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Do Ethical Companies Have High Stock Prices or High Returns?

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Abstract: In this paper, we examine the performance of an impact investing strategy using the most ethical companies to build an impact investing portfolio. We test the time-series and cross-sectional returns of the impact portfolio, explore the financial analyst coverage of the most ethical firms, and run regressions to analyze the valuation of the most ethical firms. Our empirical results reveal that the portfolio consisting of the most ethical firms has a higher risk-adjusted return and that the most ethical firms have lower stock valuations than comparable stocks. We attribute our findings to the incomplete information in business ethics norms.

Keywords: impact investing; investment performance; asset pricing; corporate social responsibility

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1. Introduction

In the last decade, more and more investors have been aware of impact investing, while companies are under pressure to engage in corporate social responsibilities (CSR) to have sustainable development. Both institutional and individual investors who advocate for impact investing will use criteria based on environmental, social, and governance (ESG) considerations to build their investment portfolios. Riedl and Smeets (2017) explain why investors apply impact investing (ESG) strategies. Goldstein et al. (2021) develop an equilibrium model to address the relationship between investors' heterogeneous preferences and the ESG investment price-formation mechanism. Impact investing is aligned with an investment philosophy that believes that investing in companies that are ethical can generate positive social outcomes. This emerging practice of impact investing raises several issues in the investment area. First, when investors implement the impact investing strategy, they use positive or negative filters to build their investment portfolios. The negative filtering is to avoid investing in companies or industries that are harmful to society, while the positive filtering is to invest in companies that are socially responsible and ethical for society.

When an investment decision takes corporate social responsibility into consideration, it adds one more dimension to the mean-variance framework that modern portfolio theory addresses (Merton 1987). Fama and French (2007) suggest that investors' preference for CSR or business ethics is one of the factors that determine expected returns. Pedersen et al. (2021) develop an assets pricing model that addresses the ESG-efficient frontier. Zerbib (2020) incorporates investor tastes for CSR into a Sustainable-CAPM model and finds empirical evidence that supports the model. Therefore, from the investors' perspective, it is an empirical question to examine whether impact investing can do well by outperforming the benchmark. Second, from the companies' perspective, the principal basis of agency theory is that ownrs of companies delegate the "work" of running the company to the managers of the firm or agents (Eisenhardt 1989). Accordingly, corporate governance mechanisms are structured in such a way to align the interests of managers and shareholders (Leuz et al. 2003), with the goal of maximizing wealth. In general, while investors are guided by the maximization of wealth, some investors are also guided by a sense of "moral duty" (Etzioni 1988). Researchers have found that social norms influence economic behavior (Elster 1989), even when profit is lower. Akerlof (1980) and Romer (1984) provide evidence

that individuals will often follow social customs that result in an individual disadvantage if it would mean a loss of reputation to do otherwise. Hence, companies are showing a greater interest in highlighting their efforts at corporate social responsibility and ethical decision making, as evidenced by information collected and displayed on websites such as CSRwire (2019) and Ethisphere (2018).

In this paper, we conduct an empirical analysis to investigate the investment performance of an impact investing strategies. Specifically, we examine the investment return of an impact investing portfolio that consists of the most ethical firms based on the ethical scores published by the Ethisphere Institute (Ethisphere 2018). The Ethisphere Institute compiles a listing of the world's most ethical companies by compiling an "EQ" score. This proprietary score is derived from a set of relationships that are determined by responses to survey questions. The initial data are self-reported by companies. After data are submitted, Ethisphere conducts a review process that includes a number of independent verification processes in order to validate each company's self-reported information. The score is comprised of a framework based on ethics and compliance programs (35%); corporate citizenship and responsibility (20%); culture of ethics (20%); governance (15%); and leadership, innovation, and reputation (10%).

We begin our investigation of the impact investing strategy by building an equal-weighted portfolio that consists of the most ethical firms. We re-balance the portfolio each year based on the most ethical firms announced by the Ethisphere Institute in that year. As a result, the number of stocks in the portfolio varies, ranging from 44 stocks in 2007 to 73 stocks in 2015. Using the CAPM and the Fama–French factor models, we run time-series and cross-sectional return regressions to explore the investment performance of the impact investing portfolio. In their equilibrium model, Pástor et al. (2021) explain that ESG stocks have higher prices if impact investors have a favorable taste for ESG stocks; however, the realized returns might be lower when investors' preferences shift unexpectedly. To empirically test the model developed by Pástor et al. (2021), we predict that the equal-weighted portfolio that consists of the most ethical firms will generate lower returns if investors are willing to pay a price premium to those companies' stocks. In the meantime, there exists the possibility that the most ethical firms will be undervalued due to information asymmetry or the shift of investors' taste for ESG stocks. If so, we predict that the portfolio will have higher returns than comparables. So, we need to investigate the financial analyst coverage of the most ethical firms to see if there is any information asymmetry. The empirical analysis of stock valuation helps us explore the stock return and pricing dynamics and seek reasons for the extra return of the impact investing portfolio.

