

INTERNAL DYNAMIC BETWEEN DIVIDEND  
POLICY AND ENVIRONMENTAL, SOCIAL AND  
GOVERNANCE (ESG) PERFORMANCE AMONG  
LISTED COMPANIES IN UNITED STATES

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APRIL 2024

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DIVIDEND POLICY

BFN (HONS)

APRIL 2024

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A final year project submitted in partial fulfilment of the  
requirement for the degree of

BACHELOR OF FINANCE (HONS)

UNIVERSITI TUNKU ABDUL RAHMAN

FACULTY OF BUSINESS AND FINANCE

DEPARTMENT OF FINANCE

APRIL 2024





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Date: April 18, 2024

## ACKNOWLEDGEMENT

This Final Year Project represents the culmination of a challenging and extensive journey, one that our group has undertaken with the invaluable support of numerous individuals and parties throughout.

We are profoundly grateful to our supervisor, Dr. Au Yong Hui Nee, for her consistent and invaluable support during our research endeavour. We are incredibly grateful for the honour and privilege of working under her supervision. Her approachability and consistent provision of constructive suggestions have been invaluable through our journey. Her exceptional knowledge and experience are crucial for our achievements. Moreover, her unwavering motivation, guidance, and support have been instrumental, both academically and emotionally, in guiding us through the project. We firmly believe that that her inspiration and unconditional encouragement have played a pivotal role in the success of our Final Year Project.

Moreover, we would also like to express our sincere gratitude to our examiner, Dr. Cheah Siew Pong, for providing us his expert recommendations in optimizing the quality of our research. With the valuable guidance from Dr. Cheah during presentations, we have successfully identified and strengthened aspects that still require enhancement. We believe that his inspiration and encouragement are the factors that contribute to our success in Final Year Project.

Furthermore, we express our heartfelt gratitude to our dedicated team members in 23FN12M group for the tireless collaboration, steadfast commitment, and shared enthusiasm. Our collective efforts, cooperative spirit, and diverse perspectives have greatly enhanced the breadth of our research endeavours. Lastly, we would like to acknowledge the lecturer and tutor in Universiti Tunku Abdul Rahman for equipping us with essential knowledge and related skill that crucial in completing our research.

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## LIST OF ABBREVIATIONS

DIV	Dividend Yield
DW	Durbin-Watson
CFA	Certified Financial Analyst
ESG	Environmental, Social and Governance
FEM	Fixed Effect Model
GRI	Global Reporting Initiative
JPMorgan	John Pierpont Morgan
KLD 400	Kinder, Lydenberg, Domini 400
LEV	Leverage
LSDV	Least Square Dummy Variable
LSEG	London Stock Exchange Group [
MSCI	Morgan Stanley Capital International
NYSE	New York Stock Exchange
PB	Price to book ratio
POLS	Pooled Ordinary Least Square
REM	Random Effect Model
ROA	Return on Asset
SALES	Sales growth
SC	Small Cap
SDG	Sustainable Development Goal
SEC	Securities Exchange Commission
S&P 500	Standard and Poor's 500
SRI	Socially responsible investing

SRP	Spurious Regression Problem
UN	United Nations
US	United States
NDC	Nationally Determined Contribution

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## **PREFACE**

In recent years, Environmental, Social, and Governance (ESG) considerations have gained widespread attention from investors and corporations worldwide. As the global push for corporate sustainability and responsible behaviour gains momentum, companies are under increasing pressure to align their practices with Environmental, Social, and Governance (ESG) goals. Among the various dimensions of corporate performance, the link between ESG performance and dividend policy holds particular significance due to its impact on shareholder value, financial stability, and long-term sustainability.

ESG considerations have gained global recognition, expanding sustainability practices beyond socially responsible investing (SRI) and now aligning with the United Nations' Sustainable Development Goals (SDGs). With the United States taking center stage in ESG integration, prompted by regulatory requirements and investor interest, the study presents an understanding of the driving forces and challenges directing corporate reactions to sustainability practices. Managers worldwide face a critical decision regarding the adoption of ESG, as such a decision may affect a company's financial health and value. It arises concerns about the impact of adopting Environmental, Social, and Governance (ESG) practices on a company's financial stability. Many businesses fear that implementing ESG practices could result in a depletion of their financial wealth. As a result, companies will face the decision of whether or not to embrace sustainable practices. Therefore, the internal dynamics between ESG performance and dividend policy is examined in this study, aiming to contribute to the body of knowledge on responsible investing, corporate governance, and financial decision-making in the 21st century.



## ABSTRACT

This research has the purpose of investigate the internal dynamic between dividend yield and environmental, social and governance (ESG) performance among listed companies in United States. The explanatory variables include ESG score, Sales Growth, Leverage, Price-to-Book Ratio, and Return on Asset. The dividend signalling theory and stakeholder theory will be the fundamental theories of this study to examine how explanatory variables will affects dividend yield. The secondary data within year 2013 to 2021 are obtained from Refinitiv Eikon Database. A total of 87 companies are selected as sample for this research.

To explore the interplay between dividend yield and environmental, social, and governance (ESG) performance among listed companies in the United States, panel data analysis will be employed. Initially, panel unit root tests are conducted, followed by the application of Pooled Ordinary Least Squares (POLS), Fixed Effects Model (FEM), and Random Effects Model (REM). To determine the most suitable model, Poolability F-Test and Hausman Test are being utilized. Additionally, diagnostic checks for multicollinearity, heteroscedasticity, and autocorrelation are performed to identify any underlying economic issues within the model. This study indicates that ESG Score, Sales Growth, Leverage, Price-to-Book Ratio, and Return on Asset have significant influence on dividend yield.

## **CHAPTER 1: RESEARCH OVERVIEW**

### **1.0 Introduction**

Research regarding the factors influencing the dividend policy among listed companies in United States will be studied with the list of variables including environmental, social, and governance (ESG) score, sales growth, leverage, price-to-book ratio and return on asset in a firm. In this chapter, the background of the research and the problem statement will be explained. Research objectives and research questions will be developed and the significance of study will be examined. Lastly, a chapter layout is highlighted to show the summarization of every following chapter.

### **1.1 Research Background**

The focus of this research is on the interaction between ESG factors, dividend policy, and other variables. Driven by the growing mainstream attention to ESG among investors, the study investigates the potential link between strong ESG performance and robust dividend policies. The research utilizes data from 87 S&P 500 companies spanning 2013 to 2021 from the Refinitiv Eikon Database. This analysis aims to shed light on how ESG considerations may influence a company's dividend distribution choices and its relationship to other factors.

### **1.1.1 Dividend Policy**

A dividend policy is a policy that states the portion of earnings that will be reinvested or paid to their investors or both (Bhattacharyya, 2007). It is a type of cash flow to investors that indicates a company's value through the discounted dividend model (Investopedia, 2022). Therefore, determining the dividend policy is known as the most significant and complex decision to be made by managers worldwide as it reflects the performance and value of the company (Baker & Weigand, 2015). An appealing dividend policy attracts potential investors, develops confidence in the company's shareholders, and positively influences a firm's valuation (Johansson & Fahlén, 2019; Turakpe, 2020). Dividend policies are a strong indicator of a company's financial stability and profitability in terms of cash flow sufficiency and ability to meet obligations.

### **1.1.2 Socially Responsible Investing (SRI)**

Socially Responsible Investing (SRI) is investment on both social and financial earnings. It is a selection of investments that generate good impacts socially and environmentally (Hicks, 2023). The origin of SRI can be traced back more than 200 years. It was founded by John Wesley, the founder of the Methodist movement, encouraging his members to avoid benefiting, collaborating, or investing with any investments related to alcohol, tobacco, firearms, or gambling (Donovan, 2022). The concept of SRI gains more traction as more investors become more socially concerned. The tractions of the SRI shifted towards ESG as a study in 2005 titled, "Who Cares Wins", which discovered a relationship between environmental factors, social factors, governance factors, and financial performance (Townsend, 2020). This provides a new benchmark for the SRI investors to refer to, slowly shifting them into becoming ESG investors. Moreover, the convergence of ESG principles with the Sustainable Development Goals (SDGs) further offers corporations a

comprehensive framework for sustainable and responsible business practices to meet investor preference.

### **1.1.3 Environmental, Social and Governance (ESG)**

Environmental, Social, and Governance, known as ESG, aims to make sure that businesses not only focus on the financial profits but also the social, environmental, and governance impact globally (Emerick, 2023a). ESG comprises the three fundamental pillars, which are Environmental, Social, and Governance, which underpin responsible corporate conduct. Environmental pertains to an organization's impact on the Earth, while Social relates to its impact on people and society. Governance, on the other hand, gauges an organization's transparency and integrity. ESG calls for the disclosure of data on environmental, social, and governance factors to enhance stakeholder transparency, mitigate risks, and identify opportunities (Starr, 2022). The integration of the SDGs with ESG and the traction from SRI has further mainstreamed ESG into the attention of the public, investors, and companies. Organizations can succeed through the application of ESG components by integrating sustainable development practices into ordinary company operations, products, and services, which gradually tie together with SDGs (Emerick, 2023b). It has also established guidelines for a company or any business entity to attain sustainability in the organization, products, and services (Emerick, 2023b). Such integration happens as both concepts share the same objectives for social inclusion, environmental sustainability, and economic expansion as well as gender equality, health, and education (Emerick, 2023b). However, the borne of ESG was due to issues or movements related to environmental sustainability, social responsibility, and corporate governance.

### **1.1.4 ESG Movements**

The gradual focus on ESG was due to several social rights movements, climate change issues, and corporate governance incidents from the 1960s till now. SRI sprouted in the 60s with divestments from harmful industries like tobacco and apartheid-linked businesses. This early activism paved the way for the 70s' pioneering funds like Pax World, which focused on ethical and worker-centric investments, ultimately laying the groundwork for the formalization of ESG principles (Lawton, 2023). In 1990, the MSCI KLD 400 Social Index was created, consisting of only companies with excellent ESG ratings. It is formally known as the Domini 400 Social Index, a pioneering ESG index that has proved socially responsible investing could be profitable (Lawton, 2023). The 1990s birthed a global chorus on climate and sustainable investing. United Nations (UN) agreements like the 1992 Framework Convention and 1997 Kyoto Protocol set the stage for collective action, while data initiatives like the 1995 U.S. Sustainable Investment Inventory and 1997 GRI reporting standards fuelled informed investment decisions (Atkins, 2020). By the millennium, the UN Global Compact rallied corporate engagement and the 2000 Carbon Disclosure Project empowered investors, paving the way for ESG's explosive growth in the 21st century (Atkins, 2020).

### **1.1.5 ESG Investing**

ESG investing is the practice of making investments in businesses or funds based on their performance on measures related to the environment, the social environment, and corporate governance. According to the Baker (2023), the effects of issues like climate change, governance issues, and social justice have led to an increase in the popularity of ESG investing in recent years as more investors consider the impact of how their money is invested. Appendix 1.1 has indicated an

increase of 50% in ESG investment in 2023. Such a phenomenon occurs due to the shift in the investing preference of the investors. According to PricewaterhouseCoopers (2022), there is an increase in the investment priority of investors on business that has data security and privacy, effective corporate governance, and cutting greenhouse gas emissions. Appendix 1.2 further shows stable positive fund inflows toward ESG fund assets from the third quarter of 2019 to the first quarter of 2022. Kim (2023) has mentioned the increase in the preference towards ESG investment is because ESG investing could help reduce environmental, social, governance, and climate change-related risks, help contribute to a more sustainable future, and help improve long-term performance.

### **1.1.6 The View of the United States on ESG Investing**

With the New York Stock Exchange (NYSE) and S&P 500 index playing a significant role in the ESG evolution, the integration of environmental, social, and governance (ESG) principles into the financial landscape is gaining significant momentum (Encyclopaedia Britannica, 2023; Levy, 2023; Team, 2023; Kenton, 2023). Driven by both regulatory pressures, exemplified by the US rejoining the Paris Agreement and climate-related disclosure requirements proposed by the Securities Exchange Commission, and increasing investor interest in responsible businesses, companies are increasingly incorporating ESG practices into their operations and reporting (Millet & Duhra, 2021; U.S. Securities Exchange Commission [SEC], 2022). This shift towards sustainability could be observed in the growing number of S&P 500 companies, currently around 314, fully implementing ESG principles within their policies and 494 companies disclosing some level of ESG integration in their reporting and operations (The CAQ, 2023). Moreover, Millet and Duhra (2021) mentioned that the alignment of corporate strategies with ESG principles and the Paris Agreement holds the potential to mitigate environmental and climate-related risks, enhance long-term sustainability, and ultimately contribute to a more resilient and environmentally conscious future

for the American economy. Although not all companies in the United States (US) have fully embraced ESG practices, the significant progress of ESG within the S&P 500 demonstrates a clear direction of the US toward a sustainable and responsible financial system (Millet & Duhra, 2021).

## **1.2 Problem Statement**

“Sustainable Development Goals (SDGs)” is being introduced in year 2012 during the United Nations Conference and it has been adopted started from September 2015 (Walter et al., 2020). The purpose of this program is to deal with worldwide problems in terms of political, economic, and environmental by implementation of actions to achieve 17 goals in SDGs (United Nation, 2023). According to SDG Transformation Center (2023), there are a total of 193 countries has become the member of SDGs to practice it in their countries.

