



Impact of green finance on ESG performance with an emphasis on green entrepreneurship and corporate social responsibility

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ABSTRACT

Today, securing financial resources for start-up and knowledge-based businesses is one of the main concerns of entrepreneurs. However, due to the environmental problems that the country has faced in recent years, such as climate change, loss of ecosystem and natural resources, investing in environmentally friendly projects and producing environmentally friendly products and services is of great importance. Green management and environment are so crucial in recent years and paying attention to ESG performance has become a necessary issue in organizations. This research aims to investigate impact of green finance on ESG performance with an emphasis on green entrepreneurship and corporate social responsibility; So far, no research has simultaneously examined the variables of the present study, hence this research is innovative. The research method is based on the objective, applied, and in terms of the implementation method, it is a descriptive survey, and the statistical population includes employees and managers of knowledge-based companies in Tehran, and a sample of 384 people was selected using available sampling method. To collect data of the research, a questionnaire tool was used and after confirming the validity and reliability, it was distributed among the sample size. Structural equation modeling and Smart PLS software were used to test the research hypotheses, and the results indicate that green finance has a significant impact on ESG performance, green entrepreneurship and corporate social responsibility. In addition, the impact of green entrepreneurship and corporate social responsibility on ESG performance is accepted. Also, by the use of Sobel's test, it was determined green entrepreneurship and corporate social responsibility play a mediating role in the impact of green finance on ESG performance. Among the limitations of the present research, we can mention the inherent limitations of the questionnaire and its completion.

Keywords: Green management, green finance, green entrepreneurship, corporate social responsibility, ESG performance



Extended Abstract

Background and Objective:

The 19th century Industrial Revolution successfully lifted millions of people out of poverty. However, the subsequent environmental and resource degradation was a side effect of this boom (Abbas & Dogan, 2022). The idea of green finance was originally proposed in Sweden and Germany in the 1970s as people there progressively understood the importance of environmental preservation for long-term economic growth (Irfan et al., 2022). Green finance offers several benefits. First, it stimulates the relocation of financial resources away from environmentally damaging and polluting enterprises and forward to those with more advanced technology and operational procedures. Second, it assists in reducing environmental deterioration, which correlates with ecology and finance. Third, green finance establishes investments and supplies funds for sustainable initiatives (Ibrahiem et al., 2023; Ozili, 2022). Green entrepreneurship refers to the tendency of enterprises to prioritize environmental protection and sustainable development as core strategic directions during the entrepreneurial process (Jiang et al., 2018) and supports initiatives to minimize environmental harm (Hoogendoorn et al., 2019). In addition, Corporate social responsibility is a principle through which firms voluntarily incorporate environmental and social considerations into their operations and stakeholder interactions (Mo et al., 2022). Sustainability performance (ESG) includes three dimensions: environmental, social, and governance. In defining sustainable performance, the World Commission on Environment states that sustainability is a fundamental principle for global change as a means of meeting the needs of the present without compromising the ability of future generations to meet their own needs (Rezaee & Tuo, 2019); Habib et al (2025) investigated the integration of ESG disclosure and green financing on firm performance. Results showed positive and significant link between green finance and ESG disclosure. Davoodi et al (2025) investigated the relationship between green financing and green innovation: A game theory approach to companies' risk-taking behavior. The proposed game theory model demonstrates that enhanced green financing increases the likelihood of companies initially adopting green innovation modes. Additionally, their findings indicate

that the positive impact of green finance on green innovation is stronger for firms with lower risk tolerance levels. Furthermore, the effect is more pronounced when enterprises exhibit reduced risk-taking tendencies; so this research aims to investigate impact of green finance on ESG performance with an emphasis on green entrepreneurship and corporate social responsibility.

