Green Money, Grey Result: Does Green Finance Matters?

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ABSTRACT

The influence of green financing on firm value has garnered significant interest, particularly in advancing the Sustainable Development Goals (SDGs). By adopting environmentally and socially responsible practices, firms can enhance their reputation and attract investors and customers who prioritize sustainability. This study examines whether green finance can affect ESG score by using data from public listed companies in ASEAN, providing evidence on how it increased firm value particularly from non-financial perspectives. The study compared firms with green financing initiatives to those without, using an independent samples t-test. It also observed the delayed effects of green financing issuance as the performance may take time to be materialized by comparing ESG score at issuance year and two years later, using a paired samples t-test which revealed a significant difference on E score. However, regression analysis findings revealed an insignificant effect of green financing on firms' ESG scores suggesting that the effect of green financing on ESG scores may be less substantial than expected. Nevertheless, the findings of this study are important for sustainability focused investors in risk management and portfolio optimization.

Keywords: Green Financing, ESG, Firm's Value, Green Investment

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INTRODUCTION

In contemporary financial realms, the sustainable stocks that are associated with firms dedicated to minimizing environmental impact have gained significant importance. Studies conducted by Torre et al., (2020) and others (Atan, 2017; Long et al., 2017; Yin et al., 2023) have documented valuation methodologies that blend fundamental analysis with Environmental, Social, and Governance (ESG) score, furnishing investors with insights into long term returns. ESG factors are considered akin to traditional variables, serving as proxies for financial soundness in the eyes of the market. Torre et al. (2020) had demonstrated that firms boasting robust ESG scores ratings tended to yield enhanced returns alongside reduced volatility, indicating that market participants viewed ESG factors as indicators of financial resilience. These findings highlight investors' growing inclination toward socially responsible investments, fostering positive environmental and social outcomes and, consequently, driving the expansion of resources allocated to green finance. Such trends are further accentuated by mounting concerns surrounding climate change and social inequality, compelling policymakers to prioritize measures aimed at mitigating climate and social risks.

In recent years, publicly traded firms have increasingly adopted ESG score disclosures for various reasons, such as meeting investor demand, building credibility, and addressing specific industry crises and competition. A study conducted from 2010 to 2021 discovered that the proportion of firms issuing voluntary ESG disclosure reports increased from 35% to 86% (Khandelwal et al., 2023). The trend showed a growing significance of ESG scores disclosures in fulfilling investor expectations and enhancing transparency. Furthermore, firms are investing in technology and governance to ensure the provision of reliable and timely ESG scores data, leading to high quality ESG scores information (Rouen, 2023). Evidence from real world events underscore the significant ramifications of firms' environmental stances on their stock performance. For instance, the 2014 Volkswagen emissions scandal served as a compelling case study, wherein the revelation of noncompliance led to an abrupt 18% decline in the firm's stock price (Blackwelder et al., 2016). This incident highlighted how deviations from environmental regulations and ensuing reputational risks can exert profound effects on a firm's financial well-being. Several studies have also documented the impact of green financing on firms' financial and

non-financial performance (Abdul Razak & Ali, 2023; Siswantoro, 2018; Wang & Zhi, 2016; Zhou & Cui, 2019). Their findings suggested that green financing significantly influenced firm performance. Studies also highlighted that green financing issuance can significantly improve the ESG score which suggested that there was a time lag between the issuance of green financing and fund availability which prevented the impact of issuance to be realized in a timely manner (Zheng et al., 2023). The issuance of green financing can improve the long term stability of funds with the efficiency in allocating funds (Wicaksono, 2023).

The objective of this study was to investigate whether green finance can affect a firm's non-financial value (ESG score) or whether ESG score differs for firms engaged in green financing issuance when compared to those firms that do not issuing green financing. This study aimed to investigate the benefit of green financing in fostering sustainable business development and boosting firm value, particularly through the lens of ESG scores of the firm. High ESG scores reflect proficient management of environmental, social, and governance risks, leading to better financial outcomes and lower investment risks, whereas low scores highlight deficiencies in ESG practices. This study suggested that there is a significant relationship between the issuance of green financing and ESG scores of the firm.

