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Exploration green finance effect on Jordanian banks sustainable performance

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ABSTRACT

This paper investigates the effect of green finance on the sustainability of banks in Jordan. This paper is a quantitative used questionnaire to collect data from 25 banks operating in Jordan. Moreover, the data was collected between March and April 2024 in Amman. As a result, a total of 292 responses were received; they were selected using a random sampling technique, all of which were suitable for statistical analysis. 292 questionnaires were analyzed using SPSS-29 and Smart-PLS-4.1.0.3. The findings indicated that GF has a positive effect on Jordanian banks sustainable performance. In addition, environmental, social, and economic aspects have a significant and positive effect on Jordanian bank sustainable performance. However, this paper provides a result that will be useful to banks in understanding the factors that influence customers' decisions to use green finance as well as the challenges they may face. Future research could also provide a framework for other countries to use in designing their sustainable finance initiatives.

Contribution/Originality: This paper provides a unique conceptual model for executing green finance initiatives, examining green finance on sustainable performance by combining the environmental, social, and economic dimensions. Instead of using empirical evidence in the banking sector from a developing country, it is one of the few studies to date using Smart PLS4.

1. INTRODUCTION

Recently, understanding of the need to preserve the future has grown and will continue to grow globally (Lootah, 2024). The idea of sustainability has emerged as a result of this knowledge. Many sectors, including the state, society, and non-governmental organizations, value sustainability and all sectors routinely stress the significance of this idea (Shubailat, Al-Zaqeba, Madi, & Ababneh, 2024). For example, since the industrial revolution widespread usage of fossil fuels has resulted in emissions of carbon that have seriously harmed the ecosystem and exacerbated global climate change (Gani, 2021; Kabir et al., 2023). The global surface temperature was 1.09 degrees Celsius between 2011 and 2020 compared to the pre-industrial levels (1850–1900). As a result, this global warming led to an average temperature rise of at least 1.5 degrees Celsius (Choudhury & Roy, 2021; Mulla et al., 2023). Moreover, protecting the environment and achieving Sustainable Development Goals (SDGs) 2030 (Banga, 2019; Critical, Broccardo, Coller, & Mazzuca, 2024) have garnered momentum on green finance's interest in the recent commitment to advance climate change. Many studies have identified the negative effects of climate change, including the constant rise in the sea level, the decline in agricultural production, the degradation of air quality, the scarcity of freshwater, ecological degradation, and extreme weather which endangers mental health, human physical

health, the stability of society and sustainable development possibilities (Al-Zaqeba & Basheti, 2024; Aloqaily, 2023). However, technological advancements in the field of distributed ledger technologies offer the chance to make Green Finance (GF) and investments more open (Taghizadeh-Hesary & Yoshino, 2019). Subsequently, countries are focusing on sustainable performance (Kokotović, Kurečić, & Mjeda, 2019; Maabreh, 2024). The terms "green investment", "climate finance," "sustainable finance," and "environmental finance" are other terms for green finance. GF has become increasingly popular in the banking sector to shield banks and society from potential future economic challenges like corporate scandals, climate change, social unrest and fluctuating global markets. Moreover, GF offers a new financial framework that integrates environmental sustainability with economic profitability (Khan et al., 2022). As a result, green finance and sustainability have emerged as critical subjects in recent years (Aloqaily & Al-Zaqeba, 2024).

Banks in Jordan face specific challenges regarding sustainable performance. For instance, the efforts of Jordanian banks to advance sustainability have been impeded by the lack of green financing options and the absence of regulatory frameworks to support sustainable financing. Nevertheless, these difficulties draw attention to the necessity of more study and action to advance sustainability in Jordan's and other countries' banking industries. Thus, this paper aims to investigate the effect of GF on the sustainable performance of Jordanian banks. However, this paper was divided after this introduction section. The second section includes studies related to the study variables followed by the hypothesis development section as well as the proposed model. Then, the third section explains the methodology in detail after which the paper turns to statistical analysis using Smart PLS4. In addition, the results are presented in the fourth section followed by the discussion section showing the position of this study among the literature and compatibility with the results of previous studies. The next section is about conclusion followed by the implications section, research limitations as well as future research.