In the literature, there are many studies that have investigated the investment performance of ESG stocks and explored the relationship between corporate governance and stock performance. The empirical evidence so far is inconclusive. Some studies find a positive relationship between ESG stocks and investment returns (Khan et al. 2016; Lins et al. 2017; Albuquerque et al. 2019), while other papers record a negative relationship between ESG investment and stock returns (Chava 2014; Bolton and Kacperczyk 2021). Cornell and Damodaran (2020) assert that ESG firms have higher valuations because being socially responsible will make the firm more profitable and less risky. Pedersen et al. (2021) point out that the positive relationship between corporate governance and profitability is sensitive to the metrics of ESG and profitability measures. Yet, Nollet et al. (2016) find a negative relationship between ESG and return on capital when they use S&P 500 firms in their sample. The inconclusive empirical findings are largely due to the alternative measures of ESG and various investment performance metrics used in the various studies, which leave the gaps in research. One of the gaps in the literature is using the business ethics measure as a dimension to explore the relationship between ESG and investment performance. In this paper, we fill this gap by using the most ethical firms to build an impact investing portfolio to examine the relationship between ESG and stock returns.

Our paper makes several contributions to the literature on impact investing and investment performance more generally. First, our empirical analysis outcome shows that

the portfolio consisting of the most ethical firms generates an extra return compared to benchmarks. We run various return regressions, including time-series return and cross-sectional return regressions, as well as Fama–French factor models, and our results are consistent with our prediction, which expects that investing in the most ethical firms has a better investment performance over benchmarks. Our findings provide empirical evidence that supports the impact investing strategy, indicating that companies acting ethically can also do well to impact investors. Second, by running valuation regressions, we find that the most ethical firms are undervalued compared with their comparable peers. Typically, investors expect that investing in good companies can generate higher returns. However, the assets-pricing theory asserts that a company's good characteristics might be priced in an efficient market, and therefore, good companies should have higher stock prices and lower returns. While our return analysis results indicate that investing in the most ethical firms gains a higher return, consistent with investors' expectations, our valuation regressions show that the most ethical firms are undervalued, implying that the higher return is likely to be caused by the lower stock prices, consistent with the assets- pricing theory as well.

Conceivably, investors who wish to invest in, or work for, a "most ethical" firm would still have a goal of wealth maximization in addition to their sense of moral duty (Etzioni 1988). In order to achieve both goals, investors could pursue a choice of strategy similar to possible strategies outlined by Cummings (2000) when investors are trying to choose investment in a socially responsible company. Theoretically, Goldstein et al. (2021) develop a rational expectations equilibrium model to explain the interaction between investors' heterogeneous preferences to ESG investment, differential exposure to ESG information, and investment performance. Lo and Zhang (2021) propose a quantitative framework for assessing the investment performance of impact investing in order to e the condition under which the reward exceeds the cost of impact investing. Before ESG and CSR evolved into the mainstream in recent years, Riedl and Smeets (2017) conducted a survey to understand the reasons why investors hold socially responsible investment funds. They find that investors' intrinsic social preferences and social signaling are major reasons that cause investors to hold socially responsible investment funds. Their empirical findings suggest that although ESG investors also have financial motivations when making an impact investment decision, they are willing to accept lower financial returns from ESG investing when their social preferences dominate over financial motivations.

Practically, for investors who have strong social preferences in their investment, to invest in an "ethical" firm, they could perform research on their own of which companies have better ethical performance records. However, such research could be quite time-consuming. Investors could choose mutual funds or other investment vehicles that only consist of companies that meet some sort of ethical standard. Or, they could choose to only invest in companies on the "Most Ethical Companies" list. As such, companies may prefer to be listed on the website for several reasons. For one, being listed there would reflect the company's image of promoting ethical standards. For another, company management may seek to improve financial or market performance by attracting investors who choose to only invest in ethical firms. However, from the company's viewpoint, is it worth it to be an "ethical firm"? Is their performance better or less risky?

Evidence is mixed regarding the performance of ethical companies. Cummings (2000) tests the performance of ethical investment trusts in Australia and finds that on a risk-adjusted basis, there is no significant difference between the financial performance of these trusts and performance measures of three common market benchmarks (the Smaller Companies Index, the Industry Average Index, and the All Ordinaries Accumulation Index). However, he finds that the ethical trusts have slightly superior financial performance against their respective industry average indexes. Mallin et al. (1995) study the returns of ethical trusts in the U.K. and find that ethical trusts outperformed non-ethical trusts on a risk-adjusted basis. Other authors (Levis 1988; Luther et al. 1992) find that ethical trusts have a small company bias and relate the performance of the trusts to the fact that smaller companies have been shown to outperform the market.

On the other hand, Robson (1986) studies the investment performance of Australian funds and finds inferior market performance. Similarly, Diltz (1995) finds that ethical screening has little impact on portfolio performance. In fact, Hong and Kacperczyk (2009) have shown that stocks that represent various societal vices—so-called "sin" stocks—have higher expected returns than otherwise comparable stocks.

In terms of stock market prices, previous research has also produced conflicting evidence for ethical or socially responsible firms. Several studies show a positive reaction to social disclosure. Ingram (1978) finds that firms in certain market segments that disclosed social initiatives outperformed non-disclosing firms. Anderson and Frankle (1980) find that firms who continuously disclose social initiatives had greater market returns than both non-disclosing firms and newly disclosing firms.

