



INCOME DIVERSIFICATION AND BANK PERFORMANCE: THE JORDANIAN CASE

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ABSTRACT

Purpose - The purpose of this paper is to examine Jordanian banks in terms of the impact of income diversification on their performance (profitability and net interest margin).

Methodology - Based on the period 2009-2017 and all thirteen Jordanian commercial banks, the econometric models are estimated using the Seemingly Unrelated Regression (SUR). Bank performance is measured by return on assets and net interest margin. As far as banks' income diversification is concerned, we use a myriad of measures including net commission income to total assets, proportion of bank credit to individuals, SME sector, corporate sector to total credit, and the real estate sector.

Findings - Based on the statistical analyses, we conclude that that income diversification impacts bank profitability in a positive manner. However, this impact (positive) comes only at the expense of widening net interest margins.

Conclusion - It is in the interest of the banking system in Jordan to promote financial inclusion at the national level. Indeed, this aspect is important to, not only the concerned individuals, but also to their (banks) performance. Moreover, with greater levels of financial inclusion, net interest margin might also narrow.

Keywords: Financial development, dollarization, net-interest margin, return on assets, financial inclusion.

JEL Codes: G20, G21, G24

1. INTRODUCTION

The economic importance of financial systems has led to the publication of numerous theoretical and empirical papers. However, the classical aspect of this literature is not conclusive. Back in 1873, Bagehot, for example, argued that the financial system mobilized the necessary capital for England's industrialization. Joan Robinson (1952), on the other hand, argued that it is businesses and economic growth lead finance. Within this context, Lucas (1988) argued that the interplay between finance and economic growth, on average, is overstressed. Nobody can deny that banks, as well as stock markets, provide economies with a myriad of economically useful financial services. Indeed, banks "facilitate the trading, hedging, diversifying, and pooling of risk, allocate resources, monitor managers and exert corporate control, mobilize savings, and facilitate the exchange of goods and services" (Levine, 1997).

Given the economic implications of financial systems, the World Bank publishes the Global Financial Development Database. This database provides researchers with annual financial system characteristics for more than 200 economies since 1960. The characterizations (109 in total) include measures of financial depth, financial access, financial efficiency, and financial stability. Following the publication of the classical theoretical models of Ho and Saunders (1981), Allen (1988), and Angbazo (1997), numerous empirical papers looked at the profitability (return on assets) aspect and cost of intermediation (net interest margin) of banks.

The empirical side of this literature, on average, regresses bank profitability and net interest margin on a number of variables that include bank-specific variables, banking-sector variables, and macroeconomic variables.

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Some of the more recent papers that examine country-level bank performances include Almarzoqi and Ben Naceur (2015), Nassar et al (2015), Helhel (2015), Catao et al. (2016), Hashem (2016), Jima (2018), Kohlscheen et al. (2018), and others. Within the context of the subject matter of banks' performance, the impact of their income diversification has caught some special attention.

Again, the theoretical impact of income diversification on bank performance is not conclusive. It is argued that more diversification results in superior performance (Klein and Saldenberg, 1997). In other words, if the sources of income (diversified) are not perfectly correlated, they would result in more stable and higher profits (Chiorazzo et al., 2008). On the other hand, if the diversified activities are riskier, they might make banks' balance sheets riskier and deteriorate performance (Boyd et al., 1993).

The empirical literature that examines the impact of income diversification on bank performance, as one might expect, is also not conclusive. In other words, it is really an empirical issue. For example, Berger et al. (2010) examined a panel of 88 Chinese banks during the period 1996–2006 and found that diversification (non-interest income) results in lower profits.

Similarly, Maudos (2017) report that increases in the share of non-interest income to total income has a negative effect on profitability. In contrast, Elsas et al. (2010), using banking data from Australia, Canada, France, Germany, Italy, UK, US, Spain and Switzerland, show that diversification improves bank profitability. This finding (positive impact) is also supported by the findings of Nisar et al. (2018) who examined a total of 200 commercial banks in South Asia over the period 2000-2014.

Within the context of the interplay between income diversification and bank performance, it is interesting to note that other researchers have used different measures of income diversification. For example, Adzobu et al. (2017) examine whether diversification of credit portfolios across economic sectors result in higher profitability and lower credit risks for a panel of 30 Ghanaian banks (2007-2014). The results indicate that loan portfolio diversification does not improve profitability nor does it reduce credit risks (non-performing loans). Within the same spirit, using pooled, fixed, random and System GMM analysis (2006-2013) of 250 commercial banks in 30 Sub-Saharan countries, it is reported that diversification of operational activities impact (positively) their financial performance (Olawaju et al., 2017).