2. LITERATURE REVIEW

GF is a rapidly growing field of financial activity that is focused on the development of sustainable and inclusive economic growth (Irfan, Razzaq, Sharif, & Yang, 2022). The importance of this kind of work is growing in an era marked by resource scarcity, climate change and instability in the world economy. Jordan has adopted a proactive stance towards GF efforts in recent years in an effort to advance sustainability throughout the nation (Dikau & Volz, 2018). The green economy idea has been incorporated into Jordan's growth plan. Jordan's government has led the region in supporting green financing projects in response to the worsening climate change catastrophe and the need for a fair shift to a resource-efficient economy and low-carbon. Jordan has advanced significantly in recent years (Bag, Srivastava, Gupta, Sivarajah, & Wilmot, 2024; Clark & Dixon, 2024; Le, 2022; Le, Tran, Lam, Tra, & Uyen, 2024). In addition, Ruggerio (2021) demonstrates the idea of sustainability's potential as a framework for scientific inquiry and environmental management that is continually evolving. However, Hermundsdottir and Aspelund (2021) confirm that sustainability advances can result in circumstances for businesses. Jamwal, Agrawal, Sharma, Kumar, and Kumar (2021) revealed that supply chain and environmental enablers are the most significant impediments to industry sustainability. Van Wynsberghe (2021) reported that the pillars of sustainable AI as well as the three pillars of sustainability (i.e., social, economic and environmental) are of great importance for policymakers, AI ethicists and AI developers to communicate with the environment has environmental impacts. Furthermore, Escursell, Llorach-Massana, and Roncero (2021) and Hossain, Ong, Tabash, and Teh (2024) pointed out the importance of focusing on internal environmental policy and management and investing in proactive environmental solutions due to their greater success in adopting sustainability measures. Journeault, Perron, and Vallières (2021) found that shaping and facilitating the development of stakeholder networks capable of improving the sustainability performance of SMEs is part of initiatives to encourage sustainability adoption within businesses. Lima, Trindade, Alencar, Alencar, and Silva (2021) revealed that the civil construction industry lacks quantitative approaches for assessing sustainability.

Akomea-Frimpong, Adeabah, Ofosu, and Tenakwah (2022) discovered that some of the most significant forms of green finance include securities, investments, insurance, loans, and infrastructure bonds. Moreover, Cui, Wang, and Wang (2020) found that integrating the green financial system has a positive effect on sustainable innovations and cleaner manufacturing. However, in public financial governance, Falcone and Sica (2019) indicate that effective policy interventions should make sure that goals are set for the long-term to reduce the risks that financial institutions see when giving money to biomass producers. Moreover, Dikau and Volz (2018) explained the strategies and tools that financial regulatory agencies and banks of central could use to reduce environmental risk and support green finance and long-term growth. However, Cui et al. (2020) show that governments, financial institutions, businesses and consumers must all work together to keep the green financial system running smoothly. Furthermore, the most relevant studies for hypothesis development are presented in the next section.

3. HYPOTHESES DEVELOPMENT

3.1. GF and SP

GF became an essential component of SP strategies (Zheng, Siddik, Masukujjaman, & Fatema, 2021). GF encompasses various instruments and practices (Akomea-Frimpong et al., 2022). Fang and Shao (2022) indicated that environmental and GF rules boost regional green technology innovation while "command and control" environmental regulations limit regional green tech innovation. Liu, Latif, Aslam, and Iqbal (2022) found that GF can significantly decrease the environmental impact of banking activities. For example, Zheng et al. (2021) found that GF directly enhances the environmental sustainability of financial institutions and also positively influences the performance of banks. This aligns with Raihan's (2024) findings that financial institutions implementing green finance strategies report lower energy consumption and reduced carbon emissions. Additionally, GF can improve bank performance by creating new investment and revenue generation opportunities (Al Obaidy, Ping, Ganesan, & Alzaqeba, 2024; Zhou, Tang, & Zhang, 2020). The social component of GF includes efforts to promote financial inclusion and support underserved communities, thereby enhancing their quality of life while furthering environmental sustainability (Giannico et al., 2021). However, research indicates a positive correlation between the adoption of green finance by Jordanian banks and increased sustainable performance (Nasrallah & El Khoury, 2022). The implementation of green finance initiatives has enabled the economy to grow while simultaneously addressing social and environmental issues more inclusively and sustainably (Srivastava et al., 2022). Nonetheless, challenges persist such as a lack of awareness about green finance (Ozili, 2022). Green finance initiatives have positively impacted sustainability in Jordan. These programs and measures enabled the country to raise funds for numerous projects dealing with renewable energy as well as energy efficiency. Based on the forgoing understanding of the green finance initiative and the empirical evidence drawn above indicating a pronounced positive correlation between green finance and performance in sustainable banking operations, it is hypothesized:

H_1: Green finance has positively and significantly affected the sustainable performance of Jordanian banks.