However, the practice of SDGs seems to be less effective and efficient due to two reasons which are that SDGs are too ambiguous and difficult for collective action. According to Walter et al. (2020), some goals included in SDGs do not provide a clear definition or description. It has hardened the implementation of goals due to each country or agencies having to interpret the meaning by themselves which caused that the inconsistency of implementation to occur. Besides, due to the inconsistency of implementation, it is further difficult for the collective action of parties like government, states government, and corporates as they are not moving in the same direction (Walter et al., 2020). The ineffectiveness of SDGs is also caused by many other reasons like accountability, financial constraints, culture of different geographical areas and so on.

The drawbacks of SDGs mentioned become the rationale that the ESG practices are being re-emphasised again although it has been introduced for a lengthy period before SDGs. This action occurs due to the lack of emphasis by the regulators that causes the failure to grab the interest and awareness of the public. The situation can be proved by the condition in terms of the accountability of ESG data. According to Angarita (2023), due to the lack of a standardised accounting report method on ESG data for corporations to follow, it results in the increasing level of difficulty to compare ESG data between companies. Nevertheless, the treatment of ESG has come to a turning point after the Paris Agreement appeared during the United Nation Climate Change Conference (COP21). The occurrence of the Paris Agreement is mainly due to the severity of environmental problems with the warning given by the scientists. According to Harvey (2023), a “final warning” has been declared by scientists on the climate crisis issue. As the consequences of unrestrained discharge of greenhouse gases, it has brought irrecoverable damage to the world. Scientists also stated that immediate action is required to improve the environment before the situation deteriorates. Besides, the secretary general of UN also mentioned that the study of these scientists is a call to action for all nations, industries, and timeframes to substantially expedite their climate effort (Harvey, 2023).

Aside from that, several goals with the aim of improving the current environmental condition were set during the meeting for the parties who joined the agreement to achieve in the long term. Due to the Paris Agreement, the US and many other countries have implemented Nationally Determined Contributions (NDC) as an indicator to evaluate the performance of reducing greenhouse gas emissions. Subsequently, it has brought a huge impact to the corporate sector in the US with the encouragement of ESG. As the corporate sector is the main source of greenhouse gases emission, action is needed to reduce the emission in order to achieve the net zero carbon emission. The agreement has also encouraged corporations to adopt ESG to become a better corporate citizen. Besides, investors will also prioritize those companies which adhere to the Paris agreement or ESG due to their concern on climate change. Furthermore, investors will also prefer to invest in those corporations with ESG practice due to the credit risk issue. Investors now will also



evaluate the environmental risk for the company who ignores the Paris Agreement as the company may face legal issues and has a high possibility to have a negative reputation in the market that are against the agreement. By following the shift in the preferences of investment behaviour, it will persuade more and more corporations to implement ESG (Pirson & Colvin, 2021).

For the purpose to increase the implementation of ESG in the US, government has implemented several actions to attract more corporations to contribute their effort in ESG and environment. The key role of the US government is in creating new rules and regulations related to ESG. A scheme named “The Enhancement and Standardization of Climate-Related Disclosures for Investors” has been introduced by the US Securities and Exchange Commission (SEC) in March 2022. This scheme forces some organizations to disclose their ESG contribution in their company report for investors’ reference purpose. Besides, this scheme also provides a better ESG encouragement by having a consistent and standardized reporting method. Furthermore, some new regulations are also being introduced at the state level like California. “California’s Climate Corporate Accountability Act (SB260)” is one of the new regulations to increase the ESG application as this law requires the large companies that conduct business inside California to report and verify their greenhouse gas emission (Brightest, 2023).

Regardless of the efforts taken by the US government, the impacts and implications remain questionable among the companies. The issue is regarding the importance and accountability of ESG reports in the market. It is essential to investigate whether the market focuses and considers ESG as one of the aspects that investors will take into account in their investment decision. Besides, it is also crucial to know the profit pattern of a company with the presence of ESG across different grades and its influence toward the ESG adoption by other companies. Moreover, investors may prefer companies with strong ESG because such companies normally pay significant dividend amounts as they utilize dividend policy to mitigate agency concerns, indicating a financially sound company (Johansson & Fahlén, 2019).

However, Singh et al. (2023) declared that the financial report for those ESG focuses company tend to dissuade investors as ESG engagement firm have a significantly high cost in term of resources used, and cost of management. It further caused that investors tend to negatively interpret the financial report as signalling that the company has low resources efficiency and lead to a decrease of company value at the end. Therefore, the greatest doubt remains on whether investors are able to benefit from those ESG companies in the long-term.

## **1.3 Research Objectives**

### **1.3.1 General Objectives**

The general objective of this research is to investigate the internal dynamic between dividend yield and environmental, social and governance (ESG) performance among listed companies in United States.

### **1.3.2 Specific Objectives**

Specific objectives are developed to fulfil the general objective.

1. To investigate whether there is a significant relationship between ESG score and dividend yield.
2. To investigate whether there is a significant relationship between the financial metrics (sales growth, leverage, price-to-book ratio, return on asset) and dividend yield.

## **1.4 Research Questions**

This study focuses on finding the answers for some research questions as below:

1. Do environmental, social and governance (ESG) score and dividend yield has a significant relationship?
2. Do financial metrics (sales growth, leverage, price-to-book ratio, return on asset) and dividend yield have a significant relationship?

## **1.5 Significance of study**

The focus of this study is the selected listed companies from S&P 500 with implementation of ESG practices from year 2013 to year 2021. This study will present a fair overview on firm's performance in the ESG adoption and its dividend distribution towards the shareholders. The findings from this study can be advantageous to various parties which include the company, investor and the public.

ESG practices is encouraged by the government to be implement in the company to enhance the sustainability besides other advantages. Still quite a number of the companies in the US have not started the adoption of ESG policy which can be due to the low awareness and information about it. It is highly related to the ESG issues which need the cooperation from the company in achieving a better sustainability. Practicing of ESG in a company can assist in accomplishing successful outcome whether in the financial aspect or non-financial aspect. Thus, this study will show the company on the impact of the ESG performance towards the dividend policy that is an important part to attract the investors especially those with a greater environmental concern. The firm can plan and execute new strategies that can be carried out on their existing policy based on the research findings to achieve a better

and excellent performance with higher rating as compared to their present ESG score.

In addition, a significant positive relationship is shown between the ESG score representing the ESG performance and the dividend yield (Verga Matos et al., 2020). This study will suggest the correlation between the ESG performance including the control variables towards the company's dividend policy. Investors may utilize the findings as a guideline when evaluating their investment portfolio with the aim to maximize the wealth at the same time contributing their effort in improving the world in the three aspect which are environmental, social and governance. Also, investors can further understand on how the increasing in the rating of ESG score able to affect the company performance which then influencing the rewards to themselves which is the dividend distribution.

Moreover, the findings can be beneficial to the government which is the policy maker of the country. The information from the study can provide regulators on the relationship between ESG performance and dividend policy that are supported with empirical evidence which then can be use in the process of setting the policies and regulations about the ESG adoption by the company. Government can incentivize the companies with strong ESG performance with various methods such as tax advantage or any regulatory exemption. This will lead to more company to practice ESG strategies in their company and most importantly ensuring the practice is carried out in a long-term period instead of stopping halfway or executing in a low ESG grade. Besides, the government can also come out with the corporate governance codes and reporting standard which can further increase the transparency and standardization of the disclosure of ESG-related information that allow the information to be available for the favorable investors.

## **1.6 Chapter Layout**

The research study is structured into five chapters in total. Chapter one consists of the overview of the research topic that discussed on the research background, research problem, research objectives and the significance of the study. Chapter two provides the literature findings from the past researchers related to our topic and the further explanation of each variables chosen. Chapter three comprised the research method that includes the sampling design, variable specification and the diagnostic testing that will be implementing. Chapter four shows the result analysis of the diagnostic testing and the model used in presenting our research topic. Lastly, chapter five summarizes the research findings and explains the justification, limitation and recommendation for future researchers.

## **1.7 Conclusion**

This chapter demonstrate a clear and comprehensive information regarding the research topic. Research objectives, research questions and importance of this research is justified. The literature findings from the past researchers will be explained in the following chapter.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.0 Introduction**

In the second chapter, an extensive analysis is conducted to explore the relationship between the dependent variable (dividend yield) and independent variables, ESG scores, along with financial metrics like sales growth, leverage, price-to-book ratio, and return on asset. This review comprises an in-depth analysis of relevant literature, hypotheses, theoretical models, and theoretical framework.

### **2.1 Theoretical Review**

#### **2.1.1 Dividend Signalling Theory**

According to Gambetta (2008), the idea of signalling theory is being introduced by Micheal Spence in year 1973 in the economic sector and it has been proved by Alan Grafen in year 1990 by formally demonstrated that “honest” signalling can be applied as a strategy in reality. In financial market context, signalling theory claimed that there is always an information asymmetry between corporate and shareholder. The information asymmetry is mainly due to the internal managers has hidden information about the current situation and projection on the company’s future that outsiders like shareholders do not know. Therefore, manager can transmit this information to outsiders via the payment of dividend (Bhattacharya, 1979). The dividend payment will act as a signal or announcement to shareholders and they will act according to the changes of dividend compared with past data (Miller &

Modigliani, 1961). Besides, the recipient of the signal has to decide on how to translate the signal (Connelly et al., 2011).

The signalling theory can bring effect to a lot of aspect for a corporation and shareholders. For instance, it will bring a huge effect to share price. An unforeseen increase in dividend can be taken as an optimistic signal of the company's future prospects, so investors will demand for the share and cause the share price to rise; an unpredicted reduction in dividend can be interpreted as a bearish signal, causing the share price to fall. Therefore, this theory claimed that changes in dividend will have direct impact toward share price (Oh & Park, 2021).

Besides, the theory can also explain the effect of ESG performance on dividend policy. According to Cheung et al. (2018), ESG report that being disclosed by corporate will signals the market players that the environmental and social risks that faced by the company is under control. Investors will associate this disclosure with robust corporate governance, significant social capital, a positive reputation, and large investor bases, thus perceiving idiosyncratic risk as minimal (Birkey et al., 2016). The lower risk always associated with low debt premium, so the ability for a company to pay dividend also increase. Benlemlih (2019) also claimed that there is a direct relationship between dividend policy and ESG. The researcher mentions that corporate which engage in ESG activities have high awareness on their responsibilities toward society. Moreover, there are also responsible to their shareholders by declaring dividend as a proof that the company have a good control over the company cash flow. The company will gain a positive reputation in the market as they performed their responsibility on stakeholders and shareholders. As a result, the increase of dividend payment, show that the investment in sustainability does not drain the company cash flow and further show that the company are still paying heavy attention to the stakeholders and shareholders as their responsibility (Benlemlih, 2019).

### **2.1.2 Stakeholder Theory**

Stakeholder Theory, a conceptual framework within capitalism, underscores the interrelationships among a company's stakeholders, such as customers, suppliers, employees, investors, and local communities. It advocates for the creation of value for all these entities, rather than solely prioritizing shareholders (Stakeholder Theory, 2018).

R. Edward Freeman introduced the Stakeholder Theory of organizational management and corporate ethics in 1984, which focuses on the ethical principles and values guiding organizational management (Stakeholder Theory, 2018). This approach delineates and conceptualizes the diverse groups comprising a corporation's stakeholders, while also offering recommendations on how management can address and prioritize the interests of these groups (Stakeholder Theory, 2018). According to the stakeholder theory, a company's only goal should be to further the interests of its shareholders. Since shareholders' main objective is financial development, the stakeholder theory of business is essentially a "make more profit at all costs" concept. Based on stakeholder theory, when the dividend amount is high and the ESG ratings are high, it means that the company is taking all stakeholders into account (Verga Matos et al., 2020). Stakeholder theory further explained that improved environmental management serves as a tool to satisfy various firm stakeholders' demands. As a result of enhanced engagement with stakeholders, these enterprises frequently experience reduced transaction costs and enhanced competitive advantages. According to Ben Salah and Ben Amar (2022), greater environmental transparency within a firm is associated with a positive impact on its dividend policy.

Besides, stakeholder theory also indicates a significant category of stakeholders is shareholders, and ESG initiatives show that high ratings in each of the three categories environmental, social, and governance. A company is committed to all



its stakeholders if it has a high dividend level and strong ESG rankings (Zahid et al., 2023). Stakeholder theory states that businesses must uphold both explicit and implicit obligations to both financial and non-financial stakeholders. A company's capacity to uphold the interests of its financial stakeholders is demonstrated by a high dividend distribution policy.

## **2.2 Literature Review**

### **2.2.1 Dividend yield**

Market Prospect Ratios are ratios used to predict a company's future earnings and performance (Bloomenthal, 2023). It is widely used among investors and shareholders to analyze a company's growth and current stage (Bloomenthal, 2023). One of the key ratios used is the dividend yield. The dividend yield is computed as the annualized dividend payment of a share divided by the current market price of a share, which expresses the annualized percentage of a company's share price distributed as dividends to shareholders (Fernando, 2023; Labhane & Makahud, 2016). From the view of investors, the dividend yield indicates the percentage return an investor receives from dividends alone (Labhane & Makahud, 2016). Johansson and Fahlén (2019) utilize a methodology for measuring dividend yield that involves dividing the annual dividend by the market capitalization. This approach provides a view from the shareholder through market capitalization. However, in general, the dividend yield is referred to as the annual dividend over the market share price.

