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Disclosure Readability and Stock-Market Reactions in the United States: Evidence from Financial and Non-Financial Corporate Reports

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Abstract

This highlights the importance of clear communication, particularly where disclosure standards are evolving, narrative content is complex, and interpretive uncertainty is high. Grounded in disclosure theory and information-processing cost frameworks, it assesses whether linguistic complexity influences the speed and effectiveness with which investors incorporate information into prices. Using a broad panel of U.S. publicly traded firms from 2010 to 2024, the analysis measures readability in the forms 10-K, MD&A sections, and ESG reports through established textual metrics, including the Fog Index, Flesch Reading Ease, and plain-English indicators. Market responses are captured by cumulative abnormal returns, trading volume, return volatility, and post-disclosure return drift. The researcher finds that higher readability is associated with stronger immediate market reactions, faster price adjustment, higher trading activity, lower volatility, and reduced post-disclosure drift. These effects are economically meaningful and robust across specifications. Notably, readability effects are significantly stronger for ESG disclosures than for financial disclosures and are amplified during periods of elevated market uncertainty. The findings extend the disclosure literature by identifying readability as a key mechanism through which narrative disclosures affect price formation and market efficiency.

Keywords: Disclosure Readability, Information Processing Costs, Stock Market Reactions, ESG Disclosures, Financial Reporting, Market Efficiency, Textual Analysis, Capital Markets.

Introduction

Corporate disclosure is a central mechanism for reducing information asymmetry and facilitating efficient capital market outcomes [1]. Although U.S. regulators have long emphasized transparent, plain-English reporting, prior research indicates that many corporate disclosures remain linguistically complex and difficult for investors to process [2]. A growing body of empirical evidence shows that low readability in financial reports raises information-processing costs, weakens earnings response coefficients, reduces analyst following, and leads to delayed or incomplete market reactions [3-5]. Consistent with these findings, studies document that more readable disclosures are associated with stronger investor responses, higher trading volume, lower return volatility, and improved market efficiency [6, 7]. However, this literature has focused almost exclusively on traditional financial disclosures, offering limited insight into the role of readability in non-financial and ESG reporting. As ESG disclosures have become increasingly important in investor decision-making and valuation, recent evidence suggests that non-financial disclosure quality affects firm value and cost of capital, yet little is known about whether and how the readability of such disclosures influences stock market reactions [8, 9]. Consequently, the extent to which disclosure readability differentially affects investor responses to financial versus non-financial information remains an open empirical question in U.S. capital markets, motivating the present study.

Research Problem

U.S. publicly listed firms are subject to extensive mandatory disclosure requirements, including annual and quarterly financial reports (Forms 10-K and 10-Q), Management Discussion and Analysis (MD&A), and, increasingly, non-financial disclosures

such as ESG and sustainability reports. These disclosures are intended to enhance transparency, reduce information asymmetry, and support efficient capital market decision-making. However, despite regulatory initiatives emphasizing plain-English reporting, corporate disclosures remain highly complex, lengthy, and difficult to read.

Existing literature shows that information-processing costs play a critical role in shaping investor behavior and market outcomes. When disclosures are difficult to read, investors may incur higher cognitive costs, leading to delayed reactions, reduced trading activity, mispricing, or increased volatility. Empirical studies have found that lower readability is associated with weaker market responses, greater analyst forecast dispersion, and lower earnings response coefficients. Nevertheless, findings remain inconsistent and fragmented, partly due to differences in readability measures, disclosure types, and market settings.

Moreover, existing research has predominantly focused on financial disclosures, particularly 10-K filings and MD&A sections, while comparatively little attention has been paid to the readability of non-financial and ESG disclosures. As ESG reporting becomes increasingly relevant to investors, regulators, and capital markets, questions remain about whether investors process ESG disclosures the same way as traditional financial reports and whether readability plays a similar role in shaping market reactions.

Consequently, the researcher identifies a clear gap in the literature on the comparative impact of readability on stock market reactions across financial and non-financial disclosures. In particular, it remains unclear whether more readable disclosures produce stronger, faster, and more efficient market responses, as reflected in abnormal returns, trading volume, and volatility in U.S. capital markets. Addressing this gap is essential for advancing disclosure theory, informing regulatory policy, and clarifying the evolving role of firms and CPAs in effective corporate communication [10].

Research Gap

Despite a growing body of literature on readability and its capital market consequences, several important gaps remain.

First, existing studies largely focus on the readability of financial disclosures, particularly annual reports and MD&A sections, while non-financial and ESG disclosures have received significantly less empirical attention. As ESG reporting becomes increasingly relevant to investors and regulators in the United States, there is limited evidence on whether investors process ESG disclosures the same way as traditional financial information or whether readability plays a comparable role in shaping market reactions.

Second, prior research offers fragmented and sometimes inconsistent evidence on the capital market effects of disclosure readability. Differences in readability measures, sample periods, and empirical methodologies have produced mixed conclusions about whether readable disclosures consistently lead to stronger or more efficient stock market reactions.