3.2. Environmental Aspects and SP

Banks stress green loans, green bonds and investment aspects under the umbrella environmental parameter of green finance for the sustainable development of the banking sector. Banks would increase their performance and also contribute to national sustainability goals (Mennicken, Janz, & Roth, 2016; Mignacca & Locatelli, 2020). Making environmental considerations, banks can minimize their risks which are called environmental risk management as stated by Al Obaidy et al. (2024) and Shubailat, Al-Zaqeba, Madi, and Hamid (2024). Investment in highly unsustainable securitization structures with potentially large financial losses that arise from high environmental damaging projects can be avoided and sustainability supported on a long-term basis. The GF environmental dimension has a favorable influence on the sustainability performance of Jordan's banks. Nasrallah and El Khoury (2022) present the case that banks' performance engaging in GF initiatives has improved.

Furthermore, the implementation of green financial mechanisms has created opportunities for Jordanian banks to finance projects that are environmentally friendly which increases general sustainability. Moreover, Ozili (2022) reports that green finance' environmental dimension significantly contributes to promoting bank sustainability performance in Jordan. Finally, Nasrallah and El Khoury (2022) found that raising awareness and developing capacities leads to a better implementation of GF through the looking glass of the banking industry. Thus, an understanding of GF significantly will enhance the sustainable banks performance (Afeef, Kalyebara, Abuoliem, Yousef, & Alafeef, 2024; Kumar et al., 2022). Thus, GF environmental aspects affect sustainable banking performance in Jordan. Thus, the following hypothesis is postulated:

$H_{1.1}$: Environmental aspects positively and significantly affect the sustainable performance of Jordanian banks.

3.3. Social Aspects Positively and SP

Social aspects of green finance refer to promoting financial sustainability while the initiatives and practices address social issues like social equity, employee welfare and community development. This helps banks to sustainable performance (Zheng et al., 2021). Investing in social aspects can also enhance employee engagement and welfare (Zheng et al., 2021). This can lead to the sustainable performance of the bank. In addition, Raihan (2024) indicated that strong community relations lead to greater support and a more stable operating environment. In addition, social aspects have shown positive impacts on sustainable performance. For example, Nasrallah and El Khoury (2022) found that banks involved in green finance initiatives often increased community engagement and better employee satisfaction. Moreover, in Jordanian banks, green bonds have enhanced the banks' social performance (Ozili, 2022). Additionally, Afeef et al. (2024) confirm that understanding and awareness of the social benefits of green finance among stakeholders are major challenges. Expertise and financial resources can hinder the implementation of socially focused GF initiatives (Kumar et al., 2022; Nasrallah & El Khoury, 2022). Furthermore, Jordanian banks that provide loans for sustainable small businesses or support community-based renewable energy projects contribute to local development and social well-being. However, literature indicated a positive effect of GF on banks sustainable performance in Jordan. Thus, the following research hypothesis is postulated:

$H_{1.2}$: Social aspects positively and significantly affect the sustainable performance of Jordanian banks.

3.4. Positively and Sustainable Performance

EA of GF refers to the financial practices and initiatives that promote economic sustainability. Zheng et al. (2021) confirm that banks can achieve long-term financial stability and contribute to sustainable development by integrating financial practices and initiatives. However, green finance investments lead to enhance bank financial stability and growth (Carnevale & Mazzuca, 2014; Mennicken et al., 2016; Mignacca & Locatelli, 2020). In addition, green finance initiatives often lead to cost savings and increased efficiency for banks (Vidyakala & Nithyakala, 2020). Additionally, promoting green loans and other green financial products can open up new revenue streams and diversify the bank's portfolio further enhancing financial performance (Zheng et al., 2021). Additionally, incorporating the economic aspect of green finance can help banks mitigate financial risks associated with issues of social and environmental in banking sectors. Illangakoon, Azam, and Jaharadak (2021) found that risk mitigation contributes to the bank's long-term financial sustainability. Nasrallah and El Khoury (2022) and Ozili (2022) indicated that banks engaged in green finance initiatives report improvements in their financial performance metrics. Ozili (2022) found that Jordanian banks have seen significant economic benefits from these investments. Furthermore, green bonds that have been issued by Jordanian banks were used to enhance the financial performance of Jordanian banks (Afeef et al., 2024). Additionally, in the banking sector, Zheng et al. (2021); Kumar et al. (2022) and Nasrallah and El Khoury (2022) confirmed that raising building capacity awareness can enhance the implementation and impact of green finance economic aspects. The economic benefits significantly enhance

banks' sustainable performance in Jordan indicating a positive relationship between the GF economic aspects and sustainable performance in banking. Thus, the following research hypothesis is postulated:

$H_{1.3}$: Economic aspects positively and significantly affect the sustainable performance of Jordanian banks.