This study, in addition to other notable research including Labhane and Makahud(2016), Dewasiri et al. (2019), Verga Matos et al. (2020), Farooque et al. (2021), Oh & Park (2021), Ouyang & Zhong (2023), and Johansson & Fahlén (2019) employs a company's dividend yield as a key measure of its dividend policy. The

dividend yield represents the percentage of annual dividends earned by common shareholders. Mannion (2024) stresses the importance of determining a company's dividend yield, as it is a critical indicator of its financial health and profitability. This relates to the dividend signalling theory, wherein the dividend yield conveys signals to investors regarding a company's performance level. A high dividend yield may suggest that a company is mature and stable, as it necessitates a consistent cash flow and profit to continuously distribute dividends (Pérez et al., 2022). When a company's stock price remains constant, the dividend yield increases as more dividends are given to shareholders or investors. In essence, the dividend yield can aid investors in comprehending a company's performance and management. Additionally, the stakeholder theory posits that a favourable dividend policy towards a company's stakeholders indicates its commitment to acting in its best interests (Zahid et al., 2023).

### **2.2.2 ESG Score**

Refinitiv evaluates companies' ESG performance by analyzing their ESG scores. These scores are based on reported data across three pillars: Environmental, Social, and Governance, as well as 10 different ESG topics (London Stock Exchange Group [LSEG], 2023). The evaluation approach entails analysing approximately 630 business-level ESG metrics; however, only the key 186 relevant and related indicators are used to drive the entire firm assessment and score procedure. (LSEG, 2023). The selected measures assess their connection with the industry, data accessibility, and relevant concerns. (LSEG, 2023).

Several studies, including Zahid et al. (2023), Bilyay-Erdogan et al. (2023), Verga Matos et al. (2020), and Johansson & Fahlén (2019), have employed ESG scores to study the internal dynamic between ESG performance and dividend policy. Their results indicate a positive correlation between ESG scores and dividends.

Companies with high ESG performance have higher profits and lower income change, which leads to effective governance, distribution of resources, interaction with stakeholders, reduced expenses related to transactions, improved advantages in competition, and lower flow of funds shocks during negative events. (Godfrey et al., 2008). Verga Matos et al. (2020) further explained that Firms with higher ESG ratings are more aligned with their stakeholders' interests, resulting in fairly consistent profit sharing or dividend distribution. Moreover, the management of high ESG-score companies is more likely to increase their dividends to limit overinvestment in sustainability activities (Johansson & Fahlén, 2019). However, research conducted by Farooque et al. (2021) and Johansson & Fahlén (2019) discovered a positively insignificant relationship between ESG scores and dividend yield. This outcome may be influenced by the absence of companies without ESG scores or dividends, as well as small and medium-sized firms, which may result in sample selection bias (Johansson & Fahlén, 2019). On the other hand, Anwer et al. (2021) found that companies with lower governance ratings in ESG are more likely to pay higher cash dividends. However, they found no relationship between governance level and dividend payout propensity.

### **2.2.3 Financial Metric**

The financial metric segment encompasses four key variables which are sales growth, leverage, price-to-book ratio and return on asset. Each variable will be elucidated individually in subsequent sections. The forthcoming explanations aim to provide a comprehensive understanding of these variables within the context of our research study.

### 2.2.3.1 Sales Growth

Khan and Shamim (2017) assert that there is a close relationship between dividend policy and sales growth. Sales growth can be defined as the increase in sales amount in the current year as compared with the previous year. Based on Jensen (1986), there is a direct relationship between these two variables. When a business increases sales volume in future, it requires more capital to cover inventory levels and the cost of sales. As a result, retention of earnings became necessary and led to a reduction in dividend payments (Jensen, 1986). However, Kesuma (2009), presents an alternative viewpoint which claims a positive impact of growth rate on dividend policy. Kesuma asserts that an increase in sales also reflected to increase in revenue for a company. It signals to investors the company have more available cash flow and can offer a higher dividend (Kesuma, 2009). Consequently, it shows that the relationship between sales growth and dividend policy is controversial.

Various findings of relationships from different research will be compared. According to Khan and Shamim (2017), there is a significant positive relationship between the variables in the oil and gas sector, construction and material sector, engineering sector, and household goods sector. Conversely, they also note a significant negative relationship in sectors including the chemical sector, forestry sector, and food processor sector. Similarly, Hendijani (2021) also supports the claim that there is a significant positive relationship between sales growth and dividend policy. Nevertheless, the results of the research by Liang et al. (2023), Ouyang and Zhong (2023), and Yang and Ma (2022) show that there is a significant negative relationship between the variables. Moreover, Adra et al. (2023) also proposed the finding of negative significance as a company will have low availability of free cash flow to be distributed as dividends when a company have sales growth potential. Despite that, the research of Martin and Panggabean (2020) contends that sales growth does not affect dividend policy. They argue that the increase in sales growth is higher than expense growth, increasing the company's earnings, but does not guarantee the payment of dividends to investors. Profit

growth is directly proportional to the expense the company has to bear. As a result, companies prefer to retain their earnings as retained earnings (Martin & Panggabean, 2020). The contrasting results observed in different studies have led to ongoing debate regarding the association between sales growth and dividend policy.

### **2.2.3.2 Leverage**

Leverage typically refers to the strategic use of borrowed funds or debt to increase the potential return on investment. The borrowing ratio is more likely to affect dividend policy because of the potential monitoring role of debt on managers. Firms with a high leverage ratio are financially constrained by their lenders; this explains their low ability to pay high dividends (Benlemlih, 2019). According to Khan et al. (2022) also mentioned that enterprises have the option to utilize both internal resources and external funding to facilitate their expansion and future growth opportunities. Elevated dividend distribution may deplete internal reserves, thereby increasing the reliance on riskier external financing channels. Hence, firms are compelled to exercise prudence in decision-making processes, as highly leveraged entities encounter a reduction in their capability to distribute dividends owing to fixed interest and principal repayment commitments (Khan et al., 2022).

Some of the studies demonstrate that there is a positive relationship between leverage and dividend payout. Based on Ullah et al. (2019), it is identified that leverage positively and statistically significantly influences the dividend yield. This suggests that companies heavily reliant on debt financing enjoy tax advantages, leading them to distribute higher dividends to shareholders. Khan and Shamim (2017) demonstrate that companies often opt for debt financing to acquire fixed assets or entire businesses, with the objective of expanding or diversifying their market footprint. As a result, such a strategic approach typically leads to an upward trend in stock prices. The positive connection between the leverage and dividend

yield is in line with the findings by Bilyay-Erdogan et al. (2023), Ahmad et al. (2023) and Hudiwijono et al. (2018). Conversely, the result of the research by Sharma (2020) shows that leverage is negatively associated with the dividend payout ratio. Companies that maintain a substantial portion of debt within their capital structure tend to favor lower dividend distribution to shareholders which is a strategy that aims to mitigate the transaction costs linked with external financing (Sharma, 2020). In addition, it is being elucidated that firms with significant leverage find it challenging to uphold a consistent and higher dividend disbursement due to the augmented likelihood of bankruptcy and increased transaction costs. Moreover, the research outcome by Khan et al. (2022) proposed an insignificant relationship between the leverage and dividend yield in the study related to Japanese firms and Korean firms. The continual argument surrounding the correlation between leverage and dividend policy persists from the diverse sample and methods applied in various research studies.

### **2.2.3.3 Price-to-Book Ratio**

Price-to-book ratio can be used as an evaluation method towards a company's growth opportunities. Investors utilize this ratio to determine the company stock value whether it is overvalued or undervalued. According to Leonardo et al. (2020), higher price-to-book ratios are believed to indicate that developing firms tend to pay fewer dividends. Stein (2003) further states that dividend yield becomes more appealing when the company's market value is lesser than its book value which certainly shows that dividend yield can be an indicator that the company is undervalued. In such a scenario, the management of a company tends to be under more pressure to reward more to the shareholders when the price-to-book ratio is reduced.

Variety of analysis and results by different researchers' study on the relationship between price-to-book ratio and dividend yield. According to Adra et al. (2023), a greater price-to-book ratio is correlated with increased cash dividends. Lucas and McDonald (1998) further indicate that companies deemed overvalued opt to distribute corporate funds to shareholders, serving as a preventative measure against wealth transfer in the open market. The significant positive relationship between price-to-book ratio and dividend yield can also be supported by the studies from Bostanci et al. (2018), Verga Matos et al. (2020) and Dewasiri et al. (2019). However, Dewasiri et al. (2019) mentioned that the growth opportunities which are proxy with the price-to-book ratio affect negatively towards the dividend yield. Firms with significant investment prospects need more capital to finance upcoming ventures. As a result, they tend to distribute fewer dividends and prioritize additional investments to maximize the expected returns (Labhane & Makahud, 2016). Anwer et al. (2021) findings state that the reduction in the price-to-book ratio contributes to the higher payouts of dividends by small-cap (SC) firms while mature SC firms exhibit a greater inclination toward making payouts due to limitations in available investment opportunities. Other than that, there are also some studies showing that there is no significant relationship between the price-to-book ratio and dividend policy. Martin & Panggabean (2020) proposed that the result from the study demonstrates that investment opportunity proxy as price-to-book ratio does not exert any influence on the dividend payout. This implies that the company's capacity to secure and manage cash, which is reflected in the investment opportunities is unrelated to its dividend policy. The research on the correlation between the price-to-book ratio and dividend yield presents diverse perspectives based on different sample sizes and sample locations.

#### **2.2.3.4 Return on Asset**

A company's financial position is frequently determined by its profitability as a primary metric (Hudiwijono et al., 2018). As indicated by Baker and Jabbouri (2016), dividend policy is heavily influenced by the firm's existing profitability. As

the funds for the payment of dividends are the leftovers of surplus earnings, profitable companies are thought to be in a better position than their competitors to pay dividends (Khan et al., 2022). Profitability has also become an important indicator for the shareholders to forecast the amount of dividend that the company will distribute (Hudiwijono et al., 2018). Several financial ratios can represent the profitability of a company like return on asset (ROA), return on equity (ROE), net profit margin, and much more (Hudiwijono et al., 2018). ROA is the most famous indicator among researchers to be applied in representing profitability. It has been applied by Zahid et al. (2023), Labhane & Makahud (2016), Liang et al. (2023) and also Wahjudi (2020) in their research which is to investigate the factor that may affect the dividend policy. One of the main elements in explaining the relationship between ROA and dividend policy is free cash flow. According to Benlemlih (2019), companies with high ROA tend to produce higher free cash flow; therefore, the company will have more available income to be distributed as dividends. However, the relationship between ROA and dividend policy is still arguable.

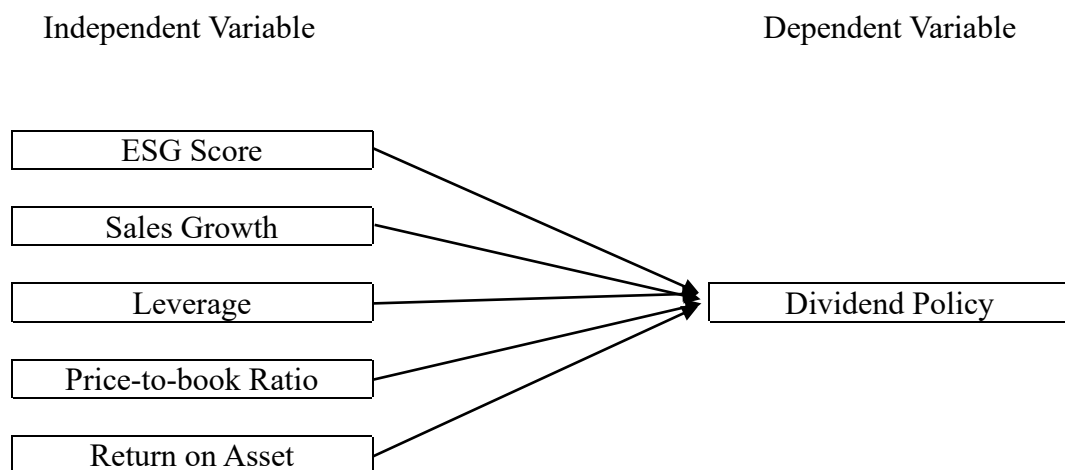
Based on research done by Zahid et al. (2023), ROA is being found to have a significant and positive impact on dividend policy. This result is in line with the research done by various researchers like Labhane and Makahud (2016), Benlemlih (2019), Yang and Ma (2022) and Hendijani (2021). However, there is an interesting finding from the research done by Khan et al. (2022). This research investigates the relationship between ROA and dividend policy in two demographic areas which are in Japan and Korea. The results in Korean show there is a significant positive relationship which is similar to previous research. However, the researchers found out that the Japanese firm tends to pay low dividends even with high retained earnings. This may be due to the reason that the relationship between investors and businesses is remarkably close and caused signalling is no longer important in Japan (Khan et al., 2022). Besides, some research indicates that there is no significant relationship between ROA and dividend policy. This result is similar to Sharma (2020), Hudiwijono et al. (2018) and also Wahjudi (2020). This may be because the company has decided to pay a predetermined or fixed number of dividends to



shareholders, so it does not take the level of profitability into account in the decision of dividend policy (Wahjudi, 2020).

## 2.3 Conceptual Framework

Several independent variables are included based on past researchers in studying the dependent variable, the dividend policy of our study. A conceptual framework is shown in Figure 2.1.



