The Impact of ESG Rating Discrepancies on Investor Decision-Making: A Comprehensive Analysis Based on Behavioral Finance Theory

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Abstract. Prompted by the rapid development of ESG (including environmental, Social and Governance) investment, ESG ratings are coming into sight as an indispensable reference for investment decision-making. But the rating of the same firm by different rating agencies can differ a lot, which aggravate the adverse selection problems of investors. This paper examines how ESG rating deviation affects investor decision making behavior and changes the investment decision making logic through investor risk perception, sentiment swing, decision heterogeneity and market performance. Empirical study proves that the rating differences increase the stock market fluctuation, and has a certain impact on the market stability and the management's strategic adjustment. Lastly, this paper concludes with future research directions and recommends further investigating the responses of various investors for better transparency and uniformity of the rating model.

Keywords: ESG Rating Discrepancies, risk perception, sentiment swing, decision heterogeneity, market performance.

1. Introduction

In recent years, as the concept of sustainable development became more popular, the significance of including environmental, social and governance (ESG) considerations in the investment process has gradually increased. As one of conventional approaches on evaluating enterprises' performance in terms of sustainable development, ESG ratings can assist investors to make a more integrated choice in some non-financial indicators. But different rating agencies frequently give the same company very different ESG grades. Such a rating difference not only undermines the information asymmetry of investors, but also exaggerates the uncertainty of decision.

There are various reasons behind the inconsistency of ESG scores, including the differences between rating agencies in measurement standards, weight allocation in the rating system and methods of assessment. Due to these differences, the ratings of the same company given by different institutions vary greatly, which in turn affects investors' judgment of the risks and potential of enterprises. When investors are confronted with different rating results, they often have to make choices among a large amount of inconsistent information, which undoubtedly increases their decision-making complexity and risk perception. The intensification of rating divergence also leads to market instability, especially for those companies with severe information asymmetry. Investors overreact to their risks, thereby triggering stock price fluctuations.

This paper aims to review the impact of ESG rating divergence on investor decisions, especially within the framework of behavioural finance, to explore how rating divergence alves the logic of investment decisions by influencing risk perception, investor heterogeneity, management behavior, and market performance. By reviewing relevant literature, this paper summarizes the core research results of the current study and reveals the ESG rating divergence pairs.

2. Overview and divergence of ESG ratings

2.1. Definition and development of ESG ratings

Environmental, Social and governance (ESG) rating is a tool that helps investors assess a company's sustainability performance by measuring its performance in environmental, social and governance aspects. Since the 1980s, ESG ratings have been used by institutional investors and socially responsible investors, especially in the fields of green investment and socially responsible investment. The earliest ESG rating agencies included Eiris and KLD, etc. Accompanying the growing popularity of the socially responsible investment, ESG ratings have gradually evolved from a tool for a few specific groups to a widely used standard tool in global financial markets.

Currently, there are a great number of rating agencies that provide investors with ESG ratings globally, such as MSCI, Sustainalytics, Refinitiv and so on, which attempt to offer a complete and standardized framework for investors to make use of sustainability factors when making a decision on investment [1,2]. International career with the broadening of the popularity of ESG investment ideas, scholars, organizations and other subjects began to investigate the transmission mechanism of sustainability factors to investors' decision-making models, so as to improve the rationality and consistency of investment decisions [3].

2.2. Manifestations of ESG rating discrepancies

ESG scores spread means are the large disparities across rating agencies of ESG score for a specific company. According to the research of Berg et al, for example, the correlation among the six major rating agencies is relatively low with an average value of 0.54, suggesting that there exist considerable discrepancies in their rating criteria and evaluation results [1].

This discrepancy can be attributed to three reasons. For one, there are variations in the measurement standards between the rating agencies. For example, there are institutions that are most concerned with the environmental and institutions that are more concerned about governance. Secondly, the score is given by different institutions with differences in weight, so the same company's score differs with different institutions because of different weight of specific dimensions [4]. Last but not least, differences due to the measurement instrument can also contribute to varying assessment findings. Some are more quantitative in their assessments, and some rely more on qualitative. These discrepancies exacerbate the gap between the results of the two methods [2]. This discrepancy in ESG ratings contributes to the lack of comparability and the difficulty in decision making for investors and causes investors to overly rely on one rating agency's result, which in turn, impacts their investment decision. Lack of homogeneity of rating systems is a barrier to comparative analysis and erodes confidence in ESG-based assessments.

