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# The role of sustainable finance in achieving financial sustainability using the working capital indicator: An applied study on a number of Iraqi commercial banks

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**Abstract**
This study aims to analyze the impact of sustainable finance on enhancing the financial sustainability of a sample of Iraqi commercial banks listed on the Iraq Stock Exchange over a specified period. The research adopts a descriptive analytical methodology to present the theoretical dimensions of sustainable finance, in addition to employing statistical methods to measure its relationship with financial sustainability indicators, namely solvency, liquidity, profitability, and financial stability. Sustainable finance was measured based on the Environmental, Social, and Governance (ESG) indicators. The findings revealed a positive and significant correlation between sustainable finance and financial sustainability, confirming that adopting sustainable financial policies contributes to enhancing banks' ability to continue and achieve stable financial performance. The results also showed that governance had the most significant impact, followed by environmental and then social dimensions. The study recommends integrating sustainable finance strategies into the operational plans of banks while developing periodic measurement mechanisms to monitor their impact on sustainability.

**Keyword:** Sustainable finance, financial sustainability, commercial banks, governance, banking sustainability

## Introduction

Financial sustainability is considered one of the fundamental pillars for the success of banking institutions, as it reflects a bank's ability to continue its operations and generate stable returns over the long term while maintaining a balance between its resources and obligations. This goal can be achieved more effectively when financial policies are based on sustainability principles. Sustainable finance provides banks with the opportunity to balance profitability requirements on one hand, and adherence to environmental, social, and governance standards on the other. Therefore, a bank that integrates sustainability into its financial operations becomes more capable of managing future risks and enhancing the confidence of its stakeholders, which positively reflects on its financial continuity. The significance of this research lies in its focus on a relatively recent topic within the Iraqi banking environment one that has not received sufficient attention in previous studies despite its sensitivity and direct impact on bank stability. The objectives of this research are to highlight the conceptual framework of sustainable finance and how it can serve as a practical tool to enhance financial sustainability, in addition to analyzing the reality of Iraqi commercial banks to determine the extent to which they adopt sustainable finance mechanisms. The research also seeks to empirically test the relationship between these two concepts using available financial data, ultimately leading to practical conclusions and recommendations that may guide banking policies towards a more stable and sustainable path.

## First Topic: Research Methodology
### First: Research Problem
In recent years, the world has witnessed fundamental transformations in financial and banking thought, where the focus is no longer solely on achieving quick profitability or short-term growth. Financial institutions are increasingly adopting more

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sustainable financing models that consider environmental, social, and governance (ESG) dimensions alongside their traditional economic objectives. Despite these developments, the application of sustainable finance principles in the Iraqi banking environment remains limited both in terms of institutional awareness and in the integration of these principles into operational policies and strategies. This gap affects the ability of Iraqi commercial banks to enhance their financial sustainability and ensure their survival in a highly competitive and volatile market environment. From this context, the central research question arises:

**To what extent does sustainable finance contribute to supporting and achieving financial sustainability in Iraqi commercial banks?**
This primary question leads to several sub-questions, the most important of which are:
1. What is the current state of adoption of sustainable finance principles in Iraqi banks?
2. What is the level of financial sustainability in these banks?
3. Is there a significant impact of sustainable finance on financial sustainability from a quantitative financial perspective?

**Second: Research Objectives**
This study seeks to achieve a set of interrelated objectives, including:
1. Describing and measuring the level of sustainable finance implementation in a selected sample of Iraqi commercial banks.
2. Analyzing and measuring the level of financial sustainability of these banks using precise financial indicators.
3. Studying and analyzing the statistical relationship between sustainable finance and financial sustainability.
4. Testing the significance of the impact of sustainable finance—as a concept and through quantitative indicators on enhancing financial sustainability.
5. Formulating practical and procedural recommendations that support banks in developing long-term financing strategies that balance profitability requirements with responsible practices.

**Third: Significance of the Study**
1. **Scientific Significance:** a. fills a knowledge gap in Arabic financial literature, particularly concerning the application of sustainable finance principles in the Iraqi banking environment and their connection to the concept of financial sustainability.
   b. Provides an analytical framework that can be utilized in future studies to measure the impact of sustainable finance indicators on long-term financial performance.
2. **Practical Significance:** a. Equips bank management with quantitative measurement tools applicable to their actual data, enabling them to assess the impact of sustainable finance on their financial resilience. b. Opens the door to the development of banking policies based on long-term financial planning, reducing overreliance on short-term financing sources.
3. **Societal Significance:** a. supports the shift toward a responsible financial system that contributes to sustainable development by encouraging investment in projects with economic, social, and environmental impact. b. Enhances customer and investor confidence in local banks through the adoption of transparent and stable financing practices.

**Fourth: Research Hypotheses**
**Main Hypothesis:** There is a statistically significant impact of sustainable finance on enhancing financial sustainability in Iraqi commercial banks.

**Sub-Hypotheses**
1. The return on investment in sustainable projects has a direct impact on financial sustainability.
2. The ratio of stable self-financing has a direct impact on financial sustainability.
3. The net margin of sustainable profit has a direct impact on financial sustainability.
4. Sustainable assets have a direct impact on financial sustainability.

**Fifth: Study Limitations**
1. **Spatial Limitations:** The study is limited to a sample of Iraqi commercial banks listed on the Iraq Stock Exchange.
2. **Temporal Limitations:** The study covers financial data from the period (2014-2023), which is sufficient to track changes in the financial indicators under investigation.
3. **Topical Limitations:** The study addresses sustainable finance as the independent variable and financial sustainability as the dependent variable, restricted to measurement through specific quantitative indicators.
4. **Human Limitations:** The study is confined to available data from bank reports and does not include respondent opinions or field surveys.

**Sixth: Study Approach**
**a. Type of Study:** An applied study using a descriptive-analytical methodology based on actual quantitative data.

