

An Analysis of the Anchoring Effect in ESG Disclosure Models and Investor Decision-Making

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Abstract

The goal of this research is to understand how variations in ESG information disclosure methods affect the development and reinforcement of an investor's anchoring effect when making investment decisions. The research incorporates elements of theoretical analysis and event study methods to systematically study how the characteristics of information disclosures impact cognitive biases in investors. Based upon analysis, it has been found that due to the differences in the level of transparency, consistency and comparability of various types of information disclosures, there will be significant differences in the creation and stability of anchor points which can then lead to instances of misallocation and/or overreaction to ESG information; and thus, optimising the structure of these types of information disclosures and providing behavioural guidance to the cognitive processes of the investor community will be of paramount importance in minimizing anchoring bias and improving market efficiency.

Keywords

ESG disclosure, anchoring effect, investor decision-making, cognitive bias, disclosure quality, corporate governance

1. Introduction

Investors interpret the complex environment of ESG information, and a key reason why they make decisions based upon ESG is that there is an initial reference point in their minds upon which they base their decision-making. This cognitive anchor in one's mind is a psychological phenomenon referred to as the anchoring effect. This means that when an investor receives ESG information, there are many different sources of ESG information that may serve as the anchor point for their decisions; therefore, the various types of ESG information into multiple ratings, historical reports, and public opinion on ESG have the potential to serve as anchors for investors. Furthermore, these anchors will significantly influence capital flow and company valuations. Understanding the sources of anchor points, or the manifestations of the anchoring effect, will illuminate some of the behavioral reasons why markets fluctuate, and provide insight into ways to improve the ESG information disclosure frameworks from the standpoint of decision-making. To date, the interaction between ESG information and cognitive biases in decision-making has generated both theoretical and practical value.

2. Theoretical Foundations and Analytical Framework

2.1 Classification and Characteristics of ESG Disclosure Models

The current ESG information disclosure practices of enterprises mainly present three typical models. The compliance disclosure model constitutes the fundamental level, which closely revolves around regulatory requirements and mainstream rating indicators, aiming to meet external basic expectations. The strategic communication model goes further, as companies tend to transform environmental and social performance into brand narratives and displays of risk management capabilities, making reports a bridge between long-term vision and short-term action. The dispute guidance model is common in industries facing significant public opinion pressure, where disclosure content often focuses on responding to specific issues or clarifying transformation paths, attempting to shape discourse initiative. The differences in the characteristics of these patterns directly affect the focus and framework of information presentation, providing investors with diverse initial cognitive anchors.

2.2 Formation Mechanisms and Influencing Factors of the Anchoring Effect

Investors often unconsciously rely on key pieces of information they first encounter when evaluating a company's ESG performance, such as carbon emission numbers highlighted in a report or preliminary ratings released by a third-party agency. This initial impression is difficult to completely correct even when more comprehensive data is obtained later, as the human brain tends to seek cognitive shortcuts when processing complex non-financial information. The way information is presented itself will shape the anchor point. The visual design that places a certain environmental indicator on the front page of a report, or a social goal repeatedly emphasized in executive speeches, may be unconsciously seen by investors as a measure of overall performance. The complex and diverse information environment further deepens this dependence. When faced with a massive number of sustainable development indicators and conflicting media reports, investors are prone to magnify easily accessible or understandable local information as the basis for overall judgment. The difference in professional knowledge further distinguishes the depth of anchoring effects. Investors with ESG analysis experience may construct dynamic reference frames that include multiple dimensions, while ordinary individual investors are more easily solidified by a single prominent data point or public opinion trend.

2.3 Theoretical Pathways Through Which ESG Disclosure Influences Investor Decision-Making

The information disclosure framework provides structured input materials for investors' cognitive processes. The range and granularity of indicators that companies choose to disclose invisibly limit the horizon of investors' evaluation of their sustainability performance, guiding attention to specific areas. This information filtering and arrangement method allows some content to gain cognitive prominence, while other aspects may be relatively overlooked. Investors rely on these processed signals to construct judgment models about the long-term risk and value of enterprises, and their decisions are largely constrained by the underlying logic of information presentation. The actual path of information disclosure goes beyond simple information transmission and has become a key force in shaping investors' mental models and evaluation frameworks [1].