3. The impact of ESG rating discrepancies on investor decision-making

3.1. Influence on investor sentiment and risk perception

The Divergence of ESG ratings has increased information asymmetry, which affects how investors perceive risk and expectations for the market. Because there are large discrepancies between ratings assigned to the same firm by different rating agencies, the securities information environment is not consistent, and, as such, the certainty of investors evaluating firm life in the future is generally reduced. Dong et al Studies have demonstrated that ESG rating discrepancies are positively associated with firms' cost of capital, and this association is primarily due to information asymmetry and implicit ESG risks. Rating variations make it hard for investors to judge how a company is faring in reality in ESG. Such uncertainty results in the investment expectation of venture capital investor fluctuating, and then influences the investment behavior of the investor [4]. In addition, information asymmetry is also enhanced and investors prefer to accumulate risk premiums when facing rating discrimination so as to require a higher equity return.

3.2. Investor heterogeneity and behavioral responses

The diversity of investors explains the way they react to heterogeneity in ESG ratings. There are substantial differences across various categories of investors (e.g., retail versus institutional) with respect to information processing and sentiment driven behavior. The information processing capability of retail investors is limited, and they use ESG rating information in a simplified way, making it more vulnerable to emotional fluctuations in the face of rating differences. Instead, institutional investors have stronger ability to acquire and analyze information, so they can have relatively rational attitude to rating differences [5]. Secondly, institutional investors are likely to comprehend why different credit ratings are given according to the diverse assessment standards of different rating agencies if they literally scrutinize evaluation indicators of various rating institutions. Contrarily, for general investors with no professional tool and experience, an exaggerated reaction to credit ratings differences occurs easily. This distinction causes different decision-making behaviors of the investors to the same information and hence the global stability of the market.

3.3. ESG rating discrepancies and stock market volatility

Research reveals that the deviations of ESG scores influence stock returns in a pronounced way, primarily the environmental aspect. By analysing the rating data of S&P 500 constituent companies from different rating agencies, it is found that when there are significant differences in ratings, the volatility of stock market returns tends to increase. Rating differences mean that there is greater uncertainty in the market's expectations for a company's future. In such cases, investors usually demand a higher risk premium. This uncertainty has triggered fluctuations in stock prices, especially in terms of environmental factors. There are significant differences in the assessment of corporate environmental responsibility by different institutions, which directly affect investors' judgment on the risks of corporate sustainable development [6]. In addition, the divergence in ESG ratings will also intensify investors' concerns about the long-term performance of enterprises, thereby leading to greater fluctuations in stock prices and subsequently affecting the pricing efficiency of the market and investors' confidence.

4. ESG rating discrepancies from the perspective of behavioral finance theory

4.1. The influence of behavioral biases on investment decisions

As in behavioural finance cognitive biases affects the decisions made by investors, which is also more concerning with diverging ESG ratings. According to Alhamis' analysis, prospect theory suggests that investors are loss averse in uncertain risks and to be overconfident as they overestimate judgment accuracy. In the case where rating agencies greatly disagree with the ratings of the same company, investors will be easily swayed by emotions, and the evaluation of the risks and proceeds of investment targets will deviate. This type of emotion-based decision-making result in biased risk evaluation among investors, and then affect their investment behavior [3].

4.2. Overreaction and investment decisions

The variation in ESG ratings has amplified the investors' overreaction, particularly at times with the limited processing of information. Avramov et al. concluded that, when the rating agencies differ substantially in their assessment of the same company, the irrational judgment made by investors on the one-way ratings in the short-term period, had the effect of enhancing stock return volatility. This is the nature of 'overconfidence' and 'herd mentality'. In periods of heightened market uncertainty, investors are more likely to follow the evaluation of a specific rating agency, and as a result pushing for more price movement and reducing market price efficiency [7].

4.3. Information asymmetry and market efficiency

ESG Rating Dimensionality ESG ratings differentiation has deepened the information asymmetry in the market leading to a reduction in market efficiency. Christensen et al argued that while demand for ESG disclosure is on the rise, considerable variation remains in rating agencies' assessment of ESG performance of companies. The deviation of ratings is induced by the subjective interpretation of disclosed information; external investors have a large uncertainty and difficulty to evaluate the sustainability level of the firm. As to the above-mentioned, studies show that ESG rating differentiation is significantly related to higher stock return volatility and greater stock price fluctuation range, implying that rating differentiation deepens the market perception of corporate sustainable performance and undermines the price efficiency of capital market [8].