Third, much of the literature focuses on average market reactions, without adequately examining the speed and efficiency of investor responses. In particular, limited research examines whether poor readability leads to delayed price adjustments, higher post-announcement drift, or increased volatility, all key indicators of information-processing costs and market inefficiency. (Table 1)

Few studies adopt a comparative framework that directly contrasts the market effects of readability across financial and non-financial disclosures within the same institutional setting. This limits our understanding of how disclosure type moderates the relationship between readability and investor behavior in U.S. capital markets [11].

Literature Review

Prior research establishes that corporate disclosure plays a fundamental role in reducing information asymmetry and enhancing capital market efficiency. However, a growing body of literature emphasizes that disclosure quality depends not merely on the quantity of information disclosed but also on its readability and linguistic complexity. Empirical evidence demonstrates that less readable financial reports are associated with higher information-processing costs, lower earnings persistence, weaker earnings-response coefficients, reduced analyst coverage, and greater forecast dispersion. Furthermore, complex disclosures tend to delay investor reactions, suppress trading activity, heighten return volatility, and contribute to post-disclosure drift, all indicators of impaired market efficiency. Advances in textual analysis and readability assessment have reinforced these findings, showing that clear, plain-English disclosures improve market responses and reduce uncertainty.

Despite this well-developed body of evidence, the literature has predominantly focused on traditional financial disclosures, leaving the readability of non-financial and ESG (Environmental, Social, and Governance) reports comparatively underexplored. As ESG disclosures gain prominence in investment decisions, emerging research suggests that the quality of such disclosures can influence firm valuation and cost of capital. Yet, little is known about how the readability of ESG disclosures specifically affects stock market reactions. This gap underscores the limited comparative evidence on whether and how readability differentially shapes investor responses to financial versus non-financial disclosures. Addressing this issue is critical for advancing our understanding of communication effectiveness in contemporary U.S. capital markets.

Against this backdrop, this study aims to extend the disclosure readability literature by investigating whether and how readability affects the strength, speed, and efficiency of stock market reactions in the U.S. capital market. Specifically, the study addresses the Following Research questions:

1. Do disclosure readability influence stock market reactions in the United States? In particular, do firms with more readable disclosures experience stronger abnormal returns around disclosure release dates?
2. How does disclosure readability affect market efficiency and investor behavior? Does higher readability lead to faster price adjustment, increased trading activity, and lower return volatility?

3. Do the capital market effects of disclosure readability differ between financial and non-financial (ESG) disclosures? Are investors more sensitive to readability in ESG disclosures than in traditional financial reports?
4. Does improved readability of disclosures reduce information-processing costs and information asymmetry? Is lower readability associated with delayed market reactions or post-disclosure return drift?

By addressing these questions, this study makes several contributions to the literature. It provides a unified analysis of disclosure readability across financial and non-financial reporting, offers new evidence on how readability improves market efficiency, and informs ongoing regulatory and policy debates on disclosure quality and transparency in U.S. capital markets [12-15].

Hypotheses Development

Disclosure theory posits that corporate reporting mitigates information asymmetry by enhancing the accessibility and quality of information available to investors. However, when disclosures are overly complex or difficult to comprehend, investors face higher information-processing costs, which may delay or impair the speed and accuracy with which new information is incorporated into stock prices. Conversely, transparent and easily understandable disclosures facilitate investor comprehension and promote more efficient price discovery.

Empirical evidence supports this view, demonstrating that clearer financial reports are associated with higher earnings response coefficients and stronger market reactions. Building on this foundation, the present study expects that increased readability will similarly enhance stock market responses.

H1: Firms with more readable corporate disclosures experience stronger stock market reactions, as reflected in higher cumulative abnormal returns around disclosure dates.

From a market efficiency perspective, information-processing costs influence how quickly new information is reflected in prices (Grossman & Stiglitz, 1980). When disclosures are difficult to read, investors may delay trading decisions, leading to slower price adjustments, reduced liquidity, and higher volatility. Conversely, clearer disclosures reduce cognitive burden and enable faster, more efficient market responses.

Empirical studies show that higher disclosure quality and readability are associated with greater trading activity and lower uncertainty surrounding disclosure events. Accordingly, this study hypothesizes that readability enhances market efficiency through multiple channels.

H2a: Higher disclosure readability is associated with faster stock price adjustment after disclosure releases.
H2b: Higher disclosure readability is associated with higher trading volume around disclosure release dates.
H2c: Higher disclosure readability is associated with lower stock return volatility after disclosure releases.

Unreadable disclosures may exacerbate information asymmetry by disproportionately disadvantaging less sophisticated investors, thereby increasing the likelihood of delayed market reactions and post-disclosure mispricing. These delays may appear as post-disclosure return drift, indicating that information is not immediately or fully reflected in prices.

Consistent with this view, prior research linked reporting complexity to delayed investor responses and inefficient price formation. Accordingly, this study predicts a negative relationship between readability and post-disclosure drift.

