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Raed Qaed Hussein AL-Khaldi
Department of Veterinary Public Health, College of Veterinary Medicine, Al-Qasim Green University, Babylon, Iraq

Mohanad KH AL-Alwani
Department of Finance Management, Al-Qasim Green University, Babylon, Iraq

Corresponding Author:
Raed Qaed Hussein AL-Khaldi
Department of Veterinary Public Health, College of Veterinary Medicine, Al-Qasim Green University, Babylon, Iraq

The impact of using advanced financial analytics in supporting strategic credit decisions for Iraqi banks

Raed Qaed Hussein AL-Khaldi and Mohanad KH AL-Alwani

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Abstract
This study aims to explore the impact of using advanced financial analytics in supporting strategic credit decisions for Iraqi banks. Data was collected through a questionnaire distributed to 250 managers and employees in commercial banks, and 184 valid responses were analyzed using the SPSS program. The results showed that the four dimensions of strategic planning, namely: strategic vision, bank mission, strategic objectives, and environmental analysis, have a significant positive impact on credit granting decisions. The study also highlighted the importance of integrating advanced financial analytics within the framework of financial analytics to enhance informed credit decision-making, reduce risks, and achieve a competitive advantage for banks. The results indicate that adopting a strategic analytical approach enhances the effectiveness of credit management and ensures the sustainability of banking performance in a dynamic and constantly changing environment.

Keywords: Iraqi banks, advanced financial analytics, strategic planning, credit decisions, risk management

1. Introductions

1.1 Background

With the pursuit of profitability, risk management, and sustainable growth, the integration of financial analytics emerges as an indispensable necessity for banking institutions. This planning includes setting the institution's goals, assessing external environmental factors, and developing comprehensive action plans. In the context of making credit decisions, financial analysis goes beyond merely risk reduction, becoming an integrated mechanism aimed at aligning the institution's financial goals with market realities, through a comprehensive study of the complex relationships between financial analysis and banking credit decisions. Financial analysis is considered the cornerstone of institutional management, as it represents a dynamic process that facilitates the alignment of the organization with its long-term goals, resources, and procedures. This involves adopting a systematic approach to achieving long-term goals, while adapting resources and procedures accordingly. Recent studies, such as David's study (2017) [9], indicate the importance of financial analytics in dealing with the constantly changing business environment, emphasizing its adaptive nature that helps organizations respond to transformations and uncertain conditions.

The early twenty-first century witnessed an increasing recognition of the need to integrate innovation into strategic planning. Some studies, such as the one by Teece (2018), emphasize the necessity of integrating dynamic capabilities and innovation strategies to enhance sustainable competitive advantage in the rapidly changing global market. Digital transformation and modern technologies have also become a central focus in contemporary financial analysis, as Shafi and Ellis-Chadwick (2019) [7] illustrate the importance of integrating digital marketing strategies and technological advancements within the framework of financial analysis to enhance the competitiveness of institutions. And this is not separate from the social dimension, as contemporary financial analyses require a broader perspective that includes stakeholders and social responsibility. Freeman *et al*. (2020) proposed adopting stakeholder theory as the foundation for strategic management, with a focus on ethical considerations and the social impact of strategic decisions. As the pace of change accelerates, scenario-based and resilient financial analyses have gained increasing importance, with Van der Heijden (2017) suggesting the use of scenario planning as a tool to overcome uncertainties and enable organizations to adopt proactive responses.

In general, financial analysis appears as a multidimensional and adaptable process, combining different ideas and highlighting contemporary aspects such as innovation, technology, stakeholder engagement, and the ability to respond quickly to environmental changes. In a dynamic and constantly changing banking environment, financial analytics represent the cornerstone for achieving sustainable success and resilience against technological and regulatory shifts and changing customer expectations.

1.2 Study Problem

Despite the increasing importance of advanced financial analytics in the banking sector, many Iraqi banks still face difficulties in effectively employing these tools to support strategic credit decisions. This problem is linked to gaps at both the theoretical and practical levels, which limits the banks' ability to improve decision quality and reduce the financial risks associated with credit.

1.2.1 Theoretical Gaps

Previous studies indicate the importance of advanced financial analytics in making banking decisions (Berrospide & Edge, 2019) [6], yet research addressing the direct link between these analytics and supporting strategic credit decisions in the Iraqi context remains limited. Moreover, the current literature does not provide clear models for employing advanced financial analytics to improve credit decisions in line with the strategic goals of banks.

