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Environmental, Social, and Governance Disclosures and Market Reaction of Thai-Listed Companies in the Alternative Capital Market

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Abstract: The primary aim of this research is to investigate the influence of environmental, social, and governance (ESG) disclosures on the market reaction companies listed in Thailand's alternative capital market, specifically the Market for Alternative Investment (MAI). This interest stems from the growing body of ESG literature in Thailand. This study analyzes 555 corporate annual reports from 111 firms within the MAI, spanning from 2017 to 2021, to measure ESG disclosures through content analysis. The average common share price is used as a proxy for market reaction. Descriptive analysis, correlation metric, and multiple regression are used to analyze the data. The findings reveal that the most common ESG disclosures are social disclosure, governance disclosure, and environmental disclosure. Additionally, there is a noticeable increase in ESG disclosures over the study period. Underpinned by signaling theory, this study finds that governance disclosure positively affects market reaction, while environmental disclosure has a negative impact. Social disclosure shows no significant relationship with market reaction. The implication of this study is that ESG disclosure is crucial for firms due to its significant impact on investors' investment decisions. Regulators can use the findings in several ways, such as establishing policies to promote or regulate governance disclosure that positively affects market reactions, providing guidelines for companies on effectively disclosing ESG information, communicating quality information, and building investor confidence.

Keywords: ESG disclosures; market reaction; Thai-listed companies; the alternative capital market



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1. Introduction

The role of corporate management in addressing environmental, social, and governance (ESG) responsibilities is increasingly crucial in today's economic landscape. ESG disclosures aligning with GRI standards help organizations set goals and assess their policies and strategies, benefiting various stakeholders. For example, investors can use the reported information to assess how an organization integrates sustainable development

into its strategy. They can identify financial risks and assess long-term success, analysts and policymakers to benchmark and formulate policies, and academics to conduct research (Global Reporting Initiative, 2024). The scope of corporate ESG extends beyond traditional stakeholders like shareholders, investors, and creditors, encompassing a wider array of groups, including employees and laborers, customers, suppliers, competitors, government entities, the broader society, and community, as well as environmental advocacy organizations (Park & Jang, 2021). Alongside traditional financial information, corporate annual reports nowadays go beyond financial statements and notes, incorporating non-financial information like ESG disclosures. These disclosures enhance environmental and social impact transparency and improve information compliance and reliability (Cheng et al., 2014). Promoting sustainable reporting will enhance organizational efficiency and value (Khunkaew et al., 2023). Additionally, they serve as valuable indicators of overall business management and can help predict long-term corporate performance (BSR, 2008).

One key benefit of ESG disclosures is their ability to increase and improve the quality of information available to investors. ESG practices and good governance and disclosure positively impact firm value (Bhimavarapu et al., 2022). This, in turn, helps explain the impact of ESG disclosures on market reaction, as highlighted by signaling theory. Appropriate information, including ESG disclosures as a signal, is sent to receivers who will use the information for decision-making (Lo & Kwan, 2017; Barnett & Salomon, 2012). Therefore, investors use ESG disclosures as a signal for firms to consider investment into corporate common shares, which directly reflects market reaction (common share price). However, ESG disclosures can provide different directions of the signals as positive or negative signals affecting investors' decision-making (Suttipun & Yordudom, 2022).

However, prior research on the effects of ESG disclosures on market reactions in Thailand remains limited, and their findings remain inconclusive and varied (Hodkam, 2016; Lo & Kwan, 2017; Huaypad, 2019). For example, Huaypad (2019) and Suttipun and Yordudom (2022) found a positive impact of ESG disclosures on market reaction for listed companies on the main Stock Exchange of Thailand (SET). They argue that ESG disclosures provide useful information for investors' decision-making. Conversely, Kirkerud and Tran (2019) found a negative relationship, suggesting that ESG performance and disclosures can raise costs and expenses, reducing short-term corporate performance and negatively impacting investor sentiment. Meanwhile, Busru and Shanmugasundaram (2016) found no significant impact of ESG disclosures on market reactions, attributing this to the varying levels of investor experience. Based on inconclusive findings, further studies are required to comprehensively consolidate the body of ESG literature in Thailand to draw more definitive conclusions. Additionally, previous studies on ESG disclosures in Thailand have exclusively focused on the SET, neglecting the alternative capital market. There has yet to be an examination of how individual elements of ESG disclosures influence market reactions, despite some of the literature exploring the broader effects of ESG disclosure on market dynamics. This leaves a notable gap in the literature unaddressed.

This study focuses on ESG disclosures among Thai firms for several reasons. Although some studies have explored ESG disclosures in Thailand (Asvathitanont & Tangjitprom, 2021), only one study has examined the influence of ESG disclosures on investors' investment decisions of listed companies in Thailand (Suttipun & Yordudom, 2022). However, the study by Suttipun and Yordudom (2022) was limited to listed companies in the main capital market in Thailand, the Stock Exchange of Thailand (SET). The sample of this study is not limited to large multinational firms, like those in developed countries such as European countries, Australia, New Zealand, Japan, Singapore, South Korea, and the United States of America, but also medium-sized firms, thereby increasing the diversity of the firms under

investigation. Additionally, Thailand's average level of ESG disclosures is relatively low compared to developed countries.

Unlike the SET, companies listed on the MAI are typically small- to medium-sized companies with limited resources and availability to disclose ESG information compared to companies on the SET. Studying how ESG disclosure affects stock prices may help us understand the importance of ESG in the MAI market and the unique characteristics of MAI investors, such as a focus on long-term growth or speculation. This research may help to determine how MAI investors respond to ESG disclosure. If it can be proven that ESG disclosure affects stock prices on the MAI market, it may incentivize companies to disclose more ESG information. However, such studies are still rare in the MAI market because most studies on ESG and stock prices focus on major markets such as the SET. This research on ESG in the MAI may help fill the academic gap.

