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Determinants of Operational Efficiency in the Arab Banking Sector

Jamel Jouini Rami Obeid

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All correspondence should be addressed to:
Economic Department
Arab Monetary Fund
P.O. Box 2818
United Arab Emirates
Telephone No.: +9712-6171552
Fax No: +9712-6326454
E-Mail: economic@amfad.org.ae
Website: www.amf.org.ae

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Abstract

Many empirical studies on the reactions of the net interest margin to the fluctuations in bank-specific variables, banking industry-related determinants, monetary policy variables, and macroeconomic factors have emerged in the related literature. The current study continues in the same momentum by revisiting the relationship between the net interest margin and some related determinants for the Arab banking sector by considering a panel of 18 banks over the 2014-2019 period. For this purpose, we conduct an empirical analysis based on estimation and testing procedures in the framework of panel data models.

The findings reveal that the net interest margin reacts significantly and positively to the changes in the cost income ratio and the size of the banks. However, the monetary policy interest and inflation rates exert significant and negative effects on the net interest margin. A striking feature is that the negative responses of the net interest margin to the movements of the monetary policy interest and inflation rates are largely greater than the positive responses of the net interest margin to the fluctuations in the cost income ratio and the size of the banks. There is also evidence of no significant impacts of the provisions and the real GDP growth rate on the net interest margin for the panel of selected Arab banks. The study provides relevant policy recommendations for the banking decision-makers in the Arab region to well handle operational efficiency.

Introduction

The net interest margin is one of the most important factors that measure the operational efficiency in the banking sector, in terms of their intermediary role in managing savings and allocating loans. A high interest rate margin may dishearten investment, thus leading to an economic growth slowdown. Therefore, it is important to analyze the structure and components of the net interest margin and its effects on the banking sector. In this context, Brock and Suarez (2000) outline that a higher interest rate margin, represented by a lower interest rate on deposits and a higher interest rate on loans, may decrease savings and increase the cost of lending to potential borrowers, thus lowering investments. Saunders and Schumacher (2000) argue that a higher net interest margin may contribute to strengthening the banking system if the generated profits are directed towards enhancing the banks' capital bases.

The analysis of the responses of the net interest margin in the banking sector to the changes in many determinants has received increasing attention in the related literature. This study revisits this issue for the Arab banking sector by considering a panel of 18 Arab banks over the 2014-2019 period and applying estimation and testing techniques in the framework of panel data models. We consider a more generalized specification by introducing six determinants in the model to highlight the magnitude of the effects of various channels on the net interest margin, thus drawing pertinent policy

recommendations for the decision-makers of the Arab banking sector.

The study results show evidence of significant and positive reactions of the net interest margin to the fluctuations in the cost income ratio and the size of the banks, and significant and negative impacts of the interest and inflation rates on the net interest margin. It is also found that the provisions and the real GDP growth rate do not exert significant effects on the net interest margin for the set of selected Arab banks. These outcomes allow us to draw relevant policy recommendations for the decision-makers in the Arab banking sector to well manage operational efficiency.

The remainder of the study is organized as follows. Section 1 presents a brief literature review on the relationship between the net interest margin and related determinants in the banking sector. Section 2 introduces the model and the data. Section 3 presents the estimation and testing procedures. Section 4 discusses the outcomes of the econometric analysis. Concluding remarks and policy recommendations are presented at the end of the study.

1. Literature review

Several empirical studies in the literature have focused on the relationship between the net interest margin and many related determinants in developed and developing countries. Indeed, Doliente (2005) examines the determinants of the net interest margin in the banking sector of four Southeast Asian economies. The

research findings reveal that the bank-specific factors (collateral, liquid assets, non-performing loans, operating expenses, and capital) exert a significant effect on the net interest margin. Masarweh and Omet (2007) attempt to identify the determinants of the net interest margin in the banking sector of Jordan over the 2000-2005 period. The results indicate that the foreign deposits, the inflation, the ratio of operating expenses to total assets, and the ratio of loans to assets have a significant and positive effect on the net interest margin. However, there is evidence of a negative impact of the real GDP growth rate on the net interest margin. It is also found that the assets, the ratio of provisions to total loans, and the financial leverage ratio do not exert any impact on the net interest margin.

Ben Khediri and Ben Khedhiri (2011) investigate the determinants of the net interest margin in the Tunisian banking sector by considering a set of 10 banks over the 1996–2005 period. The results indicate that the bank capital, the opportunity costs of bank reserves, the operating costs, and the implicit interest payments are positively connected to the net interest margin. However, the quality (efficiency) of management has the power to negatively affect the net interest margin. It is also found that the credit risk is not a relevant driver of the net interest margin. Fungacova and Poghosyan (2011) examine the sensitivity of the net interest margin to the changes in some determinants for the Russian banking sector over the 1999-2007 period. The results outline that the operating expenses exert a significant and positive effect on the net interest margin, and that the

liquidity has a significant and negative impact on the net interest margin. However, the market share index is not a relevant driver of the net interest margin.

Hamadi and Awdeh (2012) investigate the effects of bank-specific variables, banking industry-related variables, monetary policy variables, and macroeconomic factors on the net interest margin in the Lebanese banking sector over the 1996-2009 period. The results indicate that the banks' size, the liquidity, the efficiency, the capital (leverage ratio), the credit risk, the concentration, the dollarization, and the economic growth exert negative impacts on the net interest margin. However, the growth rate of deposits, the lending, the inflation, the rediscount rate, the national savings, the investments, and the interbank lending interest rate have the power to positively influence the net interest margin. Poghosyan (2013) argues that the optimal interest rate margin can be calculated by covering some components, namely the cost of required reserve ratio, the operating expenses, the cost of provisions for credit impairment, the profitability, and the non-interest income.