However, Belkaoui (1976) finds that for companies who disclosed pollution-abatement expenditures, the stock price reaction was positive for the first four months after disclosure, followed by a negative market effect over the next 20 months. Other authors have found a similar negative effect on the performance of firms who disclose social expenditures (Spicer 1978; Vance 1976; Freedman and Jaggi 1982; Ingram and Frazier 1983). Kaustia et al. (2009) cite numerous studies that find that stocks of companies that are deemed "good" (in other words, admired in various ways) do not provide superior returns (see Kaustia et al. 2009 for citations of these studies).

Recent studies have examined the mechanism of impact investing, ESG, and CSR from a wider range of perspectives, both theoretically and empirically. Equilibrium models that incorporate ESG and investors' preference heterogeneity into asset pricing are used to predict investment return and stock valuation of ESG stocks (Fama and French 2017; Pedersen et al. 2021; Lo and Zhang 2021; Goldstein et al. 2021). In the meantime, another branch of research investigates why firms invest in CSR and why investors value ESG (Hartzmark and Sussman 2019; Hart and Zingales 2017; Riedl and Smeets 2017). Prior studies have recorded mixed results of impact investment performance, depending on investors' motivations and preferences as well as ESG measurement metrics. Christensen et al. (2017) and Chowdhry et al. (2019) provide overviews on recent studies in the ESG and CSR literature.

Yet, there is overall support for ethical and environmental policies. Reichert et al. (2000) report a relationship between firm size and ethical and environmental policies. They also note that because the shareholder loss is often quite sizable when corporate executives are indicted for unethical behavior, the "financial markets now take a dim view of unethical behavior" (p. 53). However, does that mean that ethical firms can enjoy both high prices and high stock returns? In our paper, we follow Kaustia et al. (2009) and Hong and Kacperczyk (2009) to examine whether companies on the "Most Ethical Companies" list have better performance than companies that are not on the list. On the one hand, when the impact investors are aware of those most ethical companies, they might be willing to pay a price premium to the most ethical firms. Or, if many investors include the most ethical firms in their investment portfolio, given their ethical norm, the price discovery mechanism of the stock market will make their stocks be overvalued. When stocks are overpriced, the return will be lower. On the other hand, investors expect ethical companies to generate a higher return (Kaustia et al. 2009), and according to the asset-pricing theory, a higher return is associated with a lower stock price. Therefore, we propose our hypotheses based on the findings of Kaustia et al. (2009). Given that investors expect good companies to generate a higher return, we propose:

Hypothesis 1a (H1a). *The most ethical firms have higher returns than comparables.*

Then, following the asset-pricing theory, we propose:

Hypothesis 1a (1b). *The most ethical firms have lower stock valuations than comparables.*

The rest of our paper is organized as follows. In Section 2, we describe the data collection, sample construction, and research design. Testing results are presented and discussed in Section 3. Finally, Section 4 offers a conclusion.

2. Research Design

2.1. Data Collection and Sample

We collect data for our study from the Ethisphere website, the CRSP, Compustat, and IBES databases. We choose the most ethical firms for the years 2007–2017 from the Ethisphere website (Ethisphere 2018. For each year, the list of the most ethical companies is slightly different. As a result, the most ethical firms included in our sample are different year by year. We collect the stock market and financial statement information from CRSP and Compustat. From CRSP, we extract all US firms' monthly closing stock prices and shares outstanding for NYSE, Amex, and Nasdaq stocks. Our data cover the period of 2007–2017. From Compustat, we download annual financial information for all companies. We collect the number of financial analysts' information for each firm every year from IBES. Consistent with other studies in the literature, our study focuses on stocks with CRSP share codes of 10 and 11, which are common shares. We exclude firms in the financial industry whose SIC codes are from 6000 to 6500. We drop firms whose stock prices are negative, ticker numbers are missing, or sales revenues are negative. From each year's most ethical firms list, we merge them with the CRSP and Compustat data. Each year's list starts with 100 companies. For each year, we eliminate private companies and those that had no available ticker symbol. The final number of companies for each year appears in Panel A of Table 1.

In Panel A of Table 1, there are 44, 51, and 56 ethical companies included in our sample in 2007, 2008, and 2009, respectively, while in 2015, 2016, and 2017, the number of the most ethical firms in our sample becomes 73, 68, and 71, respectively. The changing trend of the number of the most ethical firms reflects that in the first few years, when the Ethisphere lists the top 100 most ethical firms, about half of them are private companies. Then, more and more public companies are listed as the top 100 most ethical firms in recent years.

We also decompose our sample by industry based on the two-digit SIC code. The observations in our sample are distributed across 35 industry sectors that are defined by a two-digit SIC code. We report the sample distribution in Panel B of Table 1.

Table 1. Panel A. Number of the most ethical firms. Panel B. Sample distribution by industry.