**b. Analytical Methodology**
1. Collecting financial data from annual statements and Iraq Stock Exchange reports.
2. Calculating quantitative indicators of sustainable finance (e.g., return on investment in sustainable projects, stable self-financing ratio, sustainable net profit margin, sustainable assets).
3. Calculating quantitative indicators of financial sustainability (e.g., liquidity ratios, solvency, profitability, accounting sustainability indicators).
4. Using statistical methods (multiple linear regression analysis, path analysis, and testing the role of mediating or moderating variables where necessary). c. Analytical Tools: Relying on advanced statistical software such as SPSS and E Views to ensure result accuracy.
   d. Data Sources:
5. Secondary data from published financial reports of the banks.
6. Official data from the Iraq Stock Exchange.

**Seventh: Study Methodology**

This study relies on the descriptive-analytical approach: a. to describe the theoretical framework of financial risk management and financial performance concepts. b. To analyze the relationship and impact between the variables using panel data for the period (2014-2023).

E Views software (version 13) was employed to estimate regression models and analyze statistical relationships among the variables using panel data techniques (Panel Regression).

**Eighth: Study Population and Sample**

1. **Study Population:** All private Iraqi commercial banks listed on the Iraq Stock Exchange, totaling 28 banks.
2. **Study Sample:** A purposive sample of 8 banks was selected based on the following criteria:
   a. Availability of financial data during the study period.
   b. Consistency in annual disclosure. c. Trading volume and market liquidity. d. Relative importance in the banking sector.

**Second Topic: Theoretical Framework**

**First: The Concept of Sustainable Finance**

Finance, in its traditional sense, constitutes the principal tool for enabling economic activities through mobilizing resources and directing them toward uses that generate returns and enhance continuity. However, despite its efficiency in maximizing profitability, this model is no longer sufficient in light of the current environmental and social challenges that threaten long-term financial continuity. According to (Jamal,2020: 202) [1], sustainable finance is defined as the provision of money, products, and services in a way that considers social and environmental dimensions, ensuring that it does not compromise future generations' ability to meet their own needs. Sustainable finance refers to the allocation of financial resources toward investments that consider environmental and social aspects, as well as governance standards, thereby achieving long-term economic returns while minimizing negative impacts on the environment and society. This type of finance emphasizes integrating non-financial considerations into investment decisions, which strengthens institutions' ability to achieve financial sustainability (Glob, 2023: 46).

(Rahim, 2017: 48) views sustainable finance as the maximum growth rate a company can sustain without resorting to borrowing or issuing additional shares. To maintain this, the company retains a stable capital structure and can expand through increased sales and optimal investment in its assets. According to (Al-Sayyid, 2020: 69), sustainable finance is a modern concept that focuses on financing projects while considering social and environmental objectives. It examines the impact of projects on the surrounding environment, including society, nature, and climate. Sustainable finance is primarily directed toward supporting projects that integrate the social, environmental, and economic dimensions of sustainable development into long-term investment decisions. It involves incorporating environmental, social, and governance (ESG) criteria into financing decisions. (Wilson *et al.*, 2021) [9] assert that sustainable finance focuses on minimizing environmental and social risks while maximizing long-term returns.

**Second: Indicators of the Independent Variable-Sustainable Finance**

**1. Return on Investment in Sustainable Projects**

The return on investment (ROI) in sustainable projects is considered one of the essential quantitative financial indicators used in analyzing the financial sustainability of banks. It serves as a fundamental tool for evaluating the efficiency of capital utilization in financing projects that encompass environmental, social, and economic dimensions. This indicator is defined as the annual ratio of net income generated from sustainable investments relative to the average investment costs allocated to them. It is calculated using the following formula:

ROI = Net Income from Sustainable Investments / Average Investment Costs

This indicator is used to assess the efficiency of financial institutions in allocating their resources toward projects that yield substantial financial returns and long-term developmental impact. It reflects the bank's ability to maximize returns generated from capital invested in sustainable activities, in alignment with responsible finance standards. A higher value of this indicator is financially interpreted as a sign of the economic viability of sustainable projects and indicates the efficiency of financial management in selecting and evaluating projects that consider both profitability and environmental and social compliance (Lubna & Fatima Al-Zahraa, 2017: 37) [4].

**2. Stable Self-Financing Ratio**

The stable self-financing ratio is one of the key structural indicators in financial analysis. It is used to measure the extent to which an institution relies on its own resources to finance its assets and operational obligations without excessive dependence on loans or external financing sources. This ratio is calculated by dividing total equity by total assets or total sources of financing, and it can be expressed as follows:

Stable Self-Financing Ratio = (Total Equity / Total Assets)

This ratio reflects the institution's long-term financial stability, as a higher value indicates a strong capital base and greater reliance on self-financing, which reduces exposure to financial leverage risks such as interest rate fluctuations or debt service difficulties. This indicator also serves as a benchmark for evaluating financial solvency and financing independence, indicating the institution's ability to finance projects internally without relying on costly debt (Zaghadani & Al-Reishi, 2024: 270) [5].

Conversely, a low self-financing ratio may reflect greater reliance on borrowing, which can increase financial risk especially if not accompanied by adequate operating and investment returns. However, this decrease is not always negative, as it may be strategically used in some cases to achieve tax advantages or enhance return on investment under stable financial conditions (Tabbakh, 2019: 263) [6].

**3. Net Sustainable Profit Margin**

The net sustainable profit margin is a key qualitative indicator used in assessing the financial performance of

banks. It is utilized by (Krosinsky & Purdom, 2016: 121) [10] to evaluate the efficiency of managing the spread between returns generated from interest-bearing assets and the costs of associated liabilities, within a framework that adheres to financial sustainability standards and principles of responsible finance.

This indicator is calculated by taking the difference between revenues earned from income-generating assets (such as loans and bonds) and the cost of funds sourced from liabilities (such as deposits), and dividing the result by the total interest-bearing assets, as shown in the following formula:

Net Sustainable Profit Margin = Net Income after Interest and Tax / Total Assets

This indicator provides an accurate reading of a bank's ability to price interest in a sustainable manner. An increase in this margin reflects the bank's efficiency in managing its financial structure and achieving stable profit margins without resorting to high-risk financial practices that contradict sustainable finance principles. From a sustainability perspective, this indicator serves as an analytical tool to examine the extent to which a bank relies on assets that yield stable returns, while avoiding assets with volatile returns or high environmental and social risks. It is also useful for investors in assessing the operational viability of the assets comprising the financing portfolio and their capacity to support long-term profit stability in line with ethical investment policies and environmental, social, and governance (ESG) standards (Mekonnen, 2015: 53) [11].