Methodology

The research method is based on the objective, applied, and in terms of the implementation method, it is a descriptive survey. The statistical population of study included employees and managers of knowledge-based companies in Tehran, and a sample size of 384 people was selected using the Cochran formula and available sampling method. A questionnaire containing 23 items was used to collect data, and its indicators were scored using a 5-point Likert scale. In this questionnaire, green finance and green entrepreneurship include 5 items, corporate social responsibility includes 4 items and ESG performance includes 9 items. Experts and professors of the university helped to check the validity of the questionnaire and it was confirmed by applying correction comments and Cronbach's alpha was used to measure reliability. Cronbach's alpha for all variables is more than 0.7, so the reliability of questionnaire is confirmed. Also, composite reliability (CR) and average variance extracted (AVE) are confirmed.

Findings

In this study, the KMO statistic was used to determine the adequacy of sampling. Also, the Bartlett test was used to ensure the appropriateness of the data, namely that the correlation matrix on which the analysis is based is not equal to zero in the population. The value of the statistic is 0.847 and is greater than 0.7, which indicates that the sampling adequacy of this study was adequate. Also, since the significance level (Sig) of Bartlett's statistic is equal to zero and less than 0.05, the data structure is suitable for factor analysis and the existence of a suitable relationship between the data structure is confirmed. Structural equation modeling and Smart PLS software were used to test the research hypotheses, and the results indicate that green finance has a significant impact on ESG performance, green

entrepreneurship and corporate social responsibility. In addition, the impact of green entrepreneurship and corporate social responsibility on ESG performance is accepted. Also, by the use of Sobel's test, it was determined green entrepreneurship and corporate social responsibility play a mediating role in the impact of green finance on ESG performance. The value calculated for the GOF index is 0.671 and it shows the strong fit of the overall research model; therefore, it can be concluded that the presented model has a good fit and the collected data have been able to cover the designed model and confirm the model with high power.

Discussion

Today, securing financial resources for start-up and knowledge-based businesses is one of the main concerns of entrepreneurs. However, due to the environmental problems that the country has faced in recent years, such as climate change, loss of ecosystem and natural resources, investing in environmentally friendly projects and producing environmentally friendly products and services is of great importance. In today's competitive era, organizations are able to create a competitive advantage by paying attention to all their stakeholders and not neglecting the environment around them. This is why entrepreneurs have become inclined towards producing green products and are moving towards social responsibility. After examining the direct hypotheses of the research, it was determined green finance has a significant impact on ESG performance, green entrepreneurship and corporate social responsibility with path coefficient of 0.311, 0.789 and 0.754. Also, it was observed that green entrepreneurship and corporate social responsibility have a significant impact on ESG performance with path coefficient of 0.293 and 0.296. In addition, in the current research, Sobel's test was used to investigate indirect hypotheses and it was determined green entrepreneurship and corporate social responsibility play a mediating role in the impact of green finance on ESG performance. The results of this research are aligned with Habib et al (2025), Kwilinski et al (2025) and Radfar and Zarei (2025) because in the mentioned studies, the impact of green finance and corporate social responsibility on ESG performance and the impact of green finance on ESG performance with the mediating role of social responsibility were also confirmed. Based on results

and since green finance improves green entrepreneurship and corporate social responsibility and ultimately leads to better ESG performance, banks and investment banks are advised to invest in green projects of knowledge-based companies, and managers of knowledge-based companies are advised to focus on producing environmentally friendly products by using green entrepreneurs and observing social responsibility, thereby improving sustainability performance.

1-Introduction

The 19th century Industrial Revolution successfully lifted millions of people out of poverty. However, the subsequent environmental and resource degradation was a side effect of this boom (Abbas & Dogan, 2022). The idea of green finance was originally proposed in Sweden and Germany in the 1970s as people there progressively understood the importance of environmental preservation for long-term economic growth (Irfan et al., 2022). With the adoption of a series of agreements, including the Paris Agreement, the Sustainable Development Goals, and the Sendai Framework for Disaster Risk Reduction, more and more academics believe that green finance could be an effective strategy for addressing the problems associated with global climate change and the goal is to support environmental enhancement, address climate change, and optimize resource usage (Wan et al., 2023). Green finance explains that the “financial funds flowing into sustainable progress ventures and initiatives, environmental products, and policies that encourage the development of a more sustainable economy” (Yang et al., 2021). Green finance offers several benefits. First, it stimulates the relocation of financial resources away from environmentally damaging and polluting enterprises and forward to those with more advanced technology and operational procedures. Second, it assists in reducing environmental deterioration, which correlates with ecology and finance. Third, green finance establishes investments and supplies funds for sustainable initiatives (Ibrahiem et al., 2023; Ozili, 2022).