(A)	
Year	**Number of Companies**
2007	44
2008	51
2009	56
2010	58
2011	49
2012	69
2013	70
2014	71
2015	73
2016	68
2017	71

Table 1. *Cont.*

(B)			
2-Digit SIC Code	**Industry**	**No. of Obs.**	**Percentage**
16	Heavy construction	180	3.19%
17	Construction special trade contractors	10	0.18%
20	Food and kindred products manufacturers	348	6.17%
24	Lumber and wood products	12	0.21%
25	Furniture and fixtures	107	1.90%
26	Paper and allied products manufacturers	168	2.98%
28	Chemicals and allied products manufacturers	338	5.99%
30	Rubber and miscellaneous plastics manufacturers	48	0.85%
33	Primary metal industries	36	0.64%
35	Industrial and commercial machinery manufacturers	727	12.88%
36	Electronic and other electrical equipment manufacturers	381	6.75%
37	Transportation equipment manufacturers	228	4.04%
38	Measuring and analyzing instruments manufacturers	305	5.40%
39	Miscellaneous manufacturing	132	2.34%
42	Motor freight transportation and warehousing	84	1.49%
45	Transportation by air	36	0.64%
48	Communications	45	0.80%
49	Electric, gas, and sanitary services	336	5.95%
50	Wholesale trade—durable goods	111	1.97%
52	Building materials, hardware, garden supply dealers	12	0.21%
53	General merchandise stores	120	2.13%
54	Food stores	60	1.06%
56	Apparel and accessory stores	108	1.91%
57	Home furniture and furnishings stores	48	0.85%
58	Eating and drinking places	180	3.19%
59	Miscellaneous retail	24	0.43%
65	Real estate	171	3.03%
70	Hotels, rooming houses, camps, and other lodging places	120	2.13%
73	Business services	702	12.44%
78	Motion pictures	57	1.01%
80	Health services	94	1.67%
83	Social services	12	0.21%
87	Engineering and accounting and management services	241	4.27%
89	Miscellaneous services	10	0.18%
99	Non-classifiable establishments	52	0.92%
Total		5643	100%

2.2. Empirical Models

Hong and Kacperczyk (2009) developed a model to study "sin" stocks, which are stocks of companies that represent the industries of alcohol, tobacco, and gaming. These stocks were found to have higher expected returns, due in part because the companies may face a higher litigation risk. The stocks were also priced lower than comparable stocks because of a lower level of institutional investors or recommendations of financial analysts. We feel that the opposite would be true in the pricing of stocks of ethical companies. Becker (1957) points out that investors pay for their discriminatory tastes, as there is a cost to building a portfolio built just on social objectives.

In this study, our research question is whether the impact investors pay a price premium to or expect the higher investor return from ethical firms, given the social norm of the most ethical firms. If the impact investors pay a price premium, we predict that the most ethical firms will have higher stock valuation and therefore investing in the most ethical firms has a lower investment return. When investors require a higher investment return, the most ethical firms may have lower stock valuations. To explore the research question, we conduct a series of tests to investigate the returns and prices of the most ethical firms.

We employ capital-assets pricing models to examine both time-series and cross-sectional returns and run the panel data regressions to implement stock valuation analysis.

We use the most ethical firms to build an equal-weighted portfolio and re-balance the portfolio each year based on the updated most ethical firm list from the Ethisphere website. To conduct our tests, we also build the equal-weighted benchmark portfolios that consist of comparable stocks from the same one-digit SIC code industry segments as the most ethical firms. Table 2, Panel A describes the variables used in our models.

Table 2. Panel A. Variables. Panel B. Summary statistics.

(A)	
Variable	**Definition**
LOGSIZE	The natural logarithm of the firm's market capitalization from COMPUSTAT
LOGCOV	The natural logarithm of one plus the number of financial analysts covering a firm at the end of a year from IBES
LOGMB	The natural logarithm of the firm's market capitalization divided by its book value at the end of the year from COMPUSTAT
RETURN	The average monthly return from CRSP
BETA	The firm's industry market beta from CRSP
TURN	The average of individual stock's daily share turnover from COMPUSTAT
LOGAGE	The natural log of the firm's age, measured by the number of years available in the CRSP
ROE	The firm's return on equity from COMPUSTAT
RDSALES	The ratio of research and development expenses to sales for the firm from COMPUSTAT
STD	The monthly stock return standard deviation during the past year
DEBT	The firm's debt ratio from COMPUSTAT
EXCOMP	The excess monthly return on an equal-weighted portfolio of ethical stocks net of comparable stocks
MKTPREM	The excess monthly return of the value-weighted CRSP index
EXMRET	The monthly return of individual stock net of the risk-free rate from CRSP
MB	A firm's market-to-book ratio from COMPUSTAT
LOGPE	The natural log of the price-to-earnings ratio from COMPUSTAT
LOGPEBITDA	The natural log of the price-to- EBITDA ratio from COMPUSTAT
PRINV	The inverse of the stock price from CRSP
ETHDUM	A dummy variable equal to 1 if the stock is on the ethical firms list, and 0 otherwise—from the Ethisphere website
TWODIGDUM	A dummy variable equal to 1 if a stock in the control group resides in the same 2-digit SIC code of the stocks in our ethical firms list, and 0 otherwise
RDMISS	A dummy variable equal to 1 if company *i*'s R&D expenditure in the year is missing
FROE	The next year's ROE
F2ROE	The ROE in the subsequent second year
F3ROE	The ROE in subsequent three year
NASD	A dummy variable equal to 1 if the stock is listed on Nasdaq, and 0 otherwise
SMB	The monthly return of a small-cap stock portfolio minus that of a big-cap stock portfolio
HML	The monthly return of stocks with high book-to-market ratios minus stocks with low book-to-market ratios
UMD	The momentum variable representing stocks with 12-month return increases minus 12-month return decreases (up minus down)