As company size, leverage, profitability and economic performance of Asian companies positively influence ESG disclosures (Abdul Rahman & Alsayegh, 2021), and building upon the identified research gaps, this study aims to investigate the level and pattern of ESG disclosures among listed companies in the Market for Alternative Investment (MAI), Thailand's alternative capital market. Additionally, it examines the impact of these disclosures on market reaction. Two main research questions guide this study:

- (1) What is the level of ESG disclosure of companies in the MAI, both overall and classified by aspect, and how has it changed?
- (2) How does ESG disclosure affect market reaction?

This study makes several significant contributions to the existing literature on ESG disclosure and its financial implications, particularly in the context of Thailand's Market for Alternative Investment (MAI). Firstly, it comprehensively assesses ESG disclosure levels among MAI-listed companies, examining the overall disclosure trends and the breakdown by ESG aspects (environmental, social, and governance). Secondly, this research enhances understanding of the relationship between ESG disclosure and market reaction in an emerging alternative market. While prior studies have focused primarily on larger firms in major stock exchanges, the impact of ESG transparency on stock prices and investor behavior in a market characterized by smaller and growing enterprises remains underexplored. This study addresses that gap. The findings will offer insights into Thai investors' interest in ESG disclosures, especially in the lack of an international standard for ESG performance and reporting. Thirdly, this study will determine whether the observed patterns and levels of ESG disclosures in Thailand, and their impact on market reactions, align with the predictions of signaling theory. Lastly, the findings of this study offer practical implications for policymakers, investors, and corporate managers. Regulators can use the results to refine ESG reporting guidelines for MAI-listed firms, ensuring that disclosure practices align with market expectations. Investors may gain a deeper understanding of how ESG factors are priced in the MAI, aiding in investment decision-making. Additionally, company executives can leverage these insights to enhance their ESG strategies, balancing sustainability initiatives with financial performance.

The remainder of this study is organized as follows: Section 2 provides a literature review and outlines the development of hypotheses, including the theoretical framework. Section 3 describes the research methodology, divided into three subsections: population and sample selection, data collection and variable measurement, and data analysis techniques. Section 4 presents the research findings and discusses their implications. Finally, Section 5 offers a summary of the study, along with suggestions for future research, highlighting potential contributions and implications, and acknowledging the study's limitations.

2. Literature Review

2.1. Theoretical Perspective

Even though several theories have been used to explain the impact of ESG disclosures/performance on market reactions, such as stakeholder theory (Siwei & Chalermkiat, 2023; Al-Issa et al., 2022; Caroline, 2012), legitimacy theory (Di Donato & Izzo, 2012), agency theory (Brecht, 2018), and signaling theory (Lo & Kwan, 2017), this study employs signaling theory (Khemir et al., 2019; Sahut & Pasquini-Descomps, 2015). Signaling theory is one of the most common theories used to explain the impact of ESG reporting on the market reaction of listed companies in Thailand. The theory provides a robust framework for understanding how strategic information disclosure can reduce information asymmetry between companies and investors. At its core, the theory explains how managers who possess more complete information about the company can effectively communicate this information to investors who face information gaps in their decision-making process (Heijnen & Van de Made, 2012). This information asymmetry is particularly pronounced in Thailand's MAI market, where companies are typically smaller and have less analyst coverage compared to the main SET market. The voluntary nature of ESG disclosures in the MAI market makes signaling theory relevant, as companies must actively choose what and how to communicate their ESG practices to investors. ESG disclosure, as part of non-financial information disclosure, can be used and considered a signal desired by decision-makers. Signaling theory is particularly relevant to ESG disclosures as it explains how companies can convey their environmental commitments, social responsibility initiatives, and governance practices to reduce information asymmetry with investors. This reduction in information asymmetry is crucial because it directly impacts investors' decisions. When companies provide comprehensive ESG information, investors can better assess the company's current performance and future prospects, leading to more informed investment decisions reflected in market valuations. For example, Lo and Kwan (2017) and Barnett and Salomon (2012) found that corporations send good signals of ESG information reporting to their investors, who use the information reporting for decision-making. Therefore, ESG reporting is a good signal from corporations to earn a competitive advantage and growth opportunity. Moreover, ESG reporting is also used to reduce information asymmetries between investors and corporations because if the investors have enough information on both financial information and non-financial information (ESG reporting) to consider, they will have more information to make investment decisions (Suttipun & Yordudom, 2022).

2.2. ESG Disclosures of the Alternative Capital Market in Thailand

Listed companies in Thailand must disclose ESG information in their annual reports since 2015 as part of the "One Report" regulation by the Stock Exchange of Thailand (SET). The Stock Exchange of Thailand (SET) has adopted the Global Reporting Initiative (GRI) Standard Guideline for listed companies in the main capital market to assess and evaluate their long-term economic, social, and environmental performances, including sustainable development (GRI, 2020). The GRI Standards provide a framework for companies to disclose relevant non-financial information, which is valuable for investors seeking to make informed investment decisions (The Stock Exchange of Thailand [SET], 2017).

In contrast, the Market for Alternative Investment (MAI) is designed to accommodate medium to small-sized companies (SMEs) or companies with high growth potential that may not yet meet the stricter requirements of the Stock Exchange of Thailand (SET). Since MAI requires a minimum paid-up registered capital of only THB 50 million and has more flexible listing criteria, the supervision of the MAI's regulators is designed to support the sustainable growth of emerging companies, unlike the more stringent supervision

applied to companies listed on the SET, including disclosure of environmental, social, and governance (ESG) information. The MAI is relaxed in some respects to suit the size and resources of the companies. Therefore, disclosing ESG information in MAI is voluntary and has received relatively little study. Since most companies listed on the MAI are family-owned businesses and are smaller than companies listed on the SET (Madini & Luksanawong, 2023), and the ESG disclosures are voluntary (at the time of the study), whether disclosure will benefit the business, especially the short-term impact, and how much environmental, social, and governance information will be disclosed, are the questions of this research.

