التمويل الاخضر والاستدامة البيئية في الدول النامية
مع الاشارة للعراق

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المقدمة:

على الرغم من انتشار التمويل الأخضر والبيئة المستدامة في الدول المتقدمة، إلا أن الدول النامية، مثل: العراق، لا تزال متأخرة في هذا المجال. يهدف هذا البحث إلى دراسة وعي واستعداد عينة القيادات الادارية في المصارف الخاصة في بغداد لتبني التمويل الأخضر، وتحديد العوائق التي تعيق التحول إليه. ولقياس وعي واستعداد العينة المشمولة بالمسح، تم إعداد استبيان مُهيكل وتوزيعه على عينة عشوائية من 15 مديرًا ومساعدًا لمدير مصرفي. وعُرضت الإجابات وحللت إحصائيًا. وكشف التحليل أن عينة الدراسة على دراية بالتمويل الأخضر واستعداد للتعامل معه. وقدم البحث العديد من المقترحات الاستراتيجية المفيدة في هذا الصدد، أهمها: الحاجة إلى دعم حكومي قوي لتمكين المصارف الخاصة من الانخراط في مجال التمويل الأخضر. وتُسهم هذه الدراسة في إثراء المعرفة في مجال التمويل الأخضر والبيئة المستدامة، مع التركيز بشكل خاص على العراق. وعلى الرغم من أن نتائج هذا العمل محدودة بالعينة المشمولة بالمسح والحدود الجغرافية، إلا أن النتائج التي تم التوصل إليها تحمل العديد من الآثار على صانعي السياسات المصرفية في العراق، برزت آليات التمويل الأخضر كحلٍّ واعد لتوجيه الأموال نحو مشاريع تُسهم في الحفاظ على البيئة والتخفيف من آثار تغيّر المناخ. وعلى الرغم من انتشار التمويل الأخضر في الدول

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المتقدمة، لا تزال هناك فجوة في فهم مدى فعاليته في تحقيق نتائج بيئية ملموسة في الدول النامية، بما فيها العراق.

مشكلة البحث:

تكمن مشكلة البحث في غياب الوعي والرغبة بالتعامل بالتمويل الاخضر لدى القيادات الادارية في عينة من المصارف الخاصة.

أسئلة البحث:

١- ما مدى وعي موظفي المصارف (عينة البحث) بموضوع التمويل الأخضر والاستدامة البيئية؟

٢- هل هناك توجه لدى المصارف في عينة البحث نحو التمويل الأخضر والاستدامة البيئية؟

٣- ما المعوقات والتحديات التي تواجه ممارسات التمويل الأخضر الناجحة في الدول النامية كالعراق؟

٤- ما الدروس التي يمكن للدول النامية كالعراق استخلاصها من مبادرات التمويل الأخضر لدعم الاستدامة البيئية؟

أهداف البحث:

1- المساهمة في فهم أعمق للعلاقة بين التمويل والاستدامة.

2- استطلاع آراء عينة من المتخصصين المصرفيين المتقدمين حول التمويل الأخضر والاستدامة البيئية، وعرضها وتحليلها.

3- عرض آليات التمويل الأخضر وممارسات الاستدامة في قطاعات مختلفة، مثل: الطاقة والنقل والزراعة وغيرها.

4- استعراض بعض آليات معالجة المعوقات والتحديات التي تعيق تبني مبادرات التمويل الأخضر والاستدامة البيئية.

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أهمية البحث:

يكتسب التمويل الأخضر والاستدامة البيئية أهميةً بالغة في العصر الحالي من حيث حماية البيئة وضمان استدامتها على المدى الطويل. ويسهم التمويل الأخضر في حماية البيئة وجودتها وذلك بتمويل المشاريع والأنشطة التي تهدف إلى الحد من الآثار البيئية السلبية، وتعزيز النمو المستدام بتمويل مشاريع مثل: الطاقة المتجددة والتحسينات البيئية. وتنبع أهمية هذا العمل من النتائج التي توصلت إليها هذه الدراسة المتواضعة، والتي ستساعد في توجيه صانعي السياسات المصرفية والاستثمارية في العراق نحو اقتصاد أكثر استدامة، وتحقيق فوائد بيئية واقتصادية طويلة الأجل.