Sustainable entrepreneurship has attracted research attention because of its philosophy, which proposes that organizations can simultaneously become profitable and sustainable while contributing social value (Munoz et al., 2018). Thus, sustainable entrepreneurship can be considered a distinctive

approach that can blend the three pillars of sustainability—namely, attention to economic, environmental, and social needs. In this regard, various interrelated concepts such as eco-entrepreneurship and green entrepreneurship have emerged (Strydom et al., 2021). Green entrepreneurship is crucial in promoting the circular economy, as innovative business models can fill the gap and provide essential links to businesses in reverse supply chains while creating new business opportunities with social benefits (Confente et al., 2020). On the other hand, corporate social responsibility has become increasingly important in the corporate governance landscape, often viewed as a framework that promotes ethical practices and stakeholder trust (Okoye et al., 2021). Firms with strong CSR practices are subject to greater scrutiny from socially conscious investors, who expect high standards of transparency (Dmytriiev et al., 2021).

Today, organizations must focus on social and environmental factors in addition to economic factors in order to achieve success in society and facilitate their profitability. Successful implementation of sustainable strategies in the organization requires a clear and coherent process. The issue of sustainability has quickly become a priority for managers around the world, as awareness of the concept of sustainable development in business strategies creates new ways of doing business (Babaei & Fani, 2021). Sustainable performance emphasizes that in addition to protect the interests of shareholders, companies must also protect the rights and interests of other stakeholders, such as employees and the general public, to promote the overall well-being of society (Fan et al., 2024). Resource dependence theory indicates that a strong ESG performance can provide companies with essential resources, including brand reputation, customer loyalty, and investor support. These intangible assets are crucial for enhancing a business's market competitiveness and for an extended period of development (Lee et al., 2022). Investing in sustainable performance is considered a strategy for enhancing reputation and competitive advantage, as it can impact the long-term value of the company (Oh & Park, 2021).

Environmental sustainability, green economy, and global warming are becoming major discussion topics. As global attention to environment, ESG has emerged as a crucial metric for assessing sustainable development of countries. To achieve sustainable

performance, organizations must move towards corporate social responsibility and turn to green management. Entrepreneurship is one of the tools of societies to achieve economic growth and increase employment, and green entrepreneurship can, in addition to achieving the above, play an important role in preserving the ecosystem by producing environmentally friendly products. However, it is difficult for green entrepreneurs to obtain funding as the growth of green entrepreneurship and market penetration often take longer than traditional entrepreneurial activities, so green finance has become a key policy for emerging economies and mainly concerns two broad areas finance and the environment; its product has gained recognition and helped to deliver high-quality development for various fields in different parts of the world. Nevertheless, there is still a need for greater coordination between policy makers and key stakeholders. In most emerging markets, the effectiveness of green finance initiatives is dependent on the level of economic development. Green finance is essential for sustainable and clean production within the economy. By strengthening the integrity of green finance systems, governments can achieve their sustainable development goals. Nevertheless, green financing alone cannot guarantee successful environmental protection initiatives and green entrepreneurship can also help this matter. In recent years, knowledge-based companies have played an important role in the country's economy, and given the capacity and ability of these companies to produce environmentally friendly products, it is necessary to address the impact of green financing on the formation of green entrepreneurship and social responsibility, and ultimately creating sustainable performance in these companies. So far, no research has simultaneously examined the variables of the present study, hence this research is innovative. By reviewing domestic and foreign precedents, we find that no research has yet examined the impact of green financing on sustainable performance through green entrepreneurship and social responsibility. In this study, by creating a network of variables, we first examine the impact of green financing on green entrepreneurship and social responsibility to find out whether sustainable entrepreneurship that supports the environment can be strengthened by using green financing, and then we determine whether the use of green financial resources through green