Raharjo et al. (2014) investigate the responses of the net interest margin of commercial banks in Indonesia to the changes in internal factors (bank assets, profitability efficiency, capital adequacy, liquidity, and risk) and external factors (market competitiveness, inflation, and interest rate) over the 2008-2012 period. The study outcomes reveal that the net interest margin is affected by the internal factors and the inflation. Obeid and Adeinat (2017) examine the

determinants of the net interest margin in the Jordanian banking sector over the 2005-2015 period. The results indicate that the banking industry-related factors have a greater impact on the net interest margin compared to the other factors. They also reveal that some bank-specific variables and the required reserve ratio have the power to influence the net interest margin. However, it is found that the economic variables do not exert any effect on the net interest margin.

2. Model and data

The study examines the responses of the net interest margin in the banking sector to the changes in related determinants, namely the provisions, the cost income ratio, the size of banks, the monetary policy interest rate, the inflation rate, and the real GDP growth rate,[1] for a sample of three banks in each of six Arab economies (Bahrain, Jordan, Morocco, Oman, Palestine, and Qatar)[2] over the 2014-2019 period. Analytically, the considered model takes the following form:

$$\begin{cases} NIM_{it} = \beta_0 + \beta_1 PRV_{it} + \beta_2 CIR_{it} + \beta_3 SIZ_{it} \\ \quad +\beta_4 ITR_{it} + \beta_5 INF_{it} + \beta_6 GDP_{it} + \varepsilon_{it} \\ \quad i = 1, 2, \dots, N, \ t = 1, 2, \dots, T \end{cases} \quad (1)$$

[1] Many researchers consider different determinants across countries, namely bank-specific variables, variables related to the banking sector, and variables related to the overall economy (see Raharjo et al., 2014; and Obeid and Adeinat, 2017).

[2] For each country, we consider small, medium, and large banks.

where i refers to country and t refers to time, NIM_{it} is the net interest margin,[3] PRV_{it} is the provisions,[4] CIR_{it} is the cost income ratio, SIZ_{it} is the size of the banks, ITR_{it} is the monetary policy interest rate, INF_{it} is the inflation rate, and GDP_{it} is the real GDP growth rate, and ε_{it} is the disturbance term.

Under these conditions, the coefficient β_1 measures the impact of the provisions on the net interest margin. The bank is expected to pass the provisions costs by increasing the interest rate margin, thus leading to a higher net interest margin. As banks deduct provisions from their revenues to meet the credit risks, increases in the provisions grow the burden on the interest rate margin, thus leading to increase the net interest margin (see Raharjo et al., 2014; and Sidabalok and Viverita, 2011).

The coefficient β_2 assesses the effect of the cost income ratio on the net interest margin. This effect is expected to be positive, as large banks may pass the additional costs to customers by either increasing the interest rate on loans and/or decreasing the interest rate on deposits (see Obeid and Adeinat, 2017). The relationship between the net interest margin and the cost income ratio may be negative, as banks (especially small-sized banks) may keep the net interest margin unchanged or reduce it in proportion to the market interest

[3] The net interest margin is defined as the share of the interest received on credits minus the interest paid on deposits to the bank's total revenue.

[4] The provisions are defined as the coverage ratio of the non-performing loans.

rates to maintain their competitive edge, thus preserving their customers and attracting new ones (see Dumicic and Ridzak, 2013).

The coefficient β_3 assesses the responses of the net interest margin to the fluctuations in the size of the banks. The responses are expected to be positive, as large banks often have higher risk management efficiency and greater ability to control expenses.

The coefficient β_4 assesses the reactions of the net interest margin to the changes in the monetary policy interest rates. The monetary policy interest rates (deposit window, repurchase agreements (REPO), required cash reserve ratio, and re-discount rate) are expected to have an adverse impact on the net interest margin, as decreases in these interest rates allow injecting more liquidity into the market, thus increasing bank revenues, taking into account that increases in the net interest margin depend on the amount of the reduction in the interest rate margin.

The coefficient β_5 reveals how the net interest margin reacts to the changes in the inflation rate. The impact of inflation on the interest rate margin depends on whether inflation is expected or not. Indeed, if the inflation is expected, then the reactions are positive, as banks maintain maximizing their profits by raising interest rates on loans. However, if the inflation is unexpected, then the reactions are negative, as time does not allow to adjust interest rates on loans, and therefore high inflation leads to higher costs for banks and, thus, lower profits (see Perry, 1992).

The coefficient β_6 shows how the net interest margin responds to the fluctuations in the real GDP growth rate. The real GDP growth rate is expected to positively affect the interest rate margin, given increases in loans grants due to good economic conditions. Therefore, asset quality improves due to the reduced likelihood of borrowers defaulting, thus positively affecting the net interest margin.

Data are annual and gathered from different sources. Indeed, data on the net interest margin, the provisions, the cost income ratio, the size of the banks, and the monetary policy interest rate are gathered from the Arab Monetary Fund database, while data on the inflation rate and the real GDP growth rate are collected from World Development Indicators published by the World Bank.

3. Econometric methodology

3.1. Fixed effects model

The fixed effects model takes the following form:

$$\begin{cases} Y_{it} = \alpha_i + \beta' X_{it} + u_{it} \\ i = 1, 2, \dots, N, \;\; t = 1, 2, \dots, T \end{cases} \quad (2)$$

where Y_{it} is the net interest margin, X_{it} is the k-vector of independent variables, the individual effects α_i are represented by constants, β is the vector of coefficients associated with the independent variables, and u_{it} is an independent and identically distributed process.

The Ordinary Least Squares (OLS) estimator of the coefficients α_i and β, called Within estimator, or fixed effects estimator or LSDV estimator (Least Square Dummy Variable), is BLUE (Best Linear Unbiased Estimator). It is worth noting that the estimates of the individual effects can only be analyzed at a relative level (i.e. by comparing the different individual values) and not at an absolute level.