منهج البحث:

اعتمد الباحثان على المنهج الاستطلاعي لانجاز البحث وشملت عينة البحث مجموعة من الكوادر المصرفية المتقدمة (مدراء، ومساعدي مدراء) العاملين في (60) مصرفًا أهليًا موزعة على عموم بغداد. تم اختيار خمسة عشر مصرفًا عشوائيًا، وتم اختيار مدير المصرف أو مساعده عمديًا للإجابة عن استبيان مكون من (15) فقرة، تضمن الاستبيان (15) سؤالًا من نوع ليكرت، ورتبت درجاته من 5 (موافق بشدة) إلى 1 (غير موافق بشدة).

الكلمات المفتاحية: التمويل الاخضر، الاستدامة البيئية، المصارف الخاصة، العراق

Green Finance and Environmental Sustainability in Developing Countries with Reference to Iraq

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ABSTRACT

While green financing and sustainable environmental practices are increasingly adopted in developed countries, developing nations such as Iraq lag behind in this domain. This research investigates the awareness and willingness of private banks in Baghdad to adopt green finance, as well as the barriers hindering its implementation. A structured questionnaire was designed and distributed to a random sample of 15 bank managers and assistant managers. Responses were collected, analyzed, and statistically evaluated to assess levels of awareness and readiness to engage in green financing. Findings indicate that the surveyed banks are generally aware of green finance concepts and express willingness to adopt them. However, the study highlights the critical role of government support in facilitating the transition toward green financial practices. The research offers strategic recommendations to enhance green finance adoption in Iraq and contributes to the knowledge base on sustainable finance in developing countries. Limitations include the small sample size and geographic focus, though implications for policymakers remain significant.

Keywords: Green Financing, Sustainable Environment, Private Banks, Iraq

1. Introduction

In recent years, environmental sustainability has become increasingly urgent as the world faces complex challenges such as climate change, resource depletion, and environmental degradation. Against this backdrop, the concept of green finance has emerged as an effective tool for achieving sustainable development. Green finance encompasses a range of financial instruments and mechanisms that aim to direct capital to projects and initiatives that achieve positive environmental and economic outcomes. The link between green finance and sustainability has sparked a thriving field of research aimed at understanding the mechanisms, impacts, and potential of green finance in advancing environmental sustainability goals. This research aims to explore various aspects of green finance, from innovative financial instruments that promote investment in renewable energy and clean technology. The research also delves into the role of green finance in promoting inclusive economic growth, mitigating climate change risks, and promoting social equity, as well as its broader impact. With the urgent need to address environmental challenges, it has become increasingly important to understand the dynamics of green finance and its potential to act as a catalyst for change. This study contributes to a series of studies on green finance and environmental sustainability by introducing concepts and offering insights into future trends for achieving green finance and environmental sustainability in developing countries, including Iraq. The study consists of four sections: The first section is devoted to the methodology and includes the research question, its significance, objectives, the research sample, research tools, and previous studies. The second section is devoted to the theoretical framework and examines aspects of green finance and environmental sustainability with reference to Iraq, a developing country. The third section is devoted to presenting and analyzing the survey results. Finally, the fourth section is devoted to conclusions and recommendations.

2.Research Methodology

2.1. Research Problem

In recent years, there has been a growing need for financial instruments to support environmentally sustainable initiatives. Green finance mechanisms have emerged as a promising solution for directing funds toward projects that contribute to environmental conservation and mitigating the effects of

climate change. Despite the spread of green finance in developed countries, there remains a gap in understanding its effectiveness in achieving tangible environmental outcomes in developing countries, including Iraq. Therefore, this research seeks to address this gap by answering the following questions:

1- What is the extent of banking staff's (research sample) awareness of the topic of green finance and environmental sustainability?
2- Is there a trend among the banks in the research sample toward green finance and environmental sustainability?
3- What are the obstacles and challenges facing successful green finance practices in developing countries like Iraq?
4- What lessons can developing countries like Iraq learn from green finance initiatives to support environmental sustainability?

2.2. Research Objectives

1- Contribute to a deeper understanding of the relationship between finance and sustainability.
2- Survey, present, and analyze the views of a sample of advanced banking professionals regarding green finance and environmental sustainability.
3- Present green finance mechanisms and sustainable practices in various sectors, such as energy, transportation, agriculture, and others.
4- Review some mechanisms for addressing the obstacles and challenges that hinder the adoption of green finance and environmental sustainability initiatives.