1.2.2 Gaps at the Practical Level

On a practical level, Iraqi banks face challenges in applying advanced financial analysis tools, including weak technical infrastructure, a lack of qualified human expertise, and the absence of clear policies for integrating analytical results into decision-making. These gaps affect the efficiency of credit decisions and increase the likelihood of financial risks.

The main question of the study

How does the use of advanced financial analytics contribute to supporting the strategic credit decisions of Iraqi banks?

1.3 Importance of the study

1.3.1 At the theoretical level

The study contributes to academic knowledge by clarifying the relationship between advanced financial analyses and strategic credit decisions, and by providing a comprehensive theoretical framework that can be used in future studies on financial analysis and bank credit.

1.3.2 At the practical level

The study contributes by providing practical recommendations for Iraqi banks on how to integrate advanced financial analytics into their credit strategies, enabling the improvement of decision quality, enhancement of financial performance, and reduction of risks associated with credit granting.

1.4 Study Questions

- What is the role of advanced financial analytics in supporting strategic credit decisions for Iraqi banks? What is the role of advanced financial analytics in supporting strategic credit decisions for Iraqi banks?
- How do advanced financial analytics affect the quality of credit decisions and reduce financial risks? How do advanced financial analytics affect the quality of credit decisions and reduce financial risks?
- What are the challenges banks face in implementing advanced financial analytics within their credit strategies? What are the challenges banks face in implementing advanced financial analytics within their credit strategies?

1.5 Study Objectives

- Analysis of the impact of using advanced financial analytics in supporting strategic credit decisions. Analysis of the impact of using advanced financial analytics in supporting strategic credit decisions.
- Evaluation of the relationship between advanced financial analytics and the quality of credit decisions. Evaluating the relationship between advanced financial analytics and the quality of credit decisions.
- Identifying the challenges faced by banks in implementing advanced financial analytics and providing practical recommendations to address them. Identifying the challenges faced by banks in implementing advanced financial analytics and providing practical recommendations to address them.

1.6 Study Hypotheses

- There is a statistically significant positive relationship between the use of advanced financial analytics and the support of strategic credit decisions in Iraqi banks. There is a statistically significant positive relationship between the use of advanced financial analytics and the support of strategic credit decisions for Iraqi banks.
- The application of advanced financial analytics contributes to improving the quality of credit decisions and reducing the associated risks. The application of advanced financial analytics contributes to improving the quality of credit decisions and reducing the associated risks.
- There are operational and technical challenges that affect the effectiveness of integrating advanced financial analytics into banking decision-making. There are operational and technical challenges that affect the effectiveness of integrating advanced financial analytics into banking decision-making.

2. Theoretical framework and literature review advanced financial analytics

Advanced financial analytics represent the use of modern tools and techniques, including big data, artificial intelligence, machine learning, and predictive models, to support strategic decision-making in banks, particularly in the area of credit decisions. Studies indicate that advanced financial analytics help banks accurately assess risks, improve credit performance, and offer innovative financial services to customers (Ergün, Karaibrahimoğlu, & Yüksel, 2020) [13].

According to Abdul Rahman (2019) [1], integrated financial analytics based on data and financial analysis enhances the strategic performance of banks and strengthens their ability to compete in changing markets. Acharya, Hasan, & Saunders (2019) [2] indicate that diversification in loan portfolios becomes more effective when precise financial

analytics are used to study customer risks. As Agarwal *et al.* explained (2019) that financial technology (FinTech) and advanced analytics can replace some functions of traditional banks, especially in loan support programs.

Additionally, advanced financial analytics contribute to improving regulatory oversight and risk management (Cumming & Johan, 2018; Eisenbach, Lucca, & Townsend, 2019) [8, 12] and supporting competitive strategies for banks (Dinçer, Olgu Akdeniz, & Hacioglu, 2018) [11]. Ergün *et al.* have confirmed (2020) [13] on the role of analytics in enhancing credit decision-making, fraud detection, and improving customer experience through smart tools based on big data and machine learning.

Studies show that banks that rely on advanced financial analytics have a greater ability to develop innovative financial products, improve operational efficiency, and ensure the sustainability of strategic decisions. From here, integrating financial analytics within financial analytics has become a fundamental necessity to achieve a sustainable competitive advantage in the modern banking sector (Allen *et al.*, 2021; Arner, Barberis, & Buckley, 2019) [4, 5].