ESG disclosures have evolved significantly since their promotion by the Stock Exchange of Thailand (SET) in 2015, becoming integral to corporate sustainability strategies (The Stock Exchange of Thailand [SET], 2017). The significance of environmental, social, and governance (ESG) disclosures lies in several key areas: (1) facilitating the collection and analysis of sustainability data to enhance corporate evaluation and operational efficiency, thereby mitigating risks and identifying opportunities for cost savings or revenue generation; (2) enabling stakeholder analysis and fostering effective communication and understanding of stakeholder concerns, thereby ensuring competitive corporate management; (3) enhancing corporate credibility through transparent demonstration of sustainable growth commitments and performance; (4) serving as an indicator of business potential to attract investment towards companies demonstrating quality and sustainability for long-term gains; and (5) prioritizing ESG considerations throughout the product lifecycle and corporate processes over post-process adjustments. The SET recognizes firms contributing to sustainable investment in Thailand (THSI) for incorporating ESG disclosures in their annual reports. Additionally, ThaiPat, an SET affiliate focused on promoting corporate responsibility for environmental and social sustainability, offers the ThaiPat ESG Index. This tool aids investors in evaluating investment returns and other relevant data for informed decision-making. Investors leverage disclosed ESG information and ratings to refine their investment strategies, selecting outstanding companies for risk mitigation and return stabilization (Siwei & Chalermkiat, 2023).

ESG disclosures encompass eleven categories across three dimensions: environmental, social, and governance. Environmental aspects cover energy, water, waste, and greenhouse gas management. Social disclosures focus on equitable and fair human resource practices, occupational safety and health, community relations, employee treatment, customer responsibility, and social/community development. Governance disclosures ensure the adoption of robust corporate governance policies, transparency, anti-corruption measures, and stakeholder interest protection, including governance practices, sustainability risk, supply chain management, and innovation.

2.3. Hypothesis Development

The impact of environmental, social, and governance (ESG) factors on short-term market reactions has garnered significant attention in recent years. Researchers have explored how ESG news and ratings influence stock prices and investor behavior in the short term. To assess the impact of ESG disclosures on market reactions, many researchers have found positive results, often explained by signaling theory (Lo & Kwan, 2017). ESG engagement typically leads to a favorable perception among investors, resulting in higher profitability, increased asset value, and improved market valuation (Fuadah et al., 2022; Al-Issa et al., 2022). Sahut and Pasquini-Descomps (2015) also noted that ESG disclosures can positively influence stock prices, as investors may associate them with lower residual risk and higher goodwill. Additionally, improving ESG performance has been shown to enhance a firm's market value by reducing the cost of debt, which negatively correlates

with ESG performance and is a significant factor in market valuation in China (Siwei & Chalermkiat, 2023).

However, the impact of ESG news on market reactions is not always straightforward. Some studies suggest that ESG news impacts short-term market reactions, with negative effects more pronounced from downgrades in ESG ratings, while positive news often results in no significant gains (Capelle-Blancard & Petit, 2019; Glück et al., 2021). Financial materiality plays a crucial role, as market reactions are more pronounced for financially material ESG news, particularly when the news is unexpected (Serafeim & Yoon, 2021b). The reputation of the sector and cultural factors can also mitigate the negative impact of ESG news (Capelle-Blancard & Petit, 2019). Additionally, while downgrades in ESG ratings tend to lead to significant negative abnormal returns, upgrades may help reduce downside and systematic risks (Glück et al., 2021; Do & Kim, 2020). ESG disclosure can help reduce the risk of a stock price crash in some markets. Environmental and governance disclosures are associated with a lower risk of a stock price crash in Europe and Japan, while social disclosures have a specific effect on the Japanese market. The impact of ESG disclosures on the risk of a sharp drop in stock prices may vary depending on the financial market context of each country (Murata & Hamori, 2021).

Conversely, some studies, such as those by Chan and Milne (1999) and Holm and Rikhardsson (2008), found no significant impact of ESG disclosures on investors' reactions. This lack of impact can be attributed to varying levels of investor experience and differing risk perspectives based on investment horizons. Despite this, ESG ratings have been shown to have predictive power regarding future ESG news and market reactions, although this predictive ability diminishes with high disagreement between raters (Serafeim & Yoon, 2021a).

Moreover, the effects of ESG awareness on market reactions can vary over time. While ESG awareness can lead to a positive short-term effect on stock prices, this effect may turn negative in the long term (Do & Kim, 2020; Koziol & Kuhn, 2023). The role of financial performance is also crucial, as improved ESG performance can enhance market value, with financial performance acting as a mediating factor (Zhou et al., 2022).

In summary, negative ESG news generally leads to short-term stock price declines, while positive news has a limited impact. Financially material and unexpected ESG news elicits stronger market reactions. ESG ratings and sector reputation also play crucial roles in moderating these effects. While ESG awareness can boost short-term stock prices, the long-term impact may be less favorable. Improved ESG performance can enhance market value, particularly when mediated by financial performance. Given the limited literature examining the impact of each element of ESG disclosures on market reactions, this study will further develop hypotheses focused on the individual effects of environmental, social, and governance disclosures.

From the literature review, when considering the impact of environmental disclosure on market reaction, most prior related studies found a positive relationship between these variables (Jizi et al., 2016; Jagannathan et al., 2017; Yoon et al., 2018; Almeyda & Darmansya, 2019). The logical reason for the positive impact of environmental disclosure on market reaction, measured by average stock market price, is that the companies send a positive signal to their investors for investment decision-making. Thus, their investors will have enough corporate information to make corporate common share investment decisions (Jagannathan et al., 2017). Moreover, corporate environmental responsibility provides useful information to reduce the risk and uncertainty of stock price declines in the future (Lee, 2016). On the other hand, Kim et al. (2014) found a negative influence of environmental disclosure on performance in stock price. This is because the cost of the environmental impact sent a negative signal to the investors, reflected in the stock price.

