG score of >90 on one of the pillars and >50 on the other two.

Table A3 presents the results of the matched sample regression analysis of the financial performance. Table A4 presents the results of the matched sample regression analysis of the impact performance.

TABLE A3. Sensitivity analysis ESGHIGH - Results financial performance

Panel A: Total impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the matched sample of the total impact portfolio (*TOTIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are selected based on propensity score matching on sector and size, where (1) is the total matched sample, (2) only includes the treated observations, i.e. the total impact portfolio, and (3) only includes the matched control group. The model is estimated for the period 2007-2013.

VARIABLES	(1) Matched sample	(2) Total impact portfolio	(3) Matched control group
RMRF	0.0103***	0.0117***	0.0088***
	(0.0006)	(0.0010)	(0.0005)
SMB	0.0042***	0.0047**	0.0035*
	(0.0014)	(0.0020)	(0.0019)
HML	-0.0014	-0.0032	0.0005
	(0.0015)	(0.0026)	(0.0016)
WML	-0.0009*	-0.0005	-0.0014*
	(0.0005)	(0.0007)	(0.0007)
Constant	0.0083***	0.0127***	0.0047***
	(0.0002)	(0.0003)	(0.0002)
Observations	4,090	1,914	2,176
R-squared	0.2101	0.2147	0.2103
Number of panelvar	252	58	197

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B: Environmental impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the matched sample of the environmental impact portfolio (*ENVIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are selected based on propensity score matching on sector and size, where (1) is the total matched sample, (2) only includes the treated observations, i.e. with environmental impact, and (3) only includes the matched control group. The model is estimated for the period 2007-2013.

	(1)	(2)	(3)
VARIABLES	**Matched sample**	**Environmental impact portfolio**	**Matched control group**
RMRF	0.0123***	0.0143***	0.0102***
	(0.0009)	(0.0014)	(0.0009)
SMB	0.0052***	0.0072**	0.0025
	(0.0019)	(0.0029)	(0.0023)
HML	-0.0027	-0.0036	-0.0012
	(0.0024)	(0.0041)	(0.0020)
WML	-0.0011	-0.0003	-0.0017
	(0.0009)	(0.0010)	(0.0013)
Constant	0.0037***	0.0125***	-0.0028***
	(0.0005)	(0.0005)	(0.0010)
Observations	2,353	1,098	1,255
R-squared	0.2338	0.2496	0.2218
Number of panelvar	138	30	110

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Social impact portfolio

This panel provides the estimates from a Fama/French four-factor model augmented by the Carhart momentum factor, based on the matched sample of the social impact portfolio (*SOCIMPACT*). The dependent variable is the monthly portfolio stock return minus the risk-free rate for that month. *RMRF* is the value-weighted market return minus the risk-free rate for that month. *SMB* (small minus big) is the monthly return on a hedge portfolio that mimics the stock returns of small minus large firms. *HML* (high minus low) is the monthly return on a hedge portfolio that mimics the stock returns of low MTBV minus high MTBV firms. *WML* (winners minus losers) is the monthly return on a hedge portfolio that mimics the stock returns of high prior returns minus low prior returns firms. The intercept represents the abnormal stock return for the average month. The portfolios are selected based on propensity score matching on sector and size, where (1) is the total matched sample, (2) only includes the treated observations, i.e. with social impact, and (3) only includes the matched control group. The model is estimated for the period 2007-2013.

	(1)	**(2)**	**(3)**
VARIABLES	**Matched sample**	**Social impact portfolio**	**Matched control group**
RMRF	0.0082***	0.0082***	0.0080***
	(0.0008)	(0.0010)	(0.0012)
SMB	0.0015	0.0016	0.0017
	(0.0016)	(0.0023)	(0.0030)
HML	0.0004	-0.0027	0.0029
	(0.0018)	(0.0022)	(0.0027)
WML	0.0001	-0.0008	0.0006
	(0.0007)	(0.0009)	(0.0012)
Constant	0.0068***	0.0126***	0.0011
	(0.0005)	(0.0003)	(0.0014)
Observations	1,695	816	879
R-squared	0.1410	0.1725	0.1188
Number of panelvar	55	28	47

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE A4. Sensitivity analysis ESGHIGH - Results impact performance

