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External determinants of profitability of Jordanian Islamic and traditional banks

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Abstract

This article aims to examine the external factors that impact the profitability of Jordanian Islamic and traditional banks. This paper was applied to all Jordanian banks: 3 Islamic banks and 12 traditional banks. The study was based on annual panel data for the years from 2011 to 2023. Data were collected from the annual reports of banks, reports of the Association of Banks in Jordan, and reports of the Central Bank of Jordan. The study used many determinants that affect profitability: ROA, Concentration Ratio (CR), Market Share (MR), gross domestic product (GDP), growth rate (GR), consumer price index (inflation) (CPI), and money supply (M2). The data were analyzed using a model of the effects of randomness. The paper found that Market Share (MR) and money supply (M2) have a positive impact on the profitability of Jordanian banks. It turned out that the Concentration Ratio (CR) and the consumer price index (CPI) have a negative impact on the profitability of Jordanian banks. It was also pointed out that gross domestic product (GDP) and growth rate (GR) have no impact on the profitability of Jordanian banks. The study recommends that Jordanian Islamic banks continuously monitor the development of their profits, as it affects their continuity and ability to compete. There is a need for Jordanian Islamic banks to explore new investment areas to exploit the volume of deposits available to them to increase profits.

Keywords: Concentration, Determinants, External, GDP, Inflation, Islamic banks, Money supply.

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1. Introduction

The banking sector performs a range of functions that reflect its importance in various economic systems; it is the largest channel for attracting savings and directing them towards investment, which contributes to supporting economic growth and development at the national level. It is also the primary entry point for implementing monetary policies to influence the state of the economy and address imbalances, and it helps connect the national economy with the outside world, as it serves as one of the channels linking the state economically to the external world.

The banking industry has witnessed an absolute dominance of traditional banking worldwide, including in Islamic countries, until Islamic banks emerged, applying banking practices in a manner that adheres to Islamic law, which is completely different from traditional banking methods. Over time, Islamic banks have developed, becoming an important part of the banking sector in many Islamic and non-Islamic countries [1]. However, the increasing number of customers wishing to switch to Islamic banking has faced intense competition from traditional banks, investment funds, and other financial institutions.

Despite the intense competition, Islamic banks want to continue advancing and establishing themselves in the banking industry; therefore, they must continuously review their performance results and identify the various factors affecting their performance, especially profitability, which is considered the primary means of sustainability [2, 3]. Continuous analysis of profitability and identification of the influencing factors are essential to enhance the positive determinants and mitigate the effects of negative determinants. This study is dedicated to exploring an important aspect of profitability determinants, which are the external determinants.

The Jordanian banking sector emerged in 1930 with the establishment of the Arab Bank, which began its operations in occupied Palestine. The Jordanian banking sector currently consists of 23 banks, including 15 Jordanian banks, which are divided into 3 Islamic banks and 12 traditional banks [4]. Traditional banks have dominated since their establishment until 1978 when the Jordan Islamic Bank was founded [5]. In 2023, the total assets reached 57,750 million dinars, with Islamic banks accounting for 18% and traditional banks for 77%. It also indicated that total facilities amounted to 27,440 million dinars, with Islamic banks providing 28% and traditional banks 68%. Deposits reached 46,944 million dinars, with Islamic banks holding 21% and traditional banks 76%. Capital amounted to 3,387 million dinars, of which 12% belongs to Islamic banks and 78% to traditional banks. Finally, the net profit of the Jordanian banking sector was 550 million dinars, with 19% attributed to Islamic banks and 78% to traditional banks [4].

The activity of Islamic banks in Jordan began in the 1970s with the establishment of the Jordan Islamic Bank in 1978 as a pioneer in Jordanian banking. In 1997, the Arab Islamic International Bank was established as a competitor to the Jordan Islamic Bank, and in 2010, Safwa Islamic Bank emerged. Jordanian Islamic banks offer financing and investment services without dealing with interest rates, providing many services to customers [6]. Their activity has seen significant expansion; in 2023, their total assets reached approximately 15,397 million dollars, and shareholders' equity amounted to about 1,394 million dollars, with services provided through more than 300 ATMs distributed across various regions [7].