**4. Sustainable Assets:** The sustainable assets indicator is an analytical financial metric used to evaluate the extent to which an investment portfolio complies with environmental, social, and governance (ESG) standards. Its primary purpose is to measure the level of alignment between the assets included in the portfolio and the objectives of sustainable finance. This indicator is significant because it assists investors in determining the effectiveness of asset allocation in terms of adherence to sustainability standards and its impact on generating responsible long-term financial value (Krosinsky & Purdom, 2016: 121) [10]. The effectiveness of this indicator is especially pronounced when analyzed alongside the Fixed Asset Turnover Ratio, which serves as an accounting tool for evaluating the efficiency with which capital assets such as buildings, machinery, and equipment are utilized to generate sales. This ratio is calculated using the following formula:

Sustainable Assets = Total Assets × 2%

A higher turnover ratio indicates greater operational efficiency in utilizing fixed assets, which aligns with the goals of sustainable finance by promoting productivity without resource waste or imposing additional burdens on the environment.

**Third: The Concept of Financial Sustainability**
The concept of sustainability is one of the foundational pillars in financial and managerial literature. Numerous researchers have addressed this concept both theoretically and practically from various perspectives. From a financial sciences standpoint, sustainability refers to an enterprise's ability to achieve its core financial objectives, such as maximizing returns and enhancing shareholder wealth, by maintaining its existence and operational continuity in the market over the long term. According to (El-Shazly, 2014: 11), it is the condition in which the financial sector is capable of hedging against internal and external crises and continuing to perform its function of efficiently allocating financial resources to investment opportunities even during times of crisis.

(Saghir and Ben Thabet, 2022: 116) [8] define it as a state in which the financial system ensures the effective and secure flow of capital among various actors (markets, companies, governments, and individuals), while guaranteeing the efficiency of financial intermediation processes. This stability depends on the presence of financial institutions capable of withstanding economic fluctuations and shocks such as liquidity crises or capital market volatility in addition to the availability of strong financial market infrastructure that enables balanced risk management and distribution.

**Fourth: Indicators of Financial Sustainability**
**1. Working Capital:** Working capital is one of the most prominent indicators used to assess the financial stability of banks. It reflects a bank's ability to withstand potential risks by comparing regulatory capital to risk-weighted assets. (Gabriel Ogere *et al.*, 2013: 17) state that this ratio is a key measure for judging financial soundness and represents one of the requirements of the Basel Committee on Banking Supervision.

Several studies have confirmed that higher levels of capital indicate a stronger financial position and a greater capacity for loss absorption. It is also considered a crucial factor in enhancing investor and depositor confidence. (Akpan & Osagie, 2020: 656) [13] note that this ratio contributes to improving banks' efficiency and reducing the likelihood of financial distress, emphasizing that a sharp drop below 8% could serve as an early warning sign of financial weakness (Kasab, 2024: 445). The ratio is calculated using the following formula:

Working Capital = Current Assets - Current Liabilities

(Akani, 2019: 24) [14] also highlights that CAR is an effective supervisory tool for protecting banks against systemic risks, particularly in developing economies, as it reflects the bank's ability to cover unexpected losses and serves as a critical metric in credit assessments and financial ratings.

In this context, (Van Roy, 2005: 6) [15] underscores the importance of this indicator in predicting banking crises and preventing financial contagion.

**Third Topic: Practical Aspect**
**First: Financial Analysis of Sustainable Finance Indicators:** Analyzing sustainable finance indicators represents a fundamental step in understanding the performance of banks and their role in supporting sustainable projects. This analysis involves measuring the efficiency of their investments, the stability of their financial structure, and their ability to generate sustainable profits. The aim is to provide a comprehensive overview of the

status of sustainable finance in Iraqi banks by examining a set of key financial indicators during the period (2014-2023).

**1. Bank of Baghdad:** The following table presents the sustainable finance indicators for the Bank of Baghdad during the period (2014-2023).

**Table 1:** Sustainable Finance Indicators for Bank of Baghdad (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio (%) | Net Sustainable Profit Margin (%) | Sustainable Assets (IQD) |
|---|---|---|---|---|
| 2014 | 1.797 | 16.001 | 39.944 | 36,550,106,500 |
| 2015 | 0.856 | 17.327 | 7.184 | 30,990,480,000 |
| 2016 | 2.836 | 23.560 | 27.499 | 24,008,482,340 |
| 2017 | 0.867 | 25.404 | 11.310 | 21,803,052,940 |
| 2018 | 2.353 | 23.955 | 11.354 | 22,270,771,160 |
| 2019 | 2.835 | 24.157 | 18.298 | 28,900,780,000 |
| 2020 | 3.263 | 25.100 | 21.160 | 28,999,564,740 |
| 2021 | 3.784 | 26.000 | 36.137 | 34,483,000,000 |
| 2022 | 2.866 | 21.700 | 47.450 | 54,659,359,200 |
| 2023 | 6.656 | 17.236 | 66.544 | 30,691,671,532 |
| Arithmetic Mean | 2.184 | 20.561 | 29.908 | 30,691,671,532 |
| Standard Deviation | 1.852 | 3.232 | 18.781 | 9,872,122,621 |

**Source:** Table prepared by the researcher based on reports published in the Iraq Stock Exchange.

It is clear from the table that the average return on investment in sustainable projects for the Bank of Baghdad reached 2.184, with a standard deviation of 1.852, indicating noticeable fluctuations in the efficiency of the bank's investments across the years. The stable self-financing ratio recorded an average of 20.561% with a low standard deviation of 3.232, reflecting relative stability in the bank's financing structure. Meanwhile, the net sustainable profit margin showed an average of 29.908 with a high standard deviation of 18.781, indicating significant variation in profitability levels due to shifts in operating conditions and financial policies. Sustainable assets averaged approximately IQD 30.69 trillion, with a high standard deviation of IQD 9.87 trillion, reflecting fluctuations in the volume of sustainable assets as a result of investment expansion in certain years. From the analysis of the return on investment in sustainable projects, 2023 represented the best performance year, with a return of 6.616, indicating a significant expansion in sustainable investments and higher returns compared to previous years. In contrast, 2018 showed the weakest performance with a return of only 0.487, suggesting low efficiency in asset investment during that period. The highest stable self-financing ratio was recorded in 2017 at 25.404%, indicating increased reliance on equity as a main source of funding. Meanwhile, the lowest ratio was observed in 2014 at 16.001%, suggesting greater dependence on external financing during that year.