2.1 The role of financial analysis in banks

- **Handling technological transformations:** With the rapid advancement of technology, financial analytics has become an integral part of the banking sector, as it helps manage the transformations resulting from innovations such as financial technology and digital transformation. Dealing with technological transformations: With the rapid advancement of technology, financial analytics has become an integral part of the banking sector, as it helps manage the transformations resulting from innovations such as financial technology and digital transformation. A study by Arner *et al.* (2019) [4] showed that financial analytics enables banks to adopt adaptive strategies that leverage technology to enhance operational efficiency, improve customer experience and diversify products.
- **Compliance and Risk Management:** Within the complex regulatory framework of the banking sector, financial analysis becomes essential to ensure compliance and effective risk management. Regulatory compliance and risk management: Within the complex regulatory framework of the banking sector, financial analysis becomes essential to ensure compliance and effective risk management. The study by Cumming and Johan (2018) [8] emphasized the pivotal role of strategic planning in establishing robust risk management frameworks that align with organizational goals and legal requirements.
- **Enhancing the customer-centric approach: Financial analytics play a pivotal role in adopting custome**r-focused strategies to meet their changing expectations. Enhancing the customer-centric approach: Financial analytics play a pivotal role in adopting customer-focused strategies to meet their changing expectations. A study by Luo *et al.* (2020) indicated that financial analytics enables banks to offer personalized services and integrated experiences across different channels to maintain competitiveness.
- **Utilizing data analytics and business intelligence:** Financial analytics have become an essential tool for leveraging big data and business analytics to make informed decisions, comprehensively assess risks, and develop innovative financial products. Leveraging data analytics and business intelligence: Financial analytics has become an essential tool for harnessing big data and business analytics to make informed decisions, comprehensively assess risks, and develop innovative financial products.
- **Enhancing innovation and resilience:** Financial analytics fosters a culture of innovation and resilience within banks, enabling them to quickly adapt to market dynamics, meet changing customer needs, and respond to regulatory changes. Enhancing innovation and flexibility: Financial analytics fosters a culture of innovation and flexibility within banks, enabling them to quickly adapt to market dynamics and meet changing customer needs and regulatory changes.

2.2 Financial analysis and credit decision-making

Financial analysis is fundamental to making banking credit decisions, as it provides a comprehensive framework for achieving the institution's goals while managing risks. This planning enables the formulation of risk management policies in line with the institution's strategic objectives, with a focus on aligning credit decisions with overall goals (Perosbide and Edge, 2019) [6]. The integration of technology, including artificial intelligence and machine learning, has also become increasingly important for improving risk assessment and aligning credit strategies with the institution's objectives.

Researchers emphasize the importance of adopting a customer-centric approach in financial analytics for credit decisions, taking into account the changing needs and preferences of customers (Acharya *et al.*, 2019) [2]. Understanding market dynamics and maintaining competitiveness are integral parts of financial analysis in this field with the necessity of integrating regulatory compliance to ensure decisions align with legal frameworks. Modern financial analysis also includes environmental, social and governance (ESG) dimensions to ensure the sustainability and legitimacy of credit decisions.

Previous studies, such as the one by Dincer *et al.* (2018), focus on the European banking sector, using advanced analytical tools to identify influencing factors and formulate competitive strategies. The study by Abdul Rahman (2019) [1] also highlighted the positive impact of strategic planning on the financial performance of banks. The study by Sogulu and Erdem (2019) focused on primary schools, indicating that sustainable financial analyses enhance the effectiveness of total quality management.

This study is characterized by its focus on the relationship between elements of financial analysis such as vision, mission, strategic goals, and internal and external environment analysis and the processes of making bank credit granting decisions, highlighting aspects that have not been extensively addressed in previous studies.

3. Research methods

The study population consisted of credit and planning managers, in addition to employees in commercial banks. The study tool (the questionnaire) was distributed to a random sample of 250 individuals from the study population, and 192 responses were received. Eight responses were excluded due to incompleteness, resulting in a study sample size of 184 individuals, which represents 73.6% of the study population, a high percentage.

The data were analyzed using the Statistical Package for the Social Sciences (SPSS), due to its known accuracy and reliability in results.

3.1 Strategic Credit Decisions

Strategic credit decisions refer to the process of making loan and financing decisions in banks in a way that balances risks and returns, aiming to achieve the institution's strategic objectives. They are not limited to granting or rejecting loans, but include setting credit policies, risk assessment strategies, and resource allocation in line with the bank's long-term vision and goals (Berrospide & Edge, 2019) [6].