3.2. Random effects model

Many determinants, affecting the dependent variable and not explicitly introduced as explanatory variables, are approximated by the structure of the error terms. In this context, three types of omitted determinants can be considered as follows:

$$u_{it} = \alpha_i + \lambda_t + v_{it} \quad (3)$$

where α_i stands for the individual effects (random) that represent all the structural specificities, independent of time, of the dependent variable, which differ across individuals, λ_t stands for the temporal effects (random) that are identical for all individuals, and v_{it} is a stochastic process that stands for the component of the total error term u_{it} orthogonal to the individual and temporal effects. We assume that the error terms u_{it} are independent and identically distributed.

We assume, for the sake of analysis, that there is no temporal effect ($\lambda_t = 0$), and we therefore consider the following model:

$$\begin{cases} Y_{it} = \mu + \beta' X_{it} + u_{it} \\ u_{it} = \alpha_i + v_{it} \\ i = 1, 2, \dots, N, \ t = 1, 2, \dots, T \end{cases} \quad (4)$$

The existence of the individual effects α_i in the error term u_{it} of the model induces correlations between the levels of this error for a given individual (intra-individual correlations of the errors). Under these conditions, the Within estimator is unbiased and consistent, but not efficient. A BLUE estimator is then given by estimating the model by the Generalized Least Squares (GLS) estimation method.[5] This property is particularly interesting when discriminating between the fixed effects model and the random effects model by conducting the appropriate specification test (see Hausman, 1978).

3.3. Specification tests for individual effects

For individual effects models, the issue is about the specification of these individual effects (fixed effects or random effects). It is worth noting that the MCG estimator of the random effects model is asymptotically identical to the Within estimator when the time series dimension tends to infinity. However, for panels with small time series dimension, as is the case in this study ($T = 6$), there are

[5] The MCG estimator is more efficient than the Within estimator for random effects models even in the case of small samples ($T \geq 3$ and $N - (k + 1) \geq 9$) (see Taylor, 1980), which is the case in our study, where $T = 6 > 3$ and $N - (k + 1) = 11 > 9$. It is worth noting that for a fixed cross-section dimension N, the MCG and Within estimators are merged when the time series dimension T of the panel tends to infinity.

differences between the Within and MCG estimators (see Hausman, 1978). Accordingly, the choice of the appropriate specification is essential for this type of panel to efficiently estimate the model coefficients.

The correlation issue between the individual effects α_i and the independent variables X_{it}, (i.e. $E(\alpha_i|X_i) \neq 0$), arises in the context of random effects models, thus reflecting the influence of the individual structural specificities on the determination of the level of the independent variables. The test strategy consists in comparing the Within and MCG estimators. Indeed, the divergence reflects the presence of correlation between the individual effects and the independent variables, and therefore the adoption of the fixed effects model (Within estimator). On the other hand, if the two estimators give substantially identical results, we can adopt the random effects model (MCG estimator). Thus, the appropriate specification of the individual effects is an important issue in applied panel applications.

The application of the Hausman test for the specification of individual effects relies on the following hypotheses:

$$\begin{cases} H_0: E(\alpha_i|X_i) = 0 \\ H_1: E(\alpha_i|X_i) \neq 0 \end{cases} \quad (5)$$

Under the null hypothesis H_0, the model is specified with random effects (MCG estimator), while under the alternative hypothesis H_1, the model is specified with fixed effects (Within estimator). The Hausman test statistic takes the following form:

$$H = (\hat{\beta}_{MCG} - \hat{\beta}_{LSDV})'[Var(\hat{\beta}_{MCG} - \hat{\beta}_{LSDV})]^{-1}(\hat{\beta}_{MCG} - \hat{\beta}_{LSDV}) \quad (6)$$

Under H_0, the test statistic H follows asymptotically (N tends to infinity) a chi-square distribution with k degrees of freedom. We reject the null hypothesis H_0 and, therefore, adopt the fixed effects model (Within estimator) if the observed value of the test statistic H is greater than a given significance level.

It is worth noting that the test statistic H is degenerated when the time series dimension T tends to infinity, as the MCG estimator converges towards the Within estimator and, thus, all components of H tend to 0. Under these conditions, the random effects and fixed effects models are perfectly similar and, therefore, the issue of the specification of individual effects is irrelevant.

4. Analysis of the results

4.1. Descriptive analysis

The plot of the evolution of the average net interest margin in the Arab banking sector over the 2014-2019 period, reported in Figure 1, indicates that the net interest margin reached about 71% in 2019 compared to 71.1% in 2018. This similarity of the average net interest margin over two consecutive years refers to the effectiveness of the operational efficiency of the Arab banking sector.

Figures 2-7 plot the evolution of the average net interest margin for a sample of three banks over the 2014-2019 period across countries.

They reveal that for nine out of 18 banks, namely two Bahraini banks, three Jordanian banks, one Moroccan bank, one Palestinian bank, and two Qatari banks, the net interest margin exceeded the average ratio for the Arab banking sector achieved in 2019. It is worth noting that one Palestinian bank recorded the highest ratio, while one Moroccan bank recorded the lowest ratio, due to some challenges faced by its financial position during the study period. Overall, the considered sample of banks has high operational efficiency, and there is evidence of management efficiency for the banks in using their assets.

The descriptive statistics displayed in Table 1 reveal that the net interest margin differs substantially across banks for Morocco and Palestine. However, the net interest margin is almost stable across banks for the remaining four Arab economies, and ranges between 60% and 80%. Most of the average net interest margin values are close of the average value experienced for the full panel of Arab banks (65%). The volatility of the net interest margin differs across banks and countries, as mentioned by the standard deviation values. There is also evidence of discrepancies in the average and volatility of the provisions, the cost income ratio, and the size of the banks across banks and countries, as well as discrepancies in the average and volatility of the monetary policy interest rate, the inflation rate, the real GDP growth rate across countries.