The findings indicated that the effect of green financing on ESG scores may not be as significant as previously thought. A positive significant impact was only seen on the E score two years after the issuance of green finance which was consistent with the result of previous research (Hoang et al., 2022). Nevertheless, these insights are crucial for environmentally conscious investors, helping them make better decisions about risk management and portfolio optimization. The rise in firms voluntarily releasing ESG reports highlights the importance of transparency in meeting stakeholder expectations. As businesses adopted more sustainable practices to address environmental risks, the study suggested an approach to sustainability strategies that goes beyond just financial metrics. It points to the growing role of ESG scores reporting as a key element for firms to demonstrate their commitment to sustainability and ethical practices. The results also clarified the essential role of ESG scores in assessing a firm's long-term sustainability and prospects. The study found that despite the investment in the green economy through green financing which was expected to have a

positive impact on the ESG score, the result remained mixed or inconclusive, reflecting a "grey" outcome.

LITERATURE REVIEW

Green Financing as a Channel to Sustainable Development

Green finance has emerged as a crucial catalyst in promoting sustainable development by alleviating financing constraints on green innovation and incentivizing firms to enhance their environmental practices (Chen, 2023; Yin et al., 2023). Green finance is crucial for advancing sustainable development and combating environmental issues which refers to financial activities and investments that promote environmentally sustainable outcomes and the transition to a low carbon economy (Wang & Zhi, 2016; Zheng et al., 2023). Research has focused on sustainable investment options and analyzed how ESG aspects were incorporated into financial decision making, and evaluated how sustainability affected financial performance (Mudalige, 2023). Studies by Siswantoro (2018) and Zhou and Cui (2019) suggested that green financing, particularly through mechanisms like green bonds, not only boosted a firm's reputation but also fostered sustainable business practices and environmental protection efforts. Similarly, research by Wang and Zhi (2016) and Abdul Razak and Ali (2023) indicated a positive association between green financing and firm performance, particularly in terms of profitability and environmental initiatives. Furthermore, green finance fosters sustainable development by promoting the eco-friendly that balanced the growth of economic with environmental protection that drove the investments in renewable energy and green projects that supported the long term sustainability goals (Khouildi & Hj. Kassim, 2019).

Extant research has underscored the importance of addressing challenges of green financing, such as better data collection and stronger integration of ESG criteria into investments. Empirical studies examining green finance policies, such as China's Green Finance Pilot Zone (GFPZ) established in 2017, revealed that these initiatives significantly incentivized firms to upgrade their ESG practices, primarily by improving their access to external financing channels which enabled enterprises to allocate resources

toward sustainable projects and adopted innovative technologies that furthered their environmental and social objectives (Li et al., 2023; Sun et al., 2023). Based on the study by Li et al., (2023) and Sun et al., (2023), findings have highlighted the need to overcome environmental and social challenges while fostering economic growth where green finance policies can be used for promoting sustainable development by enhancing the ESG scores performance of enterprises.

The Relationship of Green Financing and ESG Performance

ESG performance through the score had encompassed a wide range of issues facing the world today, all of which may have long term impacts on the sustainability of social and economic activities (Ma et al., 2024). Examining the influence of a firm's ESG's score performance on its overall performance can be advantageous in enhancing corporate sustainability and promoting robust and high-quality development. This is particularly significant for countries with strong economic growth, such as China (Tao, 2023). The increasing integration of ESG criteria into investment decisions has garnered significant attention in the financial sector, with green finance and ESG scores becoming pivotal in assessing corporate sustainability performance (Sun et al., 2023; Zhang & Wei, 2024).

Recent studies had identified key factors on the impact on firm value following green bond issuance which included signalling the firm's commitment to sustainable development by specifically financing green projects, leading to a reduction in subsequent financing costs reflecting favourable market conditions and strengthening the firm's reputation among stakeholders, giving competitive advantages in the access to capital and market positioning (Zhou & Cui, 2019).