5. ESG Rating Discrepancies and Corporate Performance

5.1. Total factor productivity and financing constraints

ESG rating differences have a significant impact on a company's total factor productivity (TFP). Research shows that rating differences will increase the financing constraints of enterprises, especially having a negative impact on technological innovation and long-term development [9]. The information asymmetry caused by rating differences makes it difficult for investors and banks to accurately assess the actual sustainability risks of enterprises, resulting in enterprises' difficulty in obtaining low-cost financing. Such enterprises face relatively high capital costs and find it difficult to make significant green innovation investments.

Further research has found that, especially in high-tech and low-pollution industries, the innovation activities of enterprises are negatively affected by rating differences, as these enterprises have high financing needs and rely on good ESG performance to attract capital. Meanwhile, although green innovation can alleviate some financing constraints, when there is a significant rating divergence, such innovation be regarded as a "green reshuffle", further exacerbating financing difficulties and compressing the improvement space of TFP.

5.2. Managerial behavior and corporate strategy

When faced with discrepancies in ESG ratings, management often adjusts the company's strategic direction, particularly in terms of capital structure and business innovation decisions. Research indicates that discrepancies in ESG ratings not only influence investor decisions but also compel corporate management to make strategic adjustments in response to external pressures, particularly in the areas of governance and social responsibility [9]. Companies adjust their capital structure to accommodate rating fluctuations or adopt short-term strategies to improve their performance in ESG ratings.

However, such reactive responses lead to short-sighted resource allocation, undermining long-term strategic planning. For example, companies overly rely on "greenwashing" strategies to boost ratings while neglecting actual green innovation and investment in human capital, thereby harming their long-term competitiveness. Additionally, while such management strategies temporarily improve ESG ratings in the short term, they reduce a company's total factor productivity and hinder its sustainable development in the long run.

6. Macroeconomic implications of ESG rating discrepancies on market behavior

6.1. ESG reputational risk and stock price volatility

ESG reputation risks influence shareholder trust through social media channels, thereby triggering stock price fluctuations. Research indicates that by analyzing social media data, it was found that when a company experiences an ESG-related reputation event, abnormal social media activity significantly impacts shareholder sentiment, which in turn affects stock prices [10]. Negative ESG risk events lead to a significant decline in stock prices in the short-term following the event, with average abnormal returns decreasing by 0.29%. In particular, events related to governance and social ESG risks have a particularly significant impact on stock prices. This indicates that social media is not only a tool for information dissemination but also influences shareholders' trust in the company's future and stock market performance by shaping public perception of the company's ESG performance.

6.2. ESG rating discrepancies and stock returns

ESG rating disagreements can result in varying valuations of the same company in the market, which affects the stock returns. The study demonstrates that the extent of E, S, and G ratings differences are all positively related to stock returns, with this relation being more marked in terms of the environmental dimension. Especially, firms with larger difference of rating are likely to have larger stock returns due to the risk premium for the uncertainty of the investors [10]. Environmental factor rating differences have the greatest influence on stock market returns, and this suggests that with more and more attention being paid to environmental problems in the actions, investors are more sensitive to the uncertainty of environmental risks. This is especially true for S&P 500's component companies as they frequently experience more nuanced evaluation results for ESG and they exhibit substantial heterogeneity with respect to their environmental scores, which affects market's pricing of their equity.

7. Conclusion

This paper examines the potential effects of rating differences on investors' decision-making process from a variety of perspectives, and shows how the differences in ratings modify the investment decision-making process through changing both risk perception and investor heterogeneity as well as management behavior and market reaction. Discrepancies in ESG ratings have intensified the information asymmetry, which has led to impaired investors' judgment on risks in particular regarding environmental and governance issues and volatility in stock price. The divergent responses to the rating distinctions among types of investors also contributed to the markets being plagued by uncertainty and volatility. Rating differences also influence the adjustment of business strategies, mainly the choices of capital structure and innovation decision, consequently the long-term development of enterprises.

Future research can be explored from multiple aspects. Firstly, it is possible to further analyze the behavioural responses of different investor groups to rating differences and explore how such responses specifically affect investment decisions. Secondly, the research should delve deeply into the impact of rating divergence on other areas of the capital market and explore its potential role in other financial markets. Then, by integrating the latest ESG standards and rating tools, the transparency and consistency of the rating mechanism can be improved, thereby providing investors with more reliable information and reducing the uncertainty brought about by rating differences.

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