The importance of the study can be highlighted in the need for Islamic banks to continuously assess their profitability, identify weaknesses and address them, and determine strengths to enhance them. This need arises from the necessity for Islamic banks to develop their competitive capacity to face the strong competition they encounter from both within and outside the banking sector.

The main objective of the study is to identify the external determinants of the profitability of Jordanian Islamic and traditional banks, while the sub-objectives include understanding the impact of factors related to the banking industry, such as the concentration ratio and market share, as well as factors related to the national economy, including GDP, economic growth, inflation, and money supply, on the profitability of Jordanian Islamic banks, expressed in terms of return on assets and return on equity.

2. Literature Review

The studies by Bashir [8], Haron [9], Wasiuzzaman and Tarmizi [10], and Medabesh [11] are among the first studies that investigated the factors affecting the profitability of Islamic banks. Subsequently, research on this topic expanded in various regions [8-11]. Some studies have investigated the internal factors affecting the profitability of Islamic banks [5, 12, 13]. Other studies focused on the internal factors influencing the profitability of Islamic banks through their relationship with credit risk [13-16]. Many studies linked the factors affecting the profitability of Islamic banks to their role in expressing bank performance, including Jaara, et al. [17], Rahmah and Kusbandiyah [18], and Moustapha and Nadir [19]. Ishak, et al. [20] used the exchange rate as a moderating variable to study the factors affecting the profitability of Islamic banks [20]. Furthermore, Sriyana examined the internal factors influencing the profitability of Islamic banks and their role in competition [21].

The study by Saleem and Ashfaque [22] examined the factors affecting the profitability of Islamic banks in Malaysia compared to Pakistan for the period from 2011 to 2017. The study was conducted on 8 Islamic banks in Malaysia and 4 Islamic banks in Pakistan, measuring profitability through return on equity (ROE), and included external determinants such as GDP per capita (GPC) and inflation (CPI). The study relied on a regression analysis method using pooled least squares and showed a negative impact of GDP per capita and a positive impact of inflation on the profitability of Islamic banks in both countries [22]. The research by Jaara, et al. [17] investigated the factors affecting the profitability of Islamic and conventional banks in the Gulf Cooperation Council countries for the period from 2000 to 2018, conducted on 57 Islamic banks, measuring profitability through return on assets (ROA), and studied GDP, GDP growth (GGDP), and inflation (CPI) as external determinants of profitability, relying on regression analysis [17].

In addition, Said and Ali [23] examined the factors affecting the profitability of Islamic banks in Indonesia for the period from 2011 to 2014, measured profitability through return on assets (ROA), and studied GDP and CPI inflation as external determinants of profitability. The study relied on regression analysis and showed a positive effect of GDP and inflation on the profitability of Islamic banks Said and Ali [23]. Wahidudin, et al. [24] attempted to identify the factors affecting the profitability of Islamic banks compared to conventional banks in a group of Asian countries, conducting the study on 16 Islamic banks and 33 conventional banks in Malaysia, Brunei, and Singapore during the period from 2004 to 2009, measuring profitability through return on assets (ROA) and return on equity (ROE), and studying GDP growth (GGDP) and CPI inflation

as external determinants of profitability. The study relied on regression analysis and showed a positive effect of GDP growth and inflation on the profitability of Islamic banks [24].

On another note, Siddique, et al. [25] found that GDP, CPI inflation, M2 money supply, and CR concentration ratio are external determinants of profitability. The study relied on regression analysis and showed a negative impact of inflation on the profitability of Islamic banks Siddique, et al. [25]. Abduh and Idrees [26] indicated that GGDP growth, CPI inflation, M2 money supply, CR concentration ratio, and FMD financial market development are external determinants of profitability. The study used regression analysis and demonstrated a positive effect of inflation, concentration ratio, and financial market development, and a negative effect of GDP growth on the profitability of Islamic banks Abduh and Idrees [26]. Khan, et al. [27] stated that GDP and CPI inflation are external determinants of profitability. The study employed regression analysis and revealed a negative impact of inflation and no effect of GDP on the profitability of Islamic banks [27].

