

Determinants of Banking Sector Performance in Some Selected OIC Member Nations: Turkey, Islamic Republic of Iran, Saudi Arabia, Egypt, Indonesia and Algeria

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Abstract: *The objective of this paper is to establish the determinants of banking sector in some selected OIC member Nations including; Turkey, Islamic Republic of Iran, Saudi Arabia, Egypt, Indonesia and Algeria. The study which specifically examined some internal and external factors affecting the profitability of banking performance of these selected countries adopted econometrics techniques of static models by employing fixed effects of panel regression models starting the period from 2010-2019. This result shows that the increase in liquidity, efficiency, capitalization economic growth leads the increase in banking performance, whereas , Inflation and bank size could result in decreasing banks' profitability. The result implies that the performance of banking sector of these six selected nations are mainly from internal banking factors and change in increase may lead change in performance which reveals that there are positive relations among the majority of internal variables and the performance of banks in OIC selected nations . On the other hand, most of external factors including inflation has negative relation with banking performance which means change in increase of inflation leads decrease in banking performance proportionally. The study recommends further research by adding variables that are not mentioned in our study such as; interest margins, bank risk measurement variables, GNP and etc. The limitation of the model could be another factor which if employed dynamic model may come up with other conclusion and result for the strengthening the effectiveness of the model.*

Keywords: Banking sector, OIC member Nations, determinants, profitability, econometrics techniques

1. Introduction

It goes without saying that the banks and the banking sector represent a crucial element in sustainable economic development. They are the core of every country's Financial System, and their stability represent the stability and the wellbeing of the entire Financial system (Paolucci & Menicucci, 2016). Thus , well- performance of banking sector means that financial system is efficient, growing and that the funds efficiently move from savers to investors (De Bandt & Davis, 2000). There is a huge body of literature discussing the determinants of the banking sector performance, and many researchers have considered a wide range of factors that influence the banking system performance. The industry of banking is the corner stone for setting up a sound financial system in less developed countries whose financial stock markets are considered to be in infancy stages and slow while at the same time have low levels of capitalization. Among countries under OIC banking industry, Turkey's economy has emerged as a developed economy and it can act as a concrete example in articulating elements that promote the industry of banking operations. Dependent on Turkish past banking experience, the Islamic banks have caused a positive impact on many countries and these counties have gained a strong banking industry despite the associated difficulties that go hand in hand with a variety of economic challenges. Still, commercial banks are the most powerful financial institutions in developing nations as well as propellers of financial brokers.

Given various writers on similar subject such as; Ali 2015; Darby 1982; Danziger and Kreiner 2002; Ni et al. 2009; Gul et al. 2011; Moussa&Chedia 2016; Subhan et al. 2017; Raza et al. 2013; Bank Indonesia 2015, revealed that duo elements both endogenic and exogenic influence the banking performance, of course, these promote the strength of credit investment growth. Endogenic elements like; loan interest rates, third-party financing, and bad credit are totally mandated by bank management. Exogenic elements like; inflation and economic growth both transcends the powers of bank management (GDP).

Some researchers like Paolucci and Menicucci (2016) considered internal factors and bank-specific characteristics like the deposit ratio, bank size, asset quality ratio, capital ratio and loan ratio as the main determinants of Banks' profitability in Europe. Other researchers like Saeed (2014) went beyond the bank-specific factors and considered industry-specific and macroeconomic factors as determinants of banks 'profitability

Several researchers have carried out investigations on various factors that affect the banking system operations as well as the information gathered about the motivating force of banking industry performance. Furthermore, Paolucci and Menicucci (2016) based in Europe described the qualities that are directly attributable to bank like; deposit ratio, bank size, asset quality ratio, capital ratio, and loan ratio as prior indicators of bank profitability. In addition to that, Saeed (2014), says that directly related industry elements and macroeconomic

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elements are responsible indicators of bank profitability. Similarly, the bulky and yet detailed information in respect to elements that affect the banking industry operations, but little research has been by the Organization for Islamic Cooperation (OIC) nations.