In terms of net sustainable profit margin, 2023 also witnessed the highest margin at 66.544, reflecting a notable improvement in the profitability and efficiency of sustainable activities. On the other hand, 2015 recorded the lowest margin at 7.184, likely due to operational pressures or weak revenue generation. Sustainable assets reached their highest level in 2023 at IQD 54.96 trillion, indicating substantial growth in sustainable asset volume, while the lowest level was observed in 2017 at IQD 21.80 trillion, pointing to contraction or restructuring of investments during that year.

**2. Iraqi Investment Bank:** The following table presents the sustainable finance indicators for the Iraqi Investment Bank during the period (2014-2023).

**Table 2:** Sustainable Finance Indicators for the Iraqi Investment Bank (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio (%) | Net Sustainable Profit Margin (%) | Sustainable Assets (IQD) |
|---|---|---|---|---|
| 2014 | 6.237 | 50.791 | 45.757 | 11,173,110,340 |
| 2015 | 3.782 | 50.978 | 40.654 | 11,034,687,020 |
| 2016 | 2.083 | 50.384 | 35.416 | 11,557,404,000 |
| 2017 | 0.886 | 49.343 | 18.136 | 11,474,143,200 |
| 2018 | 0.066 | 46.663 | 10.587 | 12,141,697,258 |
| 2019 | 0.835 | 49.134 | 41.440 | 10,596,595,882 |
| 2020 | 0.967 | 46.419 | 28.250 | 11,429,505,507 |
| 2021 | 1.172 | 41.920 | 26.526 | 15,045,163,066 |
| 2022 | 4.230 | 33.886 | 61.803 | 16,104,162,040 |
| 2023 | 3.450 | 38.014 | 30.263 | 16,104,162,040 |
| Arithmetic Mean | 1.934 | 45.381 | 27.705 | 12,863,666,473.89 |
| Standard Deviation | 2.132 | 6.349 | 20.664 | 2,632,266,074.82 |

**Source:** Table prepared by the researcher based on reports published in the Iraq Stock Exchange.

The data in the table indicates that the average return on investment in sustainable projects for the Iraqi Investment Bank reached 1.934, with a high standard deviation of 2.132, reflecting significant fluctuations in the bank's

investment efficiency throughout the studied years. The stable self-financing ratio achieved an average of 45.381% with a standard deviation of 6.349, indicating a relatively high reliance on equity financing with some volatility over time. As for the net sustainable profit margin, it recorded an average of 27.705 with a high standard deviation of 20.664, which reflects sharp variations in profitability levels due to operational and financial changes between the years. Sustainable assets averaged IQD 12.86 trillion, with a standard deviation of IQD 2.63 trillion, indicating noticeable growth in asset volume in recent years, especially in 2022 and 2023. Analyzing the return on investment in sustainable projects, the best performance was achieved in 2014, with a high return of 6.237, indicating strong efficiency in allocating assets toward sustainable returns during that period. Conversely, efficiency declined sharply in 2019, which recorded the lowest return of only 0.003, possibly indicating weak investment or low generated returns. The peak of the stable self-financing ratio was in 2015, reaching

50.978%, reflecting a high reliance on equity as a funding source. However, it dropped to its lowest point in 2023, at 33.086%, suggesting increased dependence on external financing during that year.

Regarding the net sustainable profit margin, 2023 recorded the highest margin at 61.803, indicating a clear improvement in the profitability of sustainable operations. In contrast, 2019 showed the weakest performance, with a margin of 0.144, likely due to declining revenues or increased expenses in that year. Sustainable assets peaked in 2023, reaching IQD 19.16 trillion, pointing to significant expansion in asset volume, whereas 2019 saw the lowest level at IQD 10.59 trillion, reflecting a contraction in sustainable asset volume during that period.

**3. Middle East Iraqi Bank:** The following table presents the sustainable finance indicators for the Middle East Iraqi Bank during the period (2014-2023).

**Table 3:** Sustainable Finance Indicators for the Middle East Iraqi Bank (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio (%) | Net Sustainable Profit Margin (%) | Sustainable Assets (IQD) |
|---|---|---|---|---|
| 2014 | 0.628 | 44.955 | 9.454 | 13,661,527,733.10 |
| 2015 | 0.981 | 41.055 | 11.779 | 13,502,472,033.24 |
| 2016 | 2.230 | 42.928 | 33.006 | 12,676,661,680.00 |
| 2017 | -0.077 | 36.210 | -2.163 | 14,962,626,800.00 |
| 2018 | -0.177 | 39.386 | -14.359 | 13,164,690,000.00 |
| 2019 | 0.028 | 40.651 | -0.480 | 13,164,690,000.00 |
| 2020 | 0.071 | 41.888 | 1.729 | 14,297,948,620.00 |
| 2021 | 0.071 | 43.355 | 0.800 | 15,920,129,000.00 |
| 2022 | 0.058 | 41.336 | -97.385 | 13,602,231,240.00 |
| 2023 | -1.611 | 35.385 | -97.385 | 13,602,231,240.00 |
| Arithmetic Mean | 0.195 | 39.814 | -6.750 | 13,925,403,448.53 |
| Standard Deviation | 1.146 | 3.925 | 36.478 | 1,142,173,646.33 |

**Source:** Table prepared by the researcher based on reports published in the Iraq Stock Exchange.

The table data indicates that the average return on investment in sustainable projects for the Middle East Iraqi Bank reached 0.195, with a standard deviation of 1.146, reflecting weak and highly volatile investment efficiency in sustainable projects. The stable self-financing ratio recorded an average of 39.814% with a standard deviation of 3.925, indicating a moderate reliance on equity financing with relative stability in the financing structure. As for the net sustainable profit margin, it registered a negative average of -6.750 with a high standard deviation of 36.478, which clearly reflects declining profitability and significant volatility—reaching substantial losses in some years, particularly in 2023. Sustainable assets averaged approximately IQD 13.92 trillion, with a standard deviation of IQD 1.14 trillion, indicating relative stability in asset volume with slight increases in certain years.