Relative to the above-mentioned arguments and observations, this paper contributes to the ongoing research on the benefits of bank revenue diversification. Indeed, this is important, not only because banks in Jordan, as far as the researcher is aware, have not been investigated in terms of this issue (sectoral diversification of income sources), but also for two additional reasons.

First, relative to the size of the Jordanian economy, the banking system is large. Licensed banks' 2017 assets are equivalent to about 173 percent of Gross Domestic Product (GDP). Second, Jordanian banks differ significantly in terms of various measures that are important in their respective income diversification. These measures include commission income, ratio of credit to individuals, corporate, real estate, and SMEs to total credit, and proportion of each bank's investment in fixed-income government securities to total assets. The rest of the paper is organized as follows. In section II, we provide some basic information about the Jordanian commercial banks. In section III, we discuss the data and methodology, and present and discuss the empirical results. Finally, section V summarizes and concludes the paper.

2. THE JORDANIAN BANKING SECTOR: SOME INFORMATION

Currently, licensed banks in Jordan are composed of thirteen national banks (commercial), three Islamic banks, and nine foreign banks (commercial). As stated in the introduction, relative to the size of the national economy, the Jordanian banking sector is large. The total assets of all licensed banks are equivalent to more than 170 percent of GDP (Table 1).

This ratio is larger than that in, for example, Poland (around 60 percent), Saudi Arabia (around 95 percent), and comparable to the 190 percent that prevails in Japan (World Bank database). Similarly, total deposits and total credit facilities have surpassed the 100 percent and 80 percent of GDP respectively by the end of 2017.

Table 1: Size of Licensed Banks in Jordan Relative to Economy

Year	Total Assets / GDP	Total Deposits / GDP	Total Credit / GDP
2010	186.4%	119.9%	77.0%
2011	184.0%	119.1%	77.4%
2012	178.8%	113.7%	81.1%
2013	179.5%	115.7%	79.4%
2014	176.4%	119.0%	75.8%
2015	176.9%	122.4%	79.2%
2016	176.3%	119.9%	83.5%
2017	172.6%	116.7%	87.0%

Licensed banks in Jordan can be commented on in terms of a number of characteristics. These are outlined below. First, foreign exchange deposits constitute a significant proportion of total deposits. In 2017, for example, these deposits constituted about 23 percent of total deposits (Table 2). In other words, one can argue that the banking system in Jordan is dollarized.

Table 2: Bank Deposits in Jordan According to Currency

Year	Local Currency	Foreign Currencies
2010	78.3%	21.7%
2011	78.4%	21.6%
2012	70.9%	29.1%
2013	76.1%	23.9%
2014	79.4%	20.6%
2015	79.8%	20.2%
2016	78.9%	21.1%
2017	77.2%	22.8%

Source: Central Bank of Jordan

Second, the construction, individuals (retail), general trade, and the industrial sectors account for the largest shares in terms of their respective credit allocation. For example, 23.1 percent of total banks' credit facilities are allocated to the retail end of the market (Figure 3).

Table 3: Sectoral Distribution of Bank Credit

Year	Trade	Construction	Individuals	Industry	Other
2010	24.9%	21.9%	21.4%	13.3%	18.5%
2011	23.8%	21.9%	21.5%	14.5%	18.3%
2012	21.1%	20.7%	21.5%	14.1%	22.6%
2013	20.8%	21.6%	21.9%	14.0%	21.8%
2014	19.1%	23.6%	23.3%	13.1%	20.8%
2015	18.4%	23.2%	24.6%	10.2%	23.6%
2016	17.8%	25.4%	23.5%	9.6%	23.7%
2017	17.1%	26.7%	21.3%	11.0%	23.9%

Source: Central Bank of Jordan

Third, in 2017, Jordanian banks' credit to the private sector was equivalent to 72 percent of GDP. This ratio is relatively low (Table 4).