2.3 Research Significance

Green finance and environmental sustainability are of vital importance in the current era in terms of protecting the environment and ensuring its long-term sustainability. Green finance contributes to protecting the environment and its quality by financing projects and activities that aim to reduce negative environmental impacts and promote sustainable growth by

financing projects such as renewable energy and environmental improvements. The significance of this work stems from the results reached in this modest study which will help guide banking and investment policy-makers in Iraq towards a more sustainable economy and achieve long-term environmental and economic benefits.

2.4. Research Sample

The research sample included a group of advanced banking staff (managers and assistant managers) working in (60) private banks distributed throughout Baghdad. Fifteen banks were randomly selected, and the bank manager or his/her assistant was intentionally selected to answer the 15-item questionnaire. Hence, the sample size is 25% (25/60) of the population. Appendix (1) presents the questionnaire items. The questionnaire included 15 questions Likert type and ranked from 5 (strongly agree) to 1 (strongly disagree)

2.5. Research Tools

The questionnaire was used as the primary tool for collecting primary data from the research sample. The researcher relied on scientific research, books, and periodicals related to the research topic, available in libraries and on the internet, as secondary data sources. The researcher also relied on statistical tools to analyze the research sample's responses. The arithmetic mean, standard deviation, coefficient of variation, and graphic forms were used for this purpose. Excel software was used to analyze the research sample's responses.

2.6. Research Hypotheses

H_0: There is no trend among the banks in the research sample toward implementing green financing.

H_1: There is a trend among the banks in the research sample toward implementing green financing.

2.7. Spatial Limits

The spatial limits of the research were a sample of private banks in Baghdad. The research did not include private banks outside of Baghdad due to time and cost constraints.

2.8. Time Limits
The research period extended from March 1, 2024, to June 30, 2024.

3. Theoretical Framework: Green Finance and Environmental Sustainability
3.1. Definition and Concept of Green Finance
Finance is defined as the process of obtaining funds from the most appropriate sources while ensuring a return on those funds and the recovery of the invested funds within a specified time frame (Al-Najjar, 2023). Green finance was defined by the International Finance Corporation (IFC) as the process of allocating capital to projects or initiatives that support environmentally sustainable and climate-friendly goals. This includes financing activities that reduce carbon emissions, promote renewable energy, improve energy efficiency, conserve biodiversity, and promote sustainable resource management.

Green finance includes various financial instruments, such as green bonds, loans, and grants, which often align with standards such as the Green Bond Initiative or the Climate Bonds Initiative. (https://ifc.org/en/home) . Abdul Majeed (2009) defined it as the provision of cash liquidity for investment and fixed capital formation with the aim of increasing production. Saleh (2022) defines green financing as financing projects that contribute to reducing emissions, optimal use of environmental resources, and mitigating the effects of climate change, by directing banks and financing institutions towards more environmentally friendly lending that takes into account the environmental dimension.

According to Chatterjee (2023) and Spinad (2024), green financing takes various forms, including:

Green bonds: These are securities issued to finance projects that have positive environmental benefits, such as renewable energy, energy efficiency, and sustainable water management. They are also defined as fixed-income securities issued to finance environmentally beneficial projects, with the proceeds of green bonds allocated to projects with specific environmental benefits.

Green loans: These are loans provided to finance environmentally sustainable projects or activities. Green loans often come with incentives such as lower interest rates or longer repayment periods for projects that meet predetermined environmental criteria.

Green mortgages: These are home loans provided to finance the purchase or renovation of energy-efficient homes or buildings. Green mortgages typically require favorable terms or incentives for properties with high energy efficiency ratings.

Green funds: These are investment funds that specifically target environmentally responsible companies or projects. Investors in green funds seek both financial returns and positive environmental impacts.

Carbon Emissions Financing: This includes financial transactions aimed at reducing greenhouse gas emissions or enhancing carbon sequestration. Carbon financing mechanisms include carbon offset projects, emissions trading schemes, and carbon taxes.

3.2. The Concept of Environmental Sustainability

According to Goodland (1995), environmental sustainability refers to responsible interaction with the environment to avoid depletion or degradation of natural resources and to maintain environmental quality over the long term. Environmental sustainability involves meeting the needs of the present without compromising the ability of future generations to meet their own needs. According to (Drejeris and Ozeliene, 2016) and (the Arab Network for Excellence and Sustainability (sustainabilityandexcellence.com), the main components of environmental sustainability include the following:

Resource Conservation: This includes efforts to conserve natural resources such as water, forests, minerals, and energy to ensure their availability for future generations.