Conversely, Bouhider [28] found no effect of inflation and gross domestic product on the profitability of Islamic banks Bouhider [28]. Muda, et al. [29] found a positive effect of GDP growth and a negative effect of inflation on the profitability of Islamic banks Muda, et al. [29]. Abugamea [30] measured profitability through return on assets (ROA) and return on equity (ROE), showing a positive effect of GDP per capita and a negative effect of inflation on the profitability of Islamic banks in Palestine. Through a study of the factors affecting the profitability of Islamic banks in a number of countries [47], Alharbi indicated that GDP per capita, concentration ratio, and oil prices positively affect the profitability of Islamic banks [32].

Finally, the study by Abduh, et al. [31] aimed to identify the factors affecting the profitability of Islamic banks in Malaysia, measuring profitability through return on assets (ROA) and examining GDP growth (GGDP) as an external determinant of profitability. The study showed that GDP growth positively affects the profitability of Malaysian Islamic banks. Mennawi and Ahmed [32] stated that inflation positively impacts the profitability of Islamic banks in Sudan [31].

This study is distinguished from previous studies by focusing solely on the external determinants of the profitability of Jordanian Islamic banks compared to conventional banks. The study also aimed to gather as many external determinants as possible that may affect the profitability of Jordanian Islamic banks, using quarterly data to create the largest possible series.

Based on the literature review, the study is based on the following main hypothesis:

H_1: There is no statistically significant effect at the significance level ($5\% \leq \alpha$) of the concentration ratio (CR) on the profitability of Jordanian Islamic and traditional banks.

H_2: There is no statistically significant effect at the significance level ($5\% \leq \alpha$) of the market share MR on the profitability of Jordanian Islamic and traditional banks.

H_3: There is no statistically significant effect at the significance level ($5\% \leq \alpha$) of GDP on the profitability of Jordanian Islamic and traditional banks.

H_4: There is no statistically significant effect at the significance level ($5\% \leq \alpha$) of the economic growth rate GR on the profitability of Jordanian Islamic and traditional banks.

H_5: There is no statistically significant effect at the significance level ($5\% \leq \alpha$) of the inflation rate CPI on the profitability of Jordanian Islamic and traditional banks.

H_6: There is no statistically significant effect at the significance level ($5\% \leq \alpha$) of the money supply M2 on the profitability of Jordanian Islamic and traditional banks.

3. Methodology and Design of the Research

3.1. Sampling

The study community consists of Jordanian banks, including 3 Islamic banks and 12 traditional banks. The study sample includes all Islamic and traditional banks in Jordan during the period 2011-2023, based on annual data for 13 years.

3.2. Data Resources

The study relied on secondary data sources; it examined previous studies that addressed the specific topic of the study in various regions in order to build the theoretical framework of the study, select the variables, determine the appropriate analysis method, and compare its results with those of the current study. It also relied on bank reports and reports from the Jordanian Banking Association to collect data and conduct financial analysis to determine the value of the variables in preparation for the fundamental analysis of the study.

According to previous studies such as Alharbi [33]; Hossain [16]; Jaara, et al. [17] and Hussein [34]. The estimation equation has taken the following form:

$$ROA_t = \alpha + \beta_{1t} + \beta_2 CR_t + \beta_3 MR_t + \beta_4 GDP_t + \beta_5 GR_t + \beta_6 CPI_t + \beta_7 M_{2t} + type + \varepsilon_t$$

Where: t= 2011-2023

Where:

ROA: return on assets, CR: Concentration Ratio, MR: Market Share, GDP: gross domestic product, GR: growth rate, CPI: consumer price index (inflation), M2: money supply, type: indicates to Islamic bank (0) or traditional bank (1).

3.3. Methods and Analysis

The study relies on descriptive statistics such as the mean, standard deviation, maximum and minimum values, and a correlation matrix to indicate the direction and strength of the relationship between variables, model selection tests for optimal analysis, and regression analysis for cross-sectional time series, including the variance inflation factor test.