Other than that, a study by Tao (2023) analyzing the relationship between firm performance and ESG performance from 2012 to 2021 showed that ESG performance had a significant positive impact on firm performance. A similar study by Fu and Li (2023) but in the context of digital transformation reported that ESG implementation improved corporate financial performance, and digital transformation moderated this relationship. According to Torre et al., (2020), firms with high ESG ratings would have higher excess returns and lower volatility, indicating a positive

relation between ESG performance and financial outcomes. Past studies showed importance of ESG disclosure for optimizing financial performance, as emphasized by Khandelwal et al., (2023) and (Mohamed & Nahia, 2023). It discussed the positive correlation between ESG standards and corporate financial performance. Whelan et al. (2021) discovered that firms with higher ESG scores tended to excel in stock performance and operational efficiencies. Furthermore, a meta study by Fu and Li (2023) confirmed that ESG positively and significantly impacted corporate financial performance. Other research had investigated the relationship between ESG performance and market value, examining questions such as whether a firm's ESG score significantly impacted its market value and whether market value reacted to improvements in a firm's ESG rating (Zhou et al., 2022). These results collectively suggested a positive correlation between ESG performance and a firm's financial success.

In summary, while previous research has analyzed and presented the importance of green financing in sustainable development, there remains a critical need for further exploration of the development of green financing in improving the performance and value of the firm specifically in the perspective of non-financial performance (Ma et al., 2024). This study aimed to fill that gap by examining how green financing influences a firm's ESG scores, understanding its effectiveness in enhancing corporate sustainability and long-term value creation.

METHODOLOGY

As this study focused on investigating the impact of issuance of green financing on the firm’s non-financial value, it employed ESG score as a proxy in evaluating the non-financial value of a corporation. ESG refers to a set of standards that assess the perspectives of a firm’s environmental, social, and governance practices, which provide an understanding of the sustainable and responsible practices. Furthermore ESG provide more comprehensive description on the enterprises’ environmental, social and governance performance (Ma et al., 2024). As most of the previous literature focused on the green financing development in China, this study wanted to explore the impact of green financing issuance among ASEAN firms. The study focused on all Public Listed Firms (PLCs) in ASEAN that issued

green financing, covering the period from 2017 to 2023. The period was chosen as the issuance of green financing had been actively made during this period. The ESG scores were obtained from Refinitiv-Eikon to measure the impact of green financing on the non-financial value of the firms. Data on ESG scores was collected for firms across the years from 2019 to 2023 and revealed that 35 firms had issued green financing across ASEAN. The data was then paired with that of firms that did not issue green financing, matching them by size and industry. In this study, listed firms among ASEAN that issued green financing served as treated group, while the listed firms that had not issued green financing but in the same country, industry and size served as a control group. Of 35 samples of firms, only 21 firms met the data availability of ESG score in the year of issuance and the data of two year after issuance of green financing.

The study by Zheng et al., (2023) emphasized that green bond significantly enhanced the ESG score which facilitated easier corporate financing, reduced financing costs and improved the maturity structure of corporate debt. An improve ESG score contributes to financial performance (Wicaksono, 2023). The finding aligned with a growing body of research that had explored the relationship between ESG disclosure scores and firm performance (Khandelwal et al., 2023). To examine the effect of green finance issuance on ESG score, this study firstly examined if there was any significant difference of ESG score for firms issuing and not issuing green finance. The first null hypothesis and the alternative hypothesis of this study were:

$H0_1$: There is no significant difference between the ESG Scores of firms with green financing from those without

H1: There is a significant difference between the ESG Scores of firms with green financing from those without.

An independent samples t-test was used to investigate the mean difference of ESG scores of firms with green financing from those without green financing. The study compared the ESG scores data of firms that had issued green financing with those that had not, within the same industry and size category. This approach allowed the study to determine the impact of green financing towards non-financial value of firms and further deduced the potential implications green financing issuance may have on firms'

performance. Another group that were compared with, were firms that had not embraced green financing, also contributing to identifying if a significant statistical difference existed between the groups regarding ESG scores. This difference may be connected with environmental and social impact, thus serving as an encouraging factor in making business decisions more sustainable. This study also investigated the implication of green finance issuance on the individual E, S and G score. Hence, the test of significant difference was conducted for both ESG score and the individual E, S and G score.