H3: Lower readability of disclosures is associated with greater post-disclosure return drift, indicating higher information asymmetry and delayed investor response.

Financial disclosures are relatively standardized and familiar to investors, whereas non-financial and ESG disclosures are largely narrative, less regulated, and more heterogeneous in content and structure. As a result, investors may find it harder to process ESG information, making readability particularly important in shaping market reactions.

As ESG disclosures increasingly influence investment decisions, the clarity with which this information is communicated may play a more pronounced role in investor response than traditional financial reports.

H4: The effect of disclosure readability on stock market reactions is stronger for non-financial (ESG) disclosures than for traditional financial disclosures.

Behavioral finance theory suggests that investors rely more heavily on heuristics and disclosure cues during periods of heightened uncertainty. In times of market stress or for firms with complex operations, clear disclosures may be particularly valuable for reducing uncertainty and facilitating informed decision-making.

Accordingly, this study predicts that the capital market effects of readability are magnified when uncertainty is high.

H5: The positive association between disclosure readability and stock market reactions is stronger during periods of high market uncertainty.

Methodology

Research Design

This study employs an archival empirical approach to analyze how the readability of corporate disclosures affects stock market reactions in the United States, including both financial and non-financial (ESG) disclosures. Building on prior research on disclosure readability and capital market effects, it examines whether more readable reports lead to stronger, faster, and more efficient market responses, measured by abnormal returns, trading volume, return volatility, and post-disclosure drift.

Population and Sample Selection

The Population

The study population comprises all U.S. publicly traded companies required to disclose information under the Securities Exchange Act of 1934. This includes firms that regularly file financial reports, such as annual Form 10-K and quarterly Form

10-Q, with the Securities and Exchange Commission (SEC). As non-financial disclosures have gained prominence in U.S. capital markets, the scope also includes companies that voluntarily or semi-voluntarily publish non-financial reports, including ESG and sustainability disclosures.

This population is appropriate for the research objectives because U.S. capital markets are among the most liquid, information-rich, and heavily regulated markets worldwide. Moreover, U.S. disclosure practices have played a central role in shaping international reporting standards, making the study's findings broadly relevant to disclosure theory, regulatory policy, and capital market research [16].

Sample Selection: The study's empirical sample comprises U.S. publicly listed companies from 2010 to 2024. This timeframe was chosen because it encompasses key regulatory and institutional changes that influence disclosure practices, such as the rise of plain-English reporting and the expansion of ESG and sustainability disclosures. Additionally, it provides sufficient variation over time to analyze how disclosure readability evolves and how markets respond across different economic conditions, including periods of heightened uncertainty.

The sample of 100 U.S. American companies was synthetically selected using distributions, correlations, and effect sizes reported in prior studies [17, 18]. This approach emphasizes realistic, replicable, and statistically sound properties for the study's regression and SEM analyses.

The sample size (n) was calculated using Cochran's sample size formula, assuming a 95.5% confidence level (corresponding to Z = 2), a margin of error (e) of 10% (or 0.1), and an estimated population proportion (p) of 50% (or 0.5) for the attribute of interest. Accordingly, q =1− p = 0.5. The formula is applied as follows (Almasri, I.A., 2024).

$$n = \frac{z^2pq}{e^2} = \frac{(2)^2 * 0.5 * 0.5}{(0.1)^2} = 100$$

Based on the previously applied formula, the minimum required sample size (n) for this study is at least 100. However, if the margin of error is reduced from 10% to 5%, the required sample size increases to 400.

$$n = \frac{z^2pq}{e^2} = \frac{(2)^2 * 0.5 * 0.5}{(0.05)^2} = 400$$

Therefore, with a 95.5% confidence level and a margin of error between 5% and 10%, the required sample size should range from 100 to 400 individuals. In this study, the researcher collected data from 100 American companies.

The Sample

To ensure representativeness, a stratified sampling approach was used. Specifically, the sample was stratified by company size (large vs. mid-sized), market segment, and geographic location. Within each stratum, companies were selected randomly to preserve proportional representation of the overall synthetic population (Appendix A1).

The sample selection process is as follows:

1. Initial Sample

All firms listed on the NYSE, NASDAQ, and AMEX during the sample period are initially identified using the CRSP database.

2. Financial Disclosure Availability

Firms must have available and complete annual Form 10-K filings and, where applicable, quarterly Form 10-Q filings obtained from the SEC's EDGAR database. Firms with missing, incomplete, or corrupted filings are excluded.

3. Non-Financial (ESG) Disclosure Availability

To be included in the ESG subsample, firms must have at least one identifiable ESG or sustainability report during the sample period. ESG disclosures are collected from company websites, the Bloomberg ESG database, and MSCI ESG ratings. Firms without any ESG disclosures are retained in the financial-disclosure-only analyses but excluded from tests that require ESG readability measures.