Pollution Reduction: This involves reducing pollution and waste through practices such as recycling, waste reduction, and the use of clean production technologies.

Biodiversity Conservation: This refers to the protection and preservation of ecosystems and the diversity of plant and animal species to maintain ecological balance and resilience.

Sustainable Energy: Encouraging the use of renewable energy sources such as solar, wind, and hydro power to reduce dependence on limited fossil fuels and mitigate climate change.

Sustainable Agriculture: Practices that promote soil health, biodiversity, and water conservation while reducing the use of synthetic fertilizers and pesticides.

Sustainable Transportation: Aims to encourage the use of public transportation, walking, cycling, and electric vehicles to reduce emissions and dependence on fossil fuels.

Sustainable Urban Development: The planning and design of cities and communities to be more energy-efficient, cohesive, and resilient in the face of environmental challenges.

Climate Action: Taking the necessary measures to reduce greenhouse gas emissions and adapt to the impacts of climate change, such as sea level rise and extreme weather events.

Corporate Responsibility: This refers to companies adopting sustainable practices in their operations, supply chains, and product design to reduce environmental impact .**Education and Awareness:** Increasing public awareness and understanding of environmental issues and promoting sustainable behaviors and lifestyles.
(https://www.lythouse.com/blog)

3.3. Objectives of Green Finance

Green finance serves several purposes, all of which aim to promote environmental sustainability and address climate change. According to Rose (2024), the main purposes of green finance can be summarized as follows:

1. Financing environmentally sustainable projects: Green finance provides capital to support projects that have positive environmental impacts, such as renewable energy generation, improved energy efficiency, sustainable transportation infrastructure, waste management, and climate adaptation initiatives. By financing these projects, green finance helps mitigate environmental degradation and reduce greenhouse gas emissions.
2. Promoting climate change mitigation and adaptation: Green finance plays a critical role in supporting efforts to mitigate climate change by financing projects that reduce greenhouse gas emissions, such as renewable energy installations and energy efficiency retrofits. In addition, green finance can finance projects that help communities adapt to the impacts of climate change, such as resilient infrastructure and disaster risk reduction initiatives.
3. Encouraging innovation and technology development: Green finance stimulates innovation and the development of new technologies that contribute to environmental sustainability. By providing funding for

research and development, as well as the dissemination of clean technology, green finance accelerates the transition to a low-carbon economy and fosters the growth of green industries.

4. Promoting corporate sustainability and responsibility: Green finance encourages companies to adopt sustainable business practices by providing financing for environmentally friendly projects and initiatives. Companies that receive green finance can improve their environmental performance, reduce their carbon footprint, and enhance their reputation as socially responsible organizations.

5. Mobilizing private capital to achieve environmental goals: Green finance directs private capital toward environmental and climate-related projects, leveraging the resources and expertise of the private sector to address pressing environmental challenges. By creating financial incentives and opportunities for investors to support sustainable projects, green finance helps mobilize additional financing to achieve environmental goals.

6. Meeting international commitments and targets: Green finance enables countries to meet their international commitments and targets related to climate change mitigation, biodiversity conservation, and sustainable development. By providing financing for projects that align with global environmental priorities, green finance supports the achievement of international goals such as the Paris Agreement and the United Nations Sustainable Development Goals.

3.4. Mechanisms for Promoting Green Finance in Developing Countries

Green finance in developing countries faces unique challenges and opportunities compared to developed countries. While the need for sustainable development and climate action is globally recognized, developing countries often lack the financial resources, infrastructure, and regulatory frameworks necessary to support large-scale green finance initiatives. According to Azaiza (2020), Hassanein (2023), Amina (2023), and Saadouni (2024), several strategies and mechanisms can be implemented to promote green finance in developing countries, including:

1. International support and cooperation: Developed countries, international organizations, and multilateral development banks can provide financial assistance, technical expertise, and capacity-building support to help developing countries establish green finance mechanisms and implement sustainable projects.