entrepreneurship and social responsibility leads to sustainable performance, which is the country's concern these days. By conducting this research, the theoretical gap and lack of research in this field will be covered to some extent and a roadmap for other research will be realized. Considering the above issues, the aim of this study is to determine the impact of green financing on sustainability performance (ESG) with the mediating role of green entrepreneurship and corporate social responsibility, and the main question is as follow: What is the impact of green finance on sustainability performance (ESG) with an emphasis on green entrepreneurship and corporate social responsibility in knowledge-based companies?

In this section, a summary of previous domestic and foreign researches will discuss. Radfar and Zarei (2025) investigated the impact of corporate governance and green financing on sustainable performance with mediating role of corporate social responsibility and the moderating role of managers' environmental concerns. The results showed that green finance has a positive and significant effect on sustainable performance, considering the mediating role of corporate social responsibility. Green finance has a positive and significant effect on corporate social responsibility. Corporate governance has a positive and significant effect on sustainable performance, considering the mediating role of corporate social responsibility, and corporate social responsibility has a positive and significant effect on sustainable performance, considering the moderating role of senior management's environmental concerns. Also, green financing and corporate governance have a significant and positive effect on sustainable performance. Jamali et al (2025) investigated green transformational leadership and its impact on Sustainable performance in manufacturing companies with the role of organizational support and human resource management. Data were collected using a structured questionnaire and the findings reveal that green transformational leadership, green human resource management and green innovation each have a direct and significant positive effect on sustainable performance in manufacturing firms. Sanati et al (2025) presented crowd funding model based on entrepreneurship in digital businesses: a new approach in green financing of the organization. The research data were collected from the qualitative analysis of the

studied documents. By analyzing the data, indicators and components of crowd funding based on entrepreneurship in digital-oriented businesses in three selected codes and 12 axes, components related to the capital applicant, components related to financial sponsors and financing platform were organized. Davoodi et al (2025) investigated the relationship between green financing and green innovation: A game theory approach to companies' risk-taking behavior. Using the Delphi method, they identified effective green components within the banking sector through case studies of two Isfahan dairy companies. The proposed game theory model demonstrates that enhanced green financing increases the likelihood of companies initially adopting green innovation modes. Additionally, their findings indicate that the positive impact of green finance on green innovation is stronger for firms with lower risk tolerance levels. Furthermore, the effect is more pronounced when enterprises exhibit reduced risk-taking tendencies. These insights offer valuable guidance for advancing green development. The conclusions remain robust across various estimation methods, explanatory variables, and sensitivity analyses.

Habib et al (2025) investigated the integration of ESG disclosure and green financing on firm performance. The study used data from a sample of Chinese firms over the period of 2014–2022 and found a positive and significant link between green finance and ESG disclosure. results further revealed that the competitive edge of firms in terms of financing costs moderates the relationship between green finance, ESG disclosures, and firm performance. Kwilinski et al (2025) investigated the role of green finance in attaining environmental sustainability within a country's ESG performance. The findings revealed that green finance initiatives play a significant role in driving positive environmental outcomes within a country's ESG performance. By channeling financial resources toward environmentally friendly projects and businesses, green finance facilitates the transition to a low-carbon and resource-efficient economy. It enables the implementation of renewable energy projects, energy efficiency improvements, sustainable infrastructure development, and ecosystem preservation efforts. Le and Zhang (2024) investigated the impact of green entrepreneurial orientation on corporate performance. Using SPSS 24.0 software to perform hierarchical regression analysis on collected

data from 387 Chinese manufacturing firms, it was found that green entrepreneurial orientation has positive influence on financial performance and environmental performance, that supplier knowledge sharing and customer knowledge sharing play a mediating role in the relationship between green entrepreneurial orientation and environmental

performance. However, green knowledge sharing does not mediate the relationship between environmental performance and financial performance.

Based on theoretical foundations and background of the research, the following conceptual model is presented as a research model.