Table 4: Bank Credit to the Private Sector to GDP Ratio

Country	Ratio	Country	Ratio	Country	Ratio
Lebanon	39.7%	Qatar	76.5%	Turkey	128.7%
Egypt	41.0%	Kenya	88.5%	Australia	131.6%
Algeria	41.3%	UAE	89.8%	Tunisia	132.8%
Japan	47.0%	Bahrain	90.4%	Saudi Arabia	134.9%
Palestine	50.1%	Indonesia	93.2%	Georgia	140.3%
Ghana	70.7%	Poland	96.6%	Finland	143.8%
Jordan	72.4%	Malaysia	96.6%	Chile	150.0%
Morocco	74.1%	Germany	97.0%	Portugal	152.3%
Czech Rep.	74.2%	Slovenia	98.7%	Sweden	199.6%
India	76.2%	Switzerland	100.4%	Denmark	319.7%

Source: World Bank Database

Fourth, financial inclusion in Jordan is relatively low. For example, the prevailing 42 percent is much lower than those that exist in Denmark (100 percent), UAE (88 percent), and in Turkey (69 percent).

Table 5: Financial Inclusion

Denmark	100%	China	80%	Jordan	42%
Germany	99%	Chile	74%	Tunisia	37%
UK	96%	Saudi Arabia	72%	Egypt	33%
USA	93%	Turkey	69%	Morocco	29%
UAE	88%	Bangladesh	50%	Iraq	23%
Bahrain	83%	Lebanon	45%	Afghanistan	15%

Source: World Bank Database

Finally, and to put licensed banks in Jordanian in terms of their international counterparts, we report below (Tables 6-9) some of the main ratios that measure banks' soundness. These include bank regulatory capital to risk-adjusted assets, non-performing loans to total gross loans, Z-score ((ROA + (equity / assets)) / Standard Deviation of ROA), where ROA refers to gross profit divided by total assets, equity is equity capital, and return on assets.

Table 6: Performance of Banks: Bank Regulatory Capital to Risk-Adjusted Assets

Country	Ratio	Country	Ratio	Country	Ratio
India	12.8%	Lebanon	16.3%	Germany	18.8%
Chile	13.4%	Cyprus	16.6%	Belgium	18.8%
Australia	14.0%	Greece	16.8%	Saudi Arabia	19.3%
USA	14.3%	Switzerland	17.2%	UK	20.3%
Korea	14.4%	W. Bank & Gaza	17.6%	Denmark	20.8%
Canada	14.6%	Czech Rep.	17.8%	Latvia	21.0%
Spain	15.0%	Austria	17.8%	Finland	22.6%
Italy	15.1%	France	17.9%	Luxembourg	24.2%
Turkey	16.0%	UAE	18.4%	Sweden	25.8%
Japan	16.3%	Jordan	18.5%	Estonia	29.7%

Source: IMF Database (International Financial Statistics).

Table 7: Performance of Banks: Non-Performing Loans to Total Loans

Country	Ratio	Country	Ratio	Country	Ratio
Korea	0.5%	Saudi Arabia	1.4%	Jordan	4.5%
Canada	0.5%	Finland	1.5%	Czech Rep.	4.6%
Switzerland	0.7%	Germany	1.7%	Lebanon	4.9%
Luxembourg	0.8%	Chile	1.9%	Spain	5.4%
Estonia	0.9%	W. Bank & Gaza	2.2%	Latvia	5.5%
UK	0.9%	Austria	2.8%	UAE	5.6%
Australia	0.9%	Turkey	3.0%	India	8.3%
Sweden	1.1%	Denmark	3.1%	Italy	16.5%
USA	1.3%	Belgium	3.4%	Greece	39.5%
Japan	1.4%	France	3.6%	Cyprus	45.5%

Table 8: Performance of Banks: Z-Scores

Country	Ratio	Country	Ratio	Country	Ratio
Greece	5.6%	Sweden	13.9%	Denmark	20.6%
Chile	6.8%	Australia	14.2%	Spain	21.9%
Estonia	7.6%	Czech Rep.	14.4%	Germany	23.0%
Turkey	8.0%	Japan	15.6%	Austria	24.6%
Cyprus	10.3%	Switzerland	16.2%	UAE	26.8%
Korea, Rep.	10.4%	India	17.4%	USA	29.2%

Finland	11.0%	W. Bank & Gaza	17.7%	Lebanon	32.7%
UK	11.4%	Saudi Arabia	18.2%	Luxembourg	41.7%
Italy	12.1%	France	19.3%	Jordan	50.0%

Source: IMF Database (International Financial Statistics).