2. Policy and regulatory frameworks: Governments in developing countries can create enabling environments for green finance by implementing supportive policies, regulations, and incentives. This may include setting renewable energy targets, providing tax incentives for green investments, and implementing environmental standards and regulations.
3. Developing green financial instruments: Developing countries can establish specialized financial instruments such as green bonds, green loans, and green investment funds to mobilize capital for sustainable projects. These instruments can be tailored to each country's specific needs and circumstances.
4. Strengthening financial institutions: Developing countries can strengthen their financial institutions, including banks, development finance institutions, and microfinance institutions, to increase their capacity to provide green finance. This could include providing training, technical assistance, and access to international best practices.
5. Public-private partnerships: The public and private sectors can collaborate to leverage resources and expertise to finance and implement green projects. Public-private partnerships can also help share risks, mobilize private capital, and scale up sustainable initiatives in developing countries.
6. Knowledge sharing and capacity building: Developing countries can benefit from knowledge sharing and capacity building initiatives that provide training, technical assistance, and best practices in green finance. This can help build local expertise and institutional capacity to develop and implement sustainable projects.

3.5. Green Finance Challenges in Iraq

According to Khalid (2025), Hamid (2023) and Al-Maliki (2023) green finance in Iraq faces numerous challenges, hindering its widespread adoption and effectiveness. Some of the key challenges facing green finance in Iraq include:
1. Lack of awareness of green finance: There may be limited awareness and understanding of green finance concepts, including green bonds, green loans, and other sustainable financing mechanisms, among investors and borrowers in Iraq. This lack of awareness can hinder the uptake of green finance initiatives.

2. Limited access to finance: Many businesses and projects in Iraq, particularly small and medium-sized enterprises (SMEs) and those located in rural areas, face challenges accessing finance, including green finance. Financial institutions may be reluctant to lend to these entities due to perceived risks or lack of collateral, further restricting access to green finance.
3. Weak regulatory frameworks: Iraq may lack a robust regulatory framework to support green finance initiatives and stimulate investment in environmentally sustainable projects. The absence of clear policies, regulations, and incentives for green finance can prevent investors and financial institutions from engaging in green finance activities.
4. Political and Economic Instability: Political and economic instability in Iraq, including conflict, security concerns, and fluctuations in oil prices, can create uncertainty and risks for investors and lenders. These uncertainties can hinder investment in green projects and undermine confidence in the sustainability of green finance initiatives.
5. Infrastructure and Capacity Constraints: Iraq may face challenges related to inadequate infrastructure and limited institutional capacity to support green finance. This includes a lack of specialized financial institutions, technical expertise, and project management capabilities needed to develop and implement sustainable projects.
6. Limited Data and Information: The availability of reliable data and information on environmental risks, opportunities, and performance metrics may be limited in Iraq. Without access to comprehensive data and information, investors and financial institutions may face difficulty assessing the environmental impacts and financial viability of green projects. Addressing these challenges requires concerted efforts by governments, financial institutions, international organizations, and other stakeholders to raise awareness, strengthen regulatory frameworks, enhance access to finance, build institutional capacity, and improve data availability. By overcoming these barriers, Iraq can unlock the potential of green finance to support sustainable development, mitigate the effects of climate change, and enhance environmental stewardship.

3.6. Environmental Finance

"Environment-related finance" refers to the provision of financial resources for projects, initiatives, or activities aimed at addressing environmental challenges or promoting sustainability. This type of finance can come from

various sources, including governments, international organizations, private sector investors, non-profit organizations, and individuals.

Ruwani (2012) and Tao et al. (2022) outlined some key aspects of environmental finance:

1- Types of financing: Environmental finance can take various forms, including grants, loans, equity investments, subsidies, tax incentives, and crowd funding. Each type of financing has its own advantages and limitations, and the choice depends on factors such as the nature and size of the project and the preferences of the relevant stakeholders.

2-Funding Sources: Funding for environmental projects can come from multiple sources, including: governments, international organizations such as the World Bank and UN agencies, the private sector, and non-profit organizations.

3-Focus Areas: Environmental financing covers a wide range of areas, including: renewable energy such as hydropower, solar power, wind power, and others.

4-Conservation and Biodiversity: Financial support for the protection of natural resources, wildlife conservation, reforestation, and sustainable land management practices.

5-Climate Change Adaptation: Financing initiatives aimed at helping communities and ecosystems adapt to the impacts of climate change, such as sea level rise, extreme weather events, and changing rainfall patterns.

6- Sustainable Agriculture and Food Security: Investing in agricultural practices that promote soil health, water conservation, biodiversity, and climate change resilience.

7- Clean Technology and Innovation: Financing research, development, and dissemination of technologies that reduce pollution, improve resource efficiency, and promote sustainable consumption and production patterns.