Analyzing the return on investment in sustainable projects, the best performance was achieved in 2016, with a return of 2.230, indicating good efficiency in investing sustainable assets. In contrast, 2023 showed the weakest performance, recording a negative value of −1.611, which points to losses

or very poor return generation during that year. The highest stable self-financing ratio was observed in 2014, at 44.955%, indicating stronger reliance on equity as a financing source, while the lowest ratio was recorded in 2018, at 33.402%, suggesting greater dependence on external financing during that period. Regarding the net sustainable profit margin, 2016 was the best-performing year with a high margin of 33.006, reflecting improved profitability from sustainable operations. However, this sharply declined in 2023, recording the lowest negative value of −97.385, likely due to significant financial and operational pressures. Sustainable assets peaked in 2018, reaching IQD 16.01 trillion, reflecting an expansion in asset volume. On the other hand, 2020 saw the lowest level at IQD 12.95 trillion, possibly indicating a reduction in sustainable investments or asset restructuring.

**4. Ashur Investment Bank**
The following table presents the sustainable finance indicators for Ashur Investment Bank during the period (2014-2023).

**Table 4:** Sustainable Finance Indicators for Ashur Investment Bank (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio (%) | Net Sustainable Profit Margin (%) | Sustainable Assets (IQD) |
|---|---|---|---|---|
| 2014 | 3.074 | 62.159 | 28.041 | 8,663,998,560.00 |
| 2015 | 3.193 | 59.799 | 30.828 | 9,036,608,800.00 |
| 2016 | 4.131 | 67.423 | 42.925 | 7,494,214,160.00 |
| 2017 | 4.079 | 70.719 | 66.771 | 7,526,312,600.00 |
| 2018 | 1.230 | 57.416 | 27.627 | 9,349,593,800.00 |
| 2019 | 1.664 | 49.296 | 37.470 | 8,493,116,000.00 |
| 2020 | 1.680 | 45.865 | 33.813 | 12,270,516,780.00 |
| 2021 | 1.664 | 40.552 | 41.945 | 15,588,391,500.00 |
| 2022 | 2.369 | 37.763 | 63.520 | 15,155,128,920.00 |
| 2023 | 4.141 | 48.144 | 50.424 | 15,155,128,920.00 |
| Arithmetic Mean | 3.063 | 56.634 | 39.859 | 10,905,896,590.00 |
| Standard Deviation | 1.139 | 10.488 | 14.711 | 2,899,406,361.00 |

**Source:** Table prepared by the researcher based on reports published in the Iraq Stock Exchange.

The table data indicates that the average return on investment in sustainable projects for Ashur Investment Bank was 3.063, with a standard deviation of 1.139, reflecting relatively good performance and reasonable stability in investment efficiency. The stable self-financing ratio achieved a high average of 56.634% with a standard deviation of 10.488, indicating strong reliance on equity as a source of financing, though with clear fluctuations across the years. The net sustainable profit margin recorded an average of 39.859 and a standard deviation of 14.711, suggesting a relatively strong level of profitability, albeit with variation between periods. Sustainable assets averaged IQD 10.9 trillion, with a standard deviation of IQD 2.89 trillion, reflecting gradual growth in asset volume over the study period, particularly in recent years. From the analysis of the return on investment in sustainable projects, the best performance was observed in 2016, at 4.131, indicating high efficiency in allocating assets to generate sustainable returns. This was followed closely by 2023, with 4.141, amidst clear investment activity expansion. The weakest year was 2018, with a return of 1.230, suggesting a drop in

investment efficiency during that time. The highest self-financing ratio was achieved in 2017, at 70.719%, showing strong reliance on equity and reduced dependence on debt. Conversely, the lowest ratio was recorded in 2022, at 37.763%, indicating a greater shift toward external financing. In terms of the net sustainable profit margin, 2017 also marked the best year with a high margin of 66.771, reflecting a significant improvement in the profitability of sustainable operations. On the other hand, 2020 was the weakest, recording only 18.652, which may be due to operational pressures or lower revenues. Sustainable assets reached their highest level in 2022, at IQD 15.58 trillion, indicating significant expansion in asset volume, while the lowest value was in 2016, at IQD 7.49 trillion, which may suggest a contraction or restructuring of invested assets during that period.

## 5. Al-Ahli Iraqi Bank
The following table presents the sustainable finance indicators for Al-Ahli Iraqi Bank during the period (2014-2023).

**Table 5:** Sustainable Finance Indicators for Al-Ahli Iraqi Bank (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio (%) | Net Sustainable Profit Margin (%) | Sustainable Assets (IQD) |
|---|---|---|---|---|
| 2014 | 1.465 | 42.818 | 18.608 | 12,304,701,436.08 |
| 2015 | 0.778 | 48.603 | 6.174 | 10,715,291,826.10 |
| 2016 | 4.793 | 49.726 | 52.476 | 11,576,940,660.00 |
| 2017 | -0.973 | 47.306 | 7.963 | 12,079,606,580.00 |
| 2018 | -1.068 | 49.044 | -56.809 | 10,515,141,160.00 |
| 2019 | 1.812 | 40.556 | 26.534 | 12,656,053,000.00 |
| 2020 | 1.777 | 17.342 | 31.497 | 17,879,299,320.00 |
| 2021 | 1.777 | 13.794 | 31.429 | 36,426,836,800.00 |
| 2022 | 2.325 | 13.794 | 25.453 | 48,321,775,600.00 |
| 2023 | 5.749 | 12.555 | 55.369 | 79,659,697,260.00 |
| Arithmetic Mean | 1.868 | 35.877 | 20.601 | 26,713,334,364.82 |
| Standard Deviation | 1.964 | 15.383 | 32.872 | 22,594,557,758.10 |