Table 9: Performance of Banks: Returns on Assets (ROA)

Country	Ratio	Country	Ratio	Country	Ratio
Greece	-0.9%	Spain	0.5%	Korea	1.2%
Cyprus	-0.6%	Austria	0.6%	Chile	1.3%
Italy	0.1%	Finland	0.6%	Latvia	1.3%
Switzerland	0.3%	Belgium	0.6%	UAE	1.5%
Japan	0.3%	Denmark	0.7%	W. Bank & Gaza	1.5%
UK	0.3%	Luxembourg	0.7%	Turkey	1.8%
USA	0.4%	Sweden	0.9%	Saudi Arabia	1.9%
Germany	0.4%	Canada	1.1%	Estonia	2.0%
India	0.4%	Czech Rep.	1.2%	Jordan	1.2%
France	0.4%	Lebanon	1.2%	Australia	1.1%

Source: IMF Database (International Financial Statistics).

Based on the reported values in Tables 6-9 inclusive, we can state that the Jordanian banking system is relatively profitable (ROA) and maintains much lower probability of bankruptcy (Z-score) than other banking systems. In other words, licensed banks in Jordan are financially sound.

3. THE DATA, METHODOLOGY AND EMPIRICAL RESULTS

As mentioned in the introduction, this paper examines the impact of income diversification on the performance of Jordanian banks. Bank performance is measured by return on assets and net interest margin. The data that enters the empirical analyses includes all 13 licensed commercial banks, and covers the period 2009-2017. Foreign banks are not included in the analysis because of the unavailability of their financial statements. In addition, Islamic banks are also excluded from the analysis as they operate under different principle from commercial banks.

Based on the collected data, we estimate the following two seemingly unrelated regression models:

$$ROA_{i,t} = \beta_1 COM_{i,t} + \beta_2 RETAIL_{i,t} + \beta_3 SME_{i,t} + \beta_4 CORPORATE_{i,t} + \beta_5 RESTATE_{i,t} + \beta_6 BONDS_{i,t} + \beta_7 FED_{i,t} + \beta_8 TA_{i,t} + \beta_9 EQUITY_{i,t} + \beta_{10} EXPENSE_{i,t} + \epsilon_{i,t} \quad (1)$$

$$NIM_{i,t} = \beta_1 COM_{i,t} + \beta_2 RETAIL_{i,t} + \beta_3 SME_{i,t} + \beta_4 CORPORATE_{i,t} + \beta_5 RESTATE_{i,t} + \beta_6 BONDS_{i,t} + \beta_7 FED_{i,t} + \beta_8 TA_{i,t} + \beta_9 EQUITY_{i,t} + \beta_{10} EXPENSE_{i,t} + \epsilon_{i,t} \quad (2)$$

where, the subscripts i and t denote banks ($i = 1, \dots, 13$) and time ($t = 1, \dots, T = 2009-2017$) respectively.

The definitions of the dependent variables are as follows:

ROA = Gross income divided by total assets (return on assets).

NIM = Net interest margin [Interest income – Interest expense] / Total assets.

The independent variables include the followings:

COM = Net commission income to total assets.

RETAIL = Proportion of bank credit to individuals to total credit.

SME = Proportion of bank credit to the SME sector to total credit.

CORPORATE = Proportion of bank credit to the corporate sector to total credit.

RESTATE = Proportion of bank credit to the real estate sector to total credit.

BONDS = Proportion of bank investment in government bonds to total assets.

FED = Foreign exchange deposits to total deposits.

TA = natural logarithm of total assets.

EQUITY = Equity capital to total assets.

EXPENSE = Total operating expenses to total assets.

In Table 10, we report some descriptive statistics for both the dependent and independent variables. These reported values reveal the following observations. First, during the period 2009-2017, the overall mean value of banks' ROA and NIM were equal to 1.8 percent and 3.1 percent respectively. In relative terms, net interest margin in Jordan is high. For example, this measure is equal to 0.8 percent in Luxemburg, 1.6 percent in Finland, and 2.9 percent in Germany (Kasman et al., 2014).

Second, our sample of bank reflect some significant variations in their respective credit to individuals, SMEs, corporate, real estate sector. For example, the maximum and minimum values of credit to the retail sector are equal to 54.3 percent and 1.1 percent respectively. This indicates that some banks have very limited exposure to the retail end of the credit market.