However, [Hodkam \(2016\)](#) and [Al-Issa et al. \(2022\)](#) found no influence of environmental disclosure on the firm value measured. Therefore, to assess the situation in the Thai context, the study hypothesizes the following:

H1. *There is a positive impact of environmental disclosure on market reaction.*

Mostly, the prior related literature has found positive impacts of social disclosure on market reaction ([Caroline, 2012](#); [Lee, 2016](#); [Jizi et al., 2016](#); [Lo & Kwan, 2017](#); [Khajavai et al., 2018](#); [Yoon et al., 2018](#)). This is because the investors as receivers possibly react to the corporate signal for their decision-making ([Dai et al., 2019](#)), and social disclosure can reduce drops in the stock price by avoiding some risks and uncertainty ([Lee, 2016](#)). In addition, social disclosures can reduce conflicts between corporations and their investors by removing problematic information asymmetry ([Barnett & Salomon, 2012](#)). However, some studies have found negative influences of social disclosure on market reactions ([Di Donato & Izzo, 2012](#); [Barnea & Rubin, 2006](#)). This is because corporate activities and actions on social disclosure are a cost and expense to the corporation, reducing shareholders' income and firm value. Therefore, this study posed the following hypothesis:

H2. *There is a positive impact of social disclosure on market reaction.*

Many prior related studies have found a positive impact of governance disclosure on market reaction ([Yoon et al., 2018](#); [Kosanlawit & Ugsornwong, 2019](#); [Malik, 2012](#)) because corporate governance plays an important role in affecting its market price. Moreover, corporations can improve corporate governance to increase the firm value. For example, [Kim et al. \(2014\)](#) found that the stock price crash risk is significant when corporate governance is ineffective. [Uwuigbe \(2013\)](#) found that the ownership structure negatively influences the stock price, while the audit committee positively influences the stock price. It was concluded that governance practices often involve differences in the audit committees (especially in the independence of the audit committee). The audit committee's independence serves to monitor financial reports, and external audits are more effective. However, [Busru and Shanmugasundaram \(2016\)](#) found no impact of governance disclosure on market reaction. Although the previous related studies found negative influences or did not find the influence of governance on firm value, the reason for the negative impact of governance disclosure on market reactions may be that the content and tone of corporate governance disclosure had both positive and negative aspects that can affect stock prices ([Carretta et al., 2011](#)). However, this study poses the following hypothesis:

H3. *There is a positive impact of governance disclosure on market reaction.*

3. Methodology

The study population encompasses all listed companies in Thailand's Market for Alternative Investment (MAI). To ensure data consistency, this study excludes firms from the main capital market, namely the Stock Exchange of Thailand (SET), those with fiscal year-ends other than December 31st, and those operating in the financial or funding sectors due to their unique characteristics. This study excludes financial and funding sectors due to their unique regulatory environment and business models, which could hinder accurate comparisons and introduce confounding factors when analyzing the impact of ESG disclosures on non-financial firms. Additionally, companies under rehabilitation or revocation are excluded due to potential data reliability concerns. After applying these criteria, the final sample comprises 111 firms, resulting in 555 firm-year observations from 2017 to 2021. The reason for using corporate ESG disclosures from 2017 to 2021 is that ESG

disclosures were launched in Thailand in 2016, and listed companies can provide voluntary ESG disclosures in their annual reports since 2017. Moreover, after 2021, ESG disclosures in Thailand have become mandatory information disclosures in corporate annual reports, which listed firms have to provide carbon emissions, provident funds, and human lawsuits as mandatory ESG disclosures.

This study utilizes secondary data from corporate annual reports and the SETSMART database. Three main groups of variables are analyzed as follows:

Independent variables: In Thailand, ESG disclosures are classified and separated within eleven points from three dimensions of environmental, social, and governance by the [Association of Thailand Securities Companies \(2016\)](#). These represent ESG disclosures, with each element of environmental, social, and governance (ESG) disclosures serving as a separate variable. This study employs the ESG disclosure measurements developed and validated in previous works by [Suttipun and Yordudom \(2022\)](#). Using a standardized checklist, they are measured through content analysis of corporate annual reports. For example, in a total of 11 issues/points of ESG disclosures, how many issues/points does company A in the MAI provide for ESG disclosures in its annual report? The three main ESG categories are divided into the following sub-categories: (1) Environmental disclosures: water management, energy management, gas emission management, and waste management. (2) Social disclosures: labor responsibility, customer responsibility, and social and community development. (3) Governance disclosures: good corporate governance, risk management for sustainability, corporate innovation, and supply chain management (see Appendix A).

Managing certain variables is important to reflect market characteristics, such as the 5-day moving average, which measures relative price stability over a short period ([Wang et al., 2006](#)). So, the dependent variable is that investor decision-making is assessed through the average price of common shares observed within five days following the publication of the MAI firms' annual reports. The reason for using a five-day average price of common shares during the publishing of the corporate annual reports as a proxy of market reaction is because (1) ESG disclosures can affect corporate investors and financial statements users who take the signal from the corporations for their decision-making on buying-or-selling common share, and (2) this proxy is commonly used in the Thai context by several prior related studies ([Suttipun & Yordudom, 2022](#)). These pricing data are sourced from the SETSMART database. This methodology is deemed suitable for the study because it can accurately reflect immediate investor reactions to annual report disclosures by examining average common share prices within five days post-publication. Such a timeframe is crucial for capturing investor responses directly influenced by the report's content ([Suttipun & Yordudom, 2022](#)).

Control variables: Four corporate characteristics are included to control for potential confounding factors: firm size, firm age, profitability, auditor type, industry type, and year. The proxies for these variables are chosen based on the previous related studies ([Almeyda & Darmansya, 2019](#); [Treepongkaruna & Suttipun, 2024](#); [Suttipun & Yordudom, 2022](#); [Zhou et al., 2022](#); [Do & Kim, 2020](#); [Lo & Kwan, 2017](#); [Yoon et al., 2018](#)). All variable measurements and notations are detailed in Table 1.