*Figure 2.1.* Proposed Conceptual Framework

Figure 2.1 shows the proposed conceptual framework to study the dividend policy among listed companies in the United States. This conceptual framework consists of a dependent variable which is dividend policy that is indicated by dividend yield. There are five independent variables which are ESG score, sales growth, leverage, price-to-book ratio, and return on asset that will influence the dividend policy of a company.

## **2.4 Hypothesis of study**

### **2.4.1 ESG Score**

Bilyay-Erdogan et al. (2023) mentioned that ESG score has a significant positive relationship with the dividend policy. Besides, there is a positive correlation between ESG ratings and dividend policy with the proof from theoretical and empirical aspects (Zahid et al., 2023). A higher ESG score of the company may lead to a higher payout of dividends.

**H<sub>1</sub>: There is a significant relationship between ESG score and dividend policy.**

### **2.4.2 Sales Growth**

The study shows that sales growth is significantly positively correlated to the dividend payout of the company (Hendijani, 2021; Bilyay-Erdogan et al., 2023). A different result is obtained in which the research stated that cash dividend is negatively impacted by the sales growth according to life-cycle theory (Adra et al., 2023).

**H<sub>2</sub>: There is a significant relationship between sales growth and dividend policy.**

### **2.4.3 Leverage**

Based on the study by Ullah et al. (2019), there is a positive correlation between leverage and dividend policy in a company. This can be explained in a way that the

company will be enjoying the tax advantage for the high leverage, thus, distributing a greater amount of dividend.

**H3: There is a significant relationship between leverage and dividend policy.**

#### **2.4.4 Price-to-book Ratio**

As stated by Koussis and Makrominas (2019), the price-to-book ratio significantly and positively correlated to the dividend payout ratio. Opposing that, Yarram and Dollery (2015) indicate that the price-to-book ratio of a company has an inverse relation towards the dividend distribution. In other words, a greater price-to-book ratio for a company will result in a lower dividend paid to shareholders.

**H4: There is a significant relationship between the price-to-book ratio and dividend policy.**

#### **2.4.5 Return on Asset**

Return on asset is said to have a significant positive impact towards the tendency to pay dividends to the company shareholders (Dewasiri et al., 2019). On the other hand, Khan et al. (2022) indicate that Japanese companies that earn high returns on assets have lower dividend payouts which may be due to the policy of greater retention with lesser distribution.

**H5: There is a significant relationship between return on asset and dividend policy.**

## **2.5 Conclusion**

In conclusion, dividend yield is a critical factor in assessing financial performance, and to measure it, five variables were utilized. To conduct a thorough analysis, research methodologies will be applied in the next chapter to develop accurate databases

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.0 Introduction**

This chapter aims to explore the research methodology and elucidate the relationship between the variables. It meticulously considers research design, data collection methods, sampling design, variable specification, data processing, data analysis and diagnostic tests.

### **3.1 Research Design**

Research design is defined as the framework or outline including the methods, procedures, and strategies that will be used in the research to address the research questions and hypothesis. According to Jang (1980), it is important to have a proper research design to have an accurate assessment of the connection between the independent and dependent variables. Next, the research design in this study will be discussed. There are two types of research which are quantitative and qualitative study. In this research, a quantitative study is being applied due to the reason that our study aims to measure the relationship between dividend policy and ESG which involves numerical data. Both the variables and other control variables included in this study a quantitative variable that can be measured quantitatively; so, it is appropriate to apply quantitative research in our study. Besides, applying quantitative research, allows us to establish the general pattern, relationship, and trend between the variables with the data collected and test applied. A large sample size will be applied in our study to obtain a highly accurate finding. Quantitative research is also being applied by Bilyay-Erdogan et al. (2023), Zahid et al. (2023),

Ben Salah and Ben Amar (2022), and Verga Matos et al. (2020) in their research to determine the connection between dividend payout and other control variables. Furthermore, secondary data is being applied in our study and all of the data is taken from the Refinitiv Eikon Database.

## **3.2 Data Collection Method**

The definition of data collection is the procedure of collecting data to discover more about the research issue (Taherdoost, 2021). The data collection method refers to the method that is being applied to obtain data for the research. The methods to collect data can be categorised into two categories which are primary and secondary data collection methods. A secondary data collection method is being implemented in this research to investigate the relationship between dividend policy and other control variables.

### **3.2.1 Secondary Data**

Secondary data collection methods refer to the data collection from the material that is being collected by someone else. The data can be obtained via many sources like the Refinitiv Eikon Database, the Department of Statistics Malaysia and so on. Table 3.1 below shows the definition of the variables and the source of the data that is being collected.

Table 3.1:

*Definition of variables and sources of data*

Variables	Definition of variable	Sources of data
<b>Dependent Variable</b>		
Dividend yield	The annualized percentage of a company's share price is distributed as dividends to shareholders (Fernando, 2023).	Refinitiv
<b>Independent Variable</b>		
ESG score	The average score of the environmental score, social score, and governance score is determined by the financial and non-financial information (Zahid et al., 2023).	Refinitiv
Sales growth	It refers to the growth or movement in sales from year to year or occasionally (Kesuma, 2009).	Refinitiv
Leverage	Leverage refers to a source of financing that requires the company to pay fixed costs (Khan & Shamim, 2017).	Refinitiv
Price-to-book ratio	The price-to-book ratio refers to the comparison of a company's market capitalization and its book value (WallStreet, 2023).	Refinitiv
Return on asset	Return on asset refers to the percentage of total assets compared to the earnings before interest (Hendijani, 2021).	Refinitiv

### 3.3 Sampling Design

Firstly, we have selected 147 S&P 500 companies listed on the New York Stock Exchange that have been paying dividends and have a willingness to disclose their Environmental, Social, and Governance (ESG) data and scores during the period from year 2013 to year 2021. We eliminated some of the companies due to the unavailable data provided. To ensure that our data is complete, we estimated some of the missing values using the interpolation method. Overall, our research has

taken a total of 87 companies as the sample, with 62 companies falling under the product sector and 25 companies falling under the service sector.

### 3.4 Variable Specification

The equation of the model and the term used to indicate the variables are shown below:

$$DIV_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 SALES_{it} + \beta_3 LEV_{it} + \beta_4 \log PB_{it} + \beta_5 ROA_{it} + \mu_{it}$$

Where:

$DIV_{it}$  = Dividend Yield

$ESG_{it}$  = Environmental, Social and Governance Score

$SALES_{it}$  = Sales Growth

$LEV_{it}$  = Leverage

$PB_{it}$  = Price-to-book Ratio

$ROA_{it}$  = Return on Asset

$\mu_{it}$  = Error Term

#### 3.4.1 Dependent Variable

##### 3.4.1.1 Dividend yield (DIV)

Dividend yield shows how much a firm has distributed its dividends over a year. The yield is shown in terms of percentage instead of the actual dollar amount, simplifying the calculation of the expected return on investment for each dollar contributed by the shareholders. This percentage amount may suggest the excellent



financial health of a firm where it indicates sufficient free cash flow to pay to the shareholders. It can be calculated using the formula stated below:

$$\text{DIV} = \frac{\text{Annualized dividend paid per share}}{\text{Current market price per share}}$$

### **3.4.2 Independent Variables**

#### **3.4.2.1 Environmental, Social and Governance (ESG) Score**

ESG score is a scoring method used to measure the overall company score in terms of environmental, social and government pillars. ESG score is one of the important practices for a company as investors will consider it during their investment evaluation. A high ESG score can lead the company to better outcomes such as success in the long term due to increasing awareness of sustainability around the world. ESG score ranging from 0% to 100%.

#### **3.4.2.2 Sales Growth (SALES)**

Sales growth of a company is the rate of change in its sales over a certain period that comes with a unit of percentage. It also tells the future demand for the goods and services provided by the business. It can be calculated using the formula stated below:

$$\text{SALES} = \frac{\text{Current Year Sales} - \text{Previous Year Sales}}{\text{Previous Year Sales}} \times 100$$

### **3.4.2.3 Leverage (LEV)**

Leverage can be defined as the method for a company to raise capital by using debt financing instead of stock issuance. Leverage can be measured using debt-to-asset ratio which shows the ratio of liabilities and assets of a company. A high degree of leverage indicates the company has a higher investing risk. It can be calculated using the formula stated below:

$$\text{LEV} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

### **3.4.2.4 Price-to-book ratio (PB)**

The price-to-book ratio represents the future investment prospects that can show the company's growth and development. This ratio functions as a useful pointer to investors who looking for growth at an acceptable price. It can be calculated using the formula stated below:

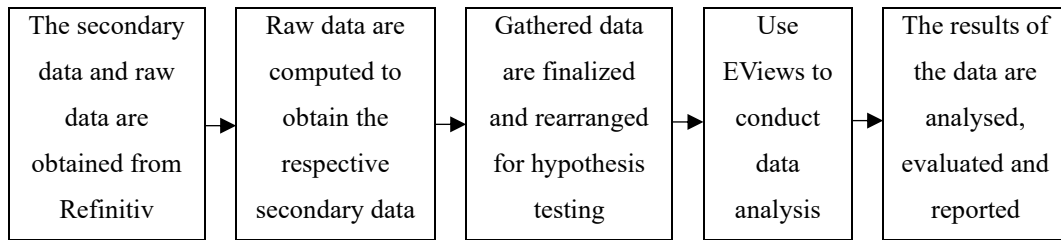
$$\text{PRICE} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$$

### **3.4.2.5 Return on Asset (ROA)**

Return on asset (ROA) is a ratio that is used to measure the profitability of a company. A higher ROA indicates that the company is gaining more revenue with every dollar invested in the total assets of the company while a lower ROA indicates low performance in sales and poor investment decisions. It can be calculated using the formula stated below:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

### 3.5 Data Processing



*Figure 3.1* Data processing flows in the research

Figure 3.1 shows that the source of the data was the Refinitiv Eikon Database. The raw data are calculated or computed to obtain the required secondary data that are not provided in the Refinitiv Eikon Database. The gathered data are then finalized and restructured to conduct hypothesis testing. Following that, the data analysis is conducted through the EViews software for data running. Lastly, the results generated through EViews will be analysed, evaluated, and reported.

### 3.6 Data Analysis

The final secondary data are obtained from the Refinitiv Eikon Database and computed from the raw data collected will undergo the data analysis process. Three models such as Pooled Ordinary Least Square (POLS), Fixed Effect Model (FEM), and Random Effect Model (REM) are proposed to analyse the data.

### **3.7 Diagnostic Test**

A diagnostic test is performed to detect potential economic issues within the model, thereby preventing biases, inefficiencies and inconsistencies in the results. Therefore, diagnostic testing will be conducted to confirm that the model is not affected by these problems. Diagnostic checking includes Descriptive Analysis, Panel Unit Root Test, Multicollinearity, Heteroscedasticity, and Autocorrelation. The panel regression models including Pooled Ordinary Least Square, Fixed Effect Model, and Random Effect Model are utilized to estimate the data. The suitability of each model is assessed using tests such as the Poolability F-Test and the Hausman Test. These tests help in determining the most appropriate model for the analysis.

#### **3.7.1 Descriptive Analysis**

For descriptive analysis, it is to investigate the link between environment, social, and governance (ESG) score and dividend yield, timely monitoring of the desired behaviour under normal conditions is necessary. Hence, descriptive studies highlight factors that are connected to the appearance of a specific reaction. To complete a functional evaluation of problem behaviour, descriptive analysis is usually conducted before experimental functional analysis (Sloman, 2010). Standard descriptive methods like measurements of dispersal (variance and standard deviation), measures of central tendency (mean, mode, and median), and measures of position (percentage) can be utilised for the data.

### **3.7.2 Panel Unit Root Test**

The data in the study consists of cross-sectional and time series data, hence panel unit root test will be used in this study (Bhattarai, 2019). The panel unit root test determines whether the variables in the data are stationary or not. Stationary means when the time series data has constant mean, variance, and covariance. panel unit root in time series variables will lead to a spurious regression problem (SRP), which is significantly caused by econometric estimation. The spurious regression problem is due to high t-test statistic value, and high R square, and when the R square is greater than Durbin-Watson (DW), hence spurious regression problem will exist.

### **3.7.3 Multicollinearity test**

Multicollinearity is a situation where two or more predictors are highly linearly related (Rekha, 2020). Correlation matrix to evaluate the multicollinearity between two sets of data, the value of the correlation coefficient greater than equal to 0.8 or less than equal to -0.8 denotes that the relationship between variables is highly correlated. The correlation matrix will be used to study the relationship between the independent and dependent variables, verifying that they are independent of one another.

### **3.7.4 Heteroscedasticity test**

The likelihood ratio test is one of the statistical procedures for determining heteroscedasticity. It examines whether the inclusion of fluctuating variance within a model substantially enhances its overall fit when contrasted with a model assuming uniform variance. If the more complex model demonstrates a significant

improvement in fit relative to the simpler model, it indicates the likely presence of heteroscedasticity within the data (Martin, 2011). This procedure employs the Chi-square distribution. The likelihood ratio test will be used to examine whether the model has heteroscedasticity to guarantee homoscedasticity.

### **3.7.5 Autocorrelation**

Autocorrelation is also called serial correlation. The Durbin-Watson statistic tests for autocorrelation in regress residues. It always has a number from zero to four. Autocorrelation measures the degree of similarity (correlation) between surrounding data points; it is the extent to which the values of previous points influence the current data points. It may be defined more loosely as the degree of similarity between two observations as a function of the gap between observations (Glen, 2021). It is recommended that DW-test statistic values outside of the 1.5 to 2.5 range be taken significantly; values less than 1 or greater than 3 are moderately to extremely troubling.