Table 2. *Cont.*

(B)		
Variable	**Time-Series Average of Means**	**Time-Series Average of Standard Deviations**
LOGSIZE	16.658	1.226
LOGCOV	2.903	0.432
LOGMB	0.220	0.694
RETURN	0.011	0.078
BETA	0.668	10.351
TURNOVER	1.926	1.001
LOGAGE	2.717	0.571
ROE	0.182	1.419
RDSALES	0.055	0.061
STD	0.072	0.030
DEBT	0.239	0.165
EXCOMP	0.0002	0.035
MKTPREM	0.008	0.037
EXMRET	0.011	0.078
MB	1.571	1.061
LOGPE	3.013	0.640
LOGPEBITDA	−3.768	1.427

Table 2, Panel B reports the summary statistics of our sample. The time-series average of the cross-sectional means of *LOGCOV* is 2.903, while the time-series average of cross-sectional standard deviations is 0.432. This reflects that in a typical year, a typical ethical firm has 17.23 financial analysts who track the firm and make revenue or profit predictions. The time-series average of the cross-sectional means of *LOGMB* is 0.22, and the time-series average of the cross-sectional standard deviations is 0.694, meaning that in a typical year, the market-to-book ratio of a typical ethical firm in our sample is 1.25 with a standard deviation of about 2.0. We report other variables' summary statistics in Table 2 without having the discussion here because they are standard and similar to those found in the literature.

Our models are similar to those in Hong and Kacperczyk (2009) and analyze both prices and returns. First, we use CAPM with various methodologies to check the excess return of the impact investing portfolio in the time-series dimension. Our model (1) is the CAPM testing model. In Model (1), our dependent variable $EXCOMP_t$ is the excess monthly return on an equal-weighted portfolio of ethical stocks net of comparable stocks in month t. The independent variable is $MKTPREM_t$, the excess monthly return of the value-weighted CRSP index in month t:

$$EXCOMP_t = \alpha + \beta_1(MKTPREM_t) + \varepsilon_t \quad (1)$$

Model (2) reflects the test of our predictions using the Fama–French factor model (Fama and French 1992), and we add the fourth factor of momentum proposed by Jegadeesh and Titman (1993). Consistent with the literature on the four-factor assets-pricing model, our independent variables are *SMB*, representing the return of small minus big stocks; *HML*, representing returns of stocks with high book-to-market ratios minus stocks with low book-to-market ratios; and *UMD*, the momentum variable representing stocks with 12-month return increases minus 12-month return decreases (up minus down).

$$EXCOMP = \alpha + \beta_1(MKTPREM) + \beta_2(SMB) + \beta_3(HML) + \beta_4(UMD) + \varepsilon \quad (2)$$

Model (3) is a cross-sectional regression model to measure excess returns of the most ethical firms over their comparable companies. Our dependent variable is *EXMRET*, the monthly return of individual stock i in month t net of the risk-free rate. In this model, *ETHDUM* is the variable of interest. *TWODIGDUM* reflects whether the control companies are in the same two-digit SIC code as the comparable ethical company in the portfolio.

Independent variables include *LOGSIZE*, *BETA*, *LOGMB*, and *RETURN*. *LOGSIZE* is the log of the market capitalization of the company. *BETA* is the company's industry market beta. *LOGMB* is the log of the market-to-book variable. *DEBT* is the company's debt ratio. *TURN* is the average daily share turnover in stock *i*. *LOGAGE* is the natural log of the firm's age, measured by the number of years available in the CRSP/Compustat database.

$$EXMRET = \alpha + \beta_1(ETHDUM) + \beta_2(TWODIGDUM) + \beta_3(LOGSIZE) + \beta_4(BETA) + \beta_5(LOGMB) + \beta_6(RETURN) + \beta_7(DEBT) + \beta_8(TURN) + \beta_9(LOGAGE) + \varepsilon \quad (3)$$

We investigate analyst coverage with Model (4). Our dependent variable is *LOGCOV*, which is the natural log of one plus the number of financial analysts. Our test variable is *ETHDUM*, a dummy variable equal to 1 if the stock is on the ethical firms list, and 0 otherwise. Our other independent variables are similar to those of Hong and Kacperczyk (2009). They are as follows: *TWODIGDUM*, which is equal to 1 if a stock in the control group resides in the same two-digit SIC code of the stocks in our ethical firms list, and 0 otherwise. *LOGSIZE* is the log of the market capitalization of the company. *BETA* is the company's industry market beta. *LOGMB* is the log of the market-to-book variable. *PRINV* is the inverse of the stock price. *STD* is the monthly stock return standard deviation during the past year. *RETURN* is the arithmetic average of the last year's monthly returns. *NASD* equals 1 if the stock is listed on Nasdaq, and 0 otherwise.

$$LOGCOV = \alpha + \beta_1(ETHDUM) + \beta_2(TWODIGDUM) + \beta_3(LOGSIZE) + \beta_4(BETA) + \beta_5(LOGMB) + \beta_6(PRINV) + \beta_7(STD) + \beta_8(RETURN) + \beta_9(NASD) + \varepsilon \quad (4)$$