3. Analysis of Anchoring Sources in ESG Disclosure

3.1 ESG Ratings and Scores as Initial Anchors

The ESG ratings and comprehensive scores released by various commercial institutions provide market participants with intuitive quantitative tools for evaluating the sustainable development performance of enterprises. These concise letter grades or numerical scores have significant cognitive convenience in the dissemination process, making them easy for investors to remember and compare, thus quickly occupying the core position of their psychological reference frame in the early stages of decision-making. Even though there are significant differences in methodology and emphasis among different rating systems, investors still tend to prioritize adopting these encapsulated conclusive evaluations as cognitive anchors when faced with diversified information. In market practice, the initial rating or key indicator score obtained by a company often establishes its fundamental impression throughout the entire investment cycle. Even if companies disclose more detailed

environmental governance data or social responsibility cases in the future, investors often unconsciously adjust and revise their interpretation and integration of information around the initial score level obtained, rather than completely reconstructing the evaluation framework. The market attention triggered by rating changes is often much higher than that of detailed reports released by companies themselves, which indirectly confirms the strong influence of external ratings as anchor points. The strategic department of the enterprise has gradually realized this mechanism, and its information disclosure work sometimes shows a significant tendency to improve specific external ratings.

3.2 Inertial Anchors Formed by Historical Disclosure Behavior and Consistency

The ESG reports of enterprises over the years have gradually shaped a stable style of information disclosure and performance narrative tone, and this long-term consistency itself has built a strong inertial reference in investors' minds. Investors are accustomed to tracking the annual trajectory of specific key indicators, such as the gradual decrease in carbon emission intensity or the slow evolution of gender composition in the board of directors, and extrapolating this trend line as the expected basis for the company's future performance. When a company suddenly changes its core disclosure framework or calculation criteria for key performance indicators, even for reasonable technological upgrading purposes, it may cause confusion and distrust among investors due to breaking this continuity. The adjusted new data will take longer to be fully accepted as an effective decision-making basis. Long term in-depth disclosure focused on a certain type of issue, such as companies that have been reporting in detail on their supply chain labor rights protection measures for many years, will establish authoritative and credible cognitive anchors in this field, making their performance in other ESG dimensions more likely to be positively interpreted by investors [2]. On the contrary, the ambiguous areas, selective avoidance, or proven errors in historical disclosure will form a negative inertia anchor, making any positive information subsequently released by the enterprise face higher verification thresholds and more cautious acceptance attitudes.

3.3 Relative Anchors Generated by Industry Benchmarking and Peer Comparisons

Horizontal comparisons within the industry provide an indispensable reference frame for investors to evaluate a company's ESG performance, and the disclosure level and performance data of peer companies often become potential benchmarks for evaluating specific companies. When investors examine a company's water resource management or community relations policies, their thinking process naturally introduces the practices of other major participants in the industry as a background framework. This comparison mechanism invisibly sets a temporary boundary between good and bad based on the industry average disclosure level or the specific practices of a recognized leader, becoming a relative anchor point that affects judgment. However, the risk of relying on peer comparison is that it may limit investors' attention to the relative position within the industry, while ignoring the common sustainable development challenges or regulatory risks that the entire industry may face in an absolute sense. When the disclosure of the entire industry on a certain ESG issue is relatively weak, companies with relatively good performance in the industry are more likely to receive evaluations that exceed their actual absolute level, because the comparison anchor itself is in a lower position. On the contrary, in a competitive industry with a high overall disclosure level, even if a company makes substantial efforts, its relative progress may not be as outstanding in strict peer comparisons, making it difficult to gain full recognition from investors. This relative anchor shaped by industry benchmarks profoundly affects the allocation logic of capital between different companies and industries.

3.4 Temporary Anchors from Media Sentiment and Policy Events

Media reports often tend to focus on specific ESG controversies or prominent developments, and this concentrated public attention can shape investors' collective cognitive focus in a short period of time. A thorough investigation into a company's environmental violations or a systematic criticism of labor practices in a certain industry can quickly anchor public attention to relevant issues, forcing investors to use this as a temporary benchmark to reevaluate the corresponding risks of the entire investment portfolio. The release of major policy signals, such as the introduction of a new climate regulatory framework or the announcement of a nationwide carbon market construction plan, will directly reset the market's expected benchmark for future business environment. Although the anchor points formed by such events are strong and have a wide impact, their sustainability usually depends on whether there is a coherent substantive action or policy implementation

to continuously strengthen this cognition. If there is a lack of follow-up, with the shift of media hotspots or the blurring of policy implementation details, this temporary anchor formed by external shocks will gradually be diluted by other information, and its influence on investors' long-term judgments will correspondingly weaken. However, during the existence of anchor points, they can significantly alter capital flows and even trigger repricing for specific industries or companies.