The empirical correlations, presented in Table 2, show evidence of mixed (positive and negative) connection between the net interest

margin and the related determinants across banks and countries. For the full panel of Arab banks, the results reveal that the net interest margin is positively correlated to the provisions and the banks' size, and negatively linked to the cost income ratio, the monetary policy interest rate, the inflation rate, and the real GDP growth rate. These correlation outcomes do not tell us about the sensitivity of the net interest margin to the changes in the considered factors, which leads us to conduct a deeper analysis of the linkages between the net interest margin and the related determinants by applying the above-mentioned estimation and testing issues to achieve the study objectives.

4.2. Choice of the appropriate model

For the considered panel of banks, the observed value of the test statistic H is 8.764. Since the model introduces six independent variables ($k = 6$), the test statistic follows a chi-square distribution with six degrees of freedom and, thus, the critical values are 16.812 (1%), 12.592 (5%), and 10.645 (10%). Therefore, the null hypothesis of no correlation between the individual effects and the independent variables is not rejected, implying that these variables are not correlated with the structural specificities, independent of time, of the level of the net interest margin of the banking sector in the selected panel of Arab countries. Accordingly, we opt for a random effects model and retain the MCG estimator.

4.3. Determinants of the net interest margin

The MCG estimates of the random effects model are reported in Table 3. Let us first interpret the estimates of the individual effects at a relative level by comparing the different individual values. It is clear that the first bank in Palestine has, structurally, the highest level of net interest margin. Conversely, the third bank in Morocco and the second bank in Palestine have negative individual effects. Indeed, for the same level of the considered determinants, these two banks have the lowest level of net interest margin in the considered sample. These outcomes are aligned with the descriptive results reported in Table 1.

The estimates of the coefficients related to the determinants indicate that the cost income ratio and the size of the banks are relevant drivers of the net interest margin, as they exert a significant and positive impact on it. Indeed, an increase by one unit in the cost income ratio and the size of the banks generates an increase by 0.161 and 0.032 unit in the net interest margin, respectively. The significant and positive relationship between the cost income ratio and the net interest margin can be due to the fact that a higher cost income ratio may be charged to the interest rate margin, and that banks may expand the interest rate margin more than the amount of the cost income ratio increases. The significant and positive relationship between the banks' size and the net interest margin is revealing of the ability of large banks to control market interest rates and generate more profits.

The net interest margin reacts significantly and negatively to the fluctuations in the monetary policy interest and inflation rates. Indeed, an increase by one unit in the monetary policy interest and inflation rates leads to a decrease by 1.625 and 1.105 unit in the net interest margin, respectively. The significant and negative responses of the net interest margin to the changes in the monetary policy interest rate reveals the critical role of the monetary policy in influencing market interest rates, as reducing (raising) the interest rate generates a decrease (an increase) in the banks' costs, an injection of more liquidity into the market, and an increase in demand for loans, thereby raising (reducing) the net interest margin. However, this depends on the gap in the amount of the increase or decrease in the monetary policy interest rate and the interest rate margin. For inflation, the significant and negative links with the net interest margin may be explained by the fact that price increases reduce the disposable income of individuals, thus growing the demand for loans to meet their needs, which pushes banks to increase the interest rate on loans. This interest rate increase on loans may be higher than increases in both inflation and the costs induced by banks due to inflation. It is also possible that price increases may lower the ability of customers to fulfill their obligations towards banks, thus reducing the banking net revenues.

A striking feature is that the negative effects of the monetary policy interest and inflation rates on the net interest margin are more important than the positive effects of the cost income ratio and the

size of the banks on the net interest margin. It is also found that the provisions and the real GDP growth rate do not have the power to influence the net interest margin in the banking sector of the selected Arab economies.

Conclusion and policy recommendations

The study investigates the reactions of the net interest margin to the fluctuations in some related determinants, namely the provisions, the cost income ratio, the size of the banks, the monetary policy interest rate, the inflation rate, and the real GDP growth rate, for a set of 18 banks in six Arab countries over the 2014-2019 period by applying estimation and testing procedures in the framework of panel data models.

The findings of the econometric analysis reveal significant and positive responses of the net interest margin to the changes in the cost income ratio and the size of the banks, and significant and negative effects of the monetary policy interest and inflation rates on the net interest margin for the set of selected Arab banks. They also show evidence of no significant impacts of the provisions and the real GDP growth rate on the net interest margin. From these results, the following policy recommendations can be drawn for the decision-makers in the Arab banking sector:

- Urging banks to continue improving their operational efficiency to enhance their contribution to financing

economic activities at appropriate costs, and to not increase their profit margin in case of reduction of the operating expenses and the provisions of the non-performing loans.

- Using monetary policy tools prudently, considering their direct and/or indirect impact on the net interest margin.
- Not exaggerating in pricing the products of commercial banks, so that prices are commensurate with their real costs and expenditures.
- Coordinating between monetary and macro-prudential policies, e.g. the effect of changing the monetary policy tools' rates on the accumulation of the systemic risks in the financial system.

References

Arab Monetary Fund (2020). Arab Financial Stability Report. Abu Dhabi, UAE.

Arab Monetary Fund (2019), Determinants of net interest margin survey in the Arab banking sector. Abu Dhabi, UAE.

Ben Khediri, K. and Ben-Khedhiri, H. (2011). Determinants of bank net interest margin in Tunisia: a panel data model. Applied Economics Letters, 18, 1267–1271.

Brock, P.L. and Suarez, L.R. (2000). Understanding the behavior of bank spreads in Latin America. Journal of Development Economics, 63, 113–134.

Doliente, J.S. 2005. Determinants of bank net interest margins in Southeast Asia. Applied Financial Economics Letters, 1, 53–57.

Dumicic, M. and Ridzak, T. (2013). Determinants of banks' net interest margin in Central and Eastern Europe. Financial Theory and Practice, 37, 1–30.

Fungacova, Z. and Poghosyan, T. (2011). Determinants of bank interest margins in Russia: Does bank ownership matter? Economic Systems, 35, 481–495.