3.4. Variables of Study

3.4.1. Dependent Variable

Return on assets (ROA) refers to the profitability ratio on assets after deducting all expenses and taxes, measuring the amount earned for each monetary unit invested in assets; the higher the ratio, the more it indicates effective use of assets [35, 36]. In Islamic banks, it is measured in the same way but after deducting all expenses, including due zakat Ali [37]. Abiodun, et al. [38] argue that the survival of banks and their ability to attract deposits depends on their profitability, thus successful banking operations and sustainability require banks to have sufficient profits. The study relied on calculating the ratio of net profit after tax to total assets [38].

3.4.2. Independent Variables

Table 1 presents the study variables. The independent variables are divided into two sections; the first section includes determinants related to the banking industry, and the second section consists of independent variables related to macroeconomics.

3.4.2.1. banking Industry Variables

The concentration ratio (CR) is referred to as market concentration, which is the distribution of the banking market among all banks that make up the banking sector; it expresses the market share of each bank, measured as the ratio of the total assets of the bank to the total assets of the banking sector [29]. The share of the Islamic banking sector in the entire banking sector [34].

Market Share (MR) refers to the share of Islamic banks in the banking sector, measured by the ratio of Islamic bank deposits to the total deposits of the banking sector in the country [9, 25].

3.4.2.2. Macroeconomic Variables

Gross Domestic Product (GDP) refers to the value of the current production of goods and services sold in markets over a specific period, GDP can be real when adjusted for any changes in prices, and it can be nominal if the inflation rate remains stable [39, 40].

Economic growth (EG) is derived from changes in real GDP from year to year, and it is expected that banks' capital holdings will increase during periods of economic prosperity due to rapid credit expansion [41]. Meanwhile, Mili, et al. [42] argue that banks tend to reduce their regulatory capital during times of strong economic growth because banking risks decrease significantly [42].

CPI inflation: It measures the percentage change in the prices of goods and services represented by the consumer price index, indicating a continuous rise in the general price level in the economy, and inflation leads to a decrease in the real value of money [37]. Inflation is considered a warning indicator for the banking sector [43] and it is also regarded as a market risk that directly affects the bank's capital; an increase in the inflation rate reduces the real value of retained capital, and it reflects the surrounding economic conditions that impact the efficiency of banks [44].

The money supply (M2) is the total amount of currency and liquid financial instruments in an economy at a given time, measured by the narrow definition M1, which includes circulating currency and bank reserves of hard currencies, current accounts, demand deposits, and traveler's cheques. It is also measured by the broader definition of M2, which includes M1 components along with savings deposits and certificates of deposit, and further measured by the even broader definition of M3, which includes M2 components and money market deposits [45].

Table 1.
Variables measurement.

Variables	Symbol	Elaboration
Dependent variable		
Return on assets	ROA	Net profit on total assets
Independent variables		
Banking-Sector variables		
Concentration Ratio	CR	Bank total assets on total assets
Market Share	MR	Bank total deposits to total deposits
Macroeconomic Variables		
Gross domestic product	GDP	Log of GDP
Growth rate	GR	Annually change in GDP
Inflation	CPI	Annual average inflation rate (%)
Money supply	M_2	Log of volume of money circulating in the economy.

4. Analysis and Results

4.1. Descriptive Analysis

Table 2 shows the main descriptive statistics for the independent variables, highlighting the differences between Islamic and traditional banks. For Islamic banks, the average return on assets is 1.39%, the concentration ratio is 15.4%, and the market share is 18%. In contrast, the return on assets for traditional banks is 1.58%, the concentration ratio is 84.6%, and the market share is 75%. While the indicators for traditional banks are better, the indicators for Islamic banks are more stable.

As for the independent variables related to the national economy, the average logarithm of the gross domestic product was approximately 3.8. The average economic growth was about 1.8%, and the average inflation was around 1.62%. On the other hand, the average logarithm of the money supply was approximately 1.42.

Table 2.
Descriptive statistics.