4. Manifestations of the Anchoring Effect in Investor Decision-Making

4.1 Underreaction and Overreaction to ESG Information

When faced with complex ESG information, investors often deviate from completely rational models in their decision-making behavior, exhibiting cognitive biases such as insufficient or excessive response. The lack of response is reflected in the slow adjustment of certain ESG progress with long-term impact in the market, such as substantial transformation plans or breakthrough emission reduction technologies released by companies, whose value may require multiple reporting cycles to be fully reflected in stock prices. Overreaction is usually associated with sudden negative events or strong policy signals, where local information is excessively amplified and triggers severe market fluctuations. Real market cases have shown that energy companies with different characteristics will experience significantly different stock price responses to the same major climate policy change; Companies that perform well in traditional ESG ratings but have relatively single business models may face greater pressure on their stock prices due to the market's amplified interpretation of policy risks. On the contrary, some companies with ordinary ratings but diverse business structures may have their potential adaptability and transformation space temporarily underestimated by the market.

4.2 Patterns of Abnormal Stock Price Volatility During Event Windows

When key ESG events occur, such as the introduction of new climate regulations or major environmental accidents, the stock prices of related companies often exhibit significant abnormal fluctuations in the short term. This kind of fluctuation is not random, but the result of investors quickly interpreting and re-evaluating news information based on the cognitive anchor points formed before the event occurs. If the nature of the event is consistent with the investor's original expected anchor direction, the market reaction often manifests as a strengthening trend, and the volatility of stock prices may be amplified; If there is a conflict between event information and existing anchor points, it may trigger severe expected corrections, leading to a directional reversal of stock prices in a short period of time. Due to the differences in the quality of historical information disclosure and market reputation among different companies, the "trust discount" or "suspicion premium" given by the market in the face of similar events will be directly reflected in the intensity and duration of fluctuations. Investors tend to fit event information into their familiar evaluation framework, which is largely shaped by the long-term information disclosure model established by the company [3]. Therefore, the stock price fluctuations in the event window can be seen as an external manifestation of the interaction between existing cognitive anchors and sudden information.

4.3 Differences in Anchoring Strength Across Disclosure Quality Levels

The horizontal comparison within the industry provides an invisible relative coordinate system for investors to evaluate a company's ESG performance, and its evaluation process is difficult to be separated from reference to the practices of other participants in the same industry. When investors examine a company's carbon emission data or supply chain management policies, their mental measurement standards often unconsciously benchmark against the disclosure levels of several major competitors or recognized leaders in the industry. This reference mechanism positions the performance of a specific enterprise within a dynamic spectrum shaped by peers, and its advantages and disadvantages are largely relative to the constantly changing industry background. The relative judgment anchored here may cause investors to overly focus on the ranking of companies within the industry, while relatively ignoring the absolute challenges and shortcomings of the industry as a whole in addressing climate change or social issues. When the management of the entire industry lags behind in a certain ESG dimension, a company that only performs relatively well may also receive market evaluations that exceed its actual contribution. On the contrary, in a segmented field with overall excellent performance, even if a company makes substantial progress, it may not stand out in fierce peer comparisons.

The allocation flow of market funds between different companies and industries is deeply influenced by the relative anchor generated by comparison, and sometimes even deviates from the rational allocation path based on absolute sustainable development performance.

4.4 Anchoring Disparities Between Institutional and Retail Investors

Institutional investors typically rely on their professional internal research teams and systematic analytical frameworks to process ESG information, and the cognitive anchors they form are often based on multidimensional data cross validation and long-term tracking. Although these anchor points have a certain degree of rigidity, their adjustment mechanism is relatively complete, which can be corrected through in-depth due diligence, direct communication with management, and even the exercise of shareholder voting rights. Individual investors are more susceptible to the influence of a single information node in the public market, such as a simplified third-party rating result or a widely circulated media report, which can quickly become the core basis for their decisions. Due to the lack of sufficient resources for information screening and continuous tracking, once individual investors form an initial anchor point, their subsequent adjustments are often delayed and passive, making them more susceptible to short-term market sentiment fluctuations. This difference may lead to significant differences in the interpretation logic and behavioral reactions of the two groups of investors when facing the same ESG event, thereby affecting the overall pricing efficiency and stability of the market [4].