Hamadi, H. and Awdeh, A. (2012). The determinants of bank net interest margin: Evidence from the Lebanese banking sector. Journal of Money, Investment and Banking, 23, 85–98.

Hausman, J.A. (1978). Specification tests in econometrics. Econometrica, 46, 1251–1271.

Masarweh, M. and Omet, G. (2007). The impact of dollar deposits on net interest margin: The Jordanian bank's case. Unpublished Doctoral Dissertation, University of Jordan, Amman.

Obeid, R. and Adeinat, M. (2017). Determinants of net interest margin: An analytical study on the commercial banks operating in Jordan (2005-2015). International Journal of Economics and Financial Issues, 7, 515–525.

Perry, P. (1992). Do banks gain or lose from inflation. Journal of Retail Banking, 14, 25–30.

Poghosyan, T. (2013). Financial intermediation costs in low income countries: The role of regulatory, institutional, and macroeconomic factors. Economic Systems, 37, 92–110.

Raharjo, P.G., Hakim, D.B., Manurung, A.H. and Maulana, T.N.A. (2014). The determinant of commercial banks' interest margin in Indonesia: An analysis of fixed effect panel regression. International Journal of Economics and Financial Issues, 4, 295–308.

Saunders, A. and Schumacher, L. (2000). The determinants of bank interest margins: an international study. Journal of International Money and Finance, 19, 813–832.

Sidabalok, L.R. and Viverita, D. (2011). The determinant of net interest margin in the Indonesian banking sector. Universitas Indonesia, Research paper No.13-02.

Taylor, W.E. (1980). Small sample consideration in estimation from panel data. Journal of Econometrics, 13, 203–223.

Table 1. Summary statistics of the variables for Bahrain

Variable	Bank 1	Bank 2	Bank 3
NIM			
Mean	0.695	0.680	0.716
Std. Dev.	0.040	0.032	0.032
PRV			
Mean	0.102	0.033	0.048
Std. Dev.	0.147	0.015	0.011
CIR			
Mean	0.413	0.884	0.707
Std. Dev.	0.013	0.093	0.092
SIZ			
Mean	8.993	7.670	6.210
Std. Dev.	0.051	0.060	0.113
ITR			
Mean	0.020	0.020	0.020
Std. Dev.	0.010	0.010	0.010
INF			
Mean	0.020	0.020	0.020
Std. Dev.	0.007	0.007	0.007
GDP			
Mean	0.030	0.030	0.030
Std. Dev.	0.012	0.012	0.012

Table 1 - bis. Summary statistics of the variables for Jordan

Variable	Bank 1	Bank 2	Bank 3
NIM			
Mean	0.759	0.769	0.736
Std. Dev.	0.012	0.060	0.010
PRV			
Mean	0.063	0.072	0.079
Std. Dev.	0.007	0.012	0.012
CIR			
Mean	0.439	0.530	0.666
Std. Dev.	0.032	0.041	0.036
SIZ			
Mean	9.159	7.722	7.441
Std. Dev.	0.049	0.140	0.159
ITR			
Mean	0.031	0.031	0.031
Std. Dev.	0.007	0.007	0.007
INF			
Mean	0.016	0.016	0.016
Std. Dev.	0.023	0.023	0.023
GDP			
Mean	0.023	0.023	0.023
Std. Dev.	0.006	0.006	0.006

Table 1 - bis. Summary statistics of the variables for Morocco

Variable	Bank 1	Bank 2	Bank 3
NIM			
Mean	0.582	0.770	-0.015
Std. Dev.	0.052	0.028	0.087
PRV			
Mean	0.037	0.083	0.012
Std. Dev.	0.003	0.008	0.004
CIR			
Mean	0.365	0.498	0.436
Std. Dev.	0.036	0.028	0.090
SIZ			
Mean	10.424	9.061	6.685
Std. Dev.	0.099	0.058	0.227
ITR			
Mean	0.033	0.033	0.033
Std. Dev.	0.010	0.010	0.010
INF			
Mean	0.011	0.011	0.011
Std. Dev.	0.007	0.007	0.007
GDP			
Mean	0.030	0.030	0.030
Std. Dev.	0.013	0.013	0.013

Table 1 - bis. Summary statistics of the variables for Oman

Variable	Bank 1	Bank 2	Bank 3
NIM			
Mean	0.602	0.665	0.629
Std. Dev.	0.017	0.044	0.028
PRV			
Mean	0.032	0.027	0.046
Std. Dev.	0.002	0.008	0.021
CIR			
Mean	0.388	0.429	0.898
Std. Dev.	0.007	0.016	0.122
SIZ			
Mean	10.206	8.775	6.369
Std. Dev.	0.097	0.145	0.208
ITR			
Mean	0.019	0.019	0.019
Std. Dev.	0.010	0.010	0.010
INF			
Mean	0.008	0.008	0.008
Std. Dev.	0.006	0.006	0.006
GDP			
Mean	0.019	0.019	0.019
Std. Dev.	0.026	0.026	0.026

Table 1 - bis. Summary statistics of the variables for Palestine

Variable	Bank 1	Bank 2	Bank 3
NIM			
Mean	0.997	0.315	0.562
Std. Dev.	0.158	0.068	0.053
PRV			
Mean	0.020	0.014	0.036
Std. Dev.	0.015	0.010	0.025
CIR			
Mean	0.691	0.772	0.768
Std. Dev.	0.047	0.026	0.126
SIZ			
Mean	8.091	6.900	5.381
Std. Dev.	0.189	0.204	0.139
ITR			
Mean	0.068	0.068	0.068
Std. Dev.	0.004	0.004	0.004
INF			
Mean	0.008	0.008	0.008
Std. Dev.	0.009	0.009	0.009
GDP			
Mean	0.027	0.027	0.027
Std. Dev.	0.033	0.033	0.033