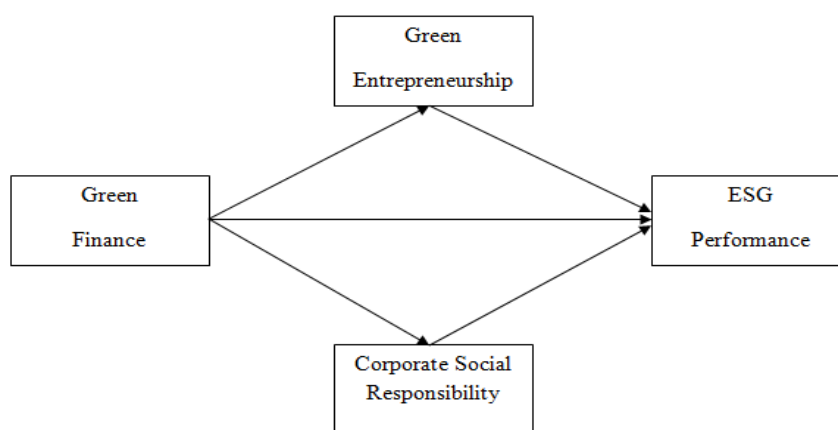


Figure 1- Conceptual framework of research

Green Finance: In real world, corporate financing must be more sensitive to the uncertainty of the surrounding environment and with an integrated perspective. In this regard, one of the main issues that arise for corporate financing is to provide an appropriate financing program to these companies in a way that can cover their working capital and profitability in a suitable way in a changing environment (Moradi et al., 2020). Green finance has become quite essential in recent years as it addresses many sustainability concerns like climate change mitigation, renewable energy adoption, energy security, and a move towards a green economy (Taghizadeh-Hesary & Yoshino, 2019). Green financing not only facilitates environmentally sustainable projects, but also enhances the financial viability and market competitiveness of companies engaging in such practices (Wu et al., 2022). Studies suggest that green finance contributes to high-quality economic development by positively impacting the ecological environment, economic efficiency, and economic structures (Tawiah et al., 2021).

Green entrepreneurship: Sustainable entrepreneurship referred to as green entrepreneurship

with an eco-friendly business approach in which environmental protection and social responsibilities given top priority. On the contrary, traditional businesses focus on maximizing profitability, whereas green entrepreneurship prioritize preserving ecosystem by considering global environmental scheme that can be possible through eco-friendly products, waste reduction, pollution control, renewable energy, conserve declining resources and sustainable cultivation (Ahmad Ansari, 2025). Green entrepreneurship refers to the tendency of enterprises to prioritize environmental protection and sustainable development as core strategic directions during the entrepreneurial process (Jiang et al., 2018) and supports initiatives to minimize environmental harm (Hoogendoorn et al., 2019). Many researchers have highlighted the role of green entrepreneurs in promoting resource efficiency and waste reduction in the economy. They see green entrepreneurship as achieving environmental sustainability, a vital circular economy principle (Mondal et al., 2023).

Corporate social responsibility: Corporate social responsibility is a principle through which firms voluntarily incorporate environmental and social

considerations into their operations and stakeholder interactions (Mo et al., 2022). CSR pertains to corporate activities that emphasize on fulfilling organization's ethical, economic, social, and philanthropic obligations to various stakeholders (Padilla-Lozano and Collazzo., 2021) and entails that enterprise should endeavor to make a beneficial effect on society, not only through its offerings, but also throughout its daily activities (Mukhtar et al., 2023).

ESG Performance: The environment is the place in which we human live, we are influenced by it, use it and generally meet our needs with it. We are always in contact with the environment around us and we also influence it. Humans cannot survive without a healthy environment and are doomed to destruction. This environment is our safe home for survival. Its destruction is, in fact, the destruction of the human race and all the creatures around it. Humans should always try to maintain order and balance when using the resources and facilities available in nature and compensate for the incidents with the least damage (Azadkhani, 2020). Sustainability performance (ESG) includes three dimensions: environmental, social, and governance. In defining sustainable performance, the World Commission on Environment states that sustainability is a fundamental principle for global change as a means of meeting the needs of the present without compromising the ability of future generations to meet their own needs. The term sustainability encompasses all activities related to production and economic growth; provided that the natural and environmental resources on which present and future societies depend are preserved (Rezace & Tuo, 2019).
H1: Green entrepreneurship plays a mediating role in the impact of Green finance on ESG performance.