8- Challenges and Opportunities: Despite growing recognition of the importance of environmental finance, challenges such as limited funding availability, lack of awareness, policy uncertainty, and financial risks associated with environmental projects remain significant. However, there are also opportunities for innovative financing mechanisms, public-private partnerships, and leveraging technology to more effectively mobilize resources to achieve environmental sustainab**ility.**

4. Analysis and Results

Table (1) presents the analysis of the sample's responses

Table (1): Analysis of Sample's

Question No.	Completely Agree	Agree	Not sure	Disagree	Completely Disagree	Mean	Std. Deviation	COV	% Agree	% Disagree
1	11	6	5	0	8	3.4	4.1	1.19	68%	32%
2	9	5	4	8	4	3.2	2.3	0.73	54%	56%
3	11	2	4	5	8	3.1	3.5	1.14	50%	50%
4	12	5	6	4	3	3.6	3.5	0.97	71%	29%
5	15	3	5	5	2	3.8	5.2	1.37	72%	18%
6	10	4	7	6	3	3.4	2.7	0.81	61%	39%
7	10	7	3	6	4	3.4	2.7	0.8	63%	37%
8	15	3	4	4	4	3.7	5	1.36	69%	31%
9	11	9	5	5	0	3.9	4.2	1.1	80%	20%
10	7	6	4	9	4	3.1	2.1	0.68	50%	50%
11	12	7	2	7	2	3.7	4.2	1.14	68%	32%
12	17	3	6	2	2	4	6.4	1.58	83%	17%
13	10	6	3	3	8	3.2	3.1	0.95	59%	41%
14	14	1	4	6	5	3.4	4.8	1.41	58%	42%
15	12	5	5	4	4	3.6	3.4	0.95	68%	32%

The first item of the questionnaire (the bank's management has knowledge of green bonds) received a score of 3.4, which is higher than the hypothetical mean of 3.0 on a five-point Likert scale, with a standard deviation of 4.1, which is relatively high, indicating the dispersion of sample members' answers to this question. The coefficient of variation for this item was 1.19, which is relatively high. The agreement rate for this question was 68%, which supports the bank's management's knowledge of green bonds.

The second item of the questionnaire (the bank's management is familiar with the concept of green finance) received a score of 3.2, which is very close to the hypothetical mean of 3.0 on a five-point Likert scale, with a standard deviation of 2.3, which is relatively lower than the standard deviation for the first item. The coefficient of variation for this item was 0.73. The agreement rate for this item was 54%, while the disagreement rate was 56%.

The third item of the questionnaire (the bank has a desire to provide loans for projects that support environmental sustainability) had an arithmetic mean of 3.1, which is very close to the hypothetical mean, with a standard deviation of 3.5, which is high, and a coefficient of variation of 1.14, which is also high. The agreement rate was equal to the disagreement rate for this item, indicating a lack of a genuine desire to provide loans for projects that support environmental sustainability.

The fourth item of the questionnaire (The bank's management is willing to provide green loans for projects that support environmental sustainability) had an arithmetic mean of 3.6, higher than the hypothetical mean of 3, and a standard deviation of 3.4, which is high, indicating a dispersion in the sample's responses. The percentage of agreement on this item reached 71%, while the percentage of disagreement reached 29%. It is worth noting that Iraqi banks rarely provide loans to support environmental sustainability.

The fifth item of the questionnaire (The bank's management recognizes the importance of granting green loans for projects that support environmental sustainability) had an arithmetic mean of 3.8, higher than the hypothetical mean of 3, and a standard deviation of 5.2, which is high, indicating a dispersion in the sample's responses. The percentage of agreement on this item reached 72%, while the percentage of disagreement reached 28%.

The sixth item of the questionnaire (Bank management is seeking information regarding financing projects that support environmental sustainability) had an arithmetic mean of 3.4, which is higher than the hypothetical mean of 3, and a standard deviation of 2.7, which is relatively high, indicating a dispersion in the responses of sample members. The percentage of agreement on this item reached 61%, indicating that Bank management is seeking information regarding projects that support environmental sustainability, while the percentage of disagreement on this item reached 39%.

The seventh item of the questionnaire (Management recognizes that green financing helps reduce environmental damage resulting from investments financed by the bank) had an arithmetic mean of 3.4, higher than the hypothetical mean of 3, and a standard deviation of 2.7, which is relatively high, indicating a dispersion in the sample members' responses. The percentage of agreement on this item reached 63%, indicating that the bank management recognizes that green financing contributes to reducing environmental damage, while the percentage of disagreement on this item reached 37%.