We use several models to test the valuation of our portfolio of stocks of ethical companies compared to the control group. Model (5) uses the *MB* (market-to-book ratio) as the dependent variable. Our independent variables include *TWODIGDUM* and *NASD*, as previously explained. In addition, *ROE* measures return on equity. *RDSALES* is the ratio of research and development expenses to sales. *RDMISS* is a dummy variable equal to 1 if company *i*'s R&D expenditure in year *t* is missing. *FROE* is next year's *ROE*. Similarly, *F2ROE* and *F3ROE* represent the *ROE* for the subsequent second and third years. Model (6) uses *LOGPE*, or log of the price-to-earnings ratio, as the dependent variable. Finally, Model (7) uses *LOGPEBITDA*, or log of the price-to- EBITDA ratio, as the dependent variable.

$$MB = \alpha + \beta_1(ETHDUM) + \beta_2(TWODIGDUM) + \beta_3(NASD) + \beta_4(ROE) + \beta_5(RDSALES) + \beta_6(RDMISS) + \beta_7(FROE) + \beta_8(F2ROE) + \beta_9(F3ROE) + \varepsilon \quad (5)$$

$$LOGPE = \alpha + \beta_1(ETHDUM) + \beta_2(TWODIGDUM) + \beta_3(NASD) + \beta_4(ROE) + \beta_5(RDSALES) + \beta_6(RDMISS) + \beta_7(FROE) + \beta_8(F2ROE) + \beta_9(F3ROE) + \varepsilon \quad (6)$$

$$LOGPEBITDA = \alpha + \beta_1(ETHDUM) + \beta_2(TWODIGDUM) + \beta_3(NASD) + \beta_4(ROE) + \beta_5(RDSALES) + \beta_6(RDMISS) + \beta_7(FROE) + \beta_8(F2ROE) + \beta_9(F3ROE) + \varepsilon \quad (7)$$

To test our models, we run pooled and panel regressions controlling for standard errors by clustering them at the industry level. We define the industry classification using a two-digit SIC code. This methodology relies on fewer assumptions about correlations between standard errors and industry groups over time. It generates an unbiased estimation because it creates the most conservative standard errors.

3. Results and Discussion

Results of our regression models appear in Tables 3–6. Table 3 reports the testing results of CAPM and Fama–French four-factor models, as expressed in Models (1) and (2). We run the time-series regressions to test the factor model. The dependent variable, *EXCOM*, is the difference between the monthly return of an equal-weighted portfolio of the most ethical firms in month *t* and the monthly return of an equal-weighted portfolio of comparable firms in the same industry segment that is classified by the two-digit SIC code. *SMB*,

HML, and *UMD* are investment return factors in the literature. We download the monthly return factor data from Compustat. The interest of estimation is the alpha expressed by the constant in the regression. It measures the excess return. In variations of factor models, the coefficients of constants are consistently positive at 1% and 5% significance levels, respectively. Both CAPM and two-factor models yield positive alphas of 20 bps with 1% significance, indicating that the most ethical firm portfolio generates a 2.43% excess return annually. The three- and four-factor models have 11 bps alphas with 1% and 5% significance, respectively. This means that the most ethical firm portfolio outperforms its comparables by 1.36% annually. In addition, the coefficients of all factors in all testing models are significant at a 1% level, with one exception. The coefficient of *HML* in the four-factor model is insignificant. That is the only exception in the time-series regressions. The consistent and significant estimation results reveal that the impact investing portfolio consisting of the most ethical firms yields an excess return over time.

Table 3. Four-factor assets-pricing model.

Models 1 and 2				
Variable	**EXCOMP**	**EXCOMP**	**EXCOMP**	**EXCOMP**
ALPHA	0.002 ***	0.002 ***	0.001 ***	0.001 **
MKTPREM	−0.201 ***	−0.105 ***	−0.091 ***	−0.039 ***
SMB		−0.541 ***	−0.532 ***	−0.539 ***
HML			−0.083 ***	0.03
UMD				0.177 ***

*** 1% significance; ** 5% significance; * 10% significance.

Table 4. Cross-sectional return regression.

Model 3					
Variable	**EXMRET**	**EXMRET**	**EXMRET**	**EXMRET**	**EXMRET**
ETHDUM	0.002 **	0.002 **	0.002 *	0.002 *	0.005 **
LOGSIZE	−0.001 **	−0.001 **	−0.001 **	−0.001 **	−0.003 **
LOGMB	0.003 ***	0.003 ***	0.004 ***	0.004 ***	0.004 ***
DEBT	0.006 **	0.006 **	0.006 **	0.006 **	0.007 ***
RETURN	0.895 ***	0.895 ***	0.891 ***	0.887 ***	0.914 ***
TWODIGDUM		−0.001	0.004	0.004	0.006
BETA			0	−0.000 *	0
TURN				0.001 **	0.001 **
LOGAGE					0.001 **
CONSTANT	0.017 **	0.018 **	0.013 **	0.014 *	0.025 **

*** 1% significance; ** 5% significance; * 10% significance.

Table 5. Stock valuation.

