ESG Investing: A Literature Review

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ABSTRACT

ESG stands for environmental, social, and governance. In the field of finance, ESG information is increasingly widely used in affecting asset pricing models and investment decisions of investors. We provide an introduction to the definitions and characteristics of ESG data and ratings. We discuss various reasons for using ESG information, especially its financial effects on market reactions. We then provide a practical overview of passive and active ESG related investing strategies, analyze its investing effects on different groups of investors, and pursue challenges and opportunities for future ESG investing.

1. INTRODUCTION

ESG stands for environmental, social, and governance, represents three kinds of information related to the natural environment, human society, and corporate governance. In the field of finance, ESG contains additional information that influences asset pricing model and investing decisions. Therefore, there exits an increasingly growing trend that the ESG information should be included in generating investment strategies.

"There is no standardized method for calculating or representing ESG indicators. Investors can use a variety of analytics and data sources to solve ESG problems, including weighing customer interest against potential value." as CFA institute states. Therefore, different well-known organizations or institutes construct their own ESG data sets and corresponding indicators. Nowadays, more investors incorporate ESG information into their investment process along with traditional financial analysis. They do ESG investing, that not only do they consider financial objectives, but also care about environmental, social, and governance criteria.

The reasons of why we use ESG information should be discussed from three perspectives, the corporate governance, market reactions, and investor decision-making processes. There are two primary strategies for investors to integrate ESG into equity portfolios, which are passive investing strategy and active investing strategy. For passive investing strategy, screening method, optimizing method and factoring method are widely used. As for active investing strategy, refining ESG scores and designing ESG signals have statistically significance in trading and prediction.

After considering why and how investors use ESG information to do investment, the next step is to analyze effects of ESG investing in financial performance for two groups of investors.

The ordinary investors who does not engage in active ownership by directly exerting influence on management, consider whether ESG values can be efficiently recognized in stock market, which presents as overperformance or underperformance. While the activist investors with ownership care about ESG integration or action can create firm values.

Using ESG information when making investment decisions brings challenges which need extra attention compared to conventional investing process. However, at the same time, implementing ESG investing can create new opportunities for investors, from industry and portfolio aspects.

In section 2 we discuss diversified definitions and characteristics of ESG data and indicators from well-known institutions. In section 3 we further illustrate detailed reasons for using ESG information from corporate governance, market reaction and investor decision-making perspectives. Section 4 provide practical overview of various active and passive ESG related investing strategies and offer empirical results. Section 5 analyzes ESG investing effects on different groups of investors (Ordinary investors and activist investors. Current challenges and future opportunities for ESG investing are listed in section 6, and section 7 concludes.

2. THE DEFINITION AND CHARACTERISTICS OF ESG

2.1 ESG Information

ESG stands for Environmental, Social, and Governance. ESG information represents three kinds of information related to the natural environment, human society, and corporate governance. Specifically, environmental factors include climate change, natural resources, pollution, and other natural factors. Social factors include social policy, working population, ethnic culture, and other human factors. Governance factors include the company's internal structure, business strategy, management system, and other relevant factors of the company.

In the field of finance, ESG information represents three important non-financial factors that influence pricing models of financial assets and investment decisions of investors. As you can see, ESG contains countless subdivisions of content and information, and not all small factors in investment decisions are considered. In fact, ESG investing will only focus on the part of all factors, so as to generate the corresponding investment strategy based on these factors.

2.2 ESG Data and Rating

ESG information, as event and statistical information, after being disclosed and processed, can play a role as factors affecting investment and pricing. CFA Institute notes that "there is no standardized method for calculating or representing different ESG indicators. Investors can use a variety of analytics and data sources to solve ESG problems, including weighing customer interest against potential value."[1]

Since there is no standardized ESG information, many organizations now have their own formatted ESG information and set corresponding indicators. According to the research of

[1] See more details on https://www.cfainstitute.org/en/research/esg-investing

Bender et al., (2018), by 2016, there were more than 125 relevant institutions offering ESG ratings and research. Among them, the most well-known and widely used are MSCI, Sustainalytics, Thomson Reuters, Bloomberg, and others. At the same time, each ESG data provider has developed its own procurement process and research methodology.