4. RESEARCH MODEL

A Triple Bottom Line is a popular viewpoint on the concept of GF. This considers ESE aspects (economic, social, and environmental). However, research on the GF attributes varies and few studies have examined closely the connections between these aspects in the banking industry. Previous studies did not address environmental and social aspects (economic, social and environmental). The following proposed research model has been formulated in light of the above-mentioned logic. The sustainable performance of banking institutions is significant because it promotes sustainability and addresses long-term societal concerns. On the other hand, green finance provides a comprehensive approach to financial activity that incorporates environmental, social, and economic factors. However, Figure 1 shows the proposed research model.

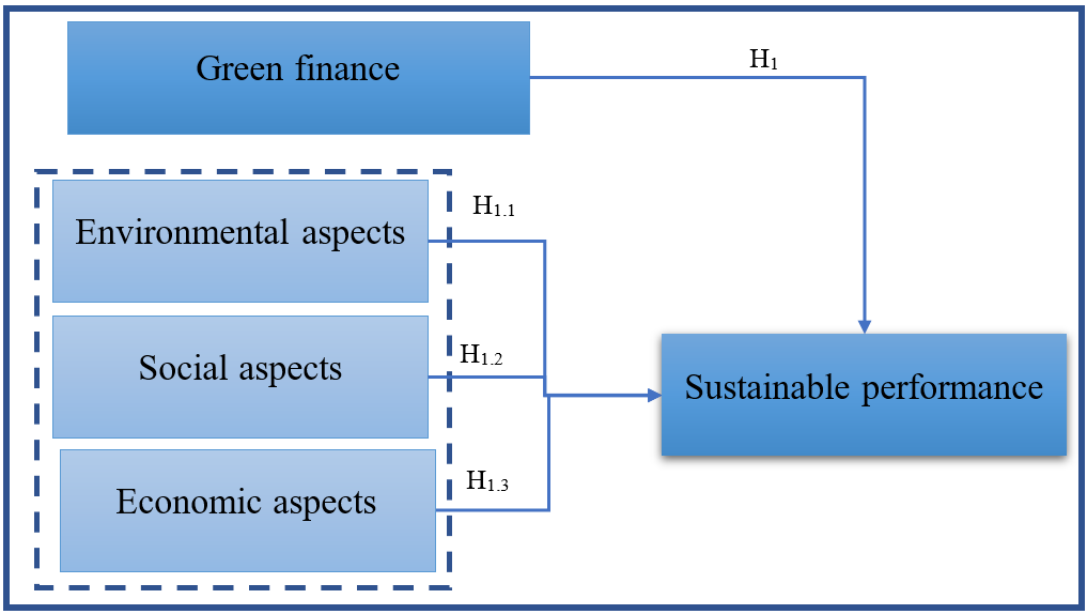

Figure 1. Proposed research model.

5. METHODS

The Corporate Social Responsibility (CSR) dimensions are reflected in the questionnaire. However, the GF dimensions were modified based on earlier research (Guang-Wen & Siddik, 2022; Lootah, 2024). The six items to measure the environmental performance scale were adopted from prior studies (Guang-Wen & Siddik, 2022; Vidyakala & Nithyakala, 2020). The five items used for the CSR construct were adapted based on previous research by Guang-Wen and Siddik (2022) and Jebril, Al-Zaqeba, Al-Khawaja, Obaidy, and Marashdah (2024). All items were rated on a 5-point Likert scale except those on demographics. Questions on age, gender, and educational attainment were asked within the demographic profile of the respondent.

This paper is quantitative and uses a questionnaire to collect the data. An ethical approval was obtained from the participants, obtaining ethical approval and ethical considerations from the university. The primary data was gathered using a standardized questionnaire. The population of this study consisted of all employees working at Jordanian banks including the Director General, Executive Director, Head of the Department, and Employee; which are 25 banks operating in Jordan. Thus, a total of 292 responses were received; they were selected using random sampling technique all of which were suitable for statistical analysis. 292 questionnaires were analyzed using Statistical Package for the Social Sciences (SPSS) version 29 and Smart PLS-4 which is embedded with

Structural Equation Modelling (SEM). In addition, two more criteria are used to evaluate a measurement model are discriminant validity and convergent validity. Convergent validity is assessed using the average variance extracted (AVE) and a cut-off value of 0.50. On the other hand, cross-loadings are used to assess discriminant validity proving it at the indicator level (Henseler, Ringle, & Sinkovics, 2009). When each indicator's loading to its designated latent variable exceeds all of its cross-loadings, discriminant validity is attained (Hair, Ringle, & Sarstedt, 2011).