**Source:** Table prepared by the researcher based on reports published in the Iraq Stock Exchange.

The table data indicates that the average return on investment in sustainable projects for Al-Ahli Iraqi Bank reached 1.868, with a standard deviation of 1.964, reflecting moderate performance with significant fluctuations in sustainable investment efficiency. The stable self-financing ratio recorded a low average of 35.877%, with a high standard deviation of 15.383, indicating an increased

reliance on external financing sources in some years. The net sustainable profit margin showed an average of 20.601 with a high standard deviation of 32.872, reflecting sharp volatility in profitability levels, including large losses in 2018. Sustainable assets averaged IQD 26.71 trillion, with a standard deviation of IQD 22.59 trillion, indicating a significant increase in assets during recent years especially

in 2022 and 2023. Analyzing the return on investment in sustainable projects, the best performance was observed in 2023, with a high return of 5.749, indicating a clear expansion in sustainable investments and substantial returns. Conversely, 2018 marked the weakest performance, with a negative value of −1.068, suggesting poor investment efficiency or recorded losses during that period. The highest self-financing ratio was achieved in 2016, at 49.726%, reflecting a strong reliance on equity as a financing source. However, it dropped sharply to its lowest level in 2023, at 12.555%, indicating a major shift toward external financing. Regarding the net sustainable profit margin, 2016 again stood out with the highest margin at 52.476, signifying

strong profitability from sustainable activities. In contrast, 2018 was the weakest, with a negative margin of −56.809, likely due to operational losses or a sharp decline in revenues. Sustainable assets peaked in 2023, reaching IQD 79.65 trillion, reflecting substantial expansion in asset volume. The lowest level was recorded in 2018, at IQD 10.51 trillion, suggesting asset downsizing or restructuring during that year.

**6. Regional Commercial Bank:** The following table presents the sustainable finance indicators for the **Regional Commercial Bank** during the period (2014-2023).

**Table 6:** Sustainable Finance Indicators for the Regional Commercial Bank (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio (%) | Net Sustainable Profit Margin (%) | Sustainable Assets (IQD) |
|------|------|------|------|------|
| 2014 | 2.306 | 45.501 | 26.767 | 10,391,174,480.00 |
| 2015 | 2.097 | 41.951 | 24.870 | 11,811,340,020.00 |
| 2016 | 2.240 | 41.048 | 56.046 | 12,633,730,232.98 |
| 2017 | 2.005 | 50.214 | 25.223 | 10,761,682,100.00 |
| 2018 | 1.132 | 30.423 | 40.745 | 18,272,352,110.86 |
| 2019 | 1.734 | 29.763 | 30.175 | 19,540,264,535.26 |
| 2020 | 1.453 | 20.421 | 19.322 | 17,257,403,440.00 |
| 2021 | 1.464 | 28.694 | 24.492 | 16,140,776,753.16 |
| 2022 | 2.364 | 25.166 | 17.929 | 22,572,986,861.94 |
| 2023 | 2.853 | 35.912 | 42.143 | 20,020,932,093.00 |
| Arithmetic Mean | 2.085 | 38.936 | 30.131 | 15,503,961,587.81 |
| Standard Deviation | 1.000 | 7.640 | 11.739 | 4,568,077,328.21 |

**Source:** Table prepared by the researcher based on reports published in the Iraq Stock Exchange.

The data in the table indicates that the average return on investment in sustainable projects for the Regional Commercial Bank was 2.085, with a standard deviation of 1.000, reflecting acceptable performance with relative stability in sustainable returns. The stable self-financing ratio recorded an average of 38.936% with a standard deviation of 7.640, indicating a variable reliance on equity as a funding source, with moderate fluctuations over the years. The net sustainable profit margin showed an average of 30.131 with a standard deviation of 11.739, reflecting relatively strong profitability despite some variations between years. Sustainable assets averaged IQD 15.5 trillion, with a standard deviation of IQD 4.56 trillion, indicating a gradual increase in asset volume during the study period. From the analysis of the return on investment in sustainable projects, the best performance was achieved in 2023, with a return of 4.852, reflecting a significant improvement in asset investment efficiency and higher returns. The weakest performance was in 2022, with a return of 1.364, indicating a decline in investment efficiency

during that period. The highest stable self-financing ratio was recorded in 2017, at 50.214%, demonstrating strong reliance on equity as the main source of financing. Meanwhile, the lowest value was observed in 2022, at 28.162%, indicating increased dependence on external financing sources. Regarding the net sustainable profit margin, 2016 recorded the highest margin at 56.046, highlighting high profitability from sustainable activities during that period. In contrast, 2020 had the lowest margin at 17.924, possibly due to increased expenses or a drop in operational revenues. Sustainable assets peaked in 2022, reaching IQD 22.57 trillion, reflecting substantial expansion in sustainable asset volume. The lowest level was in 2014, at IQD 10.39 trillion, which points to limited sustainable asset investment at the beginning of the study period.

**7. Bank of Economy for Investment and Finance:** The following table presents the sustainable finance indicators during the period (2014-2023).

**Table 7:** Sustainable Finance Indicators for the Bank of Economy for Investment and Finance (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio (%) | Sustainable Net Profit Margin | Sustainable Assets (in Dinars) |
|------|------|------|------|------|
| 2014 | 0.523 | 41.666 | -7.182 | 12,428,009,996.34 |
| 2015 | 1.148 | 39.177 | 15.300 | 10,609,766,763.76 |
| 2016 | 1.108 | 40.004 | 4.398 | 10,390,989,051.26 |
| 2017 | 0.217 | 48.071 | -18.089 | 10,134,690,691.68 |
| 2018 | 1.123 | 53.679 | 12.973 | 9,352,331,271.26 |
| 2019 | 1.174 | 54.793 | 28.131 | 9,324,647,339.60 |
| 2020 | 0.923 | 55.446 | 0.358 | 9,195,457,465.60 |
| 2021 | 0.619 | 57.052 | 5.172 | 9,333,958,262.30 |

| 2022 | 0.663 | 51.088 | 12.177 | 9,228,978,444.50 |
|---|---|---|---|---|
| 2023 | 2.393 | 54.957 | 14.320 | 9,109,734,612.78 |
| Arithmetic Mean | 0.996 | 50.878 | 10.479 | 10,098,081,305.52 |
| Standard Deviation | 0.780 | 6.255 | 16.739 | 1,003,501,912.75 |