Panel A: Total impact portfolio

This panel reports the results of the matched multivariate analysis of the effect of inclusion in the total impact portfolio on impact measures. The model uses xtreg with fixed or random effects for panel analysis. The observations included are only the observations which are part of the total impact portfolio and a control group with their direct matches, based on sector and size (using only the observations for which the dummy variable *MATCHEDSAMPLE* = 1). In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *TOTIMPACT* is a dummy variable which indicates whether a company is part of the total impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Women	Women
TOTIMPACT	-0.1219***	-0.1245***	-0.4612	-0.5421	4.1411	-0.4791
	(0.0016)	(0.0035)	(0.7409)	(0.7783)	(8.0591)	(8.2059)
TOTALASSETS	.	0.2809	.	-0.1397	.	3.6473***
		(0.3092)		(0.1199)		(0.5818)
MTBV	.	0.0278	.	-0.0132	.	0.0256
		(0.0297)		(0.0343)		(0.0377)
ROA	.	0.0012	.	-0.0058	.	0.0588
		(0.0024)		(0.0054)		(0.0374)
Constant	12.2095***	7.7128	14.2765***	16.7031***	27.1700***	-28.5437***
	(0.2501)	(4.9174)	(0.3769)	(1.9923)	(2.1012)	(9.3091)
Observations	1,222	1,186	874	838	718	694
R-squared	.	.	.	.	.	.
Number of panelvar	82	79	58	55	54	52

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel B: Environmental impact portfolio

This panel reports the results of the matched multivariate analysis of the effect of inclusion in the environmental impact portfolio on impact measures. The model uses xtreg with fixed or random effects for panel analysis. The observations included are only the observations which are part of the total impact portfolio and a control group with their direct matches, based on sector and size (using only the observations for which the dummy variable *MATCHEDSAMPLE* = 1). In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *ENVIMPACT* is a dummy variable which indicates whether a company is part of the environmental impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Women	Women
ENVIMPACT	-0.1225***	-0.1205***	-0.6925	-0.5443	-7.5191	-12.1919*
	(0.0012)	(0.0025)	(0.8312)	(0.8345)	(5.3947)	(6.4709)
TOTALASSETS	.	0.0390	.	-0.1750*	.	3.7541***
		(0.1935)		(0.0994)		(0.8839)
MTBV	.	-0.0123	.	-0.0151	.	0.0336
		(0.0241)		(0.0350)		(0.0338)
ROA	.	0.0017	.	-0.0057	.	0.0577
		(0.0024)		(0.0058)		(0.0375)
Constant	12.4746***	11.9338***	14.4468***	17.1901***	27.7607***	-28.7451**
	(0.3062)	(3.1441)	(0.4205)	(1.7446)	(2.6378)	(13.7737)
Observations	953	905	736	700	525	501
R-squared	.	.	.	.	.	.
Number of panelvar	56	52	43	40	36	34

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Panel C: Social impact portfolio

This panel reports the results of the matched multivariate analysis of the effect of inclusion in the social impact portfolio on impact measures. The model uses xtreg with fixed or random effects for panel analysis. The observations included are only the observations which are part of the total impact portfolio and a control group with their direct matches, based on sector and size (using only the observations for which the dummy variable *MATCHEDSAMPLE* = 1). In Models 1 and 2 the dependent variable is the natural logarithm of the CO2 emission in tonnes, in Models 3 and 4 the dependent variable is the natural logarithm of the water withdrawal in cubic meters and in Models 5 and 6 the dependent variable is the percentage of female managers. *SOCIMPACT* is a dummy variable which indicates whether a company is part of the social impact portfolio, indicated by a one, or zero otherwise. *TOTALASSETS* indicates the natural logarithm of the total assets (TA) accounting measure, *MTBV* indicates the market to book value and *ROA* indicates the return on assets (see for a more extensive description of the financial variables Appendix A). All accounting measures (TA, MTBV and ROA) are winsorized at the 1% level.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	CO2	CO2	Water	Water	Women	Women
SOCIMPACT	omitted	omitted	0.0764***	0.2804	-0.3656**	2.4531
			(0.0056)	(0.2478)	(0.1653)	(2.4481)
TOTALASSETS			.	-0.1569	.	-13.5740
				(0.3110)		(9.8340)
MTBV			.	-0.0423	.	2.8595*
				(0.0447)		(1.6061)
ROA			.	-0.0458	.	0.3629*
				(0.0569)		(0.2022)
Constant			12.9092***	16.0539***	41.1581***	242.1376
			(0.5450)	(5.1644)	(6.8043)	(153.1616)
Observations			171	171	171	171
R-squared			.	.	.	.
Number of panelvar			10	10	12	12

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1