These decisions rely on a thorough assessment of customers, the market, and the economic environment, ensuring the minimization of financial risks and the maximization of returns. Advanced Financial Analytics has also become a key tool in supporting these decisions, as it helps in studying borrowers' history, analyzing big data, using predictive models, and detecting fraudulent patterns (Ergün, Karaibrahimoğlu, & Yüksel, 2020) [13].

Recent studies highlight the role of strategic credit decisions in improving the overall performance of banks by aligning credit granting with strategic objectives, enhancing competitiveness, and ensuring regulatory compliance (Abdul Rahman, 2019; Fernández & López, 2018) [1, 14]. Yan (2021) also points to the importance of integrating sustainability, social responsibility, and corporate governance (ESG) dimensions into credit decisions to ensure the bank's sustainability and reduce environmental and social risks.

Moreover, strategic credit decisions help banks adapt to rapid technological and market transformations, such as digital financial innovation (FinTech) and modern financial analysis technologies (Agarwal *et al*., 2019; Arner, Barberis, & Buckley, 2019) [3, 5]. From here, it becomes clear that the strategic credit decisions of banks to achieve sustainable financial stability and increase returns while managing strategic risks represent an essential part of effective planning.

Studies indicate a strong positive relationship between advanced financial analytics and the effectiveness of credit decisions:

- **Jiménez *et al*. (2019):** The study indicated that using advanced financial analytics to analyse economic and environmental factors increases the accuracy of credit granting decisions and reduces risks.
- **Ergün *et al*. (2020) [13]:** The study showed that integrating artificial intelligence and predictive analytics enhances the alignment of decisions with the strategic goals of banks.
- **Kim & Strauss (2019):** Emphasised that advanced financial analytics enable banks to develop innovative financial products and improve lending strategies.

Based on this literature, it can be concluded that advanced financial analytics constitute a key supporting element for credit decisions, as they provide accurate data to improve strategic decision-making, reduce the likelihood of financial risks, and enhance the competitiveness of banks.

4. Results

The validity of the questionnaire was assessed by calculating the correlation coefficients between the dimensions of the study and the overall mean of the questionnaire. Table 1 shows that all values are statistically acceptable, exceeding 0.7, indicating that the questionnaire has construct validity.

Table 1: Validity of the questionnaire construction

Axis	Correlation coefficient
Strategic vision	0.985**
The bank's mission	0.960**
Strategic objectives	0.950**
Environmental analysis	0.985**
Credit granting decision	0.985**

The reliability of each axis was calculated using Cronbach's alpha, and the results in Table 2 showed that the Cronbach's alpha values exceeded 0.90, indicating a very high level of reliability.

Table 2: Reliability of the Questionnaire

Axis	Number of items	Cronbach's alpha coefficient
Strategic vision	6	0.913
The bank's mission	8	0.912
Strategic objectives	7	0.911
Environmental analysis	11	0.943
Credit granting decision	10	0.936

4.1 Hypothesis testing

After ensuring the validity and reliability of the questionnaire, the next step was to test the research hypotheses related to the relationship between financial analyses and the decision to grant bank credit.

- **The Main Hypothesis:** There is a statistically significant relationship between financial analyses and the decision to grant bank credit.
- **Sub-ypotheses: Sub-hypotheses:** The First hypothesis: There is a statistically significant relationship between the bank's strategic vision and the credit granting decision.

Using simple linear regression, the results (Table 3) showed that the R^2 value equals 0.972, meaning that 97.2% of the change in the credit granting decision can be explained by the bank's strategic vision, and the F-value (5178.63) is statistically significant (P=0.000).

The strategic vision coefficient (0.984) indicates that a one-unit increase in the bank's strategic vision level increases the credit granting decision by 0.984 units.

Prediction equation: $y = 0.058+0.984x\_1$

Where y represents the credit granting decision, and x_1 represents the strategic vision.

Table 3: The relationship between strategic vision and credit granting decision

Coefficient	Standard Error	Statistic Value	P-Value
Constant	0.058	0.056	1.029
Strategic vision	0.984	0.014	71.963
R^2	0.972	5178.634	0

4.2 The Second Hypothesis: There is a statistically significant relationship between the bank's message and the credit granting decision. Hypothesis 2: There is a statistically significant relationship between the bank's

message and the credit granting decision. The regression results (Table 4) showed that R^2 = 0.911, meaning that 91.1% of the variation in the credit granting decision can be explained by the bank's message, and the F-value (1543.54) is statistically significant (P=0.000).
And the coefficient of the bank's message (0.941) indicates that a one-unit increase in the level of the bank's message leads to an increase in the credit granting decision by 0.941 units.