**Source**: The table was prepared by the researcher based on reports published in the Iraq Stock Exchange.

The table data indicates that the average return on investment in sustainable projects for Bank of Economy for Investment and Finance was 0.996, with a standard deviation of 0.780, reflecting relatively weak performance and noticeable fluctuations in its investment efficiency. The stable self-financing ratio recorded an average of 50.878% with a standard deviation of 6.255, indicating a relatively balanced and stable reliance on equity as a source of financing. The net sustainable profit margin recorded a low average of 10.479, with a high standard deviation of 16.739, reflecting significant volatility in profitability levels, including reported losses in certain years such as 2014 and 2017. Sustainable assets averaged IQD 10.09 trillion, with a standard deviation of IQD 1.00 trillion, indicating a gradual decline in sustainable assets over the period, with relative stability in recent years. Analyzing the return on investment in sustainable projects, the best performance was in 2023, with a return of 2.835, indicating clear improvement in asset investment efficiency during that period. The weakest performance was in 2021, with a return of only 0.018,

pointing to low investment returns and possibly limited sustainable activity that year. The highest stable self-financing ratio was recorded in 2022, at 57.028%, reflecting a high reliance on equity as the main source of financing. In contrast, 2015 recorded the lowest ratio at 39.177%, suggesting greater dependence on external funding during that period. Regarding the net sustainable profit margin, the best year was 2023, with a margin of 38.832, indicating improved profitability of sustainable operations. The weakest was 2017, with a negative margin of −18.089, reflecting operational losses or a significant drop in revenues. Sustainable assets reached their highest value in 2014, at IQD 12.42 trillion, suggesting a large base of sustainable assets at the start of the period. The lowest was in 2019, at IQD 9.32 trillion, which may reflect a contraction or restructuring of asset volume.

**8. Iraqi Credit Bank:** The following table presents the sustainable finance indicators for the Iraqi Credit Bank during the period (2014-2023).

**Table 8:** Sustainable Financing Indicators for the Iraqi Credit Bank (2014-2023)

| Year | Return on Investment in Sustainable Projects | Stable Self-Financing Ratio | Sustainable Net Profit Margin | Sustainable Assets (in Dinars) |
|---|---|---|---|---|
| 2014 | 2.562 | 46.413 | 45.763 | 12,503,741,180.00 |
| 2015 | 2.250 | 48.796 | 49.876 | 12,370,352,900.00 |
| 2016 | 1.231 | 59.763 | 31.386 | 10,267,659,980.00 |
| 2017 | 1.639 | 66.184 | 45.630 | 9,532,760,200.00 |
| 2018 | -0.359 | 62.990 | 39.392 | 9,953,887,320.00 |
| 2019 | -0.186 | 56.862 | -105.666 | 10,450,737,020.00 |
| 2020 | -0.152 | 56.806 | -71.928 | 10,540,908,820.00 |
| 2021 | -1.058 | 38.143 | -101.498 | 9,335,035,740.00 |
| 2022 | -0.382 | 73.637 | 53.161 | 8,134,615,240.00 |
| 2023 | 3.415 | 56.843 | 64.645 | 10,154,583,480.00 |
| Arithmetic Mean | 1.487 | 56.804 | 5.276 | 10,224,428,788.00 |
| Standard Deviation | 1.689 | 9.705 | 69.342 | 1,255,931,843.00 |

**Source:** Table prepared by the researcher based on reports published in the Iraq Stock Exchange.

The data in the table indicates that the average return on investment in sustainable projects for the Iraqi Credit Bank was 1.487, with a high standard deviation of 1.689, reflecting a clear fluctuation in investment efficiency over the studied period. The average stable self-financing ratio reached 56.804%, with a standard deviation of 9.705, indicating a strong reliance on equity as a primary source of financing, albeit with noticeable volatility. In contrast, the sustainable net profit margin was very low, with an average of 5.276 and a very high standard deviation of 69.342, highlighting significant losses in some years (particularly 2019-2021) despite notable profits in others. The sustainable assets recorded an average of 10.22 trillion dinars, with a standard deviation of 1.25 trillion dinars, suggesting relative stability in asset size, though with a gradual decline in certain years. An analysis of the return on investment in sustainable projects reveals that 2023 witnessed the best performance, with a high return of 3.631, reflecting a notable improvement in the efficiency of sustainable asset

investment. Conversely, 2021 marked the weakest performance, recording a negative return of −1.058, indicating losses or poor investment efficiency during that period. The stable self-financing ratio peaked in 2022 at 73.637%, indicating a strong reliance on equity financing for assets. In contrast, 2021 recorded the lowest ratio at 38.134%, pointing to a significant shift toward external financing. Regarding the sustainable net profit margin, 2023 achieved the highest margin at 64.645, reflecting a clear improvement in the profitability of sustainable activities. On the other hand, 2019 had the weakest performance, registering a negative margin of −105.662, indicative of severe operating losses or a significant drop in revenues. It is also observed that sustainable assets reached their highest value in 2014, amounting to 12.50 trillion dinars, while they declined to their lowest level in 2022 at 8.13 trillion dinars, which may suggest a reduction or restructuring of sustainable assets during that period.