The eighth item of the questionnaire (There is sufficient awareness of green financing in the Iraqi banking community) had an arithmetic mean of 3.7, higher than the hypothetical mean of 3, and a standard deviation of 5, which is very high, indicating a high dispersion in the sample members' responses. The percentage of agreement on this item reached 69%, indicating the

presence of awareness of green financing in the Iraqi banking community, while the percentage of disagreement on this item reached 31%.

The ninth item of the questionnaire (The bank's management wishes to participate in workshops or discussion groups on green financing) had an arithmetic mean of 3.9, higher than the hypothetical mean of 3, and a standard deviation of 4.2, which is very high, indicating a high degree of dispersion in the sample's responses. The agreement rate on this item reached 80%, indicating a high desire among management to participate in workshops or discussion groups on financing, while the disagreement rate on this paragraph reached 20%.

The tenth item of the questionnaire (The bank's management recognizes that combining environmental sustainability with banking will have a positive impact on Iraqi society) had an arithmetic mean of 3.9, higher than the hypothetical mean of 3, and a standard deviation of 4.2, which is very high, indicating a high degree of dispersion in the sample's responses. The percentage of agreement on this item reached 80%, indicating a strong desire among management to participate in workshops or discussion groups regarding financing, while the percentage of disagreement on this item reached 20%.

The eleventh item of the questionnaire (The banking community has sufficient information about green financing and its benefits for environmental sustainability) obtained an arithmetic mean of 3.7, higher than the hypothetical mean of 3, and a standard deviation of 4.2, which is very high, indicating a high degree of dispersion in the sample members' responses. The agreement rate on this item reached 68%, indicating the presence of sufficient information about green financing in the Iraqi banking community, which is considered an encouraging indicator for the trend towards green financing. The disagreement rate on this question reached 32%.

The twelfth item of the questionnaire (The bank management believes in the need for the government to provide incentives to encourage the granting of green loans) obtained an arithmetic mean of 3.7, higher than the hypothetical mean of 3, and a standard deviation of 4.2, which is very high, indicating a high degree of dispersion in the sample members' responses. The agreement rate on this item reached 68%, indicating the presence of sufficient information on green finance in the Iraqi banking community, an

encouraging indicator for the move towards green finance. The disagreement rate on this item reached 32%.

The thirteenth item of the questionnaire (bank management recognizes the extent to which green finance contributes to mitigating the effects of climate change and environmental challenges) received an arithmetic mean of 3.2, higher than the hypothetical mean of 3, and a standard deviation of 3.1, which is relatively high, indicating a strong dispersion in the responses of sample members. The agreement rate on this item reached 59%, indicating an acceptable understanding among bank management of the role of green finance in mitigating the effects of climate change. This is considered an encouraging indicator for the move towards green finance. The disagreement rate on this question reached 41%.

The fourteenth item of the questionnaire (Bank management is willing to grant low-interest loans to projects that support environmental sustainability) had an arithmetic mean of 3.6, higher than the hypothetical mean of 3, and a standard deviation of 3.4, which is relatively high, indicating strong dispersion in the sample's responses. The agreement rate on this item reached 68%, indicating a desire among bank management for low-interest loans for projects that support environmental sustainability. This desire is a good starting point for green financing. The disagreement rate on this question reached 32%.

The fifteenth item of the questionnaire (Bank management supports the establishment of specialized banks for green financing) had an arithmetic mean of 3.6, higher than the hypothetical mean of 3, and a standard deviation of 3.4, which is relatively high, indicating strong dispersion in the sample's responses. The percentage of agreement on this iem reached 68%, indicating the support of the managements of the banks surveyed for the establishment of banks specializing in green financing, which is considered one of the elements encouraging the establishment of banks specializing in green financing. The percentage of disagreement on this question reached 32%.

From the previous analysis we notice that the average agreement rate for the questionnaire items was approximately 65%, while the average disagreement rate for the questionnaire items was 35%. We conclude that the alternate hypothesis is proven. Although many items scored above the hypothetical average, we noticed a little high dispersion among the sample’s responses, the overall standard deviation was 3.81 this may be

due to the newness of the green financing in the sample studied. Table (2) ranks the items according to response means, we observe that item 12 (The bank management believes in the need for the government to provide incentives to encourage the granting of green loans). While item no 3 (the bank has a desire to provide loans for projects that support environmental sustainability) ranked the lowest.