Furthermore, the study analyzed if there was a lagged impact of issuance of green financing on the ESG scores of the firm by comparing the ESG score on the year of issuance with the ESG score two years after green financing issuance. This was to determine whether the impact of green financing issuance on the ESG score had strengthen over time, rather than being immediate. According to the previous studies (Hoang et al., 2022; Wicaksono, 2023; Zheng et al., 2023), the effects of green financing may not immediately take place due to the time lag between the issuance of green financing and the availability of corresponding funds. Based on a previous study, there was a positive relationship between green financing issuance and the ESG score of the firm but the impact may be seen in subsequent years, reflecting a lagged effect in performance improvement and disclosure practices (Zheng et al., 2023). However, Wicaksono (2023) found a negative impact of the green financing issuance on ESG score. Thus, the null hypothesis and the alternative hypothesis were as follows:

$H0_2$: There is no significant difference between the ESG scores of a firm in the year of issuance and its ESG score two years after issuance.
H2: There is significant difference between the ESG scores of a firm in the year of issuance and its ESG score two years after issuance.

In analyzing the lagged impact, the study employed a paired samples t-test to compare the score of ESG in the current year of issuance of green financing with the score of ESG after two years of issuance of green financing. The data of the firms issuing green financing was narrowed from 35 to 21 samples due to the data availability limitation where there was issuance made in 2023 and the data of ESG for 2025 was unavailable. For this analysis, 21 samples of ESG score of current year (Y0) was compared

with the ESG score of two years after the issuance (Y+2). As per the previous hypothesis, the study further investigated each of the individual score of ESG in examining if there was any significance difference between for each of the individual score between both years. Each of the individual score was tested individually as this study recognized that each component played important roles in creating value towards sustainability (Sun et al., 2023).

Additionally, examined the effect of green financing on ESG score. Investigating the relationship between those two variables provide an insight on how financial strategies influenced sustainability performance and the perception of stakeholders. The hypothesis of the study investigated if there was a positive relationship between the issuance of green financing and ESG score of the firm. Therefore, the next null and alternative hypotheses were as follows:

$H0_3$: There is no significant effect of green finance issuance on ESG scores of a firm

H3: There is significant effect of green finance issuance on ESG scores of a firm

The study utilized correlation analysis to investigate the possible connection between firms' issuance of green finance instruments and their ESG scores. For this analysis, firms that had issued green financing were assigned a value of "1", while those that had not were given a "0". This approach enabled the study to measure the relationship between a firm's green finance activities and its ESG scores. In testing correlation analysis, the study used the data of ESG score after two years of issuance (Y+2), yielded 42 samples comprising the ESG scores for the firm of with and without the green financing issuance. Furthermore, the study employed regression analysis in determining the effect of the issuance of green financing on ESG score. This approach allowed a deeper understanding of how the issuance of green financing correlated with ESG's score. The findings of this study provided valuable information for firms in considering green financing as a financing option.

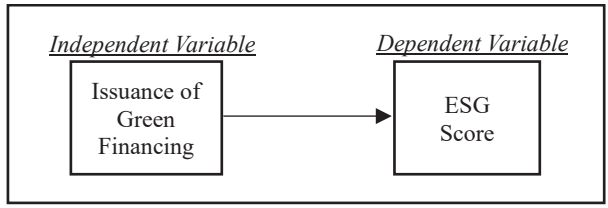

Figure 1: Research Framework

In achieving the objective of the study, the independent and dependent variable of the study were determined in the research framework. Figure 1 presents the research framework of the study. The dependent variable was the ESG score which also comprised the score of environmental, social and governance being the perspectives involved in ESG. The ESG score assessed the sustainability of corporate operations and the impact of social values from three perspectives which were environmental, social and corporate governance (Tao, 2023). The independent variable evaluated was the issuance of green financing. The impact of green finance issuance was grounded on the Triple bottom line (TBL), Signaling and the Stakeholder Theories. TBL theory developed by Elkington in 1994 emphasized on the importance of maintaining the relationship between environmental sustainability, social welfare, and financial success. In gaining stakeholders interest, the firm can exploit green financing in balancing the principle of the TBL (Habib et al., 2025). Green financing became of interest among the investors who were focusing not only financial performance but also meeting sustainability goals (Tang & Zhang, 2020).