Models 5, 6, and 7			
Variable	**MB**	**LOGPE**	**LOGPEBITDA**
ETHDUM	−0.004	−0.128 ***	−1.842 ***
TWODIGDUM	−0.228	−0.152	1.621 **
NASD	0.276	0.100 ***	0.924 ***
ROE	0.521 ***	−2.438 ***	−0.273 ***
RDSALES	0.044 ***	−0.015	1.231 **
RDMISS	0	0	0
FROE	−0.751	3.871 ***	1.297 ***
F2ROE	−0.122	−0.961	−1.394 *
F3ROE	0.483	−0.724	0.143
Constant	0.490 ***	3.098 ***	−1.038 ***

*** 1% significance; ** 5% significance; * 10% significance.

Table 6. Financial analyst coverage.

Model 4					
Variable	**LOGCOV**	**LOGCOV**	**LOGCOV**	**LOGCOV**	**LOGCOV**
ETHDUM	−0.023	−0.016	−0.033 *	−0.035 *	−0.040 *
TWODIGDUM	−0.043	−0.189	−0.188	−0.149	−0.153
LOGSIZE	0.343 ***	0.340 ***	0.352 ***	0.364 ***	0.365 ***
BETA	0.004	0.001	0	0	−0.004
NASD	0.132 ***	0.121 ***	0.124 ***	0.120 ***	0.114 ***
LOGMB		0.024 **	0.026 ***	0.023 **	0.044 ***
PRINV			0.233 ***	0.193 ***	0.121 ***
STD				0.750 ***	0.908 ***
RETURN					−1.709 ***
CONSTANT	−2.806 ***	−2.617 ***	−2.808 ***	−3.087 ***	−3.098 ***

*** 1% significance; ** 5% significance; * 10% significance.

To investigate the return performance of the impact investing portfolio thoroughly, we also use a cross-sectional variation to run regressions in Model (3). Our estimation results are consistent and conservative with various methodologies, including the Fama and MacBeth (1973) with Newey and West (1987) standard errors, and pooled and panel regressions controlling for industry clustering standard errors. In Model (3), the coefficient of the dummy variable, β_1, is the focus of tests. It reflects whether the most ethical firms have an extra return over comparables. To control for firm characteristics, we include a list of control variables that have been defined earlier.

The regression results are presented in Table 4. We report the estimation results using the Fama and MacBeth (1973) estimation methodology with Newey and West's (1987) standard errors.[1] Our main test result with all control variables, including size, market-to-book ratio, the past debt ratio, past return, beta, past turnover, and firm age, is reported in column 5. The coefficient of the ethical firm dummy is 0.0052 and statistically significant at a 5% significant level, indicating that the ethical firms outperform their comparables by 52bps monthly or 6.42% annually. While the 6.42% extra return is material in amount, the estimation results are consistent and solid, with the majority of control variables being statistically significant at 1% or 5% level of significance, respectively. Consistent with the literature, the coefficient of *LOGSIZE* is negative and significant at a 5% level, revealing that large firms have lower returns. The insignificant coefficient of BETA predicts that beta is not correlated to the return statistically in this cross-sectional regression, a finding that is consistent with the literature as well. The statistically significant coefficients of other control variables suggest that the market-to-book ratio, past return, past turnover, past debt ratio, and firm age are effective predictors when examining the cross-sectional stock returns. The testing results remain significant across various specifications when we relax controls. As reported in columns 1 to 4 in Table 4, in the estimations with a varying number of control variables, the coefficients of the ethical firm dummy are 0.002 and stay statistically significant at 5% and 10% levels of significance. This result suggests that the most ethical stocks outperform their comparables by 20 bps monthly or 2.43% annually.

Both time-series and cross-sectional tests of the return of the most ethical firms generate significant excess returns consistently. The testing results reveal that investing in the impact investing portfolio that consists of the most ethical firms can obtain an extra return and that the most ethical stocks have higher returns instead of prices. To further investigate the return performance mechanism of the most ethical firms, we conducted a stock-valuation analysis with various stock-valuation measures.

The results in Table 5 reflect the different measures of stock valuation. We estimate the model by running panel regression with industry group clustering standard errors and the Fama and MacBeth (1973) regression with Newey and West's (1987) standard errors. Our results from the above two estimation methodologies are consistent. In column 1, stock valuation is measured by the market-to-book ratio (*MB*). In columns 2 and 3, we

measure stock valuation with the log of the price–earnings ratio (*LOGPE*) and log of the price over earnings before interest, taxes, depreciation, and amortization (*LOGPEBITDA*), respectively. The coefficient of the ethical stocks (*ETHDUM*) signals the stock valuation of the most ethical firms over their comparables. Following the literature, we include a vector of control variables to assess firm characteristics. Our independent variables include *TWODIGDUM* and *NASD*, as previously explained. *ROE* is the return on equity. *RDSALES* is the ratio of research and development expenses to sales. *RDMISS* is a dummy variable equal to 1 if company *i*'s R&D expenditure in year *t* is missing. *FROE* is next year's *ROE*. Similarly, *F2ROE* and *F3ROE* represent the *ROE* for the subsequent second and third years. The estimation of the testing models creates negative coefficients of the ethical dummy and identifies control variables correlated with the valuation. Our findings from the stock-valuation analysis are similar to findings in the literature. The negative and statistically significant coefficients of *ETHDUM* propose that the most ethical stocks are priced lower. Specifically, in column 1, we use *MB* as the valuation variable. The coefficient is -0.004 but insignificant. In column 2, when we use *LOGPE* as the dependent variable in the regression model, we obtain a −0.128 coefficient on *ETHDUM*. It is statistically significant at the 1% level. Results in column 3, which uses *LOGPEBITDA* as the dependent variable, confirm this finding with all control variables consistent with the results reported by Hong and Kacperczyk (2009). In column 3, the coefficient on *ETHDUM* is −1.842 and significant at the 1% level. The coefficient of *TWODIGDUM* is positive and significant, indicating that companies in the same two-digit SIC code industry segments as ethical firms have their stock prices higher than those of other stocks. The coefficients of *ROE*, *RDSALES*, and *FROE* are consistent in signs with those reported by Hong and Kacperczyk (2009) and statistically significant at the 1% and 5% level, respectively, suggesting that *ROE*, *RDSALES*, and *FROE* are factors influencing stock valuation. Coupled with our earlier result that the most ethical stocks have a higher return, we can conclude that stocks of the ethical firms are priced lower but have a higher return.