Table 1 - bis. Summary statistics of the variables for Qatar

Variable	Bank 1	Bank 2	Bank 3
NIM			
Mean	0.808	0.622	0.775
Std. Dev.	0.020	0.014	0.023
PRV			
Mean	0.025	0.038	0.018
Std. Dev.	0.027	0.010	0.005
CIR			
Mean	0.203	0.439	0.272
Std. Dev.	0.013	0.057	0.019
SIZ			
Mean	11.964	10.363	9.629
Std. Dev.	0.211	0.081	0.976
ITR			
Mean	0.047	0.047	0.047
Std. Dev.	0.003	0.003	0.003
INF			
Mean	0.013	0.013	0.013
Std. Dev.	0.016	0.016	0.016
GDP			
Mean	0.023	0.023	0.023
Std. Dev.	0.026	0.026	0.026

Table 2. Correlations between the net interest margin and the related determinants

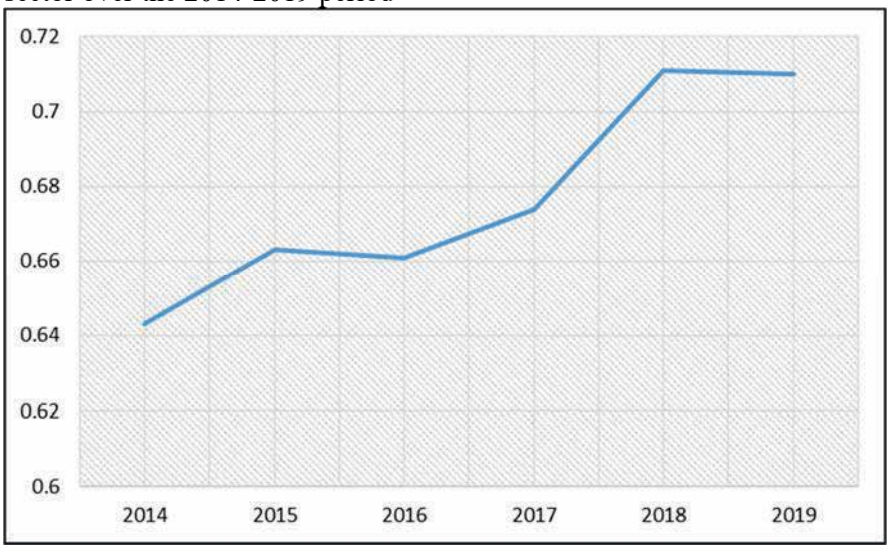
Bank	PRV	CIR	SIZ	ITR	INF	GDP
BHR – Bank 1	0.425	-0.672	0.440	0.820	-0.293	-0.345
BHR – Bank 2	0.117	0.777	0.085	-0.037	-0.244	-0.659
BHR – Bank 3	0.871	0.905	0.135	0.455	-0.479	-0.256
JOR – Bank 1	-0.376	-0.835	0.157	0.307	-0.202	-0.793
JOR – Bank 2	-0.731	-0.278	-0.062	0.122	-0.496	0.252
JOR – Bank 3	-0.903	-0.672	0.115	0.198	-0.643	0.045
MAR – Bank 1	-0.297	0.951	0.296	-0.241	-0.215	0.872
MAR – Bank 2	-0.908	-0.680	-0.936	-0.842	-0.174	0.092
MAR – Bank 3	-0.340	-0.714	-0.479	-0.497	-0.499	-0.085
OMN – Bank 1	-0.848	0.759	0.278	0.810	-0.189	-0.361
OMN – Bank 2	-0.281	0.777	-0.803	-0.561	-0.380	0.432
OMN – Bank 3	0.294	-0.511	0.664	0.324	0.081	-0.708
PSE – Bank 1	0.584	0.898	0.939	-0.898	-0.771	0.073
PSE – Bank 2	0.716	0.954	0.996	-0.931	-0.487	-0.098
PSE – Bank 3	0.774	0.800	0.895	-0.963	-0.493	-0.143
QAT – Bank 1	0.201	0.931	0.785	0.491	-0.622	-0.793
QAT – Bank 2	0.833	-0.546	0.738	0.710	-0.568	-0.926
QAT – Bank 3	-0.279	0.326	-0.495	0.288	0.072	-0.271
Full Panel	0.237	-0.039	0.327	-0.029	-0.151	-0.057

Table 3. MCG estimates of the random effects model

Variable	Coefficient	Standard Error
CONSTANT	0.356**	0.155
PRV	0.250	0.155
CIR	0.161*	0.083
SIZ	0.032**	0.016
ITR	-1.625**	0.711
INF	-1.105**	0.433
GDP	-0.173	0.270
Individual effects		
α_1 – BHR – Bank 1	0.016	
α_2 – BHR – Bank 2	-0.015	
α_3 – BHR – Bank 3	0.092	
α_4 – JOR – Bank 1	0.092	
α_5 – JOR – Bank 2	0.132	
α_6 – JOR – Bank 3	0.085	
α_7 – MAR – Bank 1	-0.106	
α_8 – MAR – Bank 2	0.090	
α_9 – MAR – Bank 3	-0.581	
α_{10} – OMN – Bank 1	-0.110	
α_{11} – OMN – Bank 2	-0.007	
α_{12} – OMN – Bank 3	-0.046	
α_{13} – PSE – Bank 1	0.383	
α_{14} – PSE – Bank 2	-0.265	
α_{15} – PSE – Bank 3	0.023	
α_{16} – QAT – Bank 1	0.120	
α_{17} – QAT – Bank 2	-0.053	
α_{18} – QAT – Bank 3	0.152	