Prediction equation: y = 0.222+0.941x_2

Table 4: The relationship between the bank's message and the credit granting decision

Coefficient	Standard Error	Statistic Value	P-Value
Constant	0.222	0.099	2.237
The bank's mission	0.941	0.024	39.288
R^2	0.911	1543.54	0

4.3 The Third Hypothesis: There is a statistically significant relationship between strategic objectives and the credit granting decision.
The regression results (Table 5) showed that R^2 = 0.822, meaning that 82.2% of the variation in the credit granting decision can be explained by the strategic objectives, and the F-value (693.173) is statistically significant (P=0.000).
And the coefficient of strategic objectives (0.822) indicates that a one-unit increase in the level of strategic objectives increases the credit granting decision by 0.822 units.

Table 5: The relationship between strategic objectives and the credit granting decision

Coefficient	Standard Error	Statistic Value	P-Value
Constant	0.818	0.126	6.506
Strategic objectives	0.822	0.031	26.328
R^2	0.822	693.174	0

4.4 The fourth hypothesis
There is a statistically significant relationship between environmental analysis and the credit granting decision. Hypothesis four: There is a statistically significant relationship between environmental analysis and the credit granting decision.
The regression results (Table 6) showed that R^2 = 0.900, meaning that 90% of the variation in the credit granting decision can be explained by environmental analysis, and the F-value (1343.392) is statistically significant (P=0.000).
And the environmental analysis coefficient (0.924) indicates that a one-unit increase in the level of environmental analysis increases the credit granting decision by 0.924 units.

Prediction equation: y = 0.326+0.924x_4

Table 6: The relationship between environmental analysis and credit granting decision

Coefficient	Standard Error	Statistic Value	P-Value
Constant	0.326	0.104	3.149
Environmental analysis	0.924	0.025	36.652
R^2	0.9	1343.392	0

5. Discussion
The notable positive relationship between the decision to grant bank credit and the strategic vision indicates its alignment with the literature that emphasizes the importance of financial analyses in credit risk management (Berrospide & Edge, 2019) [6].
The positive relationship between the credit granting decision and the bank's mission also highlights the importance of effective communication in making credit decisions. Each one-unit increase in the bank's message level is associated with a statistically significant increase of 0.941 units in the likelihood of credit approval. This is consistent with the literature that emphasizes the role of transparency in communication to build trust with stakeholders, including borrowers (Acharya, Hasan, Saunders, 2019) [2].
The positive relationship between the credit granting decision and strategic goals supports the idea that an increase of one unit in strategic goals leads to a statistically significant increase of 0.822 units in credit approval. The idea that aligning credit decisions with organizational goals enhances the effectiveness of credit management practices.
The positive relationship between the credit granting decision and environmental analysis also emphasizes the importance of considering external factors when making the credit granting decision. Every one-unit increase in the level of environmental analysis is associated with a statistically significant increase of 0.924 units in credit approval, which aligns with studies highlighting the importance of macroeconomic and environmental factors in shaping credit decisions and risk management.

6. Results and Recommendations Conclusions
The main objective of this study was to explore the relationship between financial analysis and credit granting decisions in banks. Through the data collected via a questionnaire distributed to 250 managers and employees in Iraqi banks, it was found that the four dimensions of strategic planning namely, strategic vision, bank mission, strategic objectives, and environmental analysis positively contribute to credit granting decisions.
When comparing these results with previous studies, we find consistency with the literature related to financial analysis and credit decision-making. The positive impact of strategic vision, effective communication, alignment with strategic goals, and environmental analysis on credit approval aligns with the principles addressed in academic studies.

6.1 Recommendations
- Based on the practical results of the study, the following is recommended for banks:
- Enhancing the approach to financial analytics to achieve the specified strategic objectives, while ensuring the exploitation of opportunities and reducing risks in the competitive business environment.
- Continuing to use the strategic analytical approach due to its significant impact on the performance and sustainability of banks.
- Activating strategic orientations and increasing focus on studying credit granting decisions.
- Emphasising the importance of the bank's mission as a foundation for achieving competitive advantage.
- Considering that the bank's strategic objectives change according to the needs and aspirations of the customers benefiting from the services.

- Developing the banking culture in line with the requirements for implementing strategic planning.
- Enhancing interaction and integration between different management levels in the financial analysis process through strategic information systems, and ensuring the effectiveness of their outputs to meet the needs of decision-makers.

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