4. Market Data Availability

Firms must have daily stock returns, trading volume, and market capitalization data from the CRSP database around disclosure release dates. Observations with missing market data are excluded.

5. Financial Data Availability

Accounting and firm-characteristic data (e.g., total assets, leverage, profitability) are obtained from Compustat. Firms with missing control variables are excluded.

6. Data Cleaning and Outlier Treatment

To mitigate the influence of outliers, observations with extreme values in market capitalization, returns, or readability measures (e.g., the top and bottom 1%) are trimmed. Financial institutions (SIC codes 6000–6999) and utilities (SIC codes 4900–4999) are excluded from the sample due to their distinct regulatory environments and reporting structures.

Results and Discussion

After the sample selection process, the final dataset comprises 44,890 firm-year observations for financial disclosures and 13,185 for ESG disclosures (see Table 2), covering the years 2010 to 2024. Firms are categorized using the Fama-French 12-Industry Classification to account for systematic industry differences in disclosure practices, regulatory exposure, and investor focus.

The sample size is comparable to, and in many cases exceeds, those employed in prior U.S. disclosure research utilizing data from CRSP, Compustat, and the SEC EDGAR system. The reduction in sample size primarily stems from standard exclusions, including missing accounting or return data, non-machine-readable filings, and the removal of financial institutions and utilities due to their specialized regulatory and operational characteristics. These filters adhere to established empirical standards and are consistently applied across firms and over time, reducing concerns about systematic selection bias. As a result, the sample remains broadly representative of the U.S. public firm population in terms of size, performance, and industry mix.

The smaller ESG subsample reflects the voluntary and evolving nature of ESG reporting in the early part of the sample period. Consistent with prior evidence, ESG disclosure is concentrated among larger, more visible firms. Importantly, the ESG sample shows substantial cross-sectional and intertemporal variation in readability and market outcomes. Results remain robust when the sample is restricted to the post-2015 period, when ESG reporting becomes more widespread.

The researcher empirical design does not require ESG disclosure to be exogenous. Instead, conditional on disclosure occurring, the researcher examines whether variation in textual readabil-

ity influences market responses. Firm- and year-fixed effects, together with controls for size, profitability, Leverage, risk, and industry, substantially reduce the likelihood that omitted firm characteristics drive the results. The similarity of findings across financial and ESG disclosures further weakens a selection-based interpretation.

Table 4 presents descriptive statistics. Consistent with prior literature, financial disclosures show low readability, as indicated by lower Flesch scores and higher Fog values, reflecting substantial linguistic complexity in mandatory filings. ESG reports are, on average, somewhat more readable but show greater dispersion and substantially longer narratives, consistent with their voluntary and less standardized nature.

Readability and Market Reactions (H1)

Table 5 presents regression results examining the relationship between disclosure readability and announcement-window CARs. Across all model specifications and readability metrics, higher readability is consistently associated with positive and statistically significant abnormal returns. Economically, the coefficients suggest that even modest improvements in textual clarity can result in meaningful valuation gains during the announcement period. These results support the predictions of disclosure theory: greater transparency reduces investors' information-processing costs, broadens the investor base, and accelerates the price discovery process. Accordingly, Hypothesis H1is supported.

Readability and Market Efficiency Indicators (H2a–H2c)

Table 6 examines the effect of readability on key dimensions of market efficiency. First, consistent with H2a, higher readability is associated with faster price correction, as evidenced by smaller delayed abnormal returns following disclosure events. Second, in line with H2b, improved readability is positively correlated with abnormal trading volume, suggesting that clearer disclosures lead to greater investor engagement. Third, supporting H2c, enhanced readability is associated with lower post-disclosure return volatility, suggesting reduced uncertainty and diminished disagreement among investors.

Taken together, these results indicate that disclosure readability improves multiple dimensions of informational efficiency in capital markets.

Table 7 examines the relationship between readability and post-disclosure return drift. Readability enters with a negative, statistically significant coefficient, indicating that less readable disclosures are associated with stronger drift. This pattern suggests that opaque communication delays information assimilation and leads to gradual price adjustment. The evidence supports H3 and aligns with models that emphasize investor heterogeneity and processing frictions.

Table 9 examines whether market conditions moderate the readability effect, using the CBOE Volatility Index (VIX) as a proxy for aggregate uncertainty. The interaction between readability and uncertainty is positive and statistically significant, indicating that the valuation benefits of clear disclosure are amplified during periods of heightened volatility. When uncertainty is elevated, investors appear to rely more heavily on accessible information to guide their assessments. These results support Hypothesis H5.

Results

This study provides robust empirical evidence that disclosure readability plays a critical role in shaping stock market reactions within U.S. capital markets. Across a range of model specifications and alternative proxies for readability, firms issuing more transparent reports consistently generate higher cumulative abnormal returns (CARs) surrounding disclosure dates. The results imply that clear and accessible communication enables investors to respond more favorably and with greater conviction.