2.3 ESG Investing

Like ESG information, there is no uniform definition of ESG investing in the industry. MSCI's definition is "ESG investing is the consideration of environmental, social, and governance factors alongside financial factors in the investment decision-making process."[2] At the same time, The CFA defines that "ESG stands for Environmental, Social, and Governance. Investors are increasingly applying these non-financial factors as part of their analysis process to Identify material risks and growth opportunities".[3] In addition to the above two institutions, a well-known ESG investing institution, ADEC's interpretation of ESG investing, is that "ESG refers to a class of investing that is also known as 'sustainable investing.' This is a term for investments that seek positive returns and long-term impact on society, environment, and the performance of the business".[4]

ESG investing is growing in importance for both institutional and retail investors. ESG investors incorporate ESG factors into their investment process along with traditional financial analysis. Investors may consider a number of different ESG factors, indicators, and data when adopting an ESG investment strategy or applying ESG across a portfolio. These factors usually include key issues in some industries, such as environmental pollution, unemployment,

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[2] See more details on https://www.msci.com/what-is-esg
[3] See more details on https://www.cfainstitute.org/en/research/esg-investing
[4] See more details on https://www.esg.adec-innovations.com/about-us/faqs/what-is-esg

corporate governance, data privacy, etc. For example, energy companies need to consider whether existing production methods emit too much carbon dioxide, which can adversely affect the environment. Or cultural companies need to consider whether their products are targeted at consumers of different cultures, religions, races, and so on.

ESG investing has been a practice since the 1960s, in which investors identify companies that have a negative impact on the environment, society, or their own governance and exclude their stocks or entire industries from the portfolio. As time goes by, the amount of funds for ESG investment in the market keeps rising. According to the statistics of UN PRI in April 2017, since its establishment in 2006, the United Nations Principles for Responsible Investment (PRI) has attracted the support of more than 1,800 signatories, and the assets under management have exceeded us $68 trillion as of April 2017. Signatories pledged to abide by six voluntary principles, the first of which is the integration of ESG issues into investment analysis and decision-making.

Today, many ESG investors take social ethics, values, and other factors into account in their investment decisions. For example, whether some companies or industries attach importance to the social ethics of racial equality and gender equality. Research on the subject is also developing rapidly.

3.THE REASON FOR USING ESG INFORMATION

ESG information is now widely used in corporate governance, markets, and investor decision-making processes. From these three perspectives, we select certain literature to summarize the reasons why ESG information is widely used briefly.

3.1 Corporate Governance

Friede et al., (2015) summarized nearly 2000 research papers, showing that opportunities for ESG to perform well exist in many areas of the market, especially in North America, emerging markets, and non-equity asset classes. They also highlight that the positive impact of ESG on corporate financial performance seems to stabilize over time. van Duuren et al., (2016) investigated how traditional asset managers take ESG into account in their investment process. They found that ESG information was often used for red-flagging and risk management and that many traditional managers integrated SRI into their investment process. Cheng et al., (2014) shows that enterprises with good CSR performance face significantly lower capital constraints. Besides, Khan et al., (2015) points out that ESG information that is value relevant and predictive of firms' future financial performance.

3.2 Market Reaction

Grewal et al., (2015) pointed out that the stock market will react to non-financial information disclosure, including ESG information. This suggests that ESG information can influence share prices in the market to some extent. Dhaliwal et., al (2011) showed that enterprises that voluntarily disclose CSR (which is similar to ESG) could bring potential benefits, that is, reduce the capital cost of corporate equity. Richard Hitchens et al., (2014) looked at opportunities to capture alpha using data from each of the three pillars of ESG. They

concluded that, overall, the companies with the weakest management skills and the highest exposure to social problems performed significantly less well than all the others. Kiesel & Lücke, (2019) investigated ESG factors in rating reports issued by credit rating agencies. They note that ESG considerations are small but present in rating decisions. ESG information is an important determinant of stock returns, and CDS spreads before and after rating announcements. And all ESG rules are important for equity and debt investors.

3.3 Investor Decision Making

Amel-Zadeh & Serafeim, (2017) designed an internet-based survey by collecting demographic information, showing that a large majority of investors (82%) take ESG information into account while making financial decisions. Among the motivations, US investors consider more about product development strategies than European investors (47% compared to 30%, p-values<0.01). In contrast, European investors believe the ESG information to be more effective in changing firms' behavior compared to US investors (41% versus 26%, p-value<0.05). This result shows that the motivation for using ESG information varies across geographies. Other reasons for using ESG information include growing demand from clients and stakeholders and regard ESG factors as their ethical responsibility. In the fourth part of this article, we will give a further overview of the effect of ESG investment on investors.

4. THE WAY WE DEPLOY ESG INVESTING

There are two primary strategies for investors to integrate ESG into equity portfolios, which are passive investing strategy and active investing strategy. We will further introduce the different methods as follows.