### **3.7.6 Pooled Ordinary Least Square (POLS)**

Panel data has been used in this research; pooled regression will be employed to analyze the data. According to Cloud (2023), POLS regression is a regression approach used when you have panel data and wish to estimate the relationship between a dependent variable and one or more independent variables while considering correlations between observations among persons or entities. There are a few assumptions in the pooled model, such as constant intercepts and slopes, and time-invariant to prevent heterogeneity in the model. Furthermore, the independent

variables related to the error term over time and the autocorrelation problem are not correlated in pooled regression.

### **3.7.7 Fixed Effect Model (FEM)**

Fixed effects in regression indicate variables consistent across individuals and cannot be modified or changed at a constant rate throughout time. The fixed effects model is used to regulate the variable that changes over time and to eliminate omitted variable bias by entering a dummy variable in the model. The fixed effect model is particularly suitable for scenarios where the individual-specific intercept may exhibit a correlation with one or more regressors (Farkas, 2020). There are few scenarios under the fixed effect least square dummy variable (LSDV) model.

Scenario as below:

Scenario 1: The intercepts differ among the observations, slopes are constant, and time-invariant (no time effect).

Scenario 2: The intercepts are different among the observations, slopes are constant, and time-variant (has time effect).

Scenario 3: The intercepts are different among the observations, slopes are different and time-invariant.

### **3.7.8 Random Effect Model (REM)**

Random effects in regression are random and unpredictable variables. There are a few assumptions in the random effect model, such as different intercepts, constant slopes, and time invariance. The random effect model is appropriate when the

individual intercept is uncorrelated with any regressor. The advantages of the random effect model are there is no dummy variable in the model, and there is less possibility to get a multicollinearity problem (Mustafa, 2024).

### **3.7.9 Poolability F test (POLS & FEM)**

Probability F-test is conducted to determine the preference between the panel regression models, specifically comparing pooled ordinary least squares with the fixed effect model. Furthermore, if the F-test's p-value is significant, it suggests that the fixed effects are not identical across groups, indicating potential heterogeneity (Kunst, 2009).

### **3.7.10 Hausman test (REM & FEM)**

The Hausman Test, known alternatively as the Hausman specification test, serves to identify endogenous regressors within a regression model. This test is employed to uncover potential misspecification in the model by assessing whether there exists a correlation between individual-specific errors and the regressors included in the model (Glen, 2020). Furthermore, the Hausman test is used to determine whether the panel regression model between the random effect model between error component model and the fixed effect model either which model is preferable.



### **3.8 Conclusion**

In conclusion, the study approach was carried out and finalised in this chapter. In this research, the three model estimating techniques used are POLS, FEM and REM. In addition, the model was chosen using the Hausman test and Poolability F-test. Additionally, diagnostic testing was used to identify the model's descriptive analysis, panel data unit root test, autocorrelation issue, heteroscedasticity, and multicollinearity. All procedures have been followed, and data analysis has been completed using EViews 12 software.

## **CHAPTER 4: RESEARCH ANALYSIS**

### **4.0 Introduction**

After data collection, the following step is the analysis of the result. EViews 12 has been utilized to conduct statistical analysis. Besides, descriptive analysis together with the diagnostic test which includes the Panel Data Unit Root test, Multicollinearity test, Heteroscedasticity test, and Autocorrelation. The result together with the interpretation will be illustrated respectively in the upcoming section.

### **4.1 Descriptive Analysis**

Data will undergo a descriptive analysis to examine patterns of financial and ESG data. Measures of central tendencies and dispersion will be analysed to identify significant issues within companies. Results will be used to develop a comprehensive report capturing trends and patterns.

#### **4.1.1 Measure of Central Tendency and Dispersion**

This section shows the mean, median, and standard deviation for each variable. A summary of the findings is shown in Table 4.1.

Table 4.1:

*Summary of Descriptive Analysis*

Variables	Mean	Median	Std. Dev
DIV	2.24522	2.03000	1.37328
ESG	63.5545	65.86000	15.24240
SALES	9.12659	3.74265	48.84766
LEV	29.57514	29.70000	14.92807
PB	1.47899	1.31641	0.99059
ROA	9.16947	8.59500	9.42538

Across all variables, the mean value ranges from 1 to 30. Notably, ESG has the greatest mean value of 63.5545, while PB has the smallest mean value of 1.47899. A similar trend is observed in the median values, with ESG having the highest value of 65.86, and PB having the lowest value of 1.31641. Moreover, the standard deviation for SALES is the highest, indicating a wider range of data from the mean. In contrast, the standard deviation for PB is the lowest, at 0.99059.

## 4.2 Panel Unit Root Test

Table 4.2:

*Summary of Result for 'Levin, Lin and Chu' and 'Augmented Dickey-Fuller'*

Variables	Levin, Lin and Chu		Augmented Dickey-Fuller	
	Test Statistic	P-Value	Test Statistic	P-Value
DIV	-9.18880	0.0000	235.447	0.0013
ESG	-6.21605	0.0000	215.705	0.0173
SALES	-10.8380	0.0000	234.959	0.0014
LEV	-18.0433	0.0000	299.665	0.0000
PB	9.33649	1.0000	201.496	0.0752
ROA	-17.2296	0.0000	238.391	0.0009

Levin, Lin and Chu and the Augmented Dickey-Fuller test are being implemented to test the stationarity of the panel data. The null hypothesis ( $H_0$ ) and alternative hypothesis ( $H_1$ ) for both tests are similar which are the panel dataset contains unit roots, and the panel dataset does not contain unit roots respectively. The null hypothesis ( $H_0$ ) will be rejected if the p-value is lower than 10% level of significance. According to Table 4.2, only the p-value of the variable PB exceeds the 10% level of significance in Levin, Lin and Chu; whereas the p-value of other variables is less than the 10% significant level. Therefore, all the null hypothesis for DIV, ESG, SALES, LEV, and ROA will be rejected except for PB for Levin, Lin and Chu; whereas the null hypothesis will be rejected for the Augmented Dickey-Fuller test. The rejection of null hypothesis indicated that there is no stationarity problem in the data set. According to Thakar (2022), the Augmented Dickey-Fuller test is suitable for testing on models with large and complicated sets. Besides, it can test with lagged terms in a model which may help increase the test's accuracy. Therefore, the result of the Augmented Dickey-Fuller test will be prioritized. Hence, there is no stationarity problem in the panel data set.

### 4.3 Multicollinearity

Table 4.3:

*Summary of Result for Multicollinearity*

	DIV	ESG	SALES	LEV	PB	ROA
DIV	1.000000					
ESG	-0.056744	1.000000				
SALES	-0.052945	-0.043875	1.000000			
LEV	0.064655	0.174325	0.017467	1.000000		
PB	-0.207099	0.149028	-0.025715	0.213353	1.000000	
ROA	-0.184191	0.088348	0.048242	-0.013465	0.323282	1.000000

A multicollinearity test is being performed to determine the correlation between variables. A variable will be determined as having no serious multicollinearity problem with other variables if the pairwise correlation value is lower than 0.8; whereas, if the pairwise correlation value is greater than 0.8, then it indicates that there is serious multicollinearity between variables. Based on Table 4.3, all pairwise correlation values are less than 0.8. Thus, it shows that there is no serious multicollinearity between variables.

## 4.4 Heteroscedasticity

Table 4.4:

*Summary of Result for Heteroscedasticity*

	Value	df	Probability
Likelihood ratio	26.31270	87	1.0000

The likelihood ratio test is being applied to whether the model consists of a heteroscedasticity problem. The null hypothesis ( $H_0$ ) for the test is the model contains a heteroscedasticity problem, whereas the alternative hypothesis ( $H_1$ ) is the model does not contain a heteroscedasticity problem. The null hypothesis ( $H_0$ ) will be rejected if the p-value is lower than the 5% level of significance. According to Table 4.4, the p-value of 1.0000 is greater than a 5% level of significance, so the null hypothesis will be rejected. Hence, it shows that there is no heteroscedasticity problem in the model.

## 4.5 Autocorrelation

Table 4.5:

*Summary of Result for Durbin- Watson Test*

Test Statistic	1.58953
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Table 4.5 indicates that the calculated Durbin-Watson statistic is 1.58953. Such a result falls under the acceptable range, which is between 1.5 and 2.5. This result shows no evidence of first-order autocorrelation, which means that the observations in the dataset are independent of each other between one year and its immediately preceding year. Therefore, this result proves no first-order autocorrelation problem.

## 4.6 Panel Regression Model

Panel regression models are examined to determine the best model to explain the provided data set. The results of panel regression models are shown below.

### 4.6.1 Pooled Ordinary Least Square (POLS)

Table 4.6:

*Summary of Result for Pooled Ordinary Least Square (POLS)*

INTERNAL DYNAMIC BETWEEN DIVIDEND POLICY AND ESG PERFORMANCE  
AMONG LISTED COMPANIES IN UNITED STATES

Variables	Coefficient	Std. Error	T-statistic	Probability
ESG	-0.003629	0.003194	-1.136088	0.2563
SALES	-0.001573	0.000975	-1.612829	0.1072
LEV	0.010258	0.003311	3.098386	0.0020
PB	-0.262324	0.052358	-5.010226	0.0000
ROA	-0.016812	0.005366	-3.132935	0.0018
R-squared	0.072841			
Adjusted R-squared	0.066867			
F-statistic	12.19310			
Prob (F-statistic)	0.000000			

According to Table 4.6, the POLS test shows that ESG and SALES have an insignificant relationship towards the dependent variable, DIV as the p-values are greater than a 5% level of significance. LEV, PB and ROA show a significant relationship at a 1% level of significance due to the p-values being less than 0.01. The p-value for the F-statistic of 0.0000 indicates that the model is significant at a 1% level of significance.

Besides that, the R-squared value of 0.072841 suggests that the combined variation of ESG, SALES, LEV, PB and ROA attributed to the 7.2841% of the variation in DIV among listed companies in the United States. The adjusted R-squared value of 0.066867 implies that 6.6867% of the variation in DIV among listed companies in the United States can be explained by the variation in ESG, SALES, LEV, PB and ROA after taking into consideration the degree of freedom.

### 4.6.2 Fixed Effect Model (FEM)

Table 4.7:

*Summary of Result For Fixed Effect Model (FEM)*

Variables	Coefficient	Std. Error	T-statistic	Probability
ESG	0.018780	0.003404	5.516740	0.0000
SALES	-0.002029	0.000649	-3.124777	0.0019
LEV	0.020849	0.004647	4.486706	0.0000
PB	-0.278717	0.050768	-5.489960	0.0000
ROA	-0.025752	0.005223	-4.930367	0.0000
R-squared	0.673720			
Adjusted R-squared	0.630689			
F-statistic	15.65659			
Prob (F-statistic)	0.000000			

According to Table 4.7, the FEM test shows that ESG, SALES, LEV, PB and ROA have a significant relationship at a 1% level of significance due to all the p-values being less than 0.01. The p-value for the F-statistic of 0.0000 indicates that the model is significant at a 1% level of significance.

Besides that, the R-squared value of 0.673720 suggests that the combined variation of ESG, SALES, LEV, PB and ROA resulted in 67.3720% of the variation in DIV- among listed companies in the United States. The adjusted R-squared value of 0.630689 implies that 63.0689% of the variation in DIV among listed companies in the United States is affected by the variation in ESG, SALES, LEV, PB and ROA after adjusting the degree of freedom.



### 4.6.3 Random Effect Model (REM)

Table 4.8:

*Summary of Result of Random Effect Model (REM)*

Variables	Coefficient	Std. Error	T-statistic	Probability
ESG	0.014779	0.003199	4.620379	0.0000
SALES	-0.001987	0.000646	-3.074222	0.0022
LEV	0.017499	0.004105	4.262613	0.0000
PB	-0.271719	0.048258	-5.630599	0.0000
ROA	-0.025669	0.004939	-5.196923	0.0000
R-squared	0.134540			
Adjusted R-squared	0.128963			
F-statistic	24.12650			
Prob (F-statistic)	0.000000			

According to Table 4.8, the REM test shows that ESG, SALES, LEV, PB and ROA have a significant relationship at a 1% level of significance due to all the p-values being less than 0.01. The p-value for the F-statistic of 0.0000 indicates that the model is significant at a 1% level of significance.

Besides that, the R-squared value of 0.134540 suggests that 13.4540% of the variation in DIV among listed companies in the United States can be explained by the combined variation of ESG, SALES, LEV, PB and ROA. The adjusted R-squared value of 0.128963 implies that after taking into account the degree of freedom, 12.8963% of the variation in DIV among listed companies in the United States can be caused by the variation in ESG, SALES, LEV, PB and ROA.

## 4.7 Model Appropriateness

The appropriate model is determined according to the result of the Poolability F-test and Hausman test as shown below.

### 4.7.1 Poolability F-Test

To test whether either the pooled ordinary least squares model or the fixed effects model is suitable model, the probability test is used. The results of the test are as below:

Table 4.9:

*Summary of Result of Poolability F-Test*

	Statistic	d.f.	Probability
Cross-Section F	14.775684	(86,690)	0.0000
Cross-Section Chi-Square	816.697146	86	0.0000

$H_0$  : POLS is preferable.