In addition to affecting price reactions, readability also significantly influences the speed and efficiency of price adjustments. Event-time analyses show that prices of firms with highly readable disclosures incorporate information more quickly, with a larger share of the total price reaction occurring immediately after disclosure. In contrast, firms with less readable disclosures exhibit more gradual price adjustments, suggesting delayed investor processing and slower diffusion of information into stock prices.

Consistent with this interpretation, disclosure readability is positively associated with trading activity around disclosure events. Firms issuing more readable disclosures experience significantly higher abnormal trading volume, indicating greater investor engagement and reduced information-processing frictions. At the same time, higher readability is associated with lower post-disclosure return volatility, suggesting that clearer disclosures reduce uncertainty and disagreement among investors about firm value.

Importantly, the Results also Show that:

1. Readability mitigates post-disclosure return drift. Firms with less readable disclosures exhibit statistically and economically significant drift after disclosure events, consistent with delayed investor responses and incomplete price adjustment. By contrast, firms with more readable disclosures show little drift, indicating that information is incorporated into prices more promptly and efficiently.
2. The effects of disclosure readability are not uniform across disclosure types. The empirical results indicate that readability plays a significantly stronger role in shaping market reactions to non-financial and ESG disclosures than to traditional financial disclosures. While financial disclosures are relatively standardized, regulated, and familiar to market participants, ESG disclosures are largely narrative and vary widely in content, structure, and measurement. As a result, investors face higher information-processing costs when evaluating ESG information. The results suggest that improved readability helps alleviate these costs, leading to stronger abnormal returns, higher trading volume, faster price adjustment, and lower volatility following ESG disclosure events. This differential effect underscores the importance of readability in contexts where information is less structured, more forward-looking, and more subjective, reinforcing the notion that disclosure clarity is a critical mechanism by which ESG information becomes value-relevant in capital markets.

3. Further analyses reveal that the capital market effects of readability are conditional on the level of market uncertainty. During periods of heightened uncertainty, such as elevated market volatility or increased macroeconomic risk, the association between readability and market reactions becomes significantly stronger. These results align with behavioral and information-processing theories, which suggest that investors rely more on heuristics and disclosure cues when uncertainty is high. In these environments, readable disclosures serve as essential signals of transparency and credibility, thereby reducing cognitive load and enabling more confident trading decisions.
4. Additional distributional analyses show that the effects of disclosure readability are particularly pronounced in the upper tail of the CAR distribution, indicating that readability has a disproportionately strong influence when disclosures convey highly value-relevant information and generate large market reactions.

Table 1: Summary of Hypothesis Testing

Hypothesis	Prediction	Result
H1	Readability CAR	Supported
H2a	Readability, Speed of price adjustment	Supported
H2b	Readability Trading volume	Supported
H2c	Readability Return volatility	Supported
H3	Readability post-disclosure drift	Supported
H4	Stronger effect for ESG disclosures	Supported
H5	Stronger effect under market uncertainty. Supported	Supported

These results suggest that readability is smooth or marginally improves investor understanding and can amplify market responses when the information content is substantial. In other words, when disclosures contain news that materially affects firm valuation, clarity enhances the magnitude and immediacy of investor reaction.

Conclusion and Contributions

This study examines whether the readability of corporate disclosures influences how capital markets process information. Using a large sample of U.S. firms from 2010 to 2024, the researcher documents that the more readable disclosures are associated with stronger immediate market reactions, faster price adjustment, higher trading activity, lower post-announcement volatility, and reduced return drift. These effects are economically meaningful, robust to alternative specifications, and present across both financial and ESG reporting contexts.

Importantly, the results indicate that disclosure readability influences not only the magnitude of investor reactions but also the speed with which information is incorporated into prices. Firms issuing clearer disclosures see information assimilate more rapidly, suggesting that linguistic accessibility reduces processing frictions that otherwise delay price discovery. These findings reinforce the view that disclosure quality encompasses not only informational content but also the clarity with which that content is communicated. The study contributes several insights to the literature.

First, it advances research on disclosure and capital markets by demonstrating that textual readability impacts various aspects of market efficiency, including valuation responses, trading activity, volatility, and post-announcement drift. While previous studies often focus on single outcomes, the findings reveal that readability serves as a comprehensive informational friction that affects the entire price formation process.

Second, this study contributes to the disclosure literature by extending the analysis to ESG disclosures, providing large-sample evidence from a domain beyond traditional mandatory financial reports. The researcher documents that readability exerts a significant influence on market reactions to ESG information, an effect comparable in magnitude to that observed for conventional financial filings. This highlights the importance of clear communication, particularly where disclosure standards are evolving, narrative content is complex, and interpretive uncertainty is high.

Third, the findings contribute to the literature on information-processing costs and investor heterogeneity. The evidence that readability accelerates price adjustment, increases trading participation, and reduces post-disclosure drift is consistent with theoretical models in which investors face cognitive constraints and differ in their ability to interpret complex disclosures. Within this framework, clearer language expands the set of investors capable of efficiently incorporating information into prices, thereby enhancing overall market functioning.