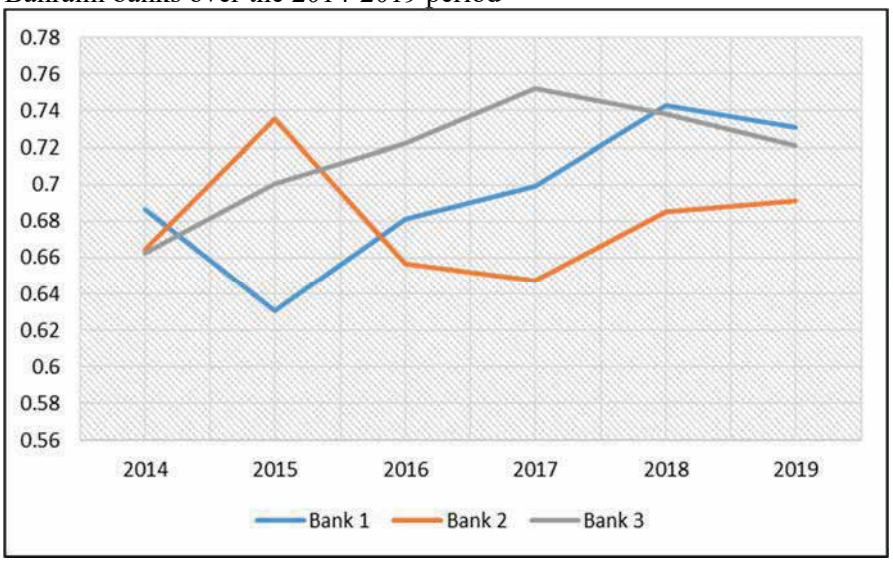
Note: ** and * stands for statistical significance at the 5% and 10% levels, respectively.

Figure 1. Evolution of the average net interest margin in the Arab banking sector over the 2014-2019 period



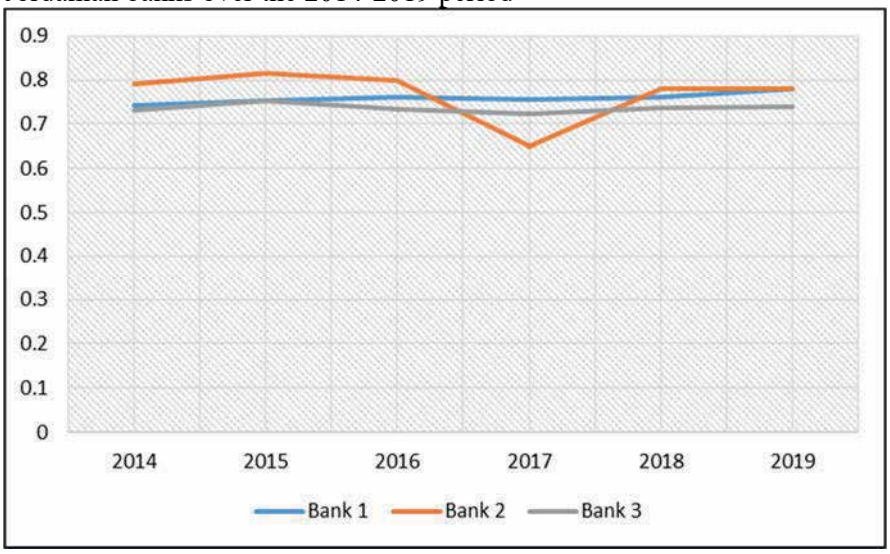
Source: Arab Monetary Fund (2020), Arab Financial Stability Report.

Figure 2. Evolution of the average net interest margin for a sample of three Bahraini banks over the 2014-2019 period



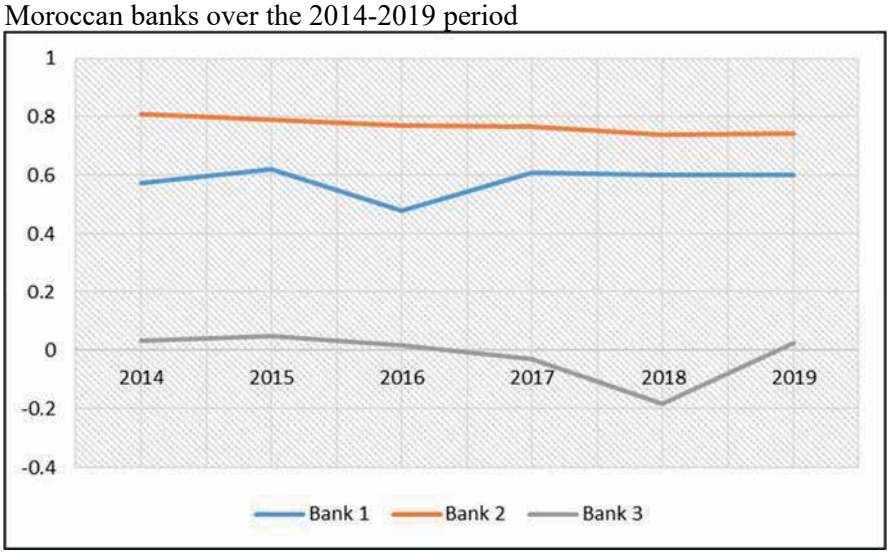
Source: Arab Monetary Fund (2019), Determinants of Net Interest Margin Survey in the Arab Banking Sector.

Figure 3. Evolution of the average net interest margin for a sample of three Jordanian banks over the 2014-2019 period