6. FINDINGS

After ensuring all ethical considerations, the data was collected between March and April 2024 in Amman. The collected data which amounted to 292 questionnaires was analyzed for a preliminary analysis using the SPSS version 29 program which resulted in around 65% of the respondents being in the age range of 30-40, 25.4% being 41-50 years while only 9.6% are above 50 years old. In terms of gender, 69.8% were male while 30.2% were female. In terms of education level, 46.8% have a bachelor degree; 34.9% have a master degree and 18.3% has a Ph.D. degree. In addition, 11.1 % are director general, 18.9% are executive directors; 28.4% are heads of the department and 41.6% are employees.

6.1. Validity Testing

This paper used Smart PLS-4. When the Average Variance Extracted (AVE) is more than.50, convergent validity is attained. The other requirements must be satisfied first before evaluating the convergent validity. The factor loading requirement is the first criteria and it is followed by the requirements for Cronbach's Alpha (CA) and Composite Reliability (CR) to be more than.70 (Al-Taani, Al-Zaqeba, Maabreh, & Jarah, 2024; Al-Zaqeba et al., 2023; Jebril et al., 2024).

Table 1. Factor loading, CA, and AVE of measurement model.

Variables	Items	Factor loading>0.70	Cronbach's alpha (CA)>0.70	Composite reliability (CR)>0.70	Average variance extracted (AVE)>0.50
Economic aspects	EA1	0.717			
	EA2	0.780			
	EA3	0.870			
	EA4	0.866			
	EA5	0.873			
	EA6	0.710	0.890	0.917	0.650
Sustainable performance	SP1	0.775			
	SP2	0.784			
	SP3	0.750			
	SP4	0.824			
	SP5	0.758			
	SP6	0.740	0.865	0.899	0.597
Environmental aspects	EnA1	0.764			
	EnA2	0.813			
	EnA3	0.839			
	EnA4	0.802			
	EnA5	0.822	0.867	0.904	0.653
Green finance	GF1	0.764			
	GF2	0.761			
	GF3	0.749			
	GF4	0.718			
	GF5	0.751			
	GF6	0.731			
	GF7	0.821	0.885	0.910	0.591
Social aspects	SA1	0.741			
	SA2	0.780			
	SA3	0.796			
	SA4	0.786			
	SA5	0.482	0.852	0.892	0.624

The AVE needs to be more than.50 as the final requirement. All of the elements in Table 1 have factor loadings larger than.70. Furthermore, every construct has a Cronbach's alpha of better than 0.70 indicating the validity of the measures. Moreover, all structures have a composite dependability of better than 0.70. More significantly, the fact that the AVE is higher than 0.50 shows that all notions have attained convergent validity.

Hair Jr, Matthews, Matthews, and Sarstedt (2017) noted that the HTMT should be examined rather than other methods if the correlation between the indicator is less than 0.85 to obtain discriminant validity. All of the variable correlations in Table 2 are less than 0.85 indicating that discriminant validity was attained.

Table 2. Discriminant validity (HTMT).

Variables	Economic aspects	Environmental aspects	Environmental responsibility	Green finance
Economic aspects				
Environmental aspects	0.779			
Environmental responsibility	0.770	0.697		
Green finance	0.863	0.688	0.884	
Social aspects	0.722	0.635	0.466	0.683

Cross loading of the items is given and the finalized measurement model is presented in Figure 2.