Third, our sample of banks differ in terms of their investments in government fixed-income securities (bonds). Again, while the overall mean value of this measure is equal 21.6 percent, its maximum and minimum values are equal to 36.6 percent and 0.2 percent respectively. These two values indicate that 36.6 percent of a bank's assets and 0.2 percent of another bank's assets are in the form of government securities respectively.

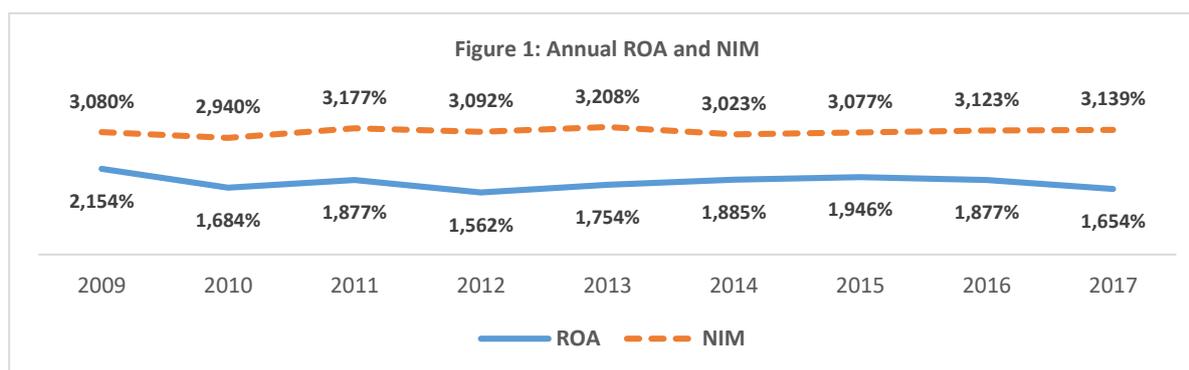
Fourth, it is important to note that the mean ratio of foreign exchange deposits to total deposits was equal to 27.4 percent. Whilst this proportion is high, it is not as high as that which prevails in, for example, Lebanon (more than 150 percent), and in Egypt (about 90 percent).

Table 10: Bank Performance: Descriptive Statistics

Measure	MEAN	MEDIAN	MAXIMUM	MINIMUM	STD.DEV.
ROA	0.018	0.019	0.036	-0.001	0.007
NIM	0.031	0.030	0.044	0.015	0.006
COM	0.007	0.006	0.020	0.002	0.003
RETAIL	0.193	0.167	0.543	0.011	0.132
SME	0.091	0.086	0.220	0.000	0.054
CORPORATE	0.459	0.438	0.833	0.118	0.167
RESTATE	0.143	0.146	0.303	0.014	0.056
BONDS	0.216	0.212	0.366	0.002	0.071
FED	0.274	0.277	0.649	0.006	0.115
TA	21.353	21.335	23.976	19.435	1.009
EQUITY	0.078	0.075	0.209	0.022	0.038
EXPENSE	0.025	0.025	0.043	0.010	0.006

ROA stands for gross income divided by total assets (return on assets). NIM is net interest margin [Interest income – Interest expense] / total assets. COM is net commission income to total assets, RETAIL, SME, CORPORATE, and RESTATE stand for the proportion of bank credit to individuals, SME sector, corporate sector, and real estate sector to total credit respectively. BONDS is the proportion of bank investment in government bonds to total assets. FED stands for foreign exchange deposits to total deposits. TA is the natural logarithm of total assets. EQUITY is equity capital to total assets. EXPENSE is total operating expenses to total assets.

In addition, it is also useful to realize that return and assets reflected, on average, a downward trend. Indeed, this measure decreased from 2.254 percent in 2009 to 1.754 in 2013 and to 1.654 percent in 2017 (Figure 1). Net interest margin, on the other hand, was more stable. Again this measure was equal to 3.080 percent in 2009, 3.208 percent in 2013, and 3.139 percent in 2017 (Figure 1).



The estimation results of models 1 and 2 are reported in Tables 11-13 below. In Tables 11 and 12, we introduce each of the proxy measures of income diversification alone as possible determinants of ROA and NIM respectively. In Table 13, we introduce all the proxy measures of income diversification in the model. Again, based on the reported results, the following comments are provided.