Variable	Type	Mean	Max.	Min.	Std. dev.
ROA	Islamic	1.39	4.99	0.12	0.48
	traditional	1.58	5.22	0.14	0.62
CR	Islamic	15.4	17	12	0.12
	traditional	84.6	88	83	0.11
MR	Islamic	18	19.5	14	0.41
	traditional	75	79	72	0.52
GDP		3.82	3.93	3.62	7.8
GR		1.8	15	-12.2	8.9
CPI		1.62	2.20	0.47	9.3
M_2		1.42	3.98	1.78	1.38

4.2. Multicollinearity Test

To test multicollinearity, the paper depends on a unit root test, correlation, and variance inflation factor VIF.

4.2.1. Unit Root Test

Table 3 shows the results of the unit root test by using Levin, et al. [46] showed that some variables are stable at level I(0) and all variables are stable at 1st difference I(1). This means that the data is free of the unit root at the 1st difference. The results indicated that some variables are integrated at a level while others are not, and it was found that all variables are integrated at the first difference, which means they are free from the unit root problem and suitable for analysis. However, the results of the analysis using the ordinary least squares method would not be reliable due to the potential for spurious regression, thus using the FEM method provides reliable results free from spurious regression.

Table 3.
Levin, Lin & Chu test.

Variable	Type	Level I(0)		1st Difference I(1)	
		Statistic	P-Value	Statistic	P-Value
ROA	Islamic	-3.648***	0.0000	-3.516***	0.0000
	traditional	-1.621*	0.0727	-3.521***	0.0000
CR	Islamic	-1.786*	0.0518	-4.814***	0.0000
	traditional	-2.075**	0.0228	-4.771***	0.0000
MR	Islamic	-2.092**	0.0301	-4.913***	0.0000
	traditional	-1.704*	0.0502	-5.728***	0.0000
GDP		-3.289**	0.0161	-3.676***	0.0000
GR		-1.902*	0.0909	-4.989***	0.0000
CPI		-2.265**	0.0288	-5.261***	0.0000
M_2		-3.193**	0.0237	-6.104***	0.0000

4.2.2. Correlation

Table 4 shows the correlation coefficients between the dependent and independent study variables, indicating that the correlation values between the independent and dependent variables ranged from -39% to 51%, which are values less than 80%, suggesting that there is no issue of multicollinearity among the variables, meaning there is no impact on the explanatory power of the variables and thus on the credibility of the analysis results.

Table 4.
Correlation matrix.

	ROA_T	ROA_I	CR_T	CR_I	MR_T	MR_I	GDP	GR	CPI	M_2
ROA_T	1	0.45	0.28	-0.05	0.12	0.29	-0.09	0.16	0.37	0.43
ROA_I		1	0.15	-0.19	-0.27	0.25	0.01	0.30	-0.53	-0.27
CR_T			1	-0.03	0.17	0.20	0.09	-0.05	0.08	-0.15
CR_I				1	0.38	-0.08	-0.25	-0.09	-0.13	0.09
MR_T					1	0.38	-0.01	-0.27	0.32	0.28
MR_I						1	0.25	0.31	-0.28	0.51
GDP							1	0.52	0.47	0.25
GR								1	-0.36	0.20
CPI									1	-0.39
M_2										1

4.2.3. VIF Model

Table 5 presents the nature of the relationship between the independent variables using the Variance Inflation Factor (VIF). The results show that all values are below ten. According to these results, there is no multicollinearity problem among all independent variables. All VIF values are below 10 for all variables.

Table 5.
Variance Inflation Factor.

Variable	Variance Inflation Factor (VIF)	Tolerance
CR_T	1.75	0.571
CR_I	1.62	0.617
MR_T	2.41	0.414
MR_I	2.05	0.488
GDP	1.89	0.529
GR	1.73	0.578
CPI	2.09	0.478
M_2	2.24	0.446

4.2.4. L-M Model Tests

In analyzing longitudinal cross-sectional data, it is necessary to choose one of three models for analysis, and Table 6 shows the results of the trade-off tests. The L-M test shows that the general effects model is not preferred to the fixed effects model for analysis because the probability value is less than 5%. Therefore, the choice is between the fixed and random effects models, and the Hausman test indicates that the random effects model is preferred to the fixed effects model for analysis because the probability value is greater than 5%.

Table 6.
Appropriate Model Tests.