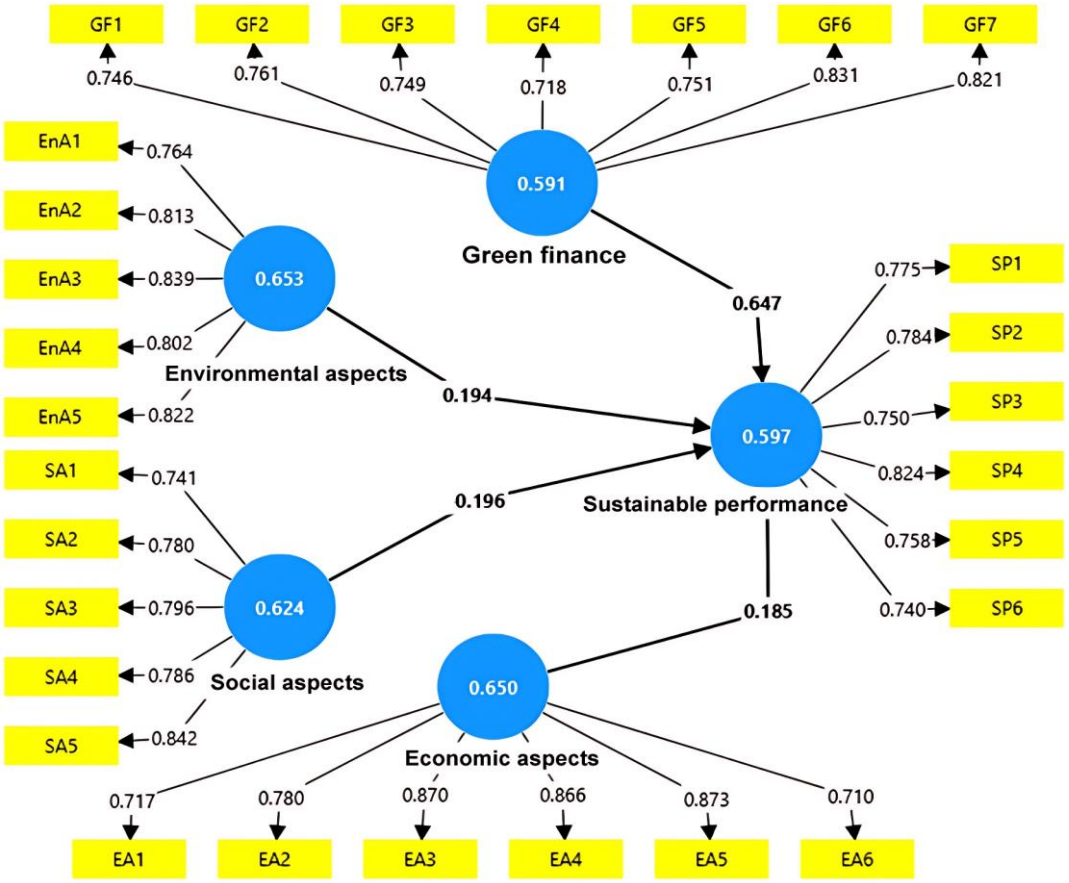

Figure 2. Finalized measurement model.

According to Hair et al. (2011) endogenous latent variables in the structural model with R2 values of 0.75, 0.50, or 0.25, respectively might be classified as considerable, moderate or weak. There is just one direct effect model in this study.

Table 3. R2 of the models.

Dependent variables	R-square	R-square adjusted
Sustainable performance	0.671	0.665

Table 3 displays R2. The results indicate that the direct impact model has an R2 of 0.671. R2 values are regarded as moderate and satisfactory.

6.2. Hypothesis Testing

A P-value of less than 0.05 is used to calculate the β (path coefficient) outcome. According to Hair et al. (2011) obtaining the results of testing hypotheses should come after a minimum of 5000 resampling have been bootstrapped. In accordance with this recommendation, 5000 resampling's used to test each hypothesis. Thus, Figure 3 shows the result of hypotheses testing including the effect of Green Finance (economic, environmental, and social aspects) on sustainable performance.