First, banks that rely more on commission income achieve higher profits (ROA). However, this diversification aspect implies decreasing net interest income. The signs and magnitudes of these coefficients are equal to +0.446 and -291 respectively. These coefficients indicate that banks with more diversified sources of income pass on this “advantage” on to their customers by narrowing their net interest margins.

Table 11: Regression Results: Return on Assets (ROA)

Variable	Coefficient						
TA	0.001*	0.001*	0.001*	0.001*	0.001*	0.00*	0.001*
EQUITY	0.005	0.002	0.020	0.012	0.004	0.017	0.010
EXPENSE	-0.329*	-0.406*	-0.276*	-0.246*	-0.224*	-0.267*	-0.271*
COM	0.446*	---	---	---	---	---	---
RETAIL	---	0.0256*	---	---	---	---	---
SME	---	---	-0.025*	---	---	---	---
CORPORATE	---	---	---	-0.001	---	---	---
RESTATE	---	---	---	---	0.010*	---	---
BONDS	---	---	---	---	---	-0.002*	---
FED	---	---	---	---	---	---	0.0173*
Adj. R-Sq.	0.573	0.687	0.598	0.585	0.678	0.580	0.767
F-Statistic	52.940	85.883	58.500	55.615	82.328	54.312	128.292
D-W Stat.	1.962	1.985	1.954	1.970	1.948	1.941	1.967

ROA stands for gross income divided by total assets (return on assets). NIM is net interest margin [Interest income – Interest expense] / total assets. TA is the natural logarithm of total assets. EQUITY is equity capital to total assets. EXPENSE is total operating expenses to total assets. COM is net commission income to total assets, RETAIL, SME, CORPORATE, and RESTATE stand for the proportion of bank credit to individuals, SME sector, corporate sector, and real estate sector to total credit respectively. BONDS is the proportion of bank investment in government bonds to total assets. FED stands for foreign exchange deposits to total deposits.

Table 12: Regression Results: Net Interest Income (NIM)

Variable	Coefficient						
TA	0.001*	0.001*	0.001*	0.001*	0.001*	0.001*	0.001*
EQUITY	0.012	-0.003	0.019	0.010	-0.007	0.015	0.011
EXPENSE	0.534*	0.380*	0.482*	0.483*	0.513*	0.495*	0.478*
COM	-0.291*	---	---	---	---	---	---
RETAIL	---	0.018*	---	---	---	---	---
SME	---	---	-0.025*	---	---	---	---

CORPORATE	---	---	---	0.002	---	---	---
RESTATE	---	---	---	---	0.022*	---	---
BONDS	---	---	---	---	---	0.002	---
FED	---	---	---	---	---	---	0.010*
Adj. R-Sq.	0.891	0.847	0.851	0.853	0.921	0.847	0.853
F-Statistic	315.813	214.458	223.384	225.041	450.903	215.409	225.586
D-W Stat.	1.905	1.947	1.861	1.876	1.863	1.873	1.883

NIM is net interest margin [Interest income – Interest expense] / total assets. TA is the natural logarithm of total assets. EQUITY is equity capital to total assets. EXPENSE is total operating expenses to total assets. COM is net commission income to total assets, RETAIL, SME, CORPORATE, and RESTATE stand for the proportion of bank credit to individuals, SME sector, corporate sector, and real estate sector to total credit respectively. BONDS is the proportion of bank investment in government bonds to total assets. FED stands for foreign exchange deposits to total deposits.

Second, the sign of the coefficient (RETAIL) is positive and significant in both model 1 and 2. Banks that lend more to the retail end of the market, earn wider net interest margins and greater profitability levels. This observation is due to two main reasons. First, banks require individuals to pay the interest expense of their borrowed funds up-front (from the beginning of the borrowing period). Secondly, due to the extra cost of dealing with individuals, banks that lend more to individuals tend to earn wider net interest margins.

Third, the sign of the coefficient (SME) is negative and significant when the dependent variable is bank profitability. Also, banks that lend more to the SME, earn narrower net interest margins. On average, this is due to the fact that the performance of this sector was poor during the period 2009-2017. Indeed, one can appreciate this observation from the total taxes paid to the treasury. This expense (taxes) has been a downward trend since 2009.