The assets-pricing model displays that investing in the portfolio consisting of the most ethical firms achieve at least 11 bps monthly or 1.36% annual extra return over time, adjusted for all risk factors, while the cross-sectional return regression model predicts that the most ethical stocks outperform their comparables by at least 20 bps monthly or 2.43% annually. Then, the stock-valuation analysis results suggest that the extra return of the most ethical firms is associated with lower stock prices. Whereas the investment return performance and stock valuation analyses provide empirical evidence that supports our hypotheses H1a and H1b, the question of whether investors expect higher returns or higher prices from the most ethical firms remains unanswered. The related literature provides two models, suggesting two explanations. Merton (1987) addresses the stock-valuation mechanism from the perspective of information. It asserts that incomplete information or uninformed investors are associated with underpriced stock valuation. Heinkel et al. (2001) analyze the price implications of ethical investing from the angle of investors' risk aversion level. According to Heinkel et al.'s (2001) model, individual investors are more risk-averse than institutional investors. Therefore, when individual investors make impact investing, their higher risk factors will be priced into the stock's valuation. To reveal the information environment of the most ethical stocks, we run an additional test to examine the financial analyst coverage of the most ethical firms.

We use the Fama and MacBeth (1973) estimation methodology to run Regression Model (4). The regression results are shown in Table 6. The coefficient of *ETHDUM* in column 6 is −0.04 and statistically significant at 10% in the most rigorous estimation models that control for the majority of firm characteristics, indicating that the portfolio of ethical stocks is not recommended more frequently than our portfolio of comparison stocks. Analyst recommendations are positively related to size (*LOGSIZE*), market-to-book value (*LOGMB*), price (*PRINV*), standard deviation (*STD*), and being listed on the Nasdaq index (*NASD*). Stocks that had a lower return the previous year were not recommended by analysts.

4. Conclusions

When investigating the effect of impact investing, many papers study the relationship between ESG, CSR, and investment performance from various perspectives using various samples and different ESG measure metrics. Although the ESG-frontier asset-pricing models provide predictions for investment returns of ESG stocks, empirical findings remain inconclusive. The existence of ambiguity in empirical evidence supports the need for more exploration in the ESG area. In this paper, we have compared a portfolio of stocks comprised of companies on the "Most Ethical Firms" list to a portfolio of comparable stocks. Using various testing models and estimation methodologies, we investigate the return performance and stock valuation of the most ethical firms. The testing results show that investing in the portfolio of ethical firms has a positive alpha and that the most ethical stocks are priced lower. Our further regression analysis reveals that the most ethical firms have less information coverage provided by financial analysts. Our paper has an impact in the area of socially responsible investing because we find that the firms that strive for an ethical reputation do provide a greater return than a portfolio of comparable stocks. Our results have important implications for asset pricing. Supporting the equilibrium asset pricing model (Pástor et al. 2021), we find that the most ethical firms are underpriced due to information asymmetry, which is evidenced by less financial analyst coverage, and therefore investing in those companies' stocks can achieve higher returns. The empirical results illustrate the feasibility of "doing well by doing good". The most ethical firms can achieve larger social goals without a financial sacrifice. The empirical findings from our paper are in particular important to equity investors because they can earn positive alpha from investing in stocks with the most ethical rankings from the Ethisphere website. Our findings extend the frontier of the literature by revealing the higher returns from the most ethical firms and exploring the factors that drive the positive alpha of this impact investment strategy.

We note that our sample is based on the most ethical firms that are ranked by the Ethisphere website. While the ranking criteria are rigorous and cover a wide range of ESG and CSR aspects, they differ from other ESG ratings. This ESG assessment issue is one of the limitations of our paper. It raises the questions of the extent to which the investment strategy we suggest in our paper can be generalized to the whole investment domain. Another limitation of our paper is that companies are self-reporting to the Ethisphere website for the most ethical firm ranking. The self-reporting process limits the size of our sample and is prone to measurement error. Future research in this area can further explore the investment performance from the perspective of the most ethical firms when a larger dataset is available. In addition, we expect to generalize our findings to a wider investment domain if there are widely-accepted ESG rating measures and methodologies available in academia or practice.

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Note

[1] The estimation results using panel regressions with industry group clustering standard errors are consistent with the results reported here. They are available by request.

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