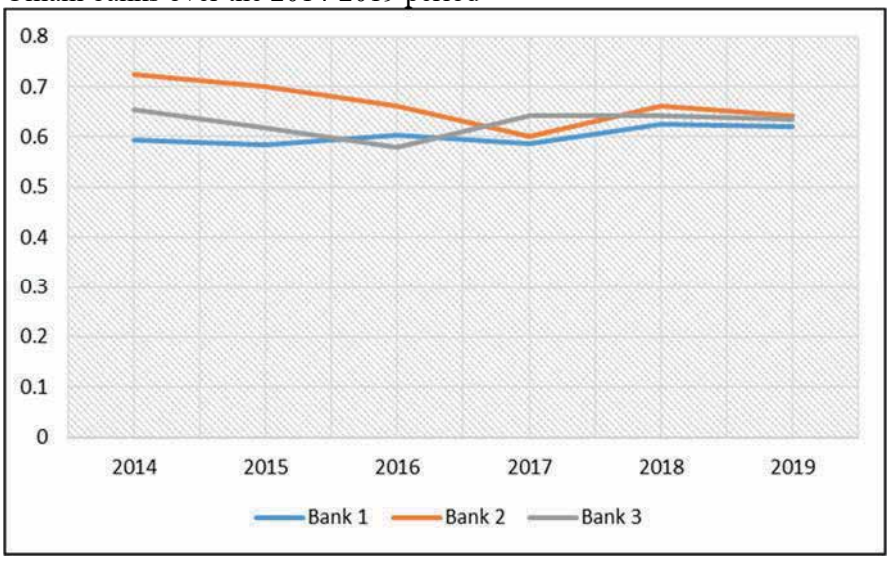
Source: Arab Monetary Fund (2019), Determinants of Net Interest Margin Survey in the Arab Banking Sector.

Figure 4. Evolution of the average net interest margin for a sample of three Moroccan banks over the 2014-2019 period



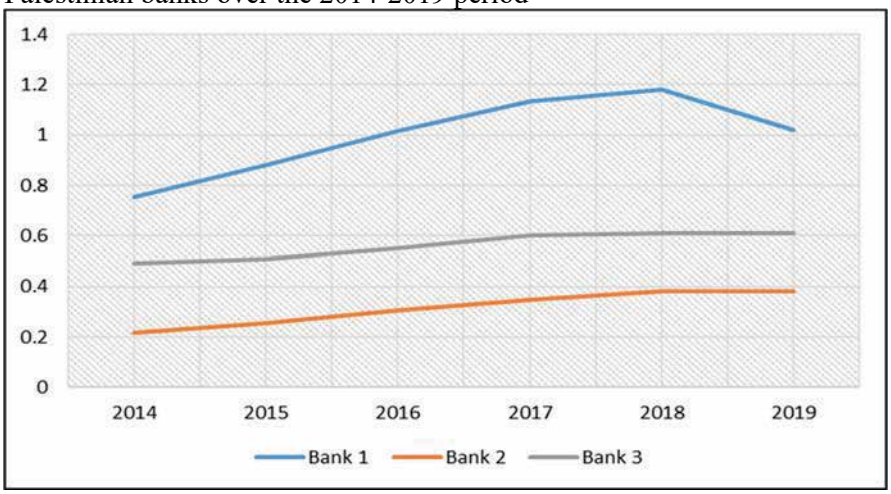
Source: Arab Monetary Fund (2019), Determinants of Net Interest Margin Survey in the Arab Banking Sector.

Figure 5. Evolution of the average net interest margin for a sample of three Omani banks over the 2014-2019 period



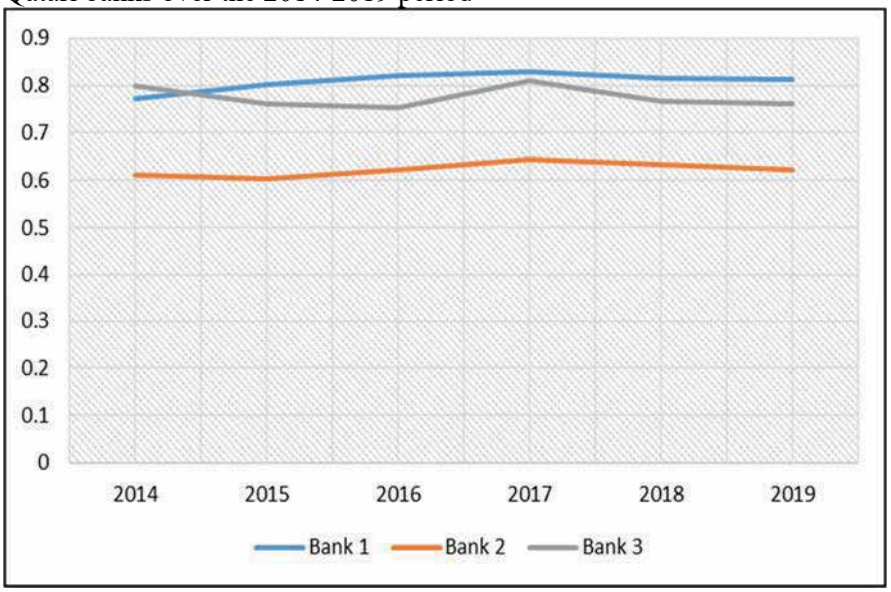
Source: Arab Monetary Fund (2019), Determinants of Net Interest Margin Survey in the Arab Banking Sector.

Figure 6. Evolution of the average net interest margin for a sample of three Palestinian banks over the 2014-2019 period

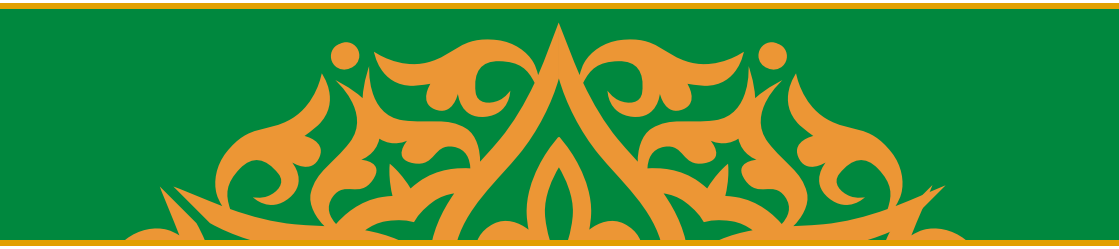


Source: Arab Monetary Fund (2019), Determinants of Net Interest Margin Survey in the Arab Banking Sector.

Figure 7. Evolution of the average net interest margin for a sample of three Qatari banks over the 2014-2019 period



Source: Arab Monetary Fund (2019), Determinants of Net Interest Margin Survey in the Arab Banking Sector.



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