H2: Corporate social responsibility plays a mediating role in the impact of Green finance on ESG performance.

H3: Green finance has a significant impact on ESG performance.

H4: Green finance has a significant impact on green entrepreneurship.

H5: Green finance has a significant impact on corporate social responsibility.

H6: Green entrepreneurship has a significant impact on ESG performance.

H7: Corporate social responsibility has a significant impact on ESG performance.

2- Methodology

This research is applied based on the purpose and descriptive survey in terms of the method of doing the work. The statistical population of study included employees and managers of knowledge-based companies in Tehran, and a sample size of 384 people was selected using the Cochran formula and available sampling method. A questionnaire containing 23 items was used to collect data, and its indicators were scored using a 5-point Likert scale. In this questionnaire, green finance and green entrepreneurship include 5 items, corporate social responsibility includes 4 items and ESG performance includes 9 items. Experts and professors of the university helped to check the validity of the questionnaire and it was confirmed by applying correction comments and Cronbach's alpha was used to measure reliability.

Table 1- Result of Cronbach's alpha, CR & AVE

Variable	Number of Items	Cronbach's alpha	CR	AVE
Green Finance	5	0.937	0.952	0.799
Green Entrepreneurship	5	0.883	0.915	0.686
Corporate Social Responsibility	4	0.866	0.909	0.713
ESG Performance	9	0.933	0.944	0.653

Source: Research results

According to table (1), Cronbach's alpha for all variables is more than 0.7, so the reliability of questionnaire is confirmed. Also, according to table (1), composite reliability (CR) and average variance extracted (AVE) are confirmed.

3- Findings and Results

In this study, the KMO statistic was used to determine the adequacy of sampling. Also, the Bartlett test was used to ensure the appropriateness of the data, namely that the correlation matrix on which the analysis is based is not equal to zero in the population.

Table 2- Result of KMO & Bartlett test

Sample adequacy (KMO)	0.847
Bartlett test (Chi-square value)	1552.171
Significance level	0.000

Source: Research results

According to Table (2), the value of the statistic is 0.847 and is greater than 0.7, which indicates that the sampling adequacy of this study was adequate. Also, since the significance level (Sig) of Bartlett's statistic is equal to zero and less than 0.05, the data structure is suitable for factor analysis and the existence of a suitable relationship between the data structure is confirmed. Next, the Kolmogorov-Smirnov test is used to measure the normality or non-normality of the data distribution.

Based on Table (3), it can be concluded that the data distribution is non-normal. In this research, structural equation modeling with SmartPLS software is used to survey the research hypotheses. Using T-Value outputs in diagram (2), hypotheses are examined. The way of judgment is that if the significant of T-Value is greater than 1.96 or smaller than -1.96, the hypothesis is accepted.

Table 3- Result of Kolmogorov-Smirnov

Variables	Significance level	Conclusion
Green Finance	0.000	non-normality
Green Entrepreneurship	0.000	non-normality
Corporate Social Responsibility	0.000	non-normality
ESG Performance	0.000	non-normality