As far as OIC nations are concerned, there are authors like Al-Harbi (2019) and (Masood et al., 2015) that have got involved in studies about the elements which affect banking industry achievements. However, most of the studies have been done on motivation forces among OIC countries and so much about direct qualities as well as internal elements to explain the bank achievements. For instance, in Indonesia and Morocco, Kristianti (2013) and Jaouad & Lahsen (2018) talk about motivation force directly related to bank operations. Further still, (Supiyadi & Nugraha, 2018) say that internal factors directly to bank's critical operations include; macroeconomic variables, legislative progress, and financial regulatory frameworks. Again, it is believed that more research done so far have not delved into the variances between banks run on sharia principles and the conventional banks among the OIC countries on subjects related to overall. Recent studies that looked into the factors that influence bank profitability in OIC countries did not include all member countries and/or all conventional banks on the continent (Sun et al., 2017; Rekik and Kalai, 2018; Yanikkaya et al., 2018). Furthermore, this research employs two profitability metrics as well as a large number of explanatory variables. Furthermore, OIC nations are home to more than 90% of the world's Islamic banks, and many of their conventional banks provide Islamic products. As a result, other research that employed cross-country data could include institutions with Islamic windows or Islamic banks, skewing their findings. Furthermore, traditional banks continue to dominate the financial sector in OIC nations (with the exception of Iran and Sudan, whose financial systems are Islamized), despite the fact that Islamic banks' share is steadily expanding. In Algeria, Egypt, Indonesia, Oman, Tunisia, and Azerbaijan, for example, Islamic banking assets account for less than 10% of total banking assets as of 1H2014 (Islamic Financial Services Board, 2015)

Therefore, the purpose of the research is about to investigate the determinants of banking sector performance in some selected OIC which have been randomly selected of 57 countries including Turkey, Iran, Indonesia, Saudi Arabia, Egypt and Algeria. The research describes the selected sample of both conventional and Sharia banks, trying to talk about the factors related to bank achievements if they subsist really.

The findings that will be generated from the field will be evaluated and analyzed depending on available data of these mention nations under the study. The paper is organized as following manner, Section 2 describes the literature review. Section 3 explains factors determined banking sector's performance. Section 4 outlines data methodology and data characteristics. Section 5 presents the results and findings. Section 6 concludes the paper.

2. Literature Review

Indeed, the presence of banks and the financial sector are not in doubt that they play a useful role in the long term economic development. Given the contribution of (Paolucci & Menicucci, 2016) say that the two elements are the pivot of the financial system which promotes efficient operations of the banking industry. Therefore (De Bandt & Davis, 2000) add that a well-organized financial system lead to improved operations and achievements as well as provision of funds from customers to traders. Actually, a number of authors present their literature to a large extent evaluating the motivation forces of banking industry achievements.

Scholars such as; (Guru et al., 2002; Sufian, 2009; Hoffman, 2011) emphasize that both exogenic and endogenic elements determine the levels of profitability of banks. According to (Javaid et al., 2011; Athanasoglou et al., 2006), refer to endogenic elements in line with management decisions, therefore they affect the nature of management decisions, Capital adequacy (CADEQ), revenue source, credit risk, efficient management, and bank capacity reflect variables in this classification. The small-scale or particular bank elements of profitability could be sought from bank financial reports. So, exogenic elements transcend the powers of management and undertake the legal application that assists the banks to perform efficiently. The variables are categorized in two sections, namely the particular industry traits and the macro-economic factors. And the variables are indifferent to bank management though reflect on financial institutions achievements.

There is little attention given to studies in developing nations as well as their economic wellbeing as far as bank achievements are talked about. In Malaysia, the motivation force behind profitability of banks has been conducted by Guru et al. (2002). Also, from 1986 to 1995, investigations were done on a number of 17 commercial banks and it was discovered that the endogenic profitability motivation forces were unveiled to include