Table (2)
Ranking the Questionnaire Items According to the Response Means

Rank	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Item	12	9	5	1	8	15	4	14	7	6	1	13	2	10	3
Mean	4.0	3.9	3.8	3.7	3.7	3.6	3.6	3.4	3.4	3.4	3.4	3.2	3.2	3.1	3.1

5. Conclusions

The results of the questionnaire indicate a generally positive attitude among bank management toward green finance and sustainability-related practices. Most items received mean scores above the hypothetical average of 3 on a five-point Likert scale, and the average agreement rate across all items was approximately 65%. This suggests a moderate to strong level of awareness and support for green financing within the Iraqi banking sector. However, the consistently high standard deviations and coefficients of variation reflect a notable dispersion in the respondents' views, pointing to a lack of consensus or uniformity in attitudes. This variability could be attributed to the relative novelty of green finance concepts in Iraq, highlighting the need for broader awareness and standardization efforts. Despite that, the research revealed that there is a strong belief in the importance of government incentives to promote green lending (item 12), which received the highest average score. A general willingness exixts to support environmental sustainability through loan provision, though this desire is not yet strongly or uniformly held (item 3 ranked lowest). A trend towards encouraging levels of interest in educational efforts, such as workshops and discussions on green financing. A clear recognition of the positive impact of combining environmental sustainability with banking on society.

Overall, while the data supports the presence of foundational knowledge and a favorable orientation toward green financing among bank management, the sector still faces challenges related to consistency, practical application, and a deeper understanding of green finance mechanisms. Future efforts should focus on capacity building, policy support, and the creation of enabling environments to reduce uncertainty and promote wider adoption of green finance practices.

6. Strategic Proposals for Advancing Green Finance in Iraq

Adopting green finance in Iraq involves implementing various strategies tailored to the country's economic, environmental, and social context. Some strategies that can be considered are:

1. Policy and Regulatory Frameworks: Develop and implement policies and regulations that support green finance initiatives. This may include creating incentives such as tax breaks or subsidies for green projects, setting emission reduction targets, and implementing environmental standards.
2. Capacity Building: Investing in building the capacity of financial institutions, government agencies, and businesses to understand and implement green finance mechanisms. This includes training programs, workshops, and knowledge-sharing initiatives.
3. Public-Private Partnerships: Fostering partnerships between the government, the private sector, and international organizations to leverage resources and expertise in green projects. Public-private partnerships can help mitigate risks and attract investment for sustainable development initiatives.
4. Green Bonds: Offering green bonds to raise funds for environmentally sustainable projects. These bonds are specifically designed for projects with environmental benefits such as renewable energy, energy efficiency, and waste management. 5. Financial Incentives: Providing financial incentives such as grants, low-interest loans, and guarantees to encourage investment in green projects. These incentives can help overcome barriers such as high upfront costs and perceived risks associated with green investments.
6. Green Investment Funds: Establishing dedicated green investment funds to pool resources from various stakeholders and invest in sustainable

projects. These funds can provide financing for public and private sector initiatives across various sectors.

7. Awareness and Education: Raising awareness among investors, businesses, and the public about the importance and benefits of green finance. Educational campaigns can help build support for sustainability initiatives and foster a culture of environmental responsibility.

8. Technical Assistance: Providing technical assistance and advisory services to support project development, feasibility studies, and implementation of green initiatives. This can include assistance with project planning, risk assessment, monitoring, and evaluation.

9. Integrating Environmental Criteria: Integrating environmental criteria into lending and investment decisions to promote sustainable practices. Financial institutions can incorporate environmental risk assessments and performance indicators into their credit evaluation processes. 10. Reporting and Transparency: Strengthen reporting and transparency mechanisms to track the environmental and social impact of green projects. This includes disclosing information on project outcomes, carbon emission reductions, and social benefits to stakeholders.

10. Supporting Infrastructure: Invest in infrastructure such as renewable energy networks, public transportation systems, and waste management facilities to support the transition to a low-carbon economy.

11. Green Certifications and Standards: Develop and implement green certification schemes and standards to ensure the credibility and integrity of green projects. Certification can help build trust among investors and consumers and facilitate access to green finance.

By implementing these strategies, Iraq can unlock the potential of green finance to support sustainable development, mitigate the effects of climate change, and improve the resilience of its economy and environment.

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