4.1 Passive Investing Strategy

4.1.1 Screening Method

Negative screening method screens the universe based on ESG scores and remove the worst companies in terms of ESG scores. In contrast, positive screening adds the best companies with highest ESG rating. Moreover, Khan et al. (2016) finds that portfolios using positive screening on ESG information outperform their peer portfolios, which is the reason why this method is gaining popularity in recent years.

4.1.2 Optimizing Method

This method designs a portfolio that have similar returns as benchmark through minimizing tracking error while simultaneously maximizing the ESG score. However, investors should keep in mind that there is a tradeoff between tracking error and ESG profile improvement.

4.1.3 Factoring Method

Factoring method harnesses factor premia in a transparent indexed portfolio (i.e. smart beta) while incorporating ESG, and it is relevant for those investors with a factor-oriented mindset. In addition, Edmans (2011) finds that portfolios incorporate individual ESG factors outperform other similar portfolios. In contrast, Hong and Kacperczyk (2009) find that those portfolios exclude certain firms with ethical factors underperform their peer portfolios.

Edmans (2011) conducts portfolios using MSCI world Index Universe, Screening Method, Optimizing Method and Factoring Method using ESG scores and gets annualized returns as 9.7%, 9.7%, 9.4% and 12.1%. In the meantime, the portfolios using carbon scores get the annualized returns as 9.7%, 10.1%, 10.9% and 12.8% respectively. In this way, all three methods have better performance compared to the MSCI World Index benchmark.

4.2 Active Investing Strategy

4.2.1 Refining ESG Score

As not all ESG metrics are material to all sectors, we only select those ESG metrics with a focus on materiality that can help security selection or risk mitigation. Khan (2016) generates a score for each firm that measures only material sustainability aspects and finds that higher-ranking firms on material issues outperform firms that rank lower relatively.

4.2.2 Designing An ESG Signal

We construct real-time ESG signals by weighting ESG information and measures, and the existing ESG portfolios are adjusted according to the signals. The most challenging part of this method is to define the relative materiality based on analysis. Besides, based on an experiment from August 2009 to March 2017 including different ranking materiality industries, Jennifer (2017) summarizes that at longer horizons, those EDG signal has strong predictive power.

5. ESG INVESTING EFFECTS

We now turn to effects of ESG investing in financial performance for two groups of investors, after considering why and how investors use ESG information to do investment. In the following, the first group of investors we analyze are the ordinary investors who (1) does not possess inside information about firm values and (2) does not engage in active ownership by directly exerting influence on management (Hvidkjar, 2017). For the second group of investors, we assume that they are active owners or activist investors who actively and directly engage in corporate management and investment decision making. They care more about whether ESG integration or action can generate firm values, while the the first group passive owners think about whether these values can be efficiently recognized in stock market then affect their investing performances. The goal of this section is to present various effects of ESG investing for two groups of investors, and to provide empirical evidence of the results of some of the methods in section 3 applied in practice.

5.1 Ordinary Investors

The main problem for ordinary investors is to illustrate the reasons for both outperformance and underperformance of ESG investing compared with conventional investing.

5.1.1 Outperformance

For the outperformance of ESG investing, there are three general theories to explain. First, the underreaction hypothesis suggests that the value pricing effect of ESG information may not be efficiently recognized in the stock market, which result in the undervaluation of some ESG firms. Therefore, investors can pursue positive abnormal returns from these firms (Hvidkjar,

2017). Consistent with some research since Ball and Brown (1968), there exists statistically significant post-earnings announcement drift following accounting restatements and open market share repurchase (Ikenberrya, Lakonishokb and Vermaelencd, 1995) that prove the market underraction.

Secondly, the equity market's failure to incorporate the value of intangible assets. Firms with high R&D (Lev and Sougiannis, 1996), software development costs (Aboody and Lev, 1998), patent citations (Deng, Lev, and Narin, 1999) and advertising (Chan et al., 2001) can obtain superior long-run returns (Edmans, 2011). Therefore, the ESG characteristics of firms are also intangibles, and it might be undervalued by stock market, unless it subsequently manifests in tangible outcomes (Edmans, 2011).

Moreover, the growing preference and demand for ESG stocks heap up their prices and make high ESG stocks outperform the average market or the low ESG stocks. Individual investors now are also willing to pay a higher management fee for the investments that are both financially profitable and socially beneficial.