5. Optimizing ESG Disclosure and Managing the Anchoring Effect

5.1 Enhancing Transparency, Consistency, and Comparability in Disclosure

The core of improving the transparency, consistency, and comparability of information disclosure lies in providing investors with clear, stable, and mutually referenceable evaluation criteria, thereby helping them establish more reliable psychological reference points. Chevron's practice has demonstrated the value of structured disclosure, as its reports tend to follow a clear framework and provide categorized quantitative data and specific cases on social issues such as community investment and employee diversity, enabling investors to form a concrete and coherent understanding of its social responsibility performance. In contrast, ExxonMobil's disclosure in some areas of social investment is relatively vague, lacking detailed project details and effect tracking. This ambiguity may make investors' judgments more susceptible to scattered external information or subjective impressions. These two different disclosure styles directly affect the quality of the cognitive framework that information receivers can construct. When enterprises adopt stable and transparent indicators and maintain comparability of annual data, they are essentially building an objective "measurement scale" for the market, which can effectively suppress cognitive biases caused by information fragmentation or arbitrary expression, and guide investors to firmly establish their anchor points on verifiable and comparable substantive performance.

5.2 Establishing Dynamic Correction Mechanisms for ESG Communication

The key to building a dynamic ESG communication and correction mechanism for enterprises is to transform external market attention and pressure into internally executable governance actions, thereby systematically correcting investors' potential one-sided or outdated cognitive anchors. Chevron has taken an active institutionalized approach by directly linking clear environmental performance indicators to executive compensation. This move sends a signal to the market that ESG commitments are equally serious as financial returns, aiming to shift investors' evaluation anchor from short-term public opinion fluctuations to focusing on the company's long-term execution capabilities. ExxonMobil, on the other hand, demonstrated another reactive correction path triggered by external pressure. Its restructuring of the board of directors, driven by radical shareholders, fundamentally shattered the market's inherent impression that its strategy was unchangeable, forcing investors to reassess the possibility of its transformation and governance resilience. Both mechanisms indicate that effective communication goes beyond general disclosure, and its core lies in whether the company can provide a coherent and credible narrative for the market through substantial adjustments to its governance structure, continuously guiding and updating investors' cognitive frameworks.

5.3 Strengthening Third-Party Verification and Rating Standards

Strengthening the standardization of third-party authentication and rating aims to provide a relatively objective and credible calibration mechanism for diverse and sometimes conflicting ESG information, helping investors filter noise and correct cognitive anchors that may be inaccurate. The core value of independent third-party organizations verifying the environmental emissions or social responsibility data disclosed by enterprises lies in adding hard constraints similar to financial audits to these soft information, enhancing the credibility and decision-making usefulness of the data. Currently, different rating agencies often give vastly different evaluations to the same company due to differences in methodology and weight settings, which may actually exacerbate investor confusion. Promoting greater transparency and convergence in rating methodology, such as clearer disclosure of indicator selection logic and data sources, can reduce cognitive confusion caused by rating divergence, making the rating results themselves a more stable and reliable reference anchor rather than an additional source of uncertainty [5].

5.4 Developing Investor Education and Decision Support Systems

The construction of investor education and decision support systems focuses on enhancing investors' ability to resist irrational anchoring biases from both cognitive and instrumental perspectives. Effective investor education should go beyond simple knowledge dissemination, guiding investors to understand the cognitive shortcuts and fixed tendencies they may have in ESG information processing, and cultivating their decision-making habits of carefully evaluating initial information and actively seeking multiple verifications. On this basis, the development and application of decision support tools can provide substantial assistance, such as integrating data from different rating agencies to reveal methodological differences, or visualizing trend analysis of a company's ESG key performance indicators over the years. The original intention of designing these tools is to assist investors in penetrating the information fog, establishing a dynamic evaluation framework that includes more dimensions and time series, thereby reducing their excessive dependence on a single, static initial anchor point, and promoting the decision-making process towards a more rational and comprehensive direction.

6. Conclusion

The study of how investors use ESG information disclosure patterns to anchor investments leads to an understanding of how other than financial reporting factors affect the way investors behave in capital markets. The way investors receive information about ESG disclosures has a similar effect as a "map". Investors are limited by their established frames of reference, and therefore can't view ESG information objectively or with a broad perspective. Also, given the importance of psychological mechanisms in how we process ESG disclosures, the future implementation of ESG disclosures and education for investors must take into consideration the implications of such mechanisms. To facilitate greater adherence of the capital markets to the sustainability development goals, greater understanding between the ESG disclosures and the investor's reactions must be achieved through improved communications systems with the ability to dynamically adjust the investor's reaction over time.

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