For data analysis, descriptive analysis is employed to examine the pattern and level of ESG disclosures, along with the other variables in this study. A correlation matrix is utilized to assess potential multicollinearity among variables. Subsequently, multiple regression analysis is conducted to investigate the relationship between ESG disclosures and market reaction. Furthermore, this study incorporates the following two main equations:

$$\text{PRICE} = \beta_0 + \beta_1\text{EN} + \beta_2\text{SO} + \beta_3\text{CG} + \varepsilon \quad (\text{Model 1})$$

$$\text{PRICE} = \beta_0 + \beta_1\text{EN} + \beta_2\text{SO} + \beta_3\text{CG} + \beta_4\text{SIZE} + \beta_5\text{AGE} + \beta_6\text{ROA} + \beta_7\text{AUDIT} + \beta_8\text{INDUS} + \beta_9\text{YEAR} + \varepsilon \quad (\text{Model 2})$$

Table 1. Variables' measurement.

Variables	Notation	Measurement
ESG disclosures	ESG	Check list by scoring (Treepongkaruna & Suttipun, 2024; Suttipun & Yordudom, 2022)
Environmental disclosures	EN	Check list by scoring (Treepongkaruna & Suttipun, 2024)
Social disclosures	SO	Check list by scoring (Treepongkaruna & Suttipun, 2024)
Governance disclosures	CG	Check list by scoring (Treepongkaruna & Suttipun, 2024)
Market reaction	PRICE	Average common share price (Zhou et al., 2022; Suttipun & Yordudom, 2022; Caroline, 2012)
Firm size	SIZE	The natural logarithm of total assets (Fuadah et al., 2022; Suttipun et al., 2021)
Firm age	AGE	Age of firm (year) (Do & Kim, 2020)
Profitability	ROA	Ratio of return on asset (ROA) (Almeyda & Darmansya, 2019; Lo & Kwan, 2017)
Auditor type	AUDIT	Dummy variables as 1 = Big4 auditors, and 0 = otherwise (Suttipun & Nuttaphon, 2014)
Industry	INDUS	Industry fixed effect (Yoon et al., 2018)
Year	YEAR	Year fixed effect (Yoon et al., 2018)

4. Results

For the companies listed on the Market for Alternative Investment (MAI) in Thailand, this study analyzed 555 corporate annual reports from 2017 to 2021. To explore the level and pattern of ESG disclosures, the findings are presented in Table 2, which shows an average ESG disclosure score of 6.182 out of a possible 11 (SD = 2.092), based on average score analysis. Moreover, there was a notable increase in ESG disclosures over the study period. From 2017 to 2021, the mean scores for ESG disclosures rose from 5.5405 to 7.1802. Specifically, environmental disclosure increased from a mean of 1.0811 to 1.71207, social disclosure increased from 2.2973 to 2.6486, and governance disclosure increased from 2.1622 to 2.8108. The increase in ESG disclosures reflects heightened sustainability awareness and regulatory pressure for transparency. Enhanced ESG reporting is also driven by companies recognizing its value in risk mitigation, reputation enhancement, and attracting sustainable investment. The average ESG disclosures and each element disclosure indicate that Thai-listed companies as senders would like to send their signal of ESG disclosures with 6.182 average scores out of 11, including 1.3640 average scores out of 4 in environmental disclosure, 2.4378 average scores out of 3 in social disclosure,

and 2.3802 average scores out of 4 in governance disclosure. The average ESG disclosure scores are the signal or message from senders (the firms) to receivers such as investors, shareholders, or the other annual reports' users. In addition, the average scores of ESG disclosures in Thailand during the period being studied are provided by the corporation as voluntary reporting without regulations and standards.

Table 2. Level of ESG disclosures from 2017 to 2021.

ESG Disclosures	Mean	SD	Max	Min	Median
2017	5.5405	0.20786	11	0	5
2018	5.8739	0.19749	11	0	6
2019	6.0180	0.19282	11	0	6
2020	6.2973	0.18705	11	0	7
2021	7.1802	0.17370	11	0	7
Average	6.1820	2.09203	11	0	6
Environmental Disclosure	Mean	SD	Max	Min	Median
2017	1.0811	0.10487	4	0	1
2018	1.2703	0.10154	4	0	1
2019	1.3604	0.10061	4	0	1
2020	1.3874	0.10489	4	0	1
2021	1.7207	0.10411	4	0	2
Average	1.3640	0.17370	4	0	1
Social Disclosure	Mean	SD	Max	Min	Median
2017	2.2973	0.08353	3	0	3
2018	2.4054	0.08429	3	0	3
2019	2.3604	0.07971	3	0	3
2020	2.4775	0.07223	3	0	3
2021	2.6486	0.06354	3	0	3
Average	2.4378	0.81790	3	0	3
Social Disclosure	Mean	SD	Max	Min	Median
2017	2.1622	0.06956	4	0	2
2018	2.1982	0.06871	4	0	2
2019	2.2973	0.06347	4	0	2
2020	2.4324	0.06478	4	0	2
2021	2.8108	0.06337	4	0	3
Average	2.3802	0.73192	4	0	2

Additionally, Table 2 demonstrates that the most prevalent type of ESG disclosure was social (mean = 2.437 average scores, SD = 0.817), followed by governance (mean = 2.380 average scores, SD = 0.731) and environmental disclosures (mean = 1.364 average scores, SD = 1.103). This predominance stems from the MAI's expectation that companies provide a dedicated social information report if such details are omitted from their annual reports, despite social disclosure being voluntary in Thailand. Without a standard reporting framework, firms can highlight favorable social initiatives to stakeholders, including investors, for decision-making purposes. Following closely, governance disclosures were the second most frequent, driven by MAI's regulatory mandates that ensure companies disclose governance information, even if it involves unfavorable news.