$H_1$  : FEM is preferable.

Decision: Reject  $H_0$  if the p-value is lower than the 5% significant level. Otherwise, do not reject  $H_0$ .

Based on Table 4.9, the result shows that the p-value is 0.0000 which does not exceed the 5% significant level. Therefore, the null hypothesis ( $H_0$ ) is rejected, and it can be concluded that the FEM is the preferable model.

#### 4.7.2 Hausman Test

To test the suitability between the random effects model and the fixed effects model the Hausman test is used. The results of the test are as below:

Table 4.10:

*Summary of Result of Hausman test*

	Chi-Sq. Statistic	Chi-Sq. d.f.	Probability
Cross-Section Random	17.254908	5	0.0040

$H_0$ : REM is preferable.

$H_1$ : FEM is preferable.

Decision: Reject  $H_0$  if the p-value is lower than the 5% significant level. Otherwise, do not reject.

Based on Table 4.10, the result shows that the p-value is 0.0040 which does not exceed the 5% significant level. Therefore, the null hypothesis ( $H_0$ ) is rejected, and it can be concluded that the FEM is the preferable model.

## **4.8 Conclusion**

Based on the analysis conducted using EViews 12, it can be concluded that ESG and LEV have a positive and significant impact on the dividend yield, whereas SALES, PB, and ROA have a negative and significant impact on the dividend yield. Additionally, after conducting the Poolability F-test and Hausman test, it was observed that the Fixed Effects Model (FEM) is the most appropriate model for the data obtained from studying 87 companies between the years 2013 and 2021.

## CHAPTER 5: DISCUSSIONS AND CONCLUSIONS

### 5.0 Introduction

In this chapter, the discussion and interpretation of test results obtained in Chapter 4 are provided, and their implications for the research objective are outlined. While acknowledging the limitations encountered during the study, the broader implications of the findings including policy recommendations are also discussed. Next, suggestions for potential future research are proposed.

### 5.1 Summary of Major Findings

Table 5.1:

*Summary of Statistical Analysis Result*

<b>Hypothesis</b>	<b>IV</b>	<b>Beta</b>	<b>P value</b>	<b>Results</b>	<b>Decision</b>
H1	ESG	0.0187	0.0000	Significant	Supported
H2	SALES	-0.0020	0.0019	Significant	Supported
H3	LEV	0.0208	0.0000	Significant	Supported
H4	PB	-0.2787	0.0000	Significant	Supported
H5	ROA	-0.0258	0.0000	Significant	Supported

## **5.2 Discussion on Major Findings**

### **5.2.1 ESG Score**

Based on the result illustrated in the previous section, suggests that ESG scores have a significant effect on dividend yield. It can have a positive impact on the changes in dividend payments. In a simple word, the finding suggested that when a firm has a high level of ESG score, it tends to distribute more dividends and vice versa. This result is similar to Zahid et al. (2023), Bilyay-Erdogan et al. (2023) and Verga Matos et al. (2020) who also claimed that ESG has a positive significant relationship toward dividend yield. A company who active in ESG activities will signal to the shareholders that the firm has responsibly played its role in maximizing shareholders' wealth by providing financial stability, sustainability practices and internal control. The agency cost problem is a suitable example in reviewing a company's internal control. As the distribution of dividends is an effective way to control the company's free cash flow, it can control the manager's action in preventing the misuse of cash flow. Thus, proper handling of agency cost problems will further show the sustainability of a company and directly impact the dividend payment. Besides, companies with good ESG scores tend to pay heavy attention to shareholder interest which directly leads to a better profit-sharing policy (Verga Matos et al., 2020). The dividend distribution can also be seen as a social contribution of a firm to returning value to shareholders. As a result, H<sub>1</sub> is being accepted based on the findings.

### **5.2.2 Sales Growth**

According to the findings, sales growth has a significant effect and negative impact on dividend payments. In other words, the increase in sales growth will cause a decrease in the amount of dividend payment. This result is supported by the

searchers including Liang et al. (2023), Ouyang and Zhong (2023), and also Yang and Ma (2022) who have the same claim with this research. A firm that has an increasing trend in sales growth refers to the company having an increase in sales amount compared to the previous year. The increase in sales volume has a direct impact on increasing the cost of sales. Therefore, the company may reserve more money to be used to cover the cost of sales for the next period as the sales volume is expected to be higher than the current period. Thus, a company with an increasing trend of sales volume will be required to keep more portion of profit to be used to cover the cost for the next period and directly lead to a decrease in cash flow for dividend payment. As a conclusion, H<sub>2</sub> is being supported according to the result analysis.

### **5.2.3 Leverage**

As refer to the analysis result obtained in Table 5.1, demonstrates a positive significant relationship between the leverage and the dividend yield among listed companies in the United States. This further implies that companies that are highly leveraged firms often distribute greater amounts of dividends to their shareholders. It can be justified that firms that employ high debt financing tend to have sufficient funds to operate their business and a high probability of growth. Therefore, these types of companies will be able to earn a profit and share this with their shareholders in terms of dividend distribution. On the other hand, the companies mentioned often enjoy tax advantages which further minimize the company's cost allowing profit maximization and better dividend policy to shareholders similar to the finding by Ullah et al. (2019). This finding is also consistent with the study by some researchers including Bilyay-Erdogan et al. (2023), Ahmad et al. (2023), Hudiwijono et al. (2018) and Khan and Shamim (2017). Consequently, H<sub>3</sub> can be supported according to the analysis result and supporting research.

### **5.2.4 Price-to-Book Ratio**

According to the summary of Table 5.1, the analysis result shows that the PB ratio has a significant effect and negative impact on the dividend yield among listed companies in the United States. In alternative terms, a company's tendency to pay a smaller dividend is apparent if its PB ratio trend has grown. This result is supported by Leonardo et al. (2020) a lower PB ratio indicates that the market values the company less than its tangible assets, making dividend payments a potentially appealing option for shareholders. Furthermore, the relationship shows that the PB ratio decreases, indicating potentially undervalued stock, Small Cap (SC) firms are more inclined to distribute dividends to shareholders. This finding is consistent with Anwer et al. (2021) state that the reduction in the PB ratio contributes to the higher payouts of dividends by small-cap (SC) firms while mature SC firms exhibit a greater inclination toward making payouts due to limitations in available investment opportunities. As a result, H<sub>4</sub> can be supported based on the analysis result obtained.

### **5.2.5 Return on Asset**

Based on Table 5.1, the analysis result shows that ROA has a negative significant effect on the dividend yield among listed companies in the United States. It implies that a company that has an increasing trend of ROA tend to pay a lower dividend to their shareholders. The negative relationship as mentioned can be explained in the way that the company that gains higher ROA has the preference to use its own gained profit for the business investment rather than borrowing. Thus, it leads to the retaining of profit by the firms for the purpose and usage of future investment and growth prospects. In this case, the firms will provide lower returns to the shareholders as they tend to keep it for internal utilization. This finding can be supported by the study by Khan et al. (2022) which mentioned that the potential reason for the relationship is due to profitable firms may not feel compelled to signal



prospects by disbursing higher dividends as lenders and borrowers' relationships are becoming closer. As a result, H<sub>5</sub> can be supported based on the analysis result obtained.

## **5.3 Implication of Study**

### **5.3.1 Theoretical Implication**

The Dividend Signalling Theory and Stakeholder Theory applied in this study have significantly contributed to examining the internal dynamic between ESG and dividend policy among US-listed companies. Dividend signalling indicates a signalling future growth potential while stakeholder theory focuses on long-term value creation. Both theories assume ESG scores (ESG) and financial metrics such as sales growth (SALES), leverage (LEV), price-to-book ratio (PB) and return on asset (ROA) were positively significant in affecting the dividend yield (DIV), indicating greater financial health while benefiting the stakeholders' well-being.

Similar to previous findings, the current study discovered that ESG scores have a positive effect on dividend yield. The stakeholder theory encourages companies to prioritize social responsibility and long-term sustainability, dividend signalling theory can still play a role by incentivizing strong ESG performance as a signal of long-term financial health to investors. When a company maintains strong environmental practices and ESG scores, it can minimize pollution fines and improve resource efficiency. This sends a message of financial stability and long-term growth potential to investors, offering higher dividend yields.

Despite the dividend signalling theory suggesting that companies with high debt should prioritize debt repayment and financial stability, instead of dividend, this

study's findings demonstrate a different outcome, revealing a positive correlation between leverage and dividend yield. This could be attributed to companies with high leverage having stable cash flows, utilizing debt financing as a liquidity source to preserve cash and maintain financial flexibility while providing dividends.

This study has identified a negative association between a company's sales growth, price-to-book ratio, and return on assets with its dividend yield. Both theories can explain such negative relationships. From a signalling perspective, retaining shows confidence in future growth, which is also supported by stakeholder theory, as the reinvestment of earnings can create long-term value by expanding operations, strengthening the workforce, or adopting sustainable practices. As a result, fewer dividends are distributed, which leads to a lower dividend yield.

### **5.3.2 Practical Implication**

Based on the study, there is a positive connection between strong ESG scores and dividend yield. This provides important implications for different stakeholders in the financial world, such as companies, investors, and government. They could imply these findings by modifying their perspectives and efforts towards ESG.

Companies can use the findings of this study to design a strategic dividend policy. Companies with high ESG scores possess a competitive advantage that could attract investors who seek both financial returns and social responsibility. This influences more companies to imitate such actions. Companies with a lack of interest in ESG efforts could consider enhancing their ESG performance due to the benefits it provides. This study allows the companies to understand that the focus of ESG practices would not deplete the financial health of the company if the dividend policy were balanced with the reinvestment for future growth and responsible debt management.

Investors may choose to shift their investment focus towards corporations with strong ESG, allowing them to not seek only financial returns, but also social responsibility. This study could strengthen the investors' confidence to incorporate ESG factors into their investment decisions by prioritizing companies with high ESG scores. Conservative investors could consider ESG data for investment selection due to the positive relationship between ESG scores and dividend yield. This provides an alternative approach to conservative investors. For normal investors, the adoption of ESG investing encourages them to adopt a long-term view when evaluating companies via ESG scores ESG scores could be used as an indicator for investment selection as ESG performance suggests potential for sustainable growth, leading to potentially higher long-term returns for investors. Investors in Malaysia could also consider the approach of ESG investing due to the gradual introduction of ESD practices in Malaysia by the government. However, the consideration of data such as price-to-book ratio, sales growth and return on the asset would not be recommended for conservative investors as companies that have high PB, ROA, and SALES normally have lower dividend yield.

The government and other regulatory bodies could leverage the results of these findings to facilitate the shift towards sustainable corporate practices. This is especially important given the growing demand for stringent ESG regulations. As the demand for rigorous ESG regulations continues to grow, financial institutions may respond by offering investment products featuring stocks of companies with strong ESG ratings to meet the needs of investors interested in ESG-focused portfolios. This may lead to fund managers and lenders favouring companies that perform well in ESG categories. By incorporating ESG criteria into risk assessment models, creditors can view companies with strong ESG performances as presenting lower risk. However, the lack of clarity in ESG regulations may lead to greenwashing by companies, institutions, or fund managers who exploit the benefits of having high ESG scores while betraying the trust of ESG investors. Therefore, our study's impact on the ESG financial landscape could provide solid evidence for

the government to enforce a robust, uniformly established mandate for ESG disclosure requirements, promoting transparency and enabling investors to make informed decisions based on a company's ESG scores. With strict ESG regulations in place, offering tax benefits or subsidies to companies prioritizing ESG activities could create financial incentives and speed up the transition to a responsible corporate landscape.

## **5.4 Limitations**

Several limitations have been highlighted throughout this research in investigating the relationship between dividend yield and the independent variables included. The main focus of this research is the inclusion of ESG scores as one of the independent variables in the study. Based on the sources provided in the Refinitiv database, the information on ESG scores is not limited to the overall ESG score which is the one that has been used in this study. There are separate elements of the ESG score which include the data of the environmental pillar, social pillar and government pillar. Overall ESG scores are the average combination score of these three pillars. An excellent overall ESG score of a company does not necessarily mean that the company has excellent results for all three pillars. Thus, considering only the overall ESG score might not clearly show the corresponding weightage which may result in unreliable estimation.

In addition, this research focuses on investigating the factors affecting the dividend yield from the year 2013 to the year 2021 which is 9 years in total. This happens due to the insufficient information for the dependent variable which is dividend yield before the year 2013. The insufficient information is mainly due to the missing data from the years 2002 to 2012 for the majority of the companies which caused the elimination of years in our research. Having a shorter period in this research may significantly affect the analysis in terms of the time series element. The impact

in the long term may not be sufficiently and appropriately shown and causes an inability to demonstrate in-depth analysis.

Lastly, the research's significance may be constrained by the lack of investigation into the industry in which the company operates. Different industries have varying degrees of exposure and sensitivity to environmental, social and governance factors. For example, companies operating in heavily regulated industries such as energy or manufacturing may face more stringent environmental compliance requirements compared to those in the technology sector. By not considering the sector of the company, the research may overlook critical insights into the drivers and implications of ESG adoption.