**Second: Statistical Analysis**
Estimating the Impact of Sustainable Financing on Financial

Sustainability Indicators Using the Dynamic Panel Generalized Method of Moments (GMM)

**Table 9:** Results of the Working Capital Equation (y1)

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| Dependent Variable: Y1 | | | | |
| Method: Panel Generalized Method of Moments | | | | |
| Transformation: First Differences | | | | |
| Date: 07/20/25 Time: 14:08 | | | | |
| Sample (adjusted): 2016 2023 | | | | |
| Periods included: 8 | | | | |
| Cross-sections included: 8 | | | | |
| Total panel (balanced) observations: 64 | | | | |
| Difference specification instrument weighting matrix | | | | |
| White diagonal standard errors & covariance (d.f. corrected) | | | | |
| Instrument specification: @DYN(Y1,-1) | | | | |
| Constant added to instrument list | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| Y1(-1) | 0.051671 | 0.022808 | 2.265472 | 0.0272 |
| X1 | -15.52160 | 5.438897 | -2.853814 | 0.0060 |
| X2 | -1.022519 | 0.480713 | -2.127090 | 0.0376 |
| X3 | 0.439273 | 0.204929 | 2.143533 | 0.0362 |
| X4 | 46.00813 | 1.159391 | 39.68301 | 0.0000 |
| **Effects Specification** | | | | |
| **Cross-section fixed (first differences)** | | | | |
| Mean dependent var | 78.50404 | S.D. dependent var | | 271.3108 |
| S.E. of regression | 23.57117 | Sum squared resid | | 32780.41 |
| J-statistic | 36.14208 | Instrument rank | | 43 |
| Prob(J-statistic) | 0.555596 | | | |

**Source:** Outputs of the statistical software E Views, version 13

**Table 10:** Results of the Cost Efficiency Equation

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| **Dependent Variable: Y2** | | | | |
| Method: Panel Generalized Method of Moments | | | | |
| Transformation: First Differences | | | | |
| Date: 07/20/25 Time: 14:12 | | | | |
| Sample (adjusted): 2016 2023 | | | | |
| Periods included: 8 | | | | |
| Cross-sections included: 8 | | | | |
| Total panel (balanced) observations: 64 | | | | |
| Difference specification instrument weighting matrix | | | | |
| White period standard errors & covariance (d.f. corrected) | | | | |
| Instrument specification: @DYN(Y2-1) | | | | |
| Constant added to instrument list | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| | | | | |
| | | | | |
| Y2(-1) | 0.172718 | 0.062526 | 2.762361 | 0.0076 |
| X1 | 0.051315 | 0.025855 | 1.984678 | 0.0518 |
| X2 | 0.006450 | 0.003573 | 1.805313 | 0.0761 |
| X3 | 0.006373 | 0.002073 | 3.074519 | 0.0032 |
| X4 | 0.002146 | 0.002338 | 0.917820 | 0.3625 |
| **Effects Specification** | | | | |
| **Cross-section fixed (first differences)** | | | | |
| Mean dependent var | 0.008389 | S.D. dependent var | | 0.380040 |
| S.E. of regression | 0.215605 | Sum squared resid | | 2.742638 |
| J-statistic | 34.06830 | Instrument rank | | 36 |
| Prob(J-statistic) | 0.322172 | | | |

**Source:** Outputs of the statistical software E Views, version 13

**Table 11:** Results of the Liquidity Ratio Equation

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| **Dependent Variable: Y3** | | | | |
| Method: Panel Generalized Method of Moments | | | | |
| Transformation: Orthogonal Deviations | | | | |
| Date: 07/20/25 Time: 14:29 | | | | |
| Sample (adjusted): 2016 2023 | | | | |
| Periods included: 8 | | | | |
| Cross-sections included: 8 | | | | |
| Total panel (balanced) observations: 64 | | | | |
| Period SUR instrument weighting matrix | | | | |
| White period standard errors & covariance (d.f. corrected) | | | | |
| Instrument specification: @DYN(Y3-2) | | | | |
| Constant added to instrument list | | | | |
| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
| Y3(-1) | 0.520483 | 0.043936 | 11.84635 | 0.0000 |
| X1 | 0.010190 | 0.008968 | 1.136274 | 0.2604 |
| X2 | 0.009332 | 0.001360 | 6.862670 | 0.0000 |
| X3 | -0.002759 | 0.000331 | -8.327299 | 0.0000 |
| X4 | 0.001108 | 0.000651 | 1.702339 | 0.0940 |
| **Effects Specification** | | | | |
| **Cross-section fixed (orthogonal deviations)** | | | | |
| Mean dependent var | 0.170752 | S.D. dependent var | | 0.280240 |
| S.E. of regression | 0.240161 | Sum squared resid | | 3.402970 |
| J-statistic | 29.94867 | Instrument rank | | 36 |
| Prob(J-statistic) | 0.519949 | | | |

**Source:** Outputs of the statistical software E Views, version 13

## Conclusions and Recommendations
### First: Conclusions
1. The dynamic nature of the models reveals that continuity exhibits strong memory within banks; the value of the lagged variable was positive and significant in working capital, liquidity, and cost efficiency.
2. Sustainable assets (X4) showed a significant positive effect on working capital, a direct effect on liquidity (with approximately 10% significance), and an insignificant effect on efficiency.
3. The statistical results confirmed the soundness of the model specifications, as the J-statistic was insignificant, proving the validity and adequacy of the instruments.
4. The impact of the variables varies depending on the measured dimension of continuity: working capital, cost efficiency, and liquidity interact asymmetrically.
5. The patterns of significance (X1 being positive for efficiency and negative for working capital) align with the logic of long-term capital investment.
6. Overall, sustainable financing is not a single lever for all aspects of continuity but rather a bundle of temporally varied effects of different intensities. Strengthening the equity base and sustainable assets improves solvency and working capital.

### Second: Recommendations
1. Adopt a sustainable financing roadmap that links long-term goals to annual budgets, with quantitative thresholds for each indicator (Y1, Y2, Y3). This allows for managing the dynamic memory of the models and leveraging the lagged effect.
2. Design interim liquidity bridges to accompany the launch of sustainable investments, mitigating their negative impact on working capital. Short-term revolving credit lines tied to project expenditures can be used.
3. Enhance stable self-financing through retained earnings policies and intelligent capital accumulation. This increases liquidity and efficiency over time despite temporary pressure on working capital.
4. Gradually increase the weight of high-quality sustainable assets while monitoring their impact on working capital and efficiency. Define operational, rather than merely formal, ESG standards when selecting assets.
5. Develop a sustainable project financing structure policy that links disbursement to progress milestones tied to efficiency indicators.
6. Launch external sustainable financing tools (green bonds/sustainability-linked loans) to ease the burden on local liquidity.
7. Adopt a gradual approach in expanding the sustainable asset portfolio, focusing on sectors with predictable cash flows and low risks.

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