Moreover, the Signaling Theory used suggested that firms may engage in certain action as signals in revealing their private information (Akintoye & Theogene, 2018). The main reason underlying this theory was reducing the information asymmetries that may exist between two parties (Akintoye & Theogene, 2018; Ching & Gerab, 2017). The disclosure of the activities of firm such as green initiatives through sustainability reposting can reduce the information gap between the firm and the stakeholders. Similarly, when there is an announcement of the green financing issuance, it may signal to the market that the firm had engaged in environmentally friendly projects. This theory works together with Legitimacy Theory in explaining the behaviors of firms and the strategies of green financing as the Theory holds firm in aligning their actions to demonstrate their commitment towards sustainability (Ching & Gerab, 2017).

Other than that, the Stakeholder Theory was also employed in this study as the theory focused on the consideration on the interests of all stakeholders and not only in generating value and profit to the shareholders. The perspective of the stakeholders was regarded as offering an improved approach to corporate management by encouraging ethical choices and focusing on the common good, which ultimately benefited shareholder wealth and supported long term sustainability (Sheikh, 2018). In the trend of supporting the initiative on climate change, ESG reporting had become an approach in order to evaluate the sustainability performance of the firm, while the Stakeholder Theory highlights the needs to consider the interest of all parties involved. By integrating the ESG factors from the lens of stakeholder perspective, decision making in the business can be enhance, the risk can be managed better and result in promoting a sustainable and responsible environment that was advantageous to society.

RESULTS AND DISCUSSION

The research examined the influence of green financing on the non-financial value of a firm by using the ESG score from Refinitiv-Eikon to assess the impact. The ESG scores data of firms that had issued green financing were compared to those that had not, with the same industry and size. The research had identified 21 firms issuing green finance based on ASEAN region from the year 2017 to 2023 that represented a diverse range of green financing practices and their potential impact on non-financial aspects.

The study used normality test using Shapiro-wilk test for each group of firms issuing green financing and group of firms not issuing green financing for the year of issuance (Year 0) and the two years after the issuance (Year +2). Based on Table 1, the normality test had a mix of a normal and a not normally distributed data. Thus, the study used a non-parametric method and did not rely fully on the parametric method.

Table 1: Normality Test

	Year 0				Year +2			
	Firms issuing green financing							
	E	S	G	ESG	E	S	G	ESG
N	21	21	21	21	21	21	21	21
P value	.212	.074	.373	.137	.136	.054	.107	.070
	Firms not issuing green financing							
	E	S	G	ESG	E	S	G	ESG
N	21	21	21	21	21	21	21	21
P value	.016	.101	.007	.227	.166	.126	.001	.066

Note: *Table 1 provides results of normality for data of each group*

The descriptive statistics provided an overview of the data of the study which set the stage for further analysis of the independent sample t-test, paired sample t-test, correlation and regression between green financing issuance and the performance of the firm that led to value creation.

Table 2a: Descriptive Statistic of Firms Issuing Green Finance for the ESG, E, S and G Score for the for the Year 0 and Year +2

	Year 0				Year +2			
	E	S	G	ESG	E	S	G	ESG
N	21	21	21	21	21	21	21	21
Mean	56.57	69.42	64.19	63.47	62.61	68.61	62.28	64.90
SD	16.91	18.13	15.65	13.17	15.45	17.17	15.26	10.72
Min	31	45	40	45	39	44	35	52
Max	93	96	90	83	91	96	86	85

Note: *Table 2a provides a summary of the observations (N), mean, standard deviation (SD), minimum (Min) and maximum (Max) values of every ESG score which comprise of Environmental (E) scores, Social (S) scores and Governance (G) scores for Y0 and Y+2 among firms issuing green finance*

Table 2b: Descriptive Statistic of Firms Not Issuing Green Finance (matching firms) for the ESG, E, S and G Score for the Year 0 and Year +2