Source: Research results

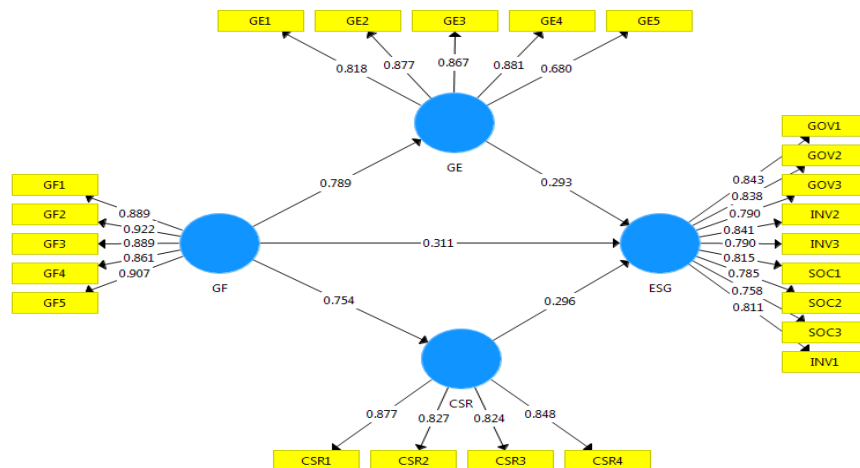


Diagram 1- The final structural model of the research with standard coefficients

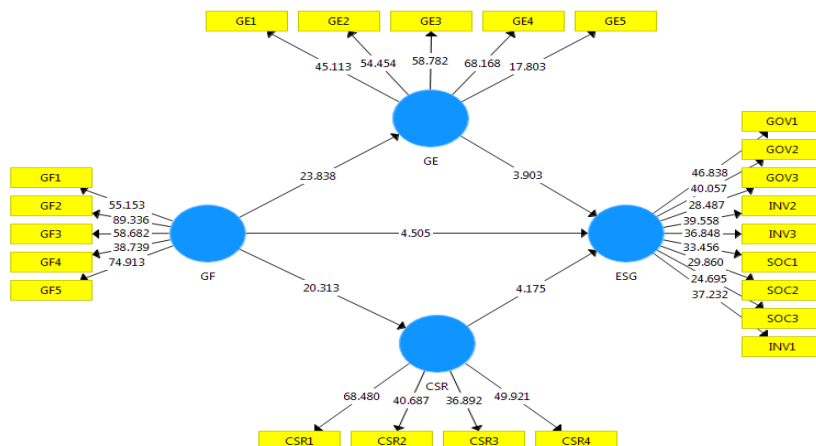


Diagram 2- The final structural model of the research with meaningful coefficients

According to diagram 2 and since the T-Value is equal to 4.000 and is more than 1.96, the third hypothesis of the research is accepted; meaning green finance has a significant impact on ESG performance with a path coefficient of 0.311. Since the T-Value is equal to 23.838 and is more than 1.96, the fourth hypothesis of the research is accepted; meaning green finance has a significant impact on green entrepreneurship with a path coefficient of 0.789. Since the T-Value is equal to 20.313, the fifth hypothesis of the research is accepted; meaning green finance has a significant impact on corporate social responsibility with a path coefficient of 0.704. About hypothesis 6 and 7 we can say that because T-Value are equal to 3.903 and 4.170 and are more than 1.96, the sixth and seventh hypothesis of the research are accepted; meaning green entrepreneurship and corporate social responsibility have a significant impact on ESG performance with a path coefficient of 0.293 and 0.296.

The Sobel test is used to test the indirect hypothesis that has a mediating variable. The way to examine the hypothesis with a mediator variable is that if the effect of the independent variable on the mediator and the effect of the mediator on the dependent becomes significant at the same time, the role of the mediator will be confirmed and the indirect effect will be confirmed; According to the research models in the standard and significance mode and the Sobel test statistic, we draw conclusions regarding the rejection or acceptance of the hypothesis.

According to Table 5 and since the value of the Sobel test statistic is equal to 3.856 and 4.084, the

indirect hypothesis of the research is confirmed; meaning green entrepreneurship and corporate social responsibility play a mediating role in the impact of green finance on ESG performance.

The GOF index is used to evaluate the fitness value of the whole model. This test determines the overall quality of measurement and structural models. The higher the value of this index is, the higher the fit of the model, and the closer it is to zero, the lower the fit of the model. Three values of 0.01, 0.25 and 0.36 for GOF explain weak, medium and strong fit, respectively.

$$GOF = \sqrt{\text{Communalities} \times R^2}$$

$$GOF = \sqrt{\text{Communalities} \times R^2} = \sqrt{0.713 \times 0.632} = 0.671$$

As can be seen, the value calculated for the GOF index is 0.671 and it shows the strong fit of the overall research model; In addition, the R^2 criterion shows the desired level for all variables. Therefore, it can be concluded that the presented model has a good fit and the collected data have been able to cover the designed model and confirm the model with high power.