Table 3 presents descriptive statistics for all variables, including mean, standard deviation, frequency, and percentage. For example, the average investor decision (market reaction) is 3.5446 (SD = 3.2015), the firm size is 17.5599 (SD = 25.0426), the firm age is 23.5495 years (SD = 10.9137), and the average ROA is 3.0005% (SD = 13.6465). Regarding auditor type, 60% (335) are Big4 firms, while 40% (220) are non-Big4.

Table 3. Descriptive analysis of variables used in this study.

Variables	Mean	SD	Max	Min
ESG	6.1820	2.09203	11	0
EN	1.3640	1.10339	4	0
SO	2.4378	0.81790	3	0
CG	2.3802	0.73192	4	0
SIZE	17.5599	25.04269	222.10	−6.06
AGE	23.5495	10.91379	60	0.00
ROA	3.0005	13.64659	107.59	−80.58
PRICE	3.5446	3.20153	91.00	0.00
Variable		Number	Percent	Sum-Percent
AUDIT	Big4 auditors	335	60	60
	Non-big4 auditors	220	40	100
		555	100	

To ensure the validity of the multiple regression analysis, multicollinearity among the eight variables (one dependent, three independent, and four controls) was assessed. Table 4 presents the correlation matrix, where no pair of variables exceeded the commonly used threshold of 0.700 for multicollinearity. This observation is further supported by the Variance Inflation Factor (VIF) scores in Table 5, with the highest score being 1.529 for SIZE, well below the 10 thresholds set by Yoon et al. (2018). While significant correlations exist between PRICE, CG, SIZE, AGE, ROA, and AUDIT at both 0.01 and 0.05 levels, PRICE shows no significant correlation with EN and SO at the 0.05 level. These findings confirm the absence of multicollinearity concerns, ensuring the reliability of the subsequent regression analysis.

Table 4. Correlation matrix.

Variable	EN	SO	CG	SIZE	AGE	ROA	AUDIT
PRICE	−0.064	0.041	0.105 *	0.265 **	−0.162 **	0.276 **	0.180 **
EN	1	0.521 **	0.329 **	0.034	−0.030	0.002	0.087
SO	-	1	0.403 **	0.079	−0.120 **	0.076	0.093 *
CG	-	-	1	−0.070	−0.078	0.098 *	−0.008
SIZE	-	-	-	1	−0.184 **	0.026	0.209 **
AGE	-	-	-	-	1	−0.042	−0.154 **
ROA	-	-	-	-	-	1	0.240 **
AUDIT	-	-	-	-	-	-	1

** is significant at 0.01 level, and * is significant at 0.05 level.

Table 5. Multiple regression analysis.

Variables	Model 1		Model 2	
	B	t (Sig.)	B	t (Sig.)
Constant	0.943	0.919	1.348	2.312 **
EN	−0.780	−2.777 **	−0.701	−2.126 **
SO	0.473	1.210	0.018	0.068
CG	1.058	2.683 **	1.278	3.189 **
SIZE	-	-	0.072	6.841 **
AGE	-	-	−0.085	−2.048 **
ROA	-	-	0.179	5.601 **
AUDIT	-	-	0.087	1.280
INDUS	-		Yes	
YEAR	-		Yes	
R Square	0.025		0.254	
Adj R Square	0.019		0.226	
Observations	555		555	

** is significant at 0.01 level.

Table 5 presents the results of the multiple regression analysis for both Model 1 and Model 2. Model 1 explores the relationship between independent and dependent variables without control variables, while Model 2 includes control variables. The R-squared values range from 0.025 to 0.254, and the adjusted R-squared values range from 0.019 to 0.226. The analysis aimed to assess the impact of ESG disclosures on market reactions within corporate annual reports of companies listed on the Market for Alternative Investment (MAI). The results from both models reveal that the variable PRICE is negatively influenced by environmental disclosures (EN) at the 0.01 significance level in both models, suggesting an inverse relationship and leading to the non-support of Hypothesis 1 (H1). Additionally, there is no significant relationship between social disclosures (SO) and PRICE at the 0.05 significance level in either model, which means Hypothesis 2 (H2) is also not supported. Conversely, PRICE is positively affected by governance disclosures (CG) at the 0.01 significance level in both Model 1 and Model 2, supporting Hypothesis 3 (H3). Among control variables, size, ROA, and age have significantly affected PRICE in model B (positive for size and ROA, negative for age). However, the auditor type shows no significant relationship with PRICE. In conclusion, only Hypothesis 3 regarding the positive impact of governance disclosures on market reaction is supported. The negative effects of environmental disclosures and the lack of influence from social disclosures contradict the proposed hypotheses.

This study also uses robustness tests to test whether the ESG disclosures impact the corporate market reaction from the alternative capital market. The average stock price of MAI-listed firms during the Annual General Meeting (AGM) is used as the alternative dependent variable and proxy of market reaction instead of the average stock price during the corporate annual report announcement. As the results (see Table 6) show, the study still finds that environmental and governance disclosures significantly impact market reaction at a 0.01 level. At the same time, there is no correlation between social disclosure and corporate market reaction. This confirms the stability and validity of the findings' conclusions regarding the influences of ESG disclosures on market reaction.

Table 6. Robustness test.