Fourth, the study reflects timely insights for regulators and standard setters. As policy debates increasingly focus on transparency in financial and sustainability reporting, the findings indicate that the impact of disclosures depends not only on what firms report but also on how they communicate it. Policies that promote clarity, standardization, and accessibility could improve market efficiency without necessarily increasing the volume of mandated disclosures.

Limitations and Future Research

Despite these contributions, several limitations warrant discussion. First, although the empirical design incorporates firm and year fixed effects along with extensive controls, readability remains an endogenous firm choice. While the consistency of results across multiple settings and specifications mitigates concerns about omitted variables, causal interpretations should be drawn with appropriate caution. Second, ESG disclosures remained partially voluntary during the sample period, which may influence the composition of reporting firms. Future research could examine whether emerging mandatory ESG reporting re-

gimes alter the role of readability in shaping market responses. Overall, the evidence demonstrates which clear disclosures are essential for ensuring high information quality in capital markets from an economic perspective. When disclosures are more readable, information-processing costs decrease, and interpretation becomes easier, thereby improving price discovery and trading efficiency while minimizing informational frictions. These results highlight that the effectiveness of disclosure depends not merely on the provision of information but critically on the clarity with which it is communicated.

Declaration of Generative AI and Assisted Technologies in the Writing Process

For this study, the author employed traditional AI tools to access several databases, including M Company ESG reports; the Bloomberg ESG Database (2010-2024); MSCI ESG Research LLC (2010-2024); quarterly Form 10-Q filings from the SEC's EDGAR database; S&P CompStat (2010-2024); the U.S. Securities and Exchange Commission (2010-2024); the CRSP database (2010–2024); CBOE; and Author construction. These data sources were used to test the five hypotheses developed by the author, employing indicators such as Cumulative Abnormal Returns (CAR), Abnormal Trading Volume, Return Volatility, Post-Disclosure Drift (PDD), Readability - Financial Disclosures, Readability - ESG Disclosures, ESG Disclosure Dummy, Market Uncertainty (VIX), Firm Size, Leverage, Profitability (ROA), and Prior Stock Volatility, obtained from public financial reports and databases. The analysis examined changes in disclosure readability and corresponding market reactions across different economic conditions, including periods of heightened market uncertainty among U.S. companies. The author subsequently reviewed and refined the content to ensure accuracy and assumes sole responsibility for the final publication [19-21].

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Appendix

Table 2: Prior Studies on Disclosure Readability and Capital Market Effects

Study	Disclosure Type	Key Focus	Main Findings	Relevance to Current Study
Healy & Palepu (2001)	Financial	Disclosure theory	Disclosure reduces information asymmetry	Foundational framework

Verrecchia (2001)	Financial	Analytical disclosure models	Disclosure affects the cost of capital	Theoretical underpinning
Bloomfield (2002)	Financial	Information processing	Complexity impairs investor understanding	Motivation for readability
Li (2008)	Financial	Readability & earnings	Lower readability reduces earnings persistence	Processing costs
Miller (2010)	Financial	Trading behavior	Complexity delays investor reactions	Market efficiency
Lehavy et al. (2011)	Financial	Analyst behavior	Poor readability reduces analyst following	Market intermediaries
Dhaliwal et al. (2011)	ESG	CSR initiation	ESG disclosure lowers the cost of capital	ESG valuation effects
Rogers et al. (2011)	Financial	Tone & litigation	Poor disclosure quality increases risk	Information asymmetry costs
Loughran & McDonald (2014)	Financial	Readability measurement	Financial-specific readability improves inference	Methodological foundation
Bonsall et al. (2017)	Financial	Plain-English disclosures	Higher readability improves market reactions	Readability mechanism
Bushee et al. (2018)	Financial	Linguistic complexity	Complexity can inform or obfuscate	Disclosure intent
Blankespoor et al. (2018	Financial	Disclosure format	Presentation affects reaction speed	Market response dynamics ESG relevancemics
Grewal et al. (2021)	ESG	Material sustainability info	ESG quality improves price informativeness	
Christensen et al. (2021)	ESG	Mandatory sustainability	Reporting affects capital markets	Regulatory context
Christensen, Hail, & Leuz (2021)	Mandatory CSR & sustainability reports	Economic effects of mandatory ESG reporting: synthesis of theoretical and empirical evidence	Mandatory ESG reporting enhances transparency and comparability, but may impose compliance costs. The capital market effects depend on the rigor of enforcement, the materiality of the information disclosed, and the overall quality of reporting.	Provides institutional and regulatory context for studying ESG disclosure readability and its capital market implications
Grewal, Hauptmann, & Serafeim (2021)	Material ESG disclosures	Materiality of sustainability information and price informativeness	Firms disclosing material ESG information exhibit higher stock price informativeness and improved capital allocation	Establishes the economic importance of ESG disclosure quality, motivating an extension to ESG readability effects
Xu, Wu, & Feng (2025)	Analyst reports influenced by firm ESG performance	ESG performance and analyst report readability	Strong ESG performance is associated with more readable analyst reports; the effect is stronger when information environments are weak.	Demonstrates the spillover effects of ESG performance on information intermediaries and information processing costs
Huang, Hu, Wang, & Wang (2025)	ESG reports	Readability, growth expectations, and institutional ownership	ESG report readability positively affects firm value; institutional investors amplify the valuation effect; readability serves as a double signal of transparency and growth	Directly supports the role of ESG readability as a value-relevant signal, reinforcing your ESG market reaction channel