Test Summary	Stat.	Prob.
Breusch and Pagan Lagrange multiplier test	118.419	0.000
Hausman test / Cross-Section Random	0.3264	1.000

4.2.5. Regression Analysis

This paper relied on random effects model REM analysis of longitudinal cross-sectional data of banks, and Table 7 shows the impact of independent variables on capital adequacy in Islamic and conventional banks in Jordan.

Table 7.
REM analysis results.

Variable	Coefficient	t-stat.	Prob.
CR	-0.2015	-7.9025	0.000***
MR	0.8215	2.2175	0.032**
GDP	0.0514	0.5572	0.329
GR	0.0612	1.6267	0.1089
CPI	-0.5861	-2.3387	0.0021**
M_2	0.4438	2.7486	0.0018**
Type	-0.0078	-9.2516	0.0000**
R^2	0.387	Adj R^2	0.374
F	20.212	F Prob.	0.0000
D-W	1.989		

5. Discussion of Results

Table 7 shows that the Durbin-Watson value is 1.989, which means that there is no autocorrelation between the variables. Moreover, the results show that the value of the F test is significant, which indicates the significance of all the parameters of the model and, therefore, the reliability of the analysis results. The results of the REM also found that the determination coefficient R^2 indicates that the explanatory power of the model is 0.387; that is, the changes in the independent variables explain 38.7% of the changes in the dependent variable, which is the return on assets.

The results showed that Concentration Ratio (CR) has a negative impact on the profitability of Jordanian banks, and this indicates a high ratio of bank assets to total assets negatively affects profitability, and this is logical because the increase in assets reflects a decrease in the ratio because the measure is return on assets, as the difference between profit and total assets means a decrease in the value of the indicator, and this corresponds to the results [33, 34, 47]. On the other hand, it turned out that Market Share (MR) has a positive impact on the profitability of Jordanian banks, and this indicates that the high ratio of bank deposits to the total deposits of the banking sector positively affects profitability, because a high percentage of deposits means the availability of additional sources of financing for the bank, which means an increase in the volume of invested funds and an increase in the size of the expected profit, and this corresponds to the results [25, 48].

On the other hand, the results showed that gross domestic product (GDP) and growth rate (GR) do not affect the profitability of banks, which means that changes do not affect the return on assets in all Jordanian banks, and this is consistent with the results [17, 27, 28, 48].

The results of the analysis also showed that (CPI) inflation affects the profitability of all Jordanian Islamic banks, and this corresponds to the results [17, 22, 26] the reason for this is that the real yield varies depending on the inflation rate, the real yield is the nominal yield minus the inflation rate, so the increase in inflation is compensated by increasing the yield, and therefore inflation affects the real profitability of banks. Moreover, the results showed that the (M2) cash offer was a factor affecting the profitability of Jordanian banks, and its impact was negative, this is consistent with the results of Haron [9] and Simai [48], and shows that an increase in the money supply means an increase in the profitability of Islamic banks; because an increase in the money supply indicates the economy's orientation towards expansion, which means an increase in investment activity, and therefore an increase in profitability, and the money supply did not affect the profitability of the Arab Islamic International Bank and the profitability of Safwa Islamic Bank, and this is consistent with the results [25, 30].

Finally, the results showed that the type variable was significant, which means that the type of bank affects the factors influencing the return on assets. This supports the results of descriptive statistics, which indicated a difference in return on assets (ROA), Concentration Ratio (CR), and Market Share (MR), demonstrating that traditional banks perform better than Islamic banks in Jordan.

The purpose of this paper is to study the external factors that may affect the profitability of Islamic banks compared to traditional banks in Jordan. The study sample consisted of 3 Islamic banks and 12 traditional banks during the period 2011-2023 based on panel data. The paper applied descriptive statistics, validity tests, and REM random effects analysis. The paper found that Market Share (MR) and money supply (M2) have a positive impact on the profitability of Jordanian banks. It turned out that the Concentration Ratio (CR) and the Consumer Price Index (CPI) have a negative impact on the profitability of Jordanian banks. It was also pointed out that Gross Domestic Product (GDP) and growth rate (GR) have no impact on the profitability of Jordanian banks.

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