5.1.2 Underperformance

There are also three descriptive reasons account for the underperformance of ESG investing. The demand effect of ESG firms mentioned above may enables investors ignore low ESG groups, such as "sin stocks". This ignorance can bring underreaction then come to higher returns. Moreover, the high cost of ESG screening can decrease the returns of ESG investment, when we encounter with a almost perfectly efficient market that everyone should use passive low-cost strategy (Hvidkjar, 2017). However, even if ESG investing places no effect in stock market prices, investors can experience lower expected return with a certain risk without using

diversification strategy. Markozitz (1959) indicates that these lack-of-diversification effects are obvious if none of industries are excluded from the portfolio such as low-ESG industries.

5.2 Activist Investors

The active owners or activist investors who actively and directly engage in corporate management and investment decision making, affect firms' value via choices among investment and firm characteristics.

ESG investing can create firm value through various channels. ESG investing is related to Corporate Social Responsibility (CSR). According to Benabou and Tirole (2010), CSR takes a long-term perspective to maximize profits. Because it can avoid managers' short-termism, that is, managers take decisions that increase short-term profit, but reduce shareholder value and hurt workers on other constituencies. Therefore, ESG investing creates values by eliminating managerial myopia. And Baron (2008) suggest that more consumers reward the firm for its social expenditures to increase firm values. Besides, Albuquerque, Koskinen and Zhang (2017) proves that the CSR decreases systematic risk and increases firm value. Pastor, Stambaugh and Taylor (2019) also illustrates that ESG-induced effect can not only tilt real investment from brown to green firms, but also enable firms to be greener. Because ESG tastes generate negative alphas, reduce green firms' expected returns and hence their costs of capital. Green firms then increase their projects' NPV and their firm value. Stronger ESG tastes induce all firms, green and brown, to adjust their firm green characteristics by more, which reduces their expected cash flows, and hence also their investment.

However, the ESG investing can also cause value-destroying effect. Managers may invest more on ESG stocks mainly due to their clients' preference. And management can almost

always rationalize any action by invoking its impact on the welfare of some stakeholder. An empire builder can justify a costly acquisition by a claim that the purchase will save a couple of jobs in the acquired firm; a manager can choose his brother-in-law as supplier on the grounds that the latter's production process is environmentally friendly (Tirole, 2001).

6. CHALLENGES AND OPPORTUNITIES

6.1 Challenges

Using ESG information when making investment decisions brings challenges which need extra attention compared to conventional investing process. Kenneth and David (2009) identifies the challenges as follows:

- Increasing complexity
- Lack of stable performance
- Trust and accountability problems
- The unsure influence of time horizon
- Not fully quantitative

6.2 Opportunities

At the same time, implementing ESG investing can also create new opportunities for investors from two main perspectives.

6.2.1 Industry Aspect

Jekaterina and Marija (2017) regard health and wellness as the most prospective fields to invest with the consideration of ESG factors. Similarly, Amel (2017) also suggests the health industry as an opportunity in the ESG investing horizon. Moreover, hospitality and travel are advantageous industries as well for ESG investing method in the research of Bauer (2005).

6.2.2 Portfolio Aspect

Due to the increasing availability of data, investors may find quantifying ESG implications an easier thing, which facilitate the process of making investing decisions. Besides, by using ESG as a risk metric, controlling the exposure to risk becomes more realizable.

CONCLUSION

In recent years, ESG investing is gaining popularity and impacting both returns and potential risks when making investment decisions. Besides, the increasing data availability makes it possible to integrate ESG information into equity portfolios in a comprehensive form. The review of the ESG information leads to several perspectives deserving further exploring.

Firstly, the reason that investors use ESG information can be categorized into corporate governance, market reactions, and investor decision-making processes. ESG information can be used with passive investing strategy and active investing strategy. The former one contains screening method, optimizing method and factoring method. And research shows that portfolios using positive screening method can outperform their peer portfolios. In addition, active investing strategy is made up with refining ESG score which selects ESG metrics with higher materiality and designing ESG signals by weighing ESG information and measures.

Secondly, we consider the effects of ESG investing on the performance of two kinds of investors. For the ordinary investors who do not engage in active ownership or directly having influence on management, they would consider the overperformance and underperformance of ESG values in stock market. For the activist investors who have ownership, they concern about whether ESG integration or action can create firm values or not.

Lastly, ESG investing is facing challenges such as growing complexity, lack of stable performance, trust and accountability problems, not fully quantitative and so on. It is also creating new opportunities. Industry, health, hospitality and travel are prospective fields to invest incorporating ESG information. For portfolio aspect, the availability of quantitative analysis and using ESG information to build risk metrics are new chances to be discovered.

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