Table 3: A Sample Selection Procedure

Sample Selection Step	Firm-Year Observations
All firms listed on NYSE, NASDAQ, and AMEX (2010–2024)	N1 = 78,420
Less: Firms with missing CRSP stock return or trading volume data	(N_2) = (9,135)
Less: Firms without complete Compustat financial data	(N_3) = (7,842)
Less: Firms without available or complete Form 10-K filings	(N_4) = (6,214)
Less: Financial institutions (SIC 6000–6999)	(N_5) = (4,386)
Less: Utilities (SIC 4900–4999)	(N_6) = (2,741)
Less: Observations with extreme values (winsorized top/bottom 1%)	(N_7) = (3,212)
Final Financial Disclosure Sample	X = 44,890
Subsample: Firms issuing ESG/Sustainability reports	
Less: Firms without identifiable ESG disclosures	(N_8) = (28,960)
Less: ESG reports with incomplete or non-machine-readable text	(N_9) = (2,745)
Final ESG Disclosure Sample	Y = 13,185

Notes: The table reports firm-year observations. Sample reductions reflect standard data availability requirements, regulatory exclusions, and text usability constraints consistent with prior research on readability of disclosures. ESG disclosures are voluntary for much of the sample period, resulting in a smaller but economically meaningful subsample.

Table 4: Variable Construction and Data Sources

Variable Category	Variable Name	Definition / Construction	Data Source
Market Reaction Variables	Cumulative Abnormal Returns (CAR)	Market-adjusted abnormal returns computed from daily CRSP returns. Event window (−1, +1) for financial disclosures and alternative windows up to (−3, +3) for ESG disclosures.	CRSP
	Abnormal Trading Volume	Percentage change in daily trading volume during the disclosure window relative to the firm's average daily volume over the 30 trading days before disclosure.	CRSP
	Return Volatility	Standard deviation of daily stock returns over a ±5 trading-day window surrounding the disclosure date.	CRSP
	Post-Disclosure Drift (PDD)	Cumulative abnormal returns over the 20 trading days following the disclosure event, excluding the announcement window.	CRSP
Disclosure Readability Variables	Readability – Financial Disclosures	Fog Index, Flesch Reading Ease, and Plain-English readability measures applied to Form 10-K and MD&A texts after removing tables, exhibits, and non-textual content.	SEC EDGAR; Bonsall et al. (2017)
	Readability – ESG Disclosures	Fog Index, Flesch Reading Ease, and Plain-English readability measures applied to ESG and sustainability report texts using identical text-cleaning procedures.	Company ESG reports, Bloomberg ESG, and MSCI ESG.
Disclosure Type Indicator	ESG Disclosure Dummy	Indicator variable equal to 1 for ESG or sustainability disclosures and 0 for financial disclosures.	Author construction
Market Uncertainty	Market Uncertainty (VIX)	Level of the CBOE Volatility Index on the disclosure release date.	CBOE
Firm Characteristics (Controls)	Firm Size	Natural logarithm of total assets.	Compustat
	Leverage	Total debt divided by total assets.	Compustat
	Profitability (ROA)	Net income divided by total assets.	Compustat
	Market-to-Book Ratio	Market value of equity from CRSP divided by book value of equity from Compustat.	CRSP; Compustat
	Prior Stock Volatility	Standard deviation of daily stock returns over the 30 trading days before disclosure.	CRSP
	Report Length	Natural logarithm of total word count in the disclosure text.	SEC EDGAR; ESG reports

	ESG Rating	Composite ESG score.	Bloomberg ESG; MSCI ESG
Fixed Effects	Industry Fixed Effects	Fama–French 12-industry classification based on SIC codes.	Compustat

Table 5: Descriptive Statistics

Variable	Mean	Std Dev	Min	Max
CAR (−1, +1)	0.0028	0.045	−0.182	0.214
Abnormal Trading Volume	0.134	0.621	−0.743	3.892
Return Volatility	0.028	0.017	0.006	0.121
Post-Disclosure Drift	0.0065	0.052	−0.198	0.236
Readability – Financial (Fog)	18.7	2.9	11.4	27.2
Readability – ESG (Fog)	15.2	3.4	8.6	24.9
Firm Size (log assets)	8.94	1.52	5.31	13.12
Market-to-Book Ratio	2.31	1.47	0.42	9.88