	Year 0				Year +2			
	E	S	G	ESG	E	S	G	ESG
N	21	21	21	21	21	21	21	21
Mean	52.42	53.76	64.57	55.61	54.90	61.19	64.76	60.42
SD	23.27	15.97	20.49	17.33	16.60	12.58	19.43	13.92
Min	15	34	22	27	34	46	23	39
Max	82	83	96	83	89	88	84	84

Note: *Table 2b provides a summary of the observations (N), mean, standard deviation (SD), minimum (Min) and maximum (Max) values of every ESG score which comprise of Environmental (E) scores, Social (S) scores and Governance (G) scores for Y0 and Y+2 among firms not issuing green finance*

Table 2a and 2b presents the descriptive statistics for the ESG score of 21 firms from 2017 to 2023. The firms in Table 2a were the firms issuing green financing and Table 2b were the data of matched firms based on the same industry, country and size which did not issue green finance to allow for a direct comparison of their ESG score profiles. For firms actively issuing green financing, the average ESG score was 63.47 with a standard deviation of 13.17 in the year of issuing green financing, whereas for those who were not issuing green financing had exhibited a slightly lower average ESG score of 55.61, accompanied by a standard deviation of 17.33. This suggested that on average, firms issuing green finance had better ESG performance than their non green counterparts. The ESG score for both groups had improved and was better after two years, which indicated that despite not issuing green financing, the ESG score still improved. The range of ESG scores further underscored the diversity within each group. Green financing firms showed a spread from 45 to 83, while non- green financing firms ranged from 27 to 83. This suggested that both groups contained firms at various stages of their ESG journey which may be driven by other specific factors. The range became closer for both groups after two years with a spread from 52 to 85 for firms issuing green finance while the other group had a spread from 39 to 84.

In assessing whether there was any significant difference between the ESG scores of firms issuing and not issuing green financing, independent samples t-test was performed for parametric test and Mann Whitney U test being performed for non-parametric test. The tests were performed to assess whether the mean difference was statistically significant, comparing

the ESG score of firms that issue green financing and those that did not, but were in the same industry and market size. The results of both tests are presented in Table 3.

Table 3: Comparison of ESG, E, S and G Score between Firms Issuing and Not Aissuing Green Finance

Variable	Independent Samples t-test		Mann-Whitney U test	
	t-value	p-value	z-value	p-value
ESG score	-1.167	0.250	-0.676	0.512
E score	-1.760	0.086	-1.562	0.118
S score	-1.598	0.117	-1.297	0.194
G score	0.4592	0.648	0.580	0.562

In assessing the impact of green financing issuance on firms' value, the study obtained two sets of data with one comprising firms that issued green financing and the other consisting of firms that did not. The two sets of data were compared to one another by employing an independent t-test analysis for parametric test and the Mann-Whitney U test for non-parametric test with the results presented in Table 3. The independent t-test revealed a mean difference of approximately -4.47 in ESG score between firms issuing green financing and those that did not which was also supported by a previous descriptive statistic showing that firms not issuing green financing may, on average, have slightly lower ESG scores compared to their counterparts. The statistically insignificant results from both parametric and non-parametric tests painted a more nuanced picture. This lack of significance implies that the observed difference in ESG scores between the two groups was likely due to random chance rather than a systematic effect related to green financing activities. The p value for both parametric or non-parametric test showed an insignificant value which suggested insufficient evidence in rejecting the null hypothesis and there was no difference in ESG score means between firms with and without green financing initiative.

The study further investigated the significant difference of each of the individual scores of ESG component as each of that played a vital role towards sustainability. Unlike the ESG score, the result of independent samples t-test of E score between the groups showed a significant difference at the 10% levels but only under parametric test. Consequently, the study did not reject the null hypothesis, indicating no statistically significant variance

in the mean ESG score between firms opting for green financing issuance and those that did not. This implied that investing in green financing did not have a statistically significant impact on a firm's ESG score. The result was also identical for other individual scores of ESG as the independence t test for S score and G score comparing both groups were not statistically significant. Thus, the null hypothesis failed to be rejected. Even while the result merely fails to reject the hypothesis of the study, it provided useful information for businesses in focusing on the sustainability goals in the perspective of financial strategy. These results highlighted the need for a complete sustainability strategy that goes beyond financial choices and the need for a nuanced sustainability approach inside firms. Several factors could have contributed to this outcome. It was possible that the sample size was insufficient to detect a small but real difference. Alternatively, the ESG scores themselves might not have fully captured the specific environmental and social benefits associated with green financing. Perhaps the positive impacts of green financing were realized in areas not adequately reflected in current ESG scoring methodologies. Furthermore, firms may be engaging in green financing for a variety of strategic reasons, not solely driven by a commitment to overall ESG performance. Some may be using it to address specific environmental concerns while their performance in other ESG areas remained unchanged or even lagged.