Fourth, the sign of the coefficient (CORPORATE) is not significant when the dependent variable is bank profitability or net interest margin. Again, this is due to the fact that the performance of this sector has been poor during the period 2009-2017. On average, this sector has been realizing accounting losses during the period 2009-2017.

Fifth, the sign of the coefficient (RESTATE) is positive and significant in both model 1 and 2. Banks that lend more to finance real estate activities, earn wider net interest margins and greater profitability levels. This observation is due to two main reasons. First, banks require borrowers to pay higher interest rates on their borrowed funds. Secondly, due to the extra risk of this sector, banks that lend more to real estate activities tend to earn wider net interest margins.

Sixth, banks' investment in government securities (BONDS) negatively impacts their return on assets. This is expected given the relatively low interest rate on these assets. Within this context, it is important to note that in Jordan there is no secondary market for government securities. Banks are required by the Central Bank of Jordan to subscribe to these issues, and each bank is allocated a share of these issues according to its relative size. However, the fact that investing in government securities reduce banks' risk, this "benefit" is not shared with bank customers in the form of narrower net interest margin.

Seventh, the sign of the coefficient (FED) is positive and significant in both equations. Foreign exchange deposits impact bank profitability (ROA) in a positive manner. However, this positive impact comes at the expense of widening net interest margin. This result is what one would expect. Indeed, lending in foreign exchange incurs greater levels of risk, and hence the wider interest margin. In addition, the minimum reserve requirement on foreign exchange deposits is higher than that on local currency deposits.

Eighth, licensed banks in Jordan do benefit from economies of scale. The coefficient of bank size (SIZE) is consistently positive when the dependent variable is profitability. However, the sign of this coefficient is also consistently positive when the dependent variable is net interest margin.

Ninth, the impact of bank expenses on profitability is negative. However, this expense is passed-on to the customers in the form of wider net interest margin. These imply that while less efficient banks realize lower return on assets, they ask of their customers to pay for their inefficiencies by widening their net interest margins.

Finally, when we include all the proxy measures of income diversification in the models, the results do not really change (Table 13). Indeed, commission income, retail credit, SME credit, corporate credit, real estate credit, and bank investments in government securities do not change their signs and their significance. The same is also true for net interest margin.

Table 13: Regression Results: Determinants of Bank Performance (ROA)

Variable	ROA	NIM
	Coefficient	Coefficient
TA	0.001*	0.001*
EQUITY	0.003	-0.014
EXPENSE	-0.554*	0.319*
COM	0.347*	-0.319*
RETAIL	0.023*	0.023*
SME	-0.028*	-0.027*
CORPORATE	0.003	0.008*
RESTATE	0.023*	0.022*
BONDS	-0.009*	-0.016*
FED	0.011*	0.008*
Adj. R-Squared	0.770	0.954
F-Statistic	44.132	268.808
D-W Statistic	1.901	1.941

ROA stands for gross income divided by total assets (return on assets). NIM is net interest margin [Interest income – Interest expense] / total assets. TA is the natural logarithm of total assets. EQUITY is equity capital to total assets. EXPENSE is total operating expenses to total assets. COM is net commission income to total assets, RETAIL, SME, CORPORATE, and RESTATE stand for the proportion of bank credit to individuals, SME sector, corporate sector, and real estate sector to total credit respectively. BONDS is the proportion of bank investment in government bonds to total assets. FED stands for foreign exchange deposits to total deposits.

4. SUMMARY AND CONCLUSIONS

Given that finance is important, the financial economics literature contains numerous papers that examine various aspects related to financial development. One of these aspects is the determinants of bank performance in terms of their profitability and net interest margin (cost of intermediation). This paper examined the Jordanian banking sector in terms of one major issue: **(1)** The impact of income diversification on the performance licensed Jordanian commercial banks over the period 2009-2017. The empirical results indicate a number of observations and conclusions. Some of these are briefly outlined below. First, net commission income is the dominant factor in affecting bank profitability and net interest margin. The coefficients of this variable are equal to + 0.347 and -0.319 respectively. Second, retail lending is also significant (statistically and extent) in affecting bank performance (positively) and cost on intermediation (positively). Based on the results of this paper, the implications are clear. It is in the interest of the banking system in Jordan to promote financial inclusion at the national level. Indeed, this aspect is important to, not only the concerned individuals, but also to their (banks) performance. Moreover, with greater levels of financial inclusion, net interest margin might also narrow.

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