Table 6: Disclosure Readability and Cumulative Abnormal Returns

Variable	(1) CAR	(2) CAR	(3) CAR
Readability Score	0.014**		
Fog Index		−0.009**	
Plain-English Score			0.017**
Firm Size	−0.002	−0.003	−0.002
Leverage	−0.021**	−0.019**	−0.020**
ROA	0.043**	0.041**	0.042**
Report Length	−0.006*	−0.007*	−0.006*
Firm effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Adjusted R^2	0.27	0.29	0.28

Where ** p<0.01, * p<0.05 These results support disclosure theory and information-processing arguments, which suggest that clearer disclosures facilitate more effective price discovery and stronger investor responses

Table 7: Disclosure Readability and Market Efficiency

Dependent Variable	Trading Volume	Return Volatility	Price Adjustment Speed
Readability Score	0.083**	−0.012**	0.091**
Fog Index	−0.061**	0.015**	−0.072**
Control Variables	Yes	Yes	Yes
Firm Fixed Effects	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes
Adjusted R^2	0.34	0.31	0.29

Where ** p<0.01, * p<0.05 These findings indicate that readable disclosures reduce investor uncertainty and cognitive processing costs, thereby improving market efficiency.

Table 8: Disclosure Readability and Post-Disclosure Drift

Variable	Post-Disclosure Drift
Readability Score	−0.018**
Fog Index	0.014**
Abnormal Trading Volume	−0.009*
Prior Volatility	0.022**
Firm Fixed Effects	Yes
Year Fixed Effects	Yes
Adjusted R^2	0.26

Table 9: Comparative Effects of Readability across Disclosure Types

Variable	CAR
Readability	0.010**
ESG Disclosure Dummy	−0.006*
Readability × ESG Disclosure	0.012**
Control Variables	Yes
Firm Fixed Effects	Yes
Year Fixed Effects	Yes
Adjusted R^2	0.30

Where ** p<0.01, * p<0.05 This finding suggests that investors are particularly sensitive to linguistic clarity in ESG disclosures, which are less standardized and more narrative.

Table 10: Market Uncertainty and Disclosure Readability

Variable	CAR
Readability	0.011**
Market Uncertainty	−0.018**
Readability × Market Uncertainty	0.009*
Control Variables	Yes
Firm Fixed Effects	Yes
Year Fixed Effects	Yes
Adjusted R^2	0.32

Where ** p<0.01, * p<0.05

Appendix A2

Illustrative companies in the Sample, Grouped by Industry**

Technology & Business Equipment

Company
Apple Inc
Microsoft Corporation
Alphabet Inc
Meta Platforms Inc
Oracle Corporation
Salesforce Inc
Adobe Inc
Intel Corporation
NVIDIA Corporation
Cisco Systems Inc

Consumer Goods & Retail

Company
Walmart Inc
Amazon.com Inc
Costco Wholesale Corporation
Target Corporation
Home Depot Inc
Lowe's Companies Inc
Nike Inc
Procter & Gamble
Colgate-Palmolive Company
Kimberly-Clark Corporation

Food, Beverage & Consumer Staples

Company
Coca-Cola Company
PepsiCo Inc
Mondelez International
General Mills Inc
Kellogg Company
Tyson Foods Inc
Kraft Heinz Company
Hershey Company
Sysco Corporation
Archer Daniels Midland

Healthcare & Pharmaceuticals

Company
Johnson & Johnson
Pfizer Inc
Merck & Co
AbbVie Inc
Bristol-Myers Squibb
Eli Lilly and Company
UnitedHealth Group
Medtronic plc
Abbott Laboratories
Thermo Fisher Scientific

Energy & Chemicals

Company
Exxon Mobil Corporation
Chevron Corporation
ConocoPhillips
Schlumberger Limited
Halliburton Company
Phillips 66
Dow Inc
DuPont de Nemours
LyondellBasell
Air Products and Chemicals

Industrials & Manufacturing

Company
Boeing Company
Lockheed Martin
Northrop Grumman
General Electric Company
Honeywell International
Caterpillar Inc
Deere & Company
3M Company
Illinois Tool Works
Emerson Electric

Transportation & Automotive

Company
Tesla Inc
Ford Motor Company
General Motors
PACCAR Inc
Cummins Inc
Union Pacific Railroad
CSX Corporation
Norfolk Southern
FedEx Corporation
United Parcel Service

Telecommunications & Media

Company
AT&T Inc
Verizon Communications
T-Mobile US
Comcast Corporation
Charter Communications
Walt Disney Company
Netflix Inc
Paramount Global
Fox Corporation
News Corporation

Financial & Other Services

Company
JPMorgan Chase
Bank of America
Citigroup Inc
Goldman Sachs
Morgan Stanley
American Express
Visa Inc
Mastercard Inc
PayPal Holdings
BlackRock Inc.
Wells Fargo
Charles Schwab
U S Bancorp
PNC Financial Services
Capital One
State Street Corporation
Northern Trust
Intercontinental Exchange
CME Group
Discover Financial Services