Variables	Model 1		Model 2	
	B	t (Sig.)	B	t (Sig.)
Constant	0.925	0.877	1.278	2.138 *
EN	−0.776	−2.688 **	−0.685	−2.365 **
SO	0.460	1.118	0.015	0.063
CG	1.012	2.635 **	1.266	3.050 **
SIZE	-	-	0.070	6.788 **
AGE	-	-	−0.081	−2.026 *
ROA	-	-	0.169	5.537 **
AUDIT	-	-	0.076	1.249
INDUS	-		Yes	
YEAR	-		Yes	
R Square	0.024		0.224	
Adj R Square	0.018		0.216	
Observations	555		555	

** is significant at 0.01 level, and * is significant at 0.05 level.

5. Discussion

The observed positive impact of governance disclosure on market reaction aligns with findings from [Jagannathan et al. \(2017\)](#), [Almeyda and Darmansya \(2019\)](#), [Yoon et al. \(2018\)](#), and [Al-Issa et al. \(2022\)](#). This finding can be attributed to investors interested in a positive signal of corporate governance disclosure in good corporate governance, risk management for sustainability, corporate innovation, and supply chain management that Thai-listed firms from the MAI have sent as a signal to their receivers for decision-making. This finding is particularly significant in emerging markets like Thailand's MAI, where strong governance signals can help overcome institutional voids and information barriers that typically characterize such markets. The positive market reaction suggests that investors view robust governance disclosures as a credible commitment to transparency and accountability, which is especially valuable in markets with developing institutional frameworks. Therefore, a positive signal of governance disclosure will increase corporate common share ([Lee, 2016](#)). Moreover, governance disclosure may reduce information asymmetry between corporations and their investors ([Al-Issa et al., 2022](#)) and improve the transparency and reliability of listed firms in the alternative capital market in Thailand.

As indicated by the average stock market price, the discovery of a negative impact of environmental disclosure on market reaction diverges from findings in prior related research ([Yoon et al., 2018](#); [Kosanlawit & Ugsornwong, 2019](#); [Malik, 2012](#)). This finding requires careful interpretation within the specific context of Thailand's MAI market. Unlike developed markets, where environmental initiatives might be viewed more favorably, MAI investors prioritize short-term financial performance over long-term environmental sustainability. This behavior could be attributed to the market's developmental stage and the characteristics of MAI-listed companies, which are typically smaller and more resource-constrained than their SET counterparts. This discrepancy could be attributed to the significant costs associated with corporate environmental disclosure and performance. These costs could potentially lead to adverse financial outcomes for the firm, which, in turn, directly affects investor decisions. The initial expenses related to environmentally

and socially responsible investments might not yield immediate returns, causing investors to hesitate due to the anticipated delay in profit realization (Siwei & Chalermkiat, 2023). Furthermore, environmental disclosures may be interpreted as a negative signal by investors because such disclosures often highlight environmental risks, compliance costs, and necessary capital expenditures for environmental initiatives. When companies disclose their environmental impacts and mitigation efforts, investors may perceive these as future financial burdens that could reduce profitability and shareholder value, leading to negative market reactions reflected in lower share prices (Suttipun & Yordudom, 2022). This interpretation is particularly relevant in the MAI market, where companies generally have more limited financial resources to address environmental challenges.

Conversely, this study's inability to find a relationship between social disclosure and market reaction aligns with the findings of Busru and Shanmugasundaram (2016), who also observed no significant impact of ESG disclosures on market reaction. This may reflect the evolutionary stage of social awareness in Thailand's alternative market. Unlike governance disclosures, which have clear monitoring benefits, or environmental disclosures, which have direct cost implications, social initiatives may be viewed as having fewer concrete impacts on firm value in this market context. This interpretation is supported by the voluntary nature of social disclosures in the MAI, where the lack of standardization may lead to inconsistent evaluation by investors. This lack of relationship may be due to the varied levels of investor experience, suggesting that investor reactions to social disclosures are not uniform.

The findings regarding control variables provide additional insights into the context of the MAI market. The discovery of a positive correlation between firm size and market reaction is consistent with the findings of previous studies (Murniati, 2016; Purnamawati, 2016). This trend can be attributed to investors' preference for larger companies, which are perceived to have a higher probability of profitability due to their substantial total assets compared to smaller firms. The effect of size is relevant in the MAI context, where even relatively larger firms are still smaller than their SET counterparts. This suggests that the scale advantages persist even within the alternative market segment. This perceived profitability is directly associated with corporate dividend payments and fluctuations in stock price. Additionally, the ability of larger companies to secure loans more readily—owing to the substantial value of their assets as collateral and the greater trust they command from commercial banks along with experiencing lower costs of debt (Siwei & Chalermkiat, 2023)—contributes to an increase in their stock prices. However, this study's observation of a firm age's negative impact on stock price indicates that as firms age beyond a certain point, profitability may decline due to bureaucratic inefficiencies or innovation lag, adversely affecting stock prices as investor confidence wanes (Selcuk, 2016). Additionally, the finding of a positive relationship between profitability and market reaction echoes prior research (Murniati, 2016; Purnamawati, 2016). Profitability is a positive signal to investors, potentially leading to improved share performance (Purnamawati, 2016). Investors, particularly long-term ones, prioritize a company's ability to generate profit due to its influence on dividend payments (Murniati, 2016), further emphasizing its positive impact on market reactions.

6. Conclusions

This study provides important insights into the role and impact of ESG disclosure in Thailand's alternative capital market. To address the research questions, the study first investigates the level and pattern of ESG disclosures among companies in the MAI market. The findings reveal that the average ESG disclosure score among these companies stands at 6.182. Upon further examination, social disclosures emerged as the most common, with an

average score of 2.437, followed by governance disclosures at 2.380 and environmental disclosures at 1.364. This pattern suggests that MAI-listed companies prioritize social aspects in their annual reports, possibly due to the lower implementation costs and immediate stakeholder benefits compared to environmental initiatives. Moreover, the study notes an upward trend in ESG disclosures among Thai-listed companies in the alternative capital market over the study period. This indicates the growing awareness of non-financial reporting despite its voluntary nature. The second research question explores the impact of ESG disclosures on market reaction. The analysis identifies a positive effect of governance disclosures on market reaction, demonstrating that investors particularly value transparency and accountability in smaller, growing companies. Conversely, environmental disclosures were found to have a negative influence on market reaction, highlighting the unique challenges faced by companies in the MAI market in balancing environmental investments with financial performance expectations. The absence of a significant relationship between social disclosures and market reaction suggests that investors in the MAI market may not yet fully integrate social performance into their valuation decisions.