In addressing the possible lagging to examine the impact of green financing towards the performance of ESG, the study employed paired samples t-test. The study used the data of ESG score of the firm on the year of green financing issuance and paired with the data of ESG score of the same firm in two years after the issuance of green financing. The result of paired samples t-test are shown in Table 4.

Table 4: Comparison of ESG, E, S and G score between Year 0 and Year +2 for the Public Listed Firms Issuing Green Finance in ASEAN region

Variable	Mean (Year 0)	Mean (Year +2)	Paired samples t-test		Wilcoxon signed rank test	
			t-value	p-value	z-value	p-value
ESG score	63.48	64.90	-0.963	0.3473	-0.975	0.3403
E score	56.57	63.62	-3.566	0.0019**	-2.802	0.0035**
S score	69.43	68.62	0.368	0.7165	0.68	0.5126
G score	64.19	62.29	0.689	0.4989	1.166	0.2532

*Note: ***, ** and * denote statistically significant at the 1%, 5% and 10% levels, respectively*

The result as in Table 4 revealed that there was a statistically significant positive impact of issuance of green financing on E score after two years based on both the parametric and non-parametric approach. This had indicated that the issuance of green financing impact was significant to the E score in two-year periods after issuance of green financing. E score represented the environmental perspective in ESG in which the main component that promote sustainability. However, ESG score, S score and G score did not have a significant lagging impact on the issuance of green financing. Thus, the study failed to reject the null hypothesis on there was no significance difference between the ESG scores of firms during the year of issuance and the ESG score of two years afterwards.

Table 5: Correlation between Green Financing Issuance, ESG Score, E Score, S Score and G Score

	Green financing issuance	ESG Score	E Score	S Score	G Score
Green financing issuance	1				
ESG Score	0.1815	1			
E Score	0.2681	0.8498***	1		
S Score	0.2451	0.8042***	0.6675***	1	
G Score	-0.0724	0.5758***	0.2182	0.1714	1

Note: ***, ** and * denote statistically significant at the 1%, 5% and 10% levels, respectively.

This study analyzed the connection between the variables by conducting correlation analysis which is a statistical method used in evaluating the strength and direction of the relationship between the variables. The results of correlation analysis are presented in Table 5. The study utilized the correlation analysis to investigate the relationship between the issuance of green financing with ESG Score and each of the components in the score which comprise of environment, social and governance scores. Table 3 presents the correlation coefficients between green financing issuance and various ESG scores, including the overall ESG Score, as well as individual scores for environmental (E), social (S), and governance (G) factors. The data presented highlights the intricate relationships between green financing issuance and various dimensions of environmental, social, and governance (ESG) scores.

The correlation analysis of the study revealed that the there was no significant relationship between green financing issuance with ESG score and other scores. All ESG score components had strong interrelationships observed which indicated that these components heavily influenced the composite ESG metric. Additionally, the Environmental and Social Scores are also significantly correlated with each other. The Governance Score showed not statistically significant. associations with the other component's scores. The correlational analysis showed that green financing issuance was not correlated with the overall ESG performance. While green financing did not directly influence ESG scores, incorporating it into a more general framework of sustainability had its benefits. In terms of reputation management, risk management, and socially responsible investment attraction, all these factors together led to firms having long term financial success. Thus, although the study did not indicate a significant relationship between green financing and ESG scores, it just highlighted the complexity of sustainability initiatives in firms. Recognizing this complexity and adding green financing as part of an integrated approach bolsters a firm's chances for financial success while promoting positive environmental impacts. These findings highlighted the complexity of sustainable finance and suggest that the effectiveness of green financing may vary across different dimensions of the ESG, warranting further investigation into the underlying mechanisms driving these relationships.