The values of 0.02, 0.15, and 0.35 have been introduced as effect size criteria of F^2 for weak, medium, and strong values. As shown in table 7, all variables match the desired level of F^2 it can be concluded that the presented model has a good fit.

Table 4- Result of direct hypothesis

Hypothesis	Path Coefficient	T-Value	Result
GF → ESG	0.311	4.000	accepted
GF → GE	0.789	23.838	accepted
GF → CSR	0.704	20.313	accepted
GE → ESG	0.293	3.903	accepted
CSR → ESG	0.296	4.170	accepted

Source: Research results

Table 5- Result of indirect hypothesis

Indirect hypothesis	Sobel test statistic	Result
GF → GE → ESG	3.856	accepted
GF → CSR → ESG	4.084	accepted

Source: Research results

Table 6- Result of GOF index

Variable	R-Square	AVE
Green Finance	-	0.799
Green Entrepreneurship	0.622	0.686
Corporate Social Responsibility	0.569	0.713
ESG Performance	0.705	0.653
Average	0.632	0.713

Source: Research results

Table 7- Result of F2

Variable	CSR	ESG	GE	GF
CSR		0.160		
ESG				
GE		0.152		
GF	1.319	0.119	1.644	

Source: Research results

Table 8- Result of Q²

Variable	Q ² (=1-SSE/SSO)
CSR	0.378
ESG	0.429
GE	0.398
GF	-

Source: Research results

If the Q² value for an endogenous construct is zero or less than zero, it indicates that the relationships between the other constructs in the model and that endogenous construct are not well explained and, as a result, the model needs to be modified but, if the desired values are positive, it indicates a good fit of the model. The model output shows that the Q² value for all variables is in a good region, indicating a good fit of the structural model.

4- Conclusion

In today's competitive era, organizations are able to create a competitive advantage by paying attention to all their stakeholders and not neglecting the environment around them. This is why entrepreneurs have become inclined towards producing green products and are moving towards social responsibility. This research aims to investigate impact of green finance on ESG performance with an emphasis on green entrepreneurship and corporate social responsibility in knowledge-based companies in Tehran. To achieve this goal, the structural equation modeling approach was used and after examining the direct hypotheses of the research, it was determined green finance has a significant impact on ESG

performance, green entrepreneurship and corporate social responsibility with path coefficient of 0.311, 0.789 and 0.754. Also, it was observed that green entrepreneurship and corporate social responsibility have a significant impact on ESG performance with path coefficient of 0.293 and 0.296. In addition, in the current research, Sobel's test was used to investigate indirect hypotheses and it was determined green entrepreneurship and corporate social responsibility play a mediating role in the impact of green finance on ESG performance. Among the limitations of the present research, we can mention the inherent limitations of the questionnaire and its completion. The results of this research are aligned with Habib et al (2025), Kwilinski et al (2025) and Radfar and Zarei (2025) because in the mentioned studies, the impact of green finance and corporate social responsibility on ESG performance and the impact of green finance on ESG performance with the mediating role of social responsibility were also confirmed. Based on results and since green finance improves green entrepreneurship and corporate social responsibility and ultimately leads to better ESG performance, banks and investment banks are advised to invest in green projects of knowledge-based companies, and managers

of knowledge-based companies are advised to focus on producing environmentally friendly products by using green entrepreneurs and observing social responsibility, thereby improving sustainability performance. In addition, for future research it is suggested that researchers examine the impact of green entrepreneurship on sustainable development goals with the mediating role of green human resource management, as well as the impact of green financing on profitability with the mediating role of technological entrepreneurship.

Abbreviations

GF	Green Finance
GE	Green Entrepreneurship
CSR	Corporate Social Responsibility
ESG	ESG Performance

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