This study's findings contribute to theoretical knowledge and practical implications in several ways. Theoretically, the study adds to the existing research on ESG disclosures by supporting the signaling theory and demonstrating their relevance in emerging economies. Our results particularly enhance the understanding of how signaling theory operates in the context of smaller, growth-oriented companies in emerging markets, where information asymmetry is typically more pronounced. The study emphasizes the importance of governance disclosures in influencing investor market reactions, suggesting that companies should prioritize these disclosures to positively impact investor perceptions and actions. This insight directly supports signaling theory by illustrating how governance disclosures, as part of broader ESG reporting, can send a signal to inform investors for decision-making. The differential market reactions to various ESG components provide valuable insights for understanding how investors in emerging markets evaluate and respond to different types of sustainability signals. The study's findings illustrate that in emerging markets like Thailand, ESG disclosures are not just a compliance exercise but a critical component of investment analysis that can influence investor behavior and market performance. Moreover, this research differentiates itself from prior studies by focusing on companies listed in Thailand's Market for Alternative Investment (MAI) for several reasons. The MAI comprises smaller and often newer companies compared to those listed on the main Stock Exchange of Thailand (SET). These companies are typically in different stages of growth and may have distinct characteristics and challenges, especially in terms of ESG disclosures and practices. By focusing on the MAI, this research provides insights into how ESG disclosures impact market reactions in a segment that has not been extensively studied before. Additionally, this study emphasizes the importance of governance disclosures in influencing investor market reactions, suggesting that companies should prioritize these disclosures to positively impact investor perceptions and actions. This suggests that companies with robust governance disclosures are perceived as more reliable and well managed, which can attract positive investor attention and potentially lead to higher stock valuations. This insight supports the decision-usefulness information theory by demonstrating that governance disclosures provide essential information that investors use to make informed decisions, thus highlighting the practical value of comprehensive ESG reporting. By prioritizing governance disclosures, companies can enhance investor confidence and improve their market standing.

Practically, this study highlights the multifaceted benefits of ESG disclosures. This underscores the potential for the study's findings to influence regulatory practices, suggesting possible considerations for ESG reporting requirements by the Stock Exchange of Thailand

(SET). Such regulatory developments may help enhance corporate reporting practices. Furthermore, the study provides actionable insights for enhancing investor relations, as transparent ESG disclosures may help build stronger relationships with investors and improve market perception. Companies with detailed ESG disclosures could attract positive investor attention, contributing to market valuation. The study contributes to the growing literature on ESG reporting in developing countries. By focusing on companies listed in the Market for Alternative Investment (MAI), the study provides initial insights into the unique challenges and opportunities these firms face in ESG reporting. The findings may be useful for future research, teaching, and learning in corporate social responsibility and sustainability reporting.

This study is subject to several limitations. Firstly, it did not analyze the tone of ESG disclosures from companies listed in Thailand, which could explain the observed negative impact of environmental disclosures on market reaction. This omission might overlook how disclosures emphasizing costs and expenses could lead to perceptions of reduced short-term performance. Conversely, the positive impact of governance disclosures on market reaction could be attributed to the Market for Alternative Investment (MAI) mandating governance information disclosure, leading to a bias towards only reporting positive news. Additionally, this study's focus was limited to companies listed on the alternative capital market, excluding the over 600 firms listed on the Stock Exchange of Thailand (SET), representing the main capital market. To address these limitations, future research could extend the analysis to include the tone of ESG disclosures and encompass all companies listed on the SET. Next, content analysis can be mentioned as a limitation of this study because of the bias of collectors on ESG disclosures.

Furthermore, this study did not introduce mediating or moderating variables that align with the decision-usefulness information theory, which could have provided a deeper understanding of the link between ESG disclosure and market reactions. The cross-sectional nature of our analysis limits our ability to track the long-term performance impacts of ESG disclosures. The data were directly collected from the SET, and due to the short-term nature of the data, endogeneity issues were not addressed. This constraint limits the robustness of the findings. Additionally, the study did not consider alternative measures that could validate the robustness of the ESG disclosure findings. The study's quantitative focus also meant that qualitative aspects of ESG disclosures, which might provide deeper insights into the quality and context of sustainability reporting, were not captured.

To address these limitations, future research could consider several approaches. Introducing mediating or moderating variables that align with the signaling theory could further extend our understanding of the link between ESG disclosures and market reactions. Future studies should incorporate qualitative assessments of ESG factors to provide a richer contextual understanding of disclosure practices and their impacts. Additionally, longitudinal studies tracking long-term performance would help establish the enduring effects of ESG disclosures on market value. Comparative analyses across different markets, particularly between the MAI and SET and other emerging markets, would help identify market-specific factors influencing ESG disclosure effectiveness. Using alternative measures and methodologies can revalidate ESG disclosure findings, ensuring comprehensive analysis and robustness of results.

Additionally, future research should consider the quality of the information disclosed, as qualitative analysis could provide deeper insights into the impact of ESG reporting. In addition, expanding the scope to include all companies listed on the SET and those on the MAI would provide a more comprehensive view of ESG disclosures across different market segments in Thailand. By addressing these limitations and suggestions, future research can build on the findings of this study to provide a more holistic understanding of the

role and impact of ESG disclosures in emerging markets. This comprehensive approach will enhance the theoretical framework of ESG reporting and offer practical insights for companies, investors, and policymakers in developing more effective ESG strategies.

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Appendix A

Score of ESG Disclosures:

Environmental disclosures (EN):

- EN01: Water management;
- EN02: Energy management;
- EN03: Gas emission management;
- EN04: Waste management.

Social disclosures (SO):

- SO01: Labor responsibility;
- SO02: Customer responsibility;
- SO03: Social and community development.

Governance disclosures (CG):

- CG01: Good corporate governance;
- CG02: Risk management for sustainability;
- CG03: Corporate innovation;
- CG04: Supply chain management.

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