Furthermore, to assess the effect of the issuance of green financing on the ESG score, the study employed regression analysis. The linear regression analysis explored whether issuing green financing predicted ESG scores of the firm. The findings of this study, as presented in Table 6, indicated that there was no significant effect of green financing on ESG scores, as the result was not statistically significant. An explanation for this result is that green financing issuance may not be a robust predictor of ESG score. In addition, the possible explanation is that other factors such as corporate governance practices, social responsibility programs, and environmental management systems should play their role in contributing to the increase of ESG scores. Another potential explanation is that the sample size or data quality may not be sufficient in detecting a significant relationship between the variables. It was also possible that the relationship between green financing issuance and ESG scores was more complex and may require a more sophisticated analytical approach to fully analyze the impact of the variables.

Table 6: Linear Regression Result between Green Financing Issuance and ESG Score

	Coefficient	t-statistic
Constant	60.4285	22.28***
Green Flag	4.4761	1.17
Observation (N)	42	
R^2	0.0329	
Adjusted R^2	0.0088	
F – value	1.36	
p - value	0.2501	

Note: ***, ** and * denote statistically significant at the 1%, 5% and 10% levels, respectively

Overall, of the study had indicated that, even though the impact of green finance towards ESG score was not significant, there was a positive lagging impact specifically on E score aligns with the TBL Theory emphasizing environmental sustainability. Furthermore, the size of the firm had a positive association with ESG which suggested that larger firms were better positioned to enhance the ESG score of the firm by issuing green financing. This aligned with the Signaling Theory which posited that the initiative-taking strategy served an indicator of a firm's commitment towards sustainable practices. Moreover, it gives an insight into the decision that should be made by the firm as it should balance the interest of stakeholders and should be align with the stakeholders' value in deciding amount of green finance issued based on observed negative association.

CONCLUSION

This study highlights the importance of green financing in view of sustainability based on the previous literature. Another issue highlighted is the green financing impact on the performance of the firm based on non-financial value which being proxied by the ESG scores of the firm. The effectiveness of green financing on the firm's performance was measured by using the data of green financing issuance of from Public Listed Firms among ASEAN regions. The data of the firms issuing green financing was compared to the firms that were public listed with the same industry and same size but not issuing green financing. The result indicated that the issuance of green financing did not have a significant impact on the ESG

scores of the firm. Thus, the study did not reject the null hypothesis, as the result suggested insufficient evidence to reject the null hypothesis. However, the findings of this research supported the previous literature in which firms issuing green financing were shown to have a slightly higher average ESG scores compared to the firms without green initiatives. The study revealed that despite the investment made in the green economy through green financing that was predicted to positively influence ESG score, the results remained ambiguous, producing a "grey" outcome.

Even though green financing may not give a direct impact towards the ESG scores of the firm, the green initiative towards supporting the sustainability is important as it may benefit the firms in long term. This aligns with the Stakeholder Theory that highlighted that the firms should address the concern in the perspective of social and environmental concerning to secure the sustained legitimacy and competitive advantage, beyond a short-term performance of firm. The findings emphasized how critically sustainability was required within the organization, underlining the need for an integrated sustainability strategy that goes beyond the confines of mere financial rationales, which was consistent with the principles of integrated reporting and sustainable value creation. From a management accounting view, this can capture the non-financial sustainability metrics. For governance, it highlights the needs for the firm to embedded the concept of sustainability at the core of strategic decision making for a long-term value creation. The investment policies to include the sustainability in the fundamental criteria to reflect the evidence of sustainable practices in gaining stakeholder trust.

However, there was a limitation in terms of the number of data used for the study which was 21 green finance issuances. Thus, it is recommended that future research consider countries or regions that had a larger sample size to enhance the generalizability of the findings. Ultimately, the research calls for organizations to adopt a holistic view of sustainability, and understand that ESG scores are important in evaluating long term sustainability. The examining of the effect of green financing issuing towards ESG score in a longer period is suggested for future research.

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