## **5.5 Recommendations**

Recommendations are being suggested and provided to future researchers who wish to study the relationship between the dividend policy and the independent variables specifically ESG score with the aim that it may tackle and solve the limitations mentioned. The ESG performance of a firm can be determined by using the overall ESG score. However, it is suggested that the future researcher may incorporate each pillar of ESG by including the three separate achievements which are the environmental score, social score and governance score in the research. The inclusion of the three scores allows a deeper analysis of how each of the elements affects the changes in the dividend yield. In addition, it also encourages a valuable outcome that might be beneficial to the vital party which is the company as they can understand their next step. They can have a direction on which element they should emphasize to improve their business operation and most importantly their dividend distribution.

Furthermore, future researchers may try other dependent variables for future studies as there is a shortage of data on dividend yield according to this research. Researchers could expand the scope of their studies by choosing a new dependent variable that allows them to examine additional elements of business behaviour or financial performance. Furthermore, going beyond the 9-year period that is being studied would allow researchers to examine trends and patterns over a longer length of time. This extended period could make it easier to include more years and allow for a more thorough study, which could improve the breadth and depth of the research findings. Additionally, by extending the temporal scope, scholars may include a wider range of economic circumstances and market dynamics, so enhancing a more comprehensive knowledge of the elements impacting the selected dependent variable.

On the other hand, future research should broaden its scope beyond individual companies and instead categorize them into different industry sectors. This approach will facilitate a more comprehensive understanding of the relationships between dividend yield, ESG score, and financial performance among various industries. Given that dividend yield varies across different scopes and industries, it's important to acknowledge the different levels of dividend yield presented by companies in various sectors. Consequently, scholars could categorize companies based on industries with high and low dividend yields to explore the correlation between dividend yield across different scopes and financial performance effectively.

## **5.6 Conclusion**

This research aims to determine the connection between the dependent variable which is dividend yield, and the independent variable which includes ESG score, sales growth, leverage, price-to-book ratio and return on asset. Based on the findings in Chapter 4 and Chapter 5, it can be concluded that all the hypotheses

listed in Chapter 2 are accepted. In a simple word, all the independent variables included have a significant relationship with the dividend yield. A deep discussion and suggestion of actions for related parties are being illustrated. Lastly, some limitations and recommendations to future researchers are also being provided.

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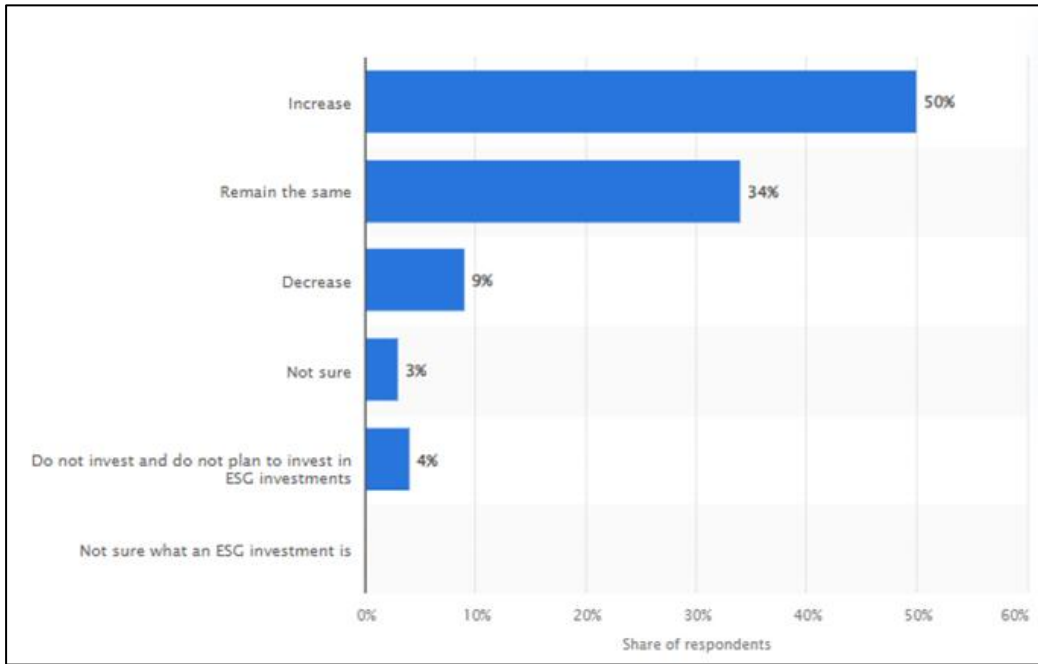
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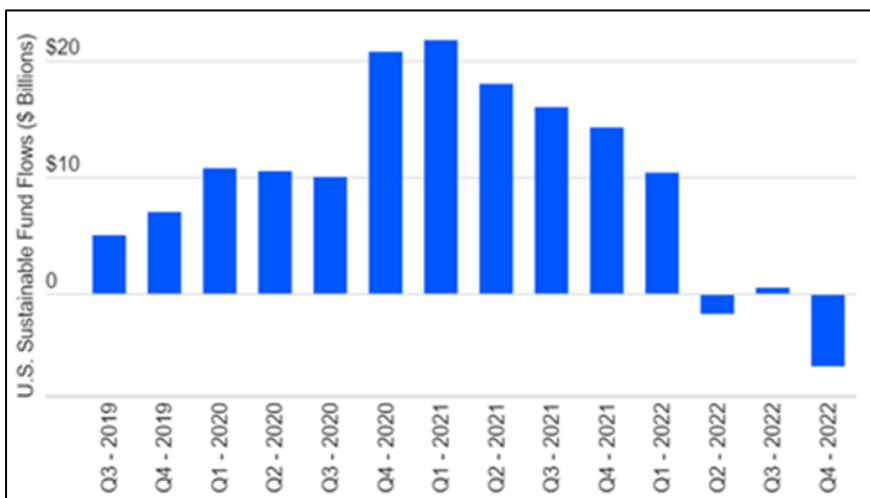
**APPENDICES**

**Appendix 1.1: Professional Investor Shift to ESG Investments in 2023**



Adapted from Statista. (2023, June 14). *Share of professional investors increasing their ESG investments worldwide 2023.*

**Appendix 1.2: U.S. Sustainable Fund Flows: Q3 2019 - Q4 2022**



Adapted from Baker. B. (2023). ESG investing statistics 2023. *Bankrate.*

**Appendix 4.1: Descriptive Analysis**

	DIV	ESG	SALES	LEV	LPB	ROA
Mean	2.245215	63.55446	9.126585	29.57514	1.478988	9.169467
Median	2.030000	65.86000	3.742651	29.70000	1.316408	8.595000
Maximum	11.20000	93.26000	612.7358	94.71000	11.85691	45.80000
Minimum	0.000000	24.74000	-230.9709	0.000000	-1.139434	-61.10000
Std. Dev.	1.373284	15.24240	48.84766	14.92807	0.990591	9.425382
Skewness	1.768652	-0.303395	5.405790	0.089883	2.242407	-0.427288
Kurtosis	9.113532	2.208371	52.30989	3.540755	19.42780	10.37190
Jarque-Bera	1627.589	32.45767	83140.10	10.59439	9460.795	1794.534
Probability	0.000000	0.000000	0.000000	0.005006	0.000000	0.000000
Sum	1758.003	49763.14	7146.116	23157.33	1158.048	7170.523
Sum Sq. Dev.	1474.780	181682.7	1865926.	174266.6	767.3533	69382.35
Observations	783	783	783	783	783	782

**Appendix 4.2: Panel Unit Root Test: Dividend Yield**

Panel Unit Root Test on DIV				
Panel unit root test: Summary				
Series: DIV				
Date: 02/29/24 Time: 23:33				
Sample: 2013 2021				
Exogenous variables: Individual effects				
User-specified lags: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-9.18880	0.0000	87	609
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-1.94835	0.0257	87	609
ADF - Fisher Chi-square	235.447	0.0013	87	609
PP - Fisher Chi-square	384.098	0.0000	87	696
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

**Appendix 4.3: Panel Unit Root Test: ESG Score**

Panel Unit Root Test on ESG				
Panel unit root test: Summary				
Series: ESG				
Date: 02/29/24 Time: 23:34				
Sample: 2013 2021				
Exogenous variables: Individual effects				
User-specified lags: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross- sections	Obs
<u>Null: Unit root (assumes common unit root process)</u>				
Levin, Lin & Chu t*	-6.21605	0.0000	87	609
<u>Null: Unit root (assumes individual unit root process)</u>				
Im, Pesaran and Shin W-stat	-1.30605	0.0958	87	609
ADF - Fisher Chi-square	215.705	0.0173	87	609
PP - Fisher Chi-square	352.478	0.0000	87	696
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

**Appendix 4.4: Panel Unit Root Test: Sales Growth**

Panel Unit Root Test on SALES				
Panel unit root test: Summary				
Series: SALES				
Date: 02/29/24 Time: 23:35				
Sample: 2013 2021				
Exogenous variables: Individual effects				
User-specified lags: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross- sections	Obs
<u>Null: Unit root (assumes common unit root process)</u>				
Levin, Lin & Chu t*	-10.8380	0.0000	87	609
<u>Null: Unit root (assumes individual unit root process)</u>				
Im, Pesaran and Shin W-stat	-3.02504	0.0012	87	609
ADF - Fisher Chi-square	234.959	0.0014	87	609
PP - Fisher Chi-square	484.417	0.0000	87	696
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

**Appendix 4.5: Panel Unit Root Test: Leverage**

Panel Unit Root Test on LEV				
Panel unit root test: Summary				
Series: LEV				
Date: 02/29/24 Time: 23:35				
Sample: 2013 2021				
Exogenous variables: Individual effects				
User-specified lags: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross- sections	Obs
<u>Null: Unit root (assumes common unit root process)</u>				
Levin, Lin & Chu t*	-18.0433	0.0000	87	609
<u>Null: Unit root (assumes individual unit root process)</u>				
Im, Pesaran and Shin W-stat	-4.37005	0.0000	87	609
ADF - Fisher Chi-square	299.665	0.0000	87	609
PP - Fisher Chi-square	255.780	0.0001	87	696
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

**Appendix 4.6: Panel Unit Root Test: Price-to-Book Ratio**

Panel Unit Root Test on LPB				
Panel unit root test: Summary				
Series: LPB				
Date: 02/29/24 Time: 23:36				
Sample: 2013 2021				
Exogenous variables: Individual effects				
User-specified lags: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
Balanced observations for each test				
Method	Statistic	Prob.**	Cross- sections	Obs
<u>Null: Unit root (assumes common unit root process)</u>				
Levin, Lin & Chu t*	9.33649	1.0000	87	609
<u>Null: Unit root (assumes individual unit root process)</u>				
Im, Pesaran and Shin W-stat	1.09361	0.8629	87	609
ADF - Fisher Chi-square	201.496	0.0752	87	609
PP - Fisher Chi-square	222.574	0.0076	87	696
** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.				

#### Appendix 4.7: Panel Unit Root Test: Return on Asset

Panel unit root test: Summary				
Series: ROA				
Date: 02/29/24 Time: 23:36				
Sample: 2013 2021				
Exogenous variables: Individual effects				
User-specified lags: 1				
Newey-West automatic bandwidth selection and Bartlett kernel				
<hr/>				
Method	Statistic	Prob.**	Cross- sections	Obs
<hr/>				
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-17.2296	0.0000	87	608
<hr/>				
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-2.23886	0.0126	87	608
ADF - Fisher Chi-square	238.391	0.0009	87	608
PP - Fisher Chi-square	324.178	0.0000	87	695
<hr/>				
** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.				

#### Appendix 4.8: Multicollinearity

Correlation						
	DIV	ESG	SALES	LEV	LPB	ROA
DIV	1.000000	-0.056744	-0.052945	0.064655	-0.207099	-0.184191
ESG	-0.056744	1.000000	-0.043875	0.174325	0.149028	0.088348
SALES	-0.052945	-0.043875	1.000000	0.017467	-0.025715	0.048242
LEV	0.064655	0.174325	0.017467	1.000000	0.213353	-0.013465
LPB	-0.207099	0.149028	-0.025715	0.213353	1.000000	0.323282
ROA	-0.184191	0.088348	0.048242	-0.013465	0.323282	1.000000

**Appendix 4.9: Heteroscedasticity**

Panel Period Heteroskedasticity LR Test				
Equation: UNTITLED				
Specification: DIV C ESG SALES LEV LPB ROA				
Null hypothesis: Residuals are homoskedastic				
	Value	df	Probability	
Likelihood ratio	26.31270	87	1.0000	
LR test summary:				
	Value	df		
Restricted LogL	-1328.014	776		
Unrestricted LogL	-1314.857	776		
Unrestricted Test Equation:				
Dependent Variable: DIV				
Method: Panel EGLS (Period weights)				
Date: 02/29/24 Time: 23:40				
Sample: 2013 2021				
Periods included: 9				
Cross-sections included: 87				
Total panel (unbalanced) observations: 782				
Iterate weights to convergence				
Convergence achieved after 4 weight iterations				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.715384	0.210310	12.91135	0.0000
ESG	-0.004045	0.003099	-1.305246	0.1922
SALES	-0.001130	0.000824	-1.371079	0.1707
LEV	0.010102	0.003192	3.164477	0.0016
LPB	-0.256456	0.052922	-4.845935	0.0000
ROA	-0.014919	0.005265	-2.833370	0.0047
Weighted Statistics				
R-squared	0.066322	Mean dependent var	2.295037	
Adjusted R-squared	0.060306	S.D. dependent var	1.388732	
S.E. of regression	1.327740	Akaike info criterion	3.378152	
Sum squared resid	1368.005	Schwarz criterion	3.413920	
Log likelihood	-1314.857	Hannan-Quinn criter.	3.391907	
F-statistic	11.02431	Durbin-Watson stat	0.539362	
Prob(F-statistic)	0.000000			
Unweighted Statistics				
R-squared	0.072213	Mean dependent var	2.245912	
Sum squared resid	1368.006	Durbin-Watson stat	0.578654	