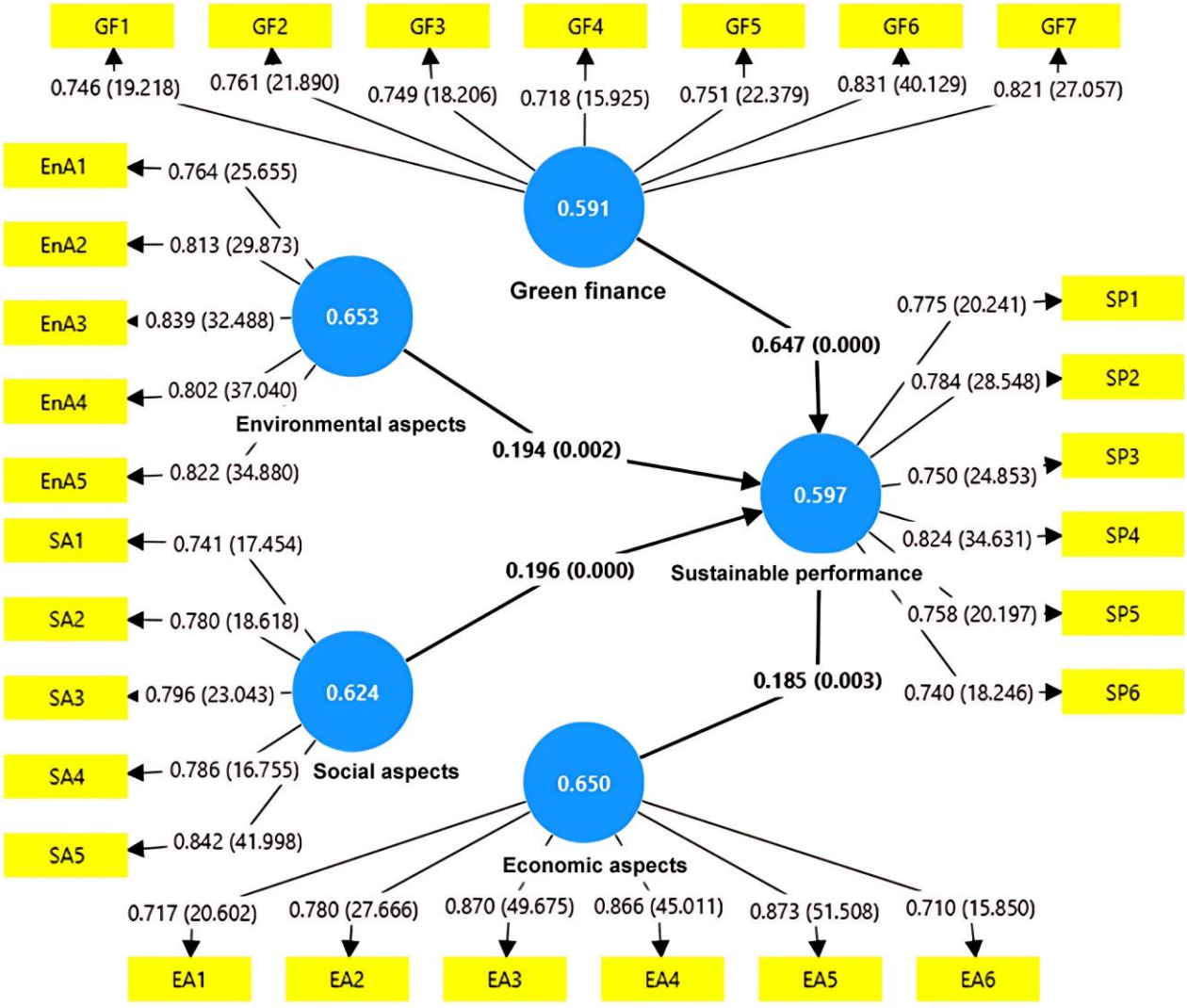

Figure 3. Direct effect.

Four direct impact hypotheses were generated. The results are shown in Table 4 as follows:

Table 4. Results of direct hypotheses (Path coefficients).

Path	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Economic aspects -> Sustainable performance	0.185	0.185	0.063	2.925	0.003
Environmental aspects -> Sustainable performance	0.194	0.194	0.062	3.114	0.002
Green finance -> Sustainable performance	0.647	0.645	0.056	11.607	0.000
Social aspects -> Sustainable performance	0.196	0.188	0.052	3.740	0.000

The first hypothesis in this paper (H1) stated that "Green finance positively and significantly affects the sustainable performance of Jordanian banks". The results in Figure 3 and Table 4 above demonstrated that the effect is positive due to the positive sign in front of the coefficient. Additionally, the effect is significant "Path Coefficients: Economic Aspects -> sustainable performance" (O: 0.185, M: 0.185, STDEV: 0.063, t-statistics: 2.925, and P values: 0.003) since the t-value is larger than 1.96 and the p-value is less than 0.05. As a result, H1 is accepted and green finance positively and significantly affects the sustainable performance of Jordanian banks. This indicates that sustainable performance in Jordanian banks will increase or decrease as a result of the change in green finance. The results in Figure 3 and Table 4 above also demonstrated that the effect is positive. Additionally, the effect is significant " environmental aspects -> sustainable performance", "green finance -> sustainable performance ", and "social aspects ->sustainable performance " with (O are 0.194, 0.647, and 0.196; M are 0.194, 0.645, and 0.188; t-statistics are 3.114, 11.607, and 3.740, as well as P-values are 0.002, 0.000, and 0.000) respectively, since the t-values are larger than 1.96 and the p-values are also less than 0.05. Thus, H1.1, H1.2, as well as H1.3 are accepted respectively.

Economic aspects encompass the bank's efforts to monitor and report economic performance ensure long-term financial stability, and integrate economic considerations into decision-making processes. While economic stability and prudent financial management are important, they alone are not sufficient to drive substantial sustainable performance. In addition, environmental aspects refer to the bank's policies and initiatives aimed at reducing carbon emissions, promoting recycling and managing resources sustainably. The slightly higher coefficient compared to economic aspects indicates that environmental initiatives might have a more direct and observable impact on sustainable performance.

Green finance involves allocating funds specifically for sustainable initiatives, seeking green financing options, and collaborating with other institutions prioritizing sustainability. These financial products directly support environmental sustainability by funding projects that reduce carbon emissions and promote energy efficiency. The coefficient of 0.647 supports that GF provides the necessary capital for sustainability projects but also signals the bank's commitment to sustainability, this strong relationship indicates that significant advancements in sustainable performance can be achieved through focused financial strategies that prioritize green investments. In addition, SA includes initiatives to promote diversity and inclusion, prioritize employee health and safety, and improve community well-being. While the coefficient of 0.196 is positive and significant, this suggests that social responsibility contributes to sustainable performance by enhancing the bank's reputation and fostering a positive work environment. However, social and environmental may not be sufficient. They need to be part of a comprehensive sustainability strategy that includes significant financial investments in green projects. Thus, with all the elements analyzed in terms of economic, environmental and social, green financing will affect sustainable performance the most. This highlights the necessity of specific financial dedication to prioritizing sustainability. Activities with attention to the environment, society and economy are secondary.