### Appendix 4.10: Autocorrelation

Dependent Variable: DIV				
Method: Panel Least Squares				
Date: 02/29/24 Time: 23:44				
Sample: 2013 2021				
Periods included: 9				
Cross-sections included: 87				
Total panel (unbalanced) observations: 782				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.102344	0.257360	4.283269	0.0000
ESG	0.018780	0.003404	5.516740	0.0000
SALES	-0.002029	0.000649	-3.124777	0.0019
LEV	0.020849	0.004647	4.486706	0.0000
LPB	-0.278717	0.050768	-5.489960	0.0000
ROA	-0.025752	0.005223	-4.930367	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.673720	Mean dependent var	2.245912	
Adjusted R-squared	0.630689	S.D. dependent var	1.374024	
S.E. of regression	0.835007	Akaike info criterion	2.587379	
Sum squared resid	481.0938	Schwarz criterion	3.135832	
Log likelihood	-919.6651	Hannan-Quinn criter.	2.798296	
F-statistic	15.65659	Durbin-Watson stat	1.589534	
Prob(F-statistic)	0.000000			

### Appendix 4.11: Pooled Ordinary Least Square

Dependent Variable: DIV				
Method: Panel Least Squares				
Date: 02/29/24 Time: 23:43				
Sample: 2013 2021				
Periods included: 9				
Cross-sections included: 87				
Total panel (unbalanced) observations: 782				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.729968	0.216355	12.61801	0.0000
ESG	-0.003629	0.003194	-1.136088	0.2563
SALES	-0.001573	0.000975	-1.612829	0.1072
LEV	0.010258	0.003311	3.098386	0.0020
LPB	-0.262324	0.052358	-5.010226	0.0000
ROA	-0.016812	0.005366	-3.132935	0.0018
R-squared	0.072841	Mean dependent var	2.245912	
Adjusted R-squared	0.066867	S.D. dependent var	1.374024	
S.E. of regression	1.327291	Akaike info criterion	3.411800	
Sum squared resid	1367.080	Schwarz criterion	3.447568	
Log likelihood	-1328.014	Hannan-Quinn criter.	3.425555	
F-statistic	12.19310	Durbin-Watson stat	0.575575	
Prob(F-statistic)	0.000000			



**Appendix 4.12: Fixed Effect Model**

Dependent Variable: DIV				
Method: Panel Least Squares				
Date: 02/29/24 Time: 23:44				
Sample: 2013 2021				
Periods included: 9				
Cross-sections included: 87				
Total panel (unbalanced) observations: 782				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.102344	0.257360	4.283269	0.0000
ESG	0.018780	0.003404	5.516740	0.0000
SALES	-0.002029	0.000649	-3.124777	0.0019
LEV	0.020849	0.004647	4.486706	0.0000
LPB	-0.278717	0.050768	-5.489960	0.0000
ROA	-0.025752	0.005223	-4.930367	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.673720	Mean dependent var	2.245912	
Adjusted R-squared	0.630689	S.D. dependent var	1.374024	
S.E. of regression	0.835007	Akaike info criterion	2.587379	
Sum squared resid	481.0938	Schwarz criterion	3.135832	
Log likelihood	-919.6651	Hannan-Quinn criter.	2.798296	
F-statistic	15.65659	Durbin-Watson stat	1.589534	
Prob(F-statistic)	0.000000			

**Appendix 4.13: Random Effect Model**

Dependent Variable: DIV					
Method: Panel EGLS (Cross-section random effects)					
Date: 02/29/24 Time: 23:46					
Sample: 2013 2021					
Periods included: 9					
Cross-sections included: 87					
Total panel (unbalanced) observations: 782					
Swamy and Arora estimator of component variances					
Variable	Coefficient	Std. Error	t-Statistic	Prob.	
C	1.444399	0.258782	5.581519	0.0000	
ESG	0.014779	0.003199	4.620379	0.0000	
SALES	-0.001987	0.000646	-3.074222	0.0022	
LEV	0.017499	0.004105	4.262613	0.0000	
LPB	-0.271719	0.048258	-5.630599	0.0000	
ROA	-0.025669	0.004939	-5.196923	0.0000	
Effects Specification				S.D.	Rho
Cross-section random			1.019960	0.5987	
Idiosyncratic random			0.835007	0.4013	
Weighted Statistics					
R-squared	0.134540	Mean dependent var	0.591616		
Adjusted R-squared	0.128963	S.D. dependent var	0.901685		
S.E. of regression	0.841523	Sum squared resid	549.5328		
F-statistic	24.12650	Durbin-Watson stat	1.388380		
Prob(F-statistic)	0.000000				
Unweighted Statistics					
R-squared	0.017519	Mean dependent var	2.245912		
Sum squared resid	1448.652	Durbin-Watson stat	0.526669		

**Appendix 4.14: Poolability F Test**

Redundant Fixed Effects Tests				
Equation: Untitled				
Test cross-section fixed effects				
Effects Test	Statistic	d.f.	Prob.	
Cross-section F	14.775684	(86,690)	0.0000	
Cross-section Chi-square	816.697146	86	0.0000	
<p>Cross-section fixed effects test equation:                      Dependent Variable: DIV                      Method: Panel Least Squares                      Date: 02/29/24 Time: 23:45                      Sample: 2013 2021                      Periods included: 9                      Cross-sections included: 87                      Total panel (unbalanced) observations: 782</p>				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.729968	0.216355	12.61801	0.0000
ESG	-0.003629	0.003194	-1.136088	0.2563
SALES	-0.001573	0.000975	-1.612829	0.1072
LEV	0.010258	0.003311	3.098386	0.0020
LPB	-0.262324	0.052358	-5.010226	0.0000
ROA	-0.016812	0.005366	-3.132935	0.0018
R-squared	0.072841	Mean dependent var	2.245912	
Adjusted R-squared	0.066867	S.D. dependent var	1.374024	
S.E. of regression	1.327291	Akaike info criterion	3.411800	
Sum squared resid	1367.080	Schwarz criterion	3.447568	
Log likelihood	-1328.014	Hannan-Quinn criter.	3.425555	
F-statistic	12.19310	Durbin-Watson stat	0.575575	
Prob(F-statistic)	0.000000			

**Appendix 4.15: Hausman test**

Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	
Cross-section random	17.254908	5	0.0040	
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
ESG	0.018780	0.014779	0.000001	0.0006
SALES	-0.002029	-0.001987	0.000000	0.5081
LEV	0.020849	0.017499	0.000005	0.1239
LPB	-0.278717	-0.271719	0.000249	0.6572
ROA	-0.025752	-0.025669	0.000003	0.9612
Cross-section random effects test equation:				
Dependent Variable: DIV				
Method: Panel Least Squares				
Date: 02/29/24 Time: 23:47				
Sample: 2013 2021				
Periods included: 9				
Cross-sections included: 87				
Total panel (unbalanced) observations: 782				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.102344	0.257360	4.283269	0.0000
ESG	0.018780	0.003404	5.516740	0.0000
SALES	-0.002029	0.000649	-3.124777	0.0019
LEV	0.020849	0.004647	4.486706	0.0000
LPB	-0.278717	0.050768	-5.489960	0.0000
ROA	-0.025752	0.005223	-4.930367	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.673720	Mean dependent var	2.245912	
Adjusted R-squared	0.630689	S.D. dependent var	1.374024	
S.E. of regression	0.835007	Akaike info criterion	2.587379	
Sum squared resid	481.0938	Schwarz criterion	3.135832	
Log likelihood	-919.6651	Hannan-Quinn criter.	2.798296	
F-statistic	15.65659	Durbin-Watson stat	1.589534	
Prob(F-statistic)	0.000000			

**Appendix 5: List of Sample Companies and The Industries**

<b>Company</b>	<b>Industry</b>
1 Agilent Technologies	Healthcare Equipment & Supplies
2 Cencora Inc.	Healthcare Equipment & Supplies
3 Abbott Laboratories	Healthcare Equipment & Supplies
4 Automatic Data Procs	Software & IT Services
5 Albemarle Corp	Chemicals
6 Applied Materials	Semiconductors & Semiconductor Equipment
7 Amgen Inc	Pharmaceuticals
8 Ball Corporation	Containers & Packaging
9 Baxter International Inc	Healthcare Equipment & Supplies
10 Becton Dickinson and Company	Healthcare Equipment & Supplies
11 Brown Forman Inc Cl B	Beverages
12 Baker Hughes Company	Oil & Gas Related Equipment and Services
13 Cardinal Health	Pharmaceuticals
14 Colgate-Palmolive Company	Personal & Household Products & Services
15 Centerpoint Energy Inc	Multiline Utilities
16 Conocophillips	Oil & Gas
17 Campbell Soup Company	Food & Tobacco
18 Cisco Systems Inc	Communication & Networking
19 CSX Corp	Freight & Logistics Services
20 Quest Diagnostics Inc	Healthcare Providers & Services
21 Walt Disney Company	Media & Publishing
22 Darden Restaurants	Hotels & Entertainment Services
23 Ebay Inc	Software & IT Services
24 Estee Lauder Companies	Personal & Household Products & Services
25 Emerson Electric Company	Machinery, Tools, Heavy Vehicles, Trains & Ships
26 Eog Resources	Oil & Gas
27 Entergy Corp	Electric Utilities & IPPs
28 Exelon Corp	Electric Utilities & IPPs

INTERNAL DYNAMIC BETWEEN DIVIDEND POLICY AND ESG PERFORMANCE  
AMONG LISTED COMPANIES IN UNITED STATES

29	FMC Corp	Chemicals
30	General Electric Company	Consumer Goods Conglomerates
31	Corning Inc	Electronic Equipment & Parts
32	Halliburton Company	Oil & Gas Related Equipment and Services
33	Hasbro Inc	Leisure Products
34	Hershey Foods Corp	Food & Tobacco
35	International Flavors & Fragrances	Food & Tobacco
36	Intel Corp	Semiconductors & Semiconductor Equipment
37	Intuit Inc	Financial Technology (Fintech) & Infrastructure
38	Interpublic Group of Companies	Media & Publishing
39	Illinois Tool Works Inc	Consumer Goods Conglomerates
40	Johnson Controls Intl	Machinery, Tools, Heavy Vehicles, Trains & Ships
41	Kellogg Company	Food Processing
42	K L A-Tencor Corp	Semiconductor Equipment & Testing
43	Coca-Cola Company	Non-Alcoholic Beverages
44	Kroger Company	Food Retail & Distribution
45	Eli Lilly and Company	Pharmaceuticals
46	Lowe's Companies	Home Improvement Products & Services Retailers
47	Marriot Int Cl A	Hotels, Motels & Cruise Lines
48	McDonald's Corp	Restaurants & Bars
49	Mondelez Intl Inc	Food Processing
50	Medtronic Inc	Medical Equipment, Supplies & Distribution
51	MGM Resorts International	Casinos & Gaming
52	Mccormick & Company	Food Processing
53	Merck & Company	Healthcare
54	Marathon Oil Corp	Oil & Gas Exploration and Production
55	Microsoft Corp	Software
56	Motorola Solutions	Communication & Networking
57	Nextera Energy	Electric Utilities
58	Nvidia Corp	Semiconductors

INTERNAL DYNAMIC BETWEEN DIVIDEND POLICY AND ESG PERFORMANCE  
AMONG LISTED COMPANIES IN UNITED STATES

59	Newell Rubbermaid Inc	Appliances, Tools and Housewares
60	Paychex Inc	Employment Services
61	Paccar Inc	Heavy Machinery & Vehicles
62	Pepsico Inc	Non-Alcoholic Beverages
63	Pfizer Inc	Pharmaceuticals
64	Parker-Hannifin Corp	Industrial Machinery & Equipment
65	Pultegroup	Homebuilding
66	PPG Industries	Commodity Chemicals
67	Qualcomm Inc	Semiconductors
68	Robert Half International Inc	Employment Services
69	Rockwell Automation Inc	Electrical Components and Equipment
70	Schlumberger N.V.	Oil Related Services and Equipment
71	Sempra	Multiline Utilities
72	Constellation Brands Inc	Brewers
73	Sysco Corp	Food Retail & Distribution
74	AT&T Inc	Wireless Telecommunication Services
75	Molson Coors Brewing Company	Brewers
76	Thermo Fisher Scientific Inc	Advanced Medical Equipment & Technology
77	Tapestry Inc	Apparel & Accessories Retailer
78	Texas Instruments	Semiconductors
79	Union Pacific Corp	Ground Freight & Logistics
80	United Parcel Service	Courrier, Postal, Air Freight & Land based logistic
81	V.F. Corp	Apparel & Accessories
82	Valero Energy Corp	Oil & Gas Refining & Marketing
83	Walgreens Boots Alliance	Drug Retailers
84	Whirlpool Corp	Appliances, Tools and Housewares
85	Williams Companies	Oil & Gas Transportation Services
86	Walmart Inc	Food Retail & Distribution
87	Zimmer Biomet Holdings	Medical Equipment, Supplies & Distribution