7. DISCUSSION

This study concludes that GF has a significant and positive influence on the sustainability performance of Jordanian banks. Jordanian banks perform better in terms of sustainability which is consistent with the prevailing trend towards integrating ESG criteria within financial decision-making as a result of mobilizing financial resources into environmentally and socially responsible projects (Zheng et al., 2021). Upon this observation, it is also consistent with previous findings. For instance, Cui et al. (2020) indicate that the incorporation of green finance schemes positively affects sustainable innovation along with cleaner manufacturing processes. These results reveal the advantages of such financing attempts and add to the evidence supporting green finance's potential benefits for Jordan's economy. Similarly, the impact of the environmental dimension on green finance to enhance Jordanian banks' sustainable performance is also supported by these findings. According to Zheng et al. (2021) and Raihan (2024), GF leads to minimizing costs for banks, increasing operational efficiency, meeting regulatory compliances, and having a relatively lower impact on the environment.

The present finding is further supported by Zhang et al. (2022) who emphasize that banks with these strategies achieve the greatest environmentally friendly outcomes through energy conservation and compliance with environmental regulations. This reflects the positive and significant effect of environmental, social, and economic aspects on the sustainable performance of Jordanian banks. This conclusion corresponds to the findings by Carnevale and Mazzuca (2014) and Jaeggi, Webber Ziero, Tobin-de la Puente, and Kölbel (2018). Based on the literature review, incorporating green finance into the operational strategies of banks will result in sustainable innovations and cleaner manufacturing processes by drawing benefits from reduced energy consumption and carbon footprints. These initiatives improve operational efficiency and compliance with environmental regulations. It was also emphasized that these initiatives are sufficient to fulfill social responsibilities, enhance community participation, and improve the brand reputation of Jordanian banks. Finally, the above literature indicates that green finance, including the initiatives referred to above, enhances a bank's reputation, operational efficiency and profitability. Banks participating in green financing reported improved financial and sustainable performance by achieving competitiveness and advantage in the Jordanian market which indicates the economic feasibility of sustainable banking practices.

8. CONCLUSION

This paper focuses on the impact of green finance on sustainability in Jordan by examining the current status of environmental, economic and social sustainability initiatives as well as the potential of green finance to facilitate the development of those initiatives. This paper assesses the challenges and opportunities associated with GF in Jordan, including the availability of financing, the capacity of financial institutions, the legal and regulatory framework, and the local and international investment climate. This paper contributes to building knowledge and reducing gaps related to sustainability, especially in banks. In addition, this paper contributes to the literature by testing the model using Smart Partial Least Square (Smart PLS4) as embedded in SEM. SEM is the second generation of statistical methods. The study's findings will help banks understand the factors influencing customers' decisions to use green finance as well as the challenges they may encounter. It will also identify areas for improvement in green finance products and services. Additionally, this study will be of interest to stakeholders in the financial, industrial and services sectors in Jordan.

8.1. Implications

The study's findings will help banks understand the factors influencing customers' decisions to use green finance and the challenges they may face highlighting potential areas for improvement in green finance products and services. These findings are valuable to stakeholders in the financial, industrial and services sectors in Jordan assisting the government in identifying financial sector challenges and devising corrective measures. Additionally,

the results aid the management of the financial, industrial and services sectors of the Jordanian Amman Stock Exchange in developing policies to promote innovation, online banking, green finance and sustainability.

8.2. Limitations

The study is limited to Jordanian banks and may not be generalizable to other countries or regions. Additionally, the data collection period was restricted to two months which may not capture long-term trends or external influences on green finance and sustainability performance.

8.3. Future Research

Future research could expand the framework to other countries providing comparative analysis and insights for developing global sustainable finance initiatives. Further studies might examine the long-term impacts of green finance on bank performance considering external economic factors and evolving regulatory environments.

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Institutional Review Board Statement: The Ethical Committee of the Business School, the Hashemite University, Jordan has granted approval for this study on 12 January 2024 (Ref. No. HU/KASHTBAN/BS/ANTARABANGSA/40924).
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: Contributed to the conceptual framework, literature review, and hypothesis development, Z.M.; managed the data collection, statistical analysis using SPSS and Smart PLS4, and interpretation of the findings, M.K.; the drafting, reviewing, and editing of the final manuscript, Z.M. and M.K. Both authors have read and agreed to the published version of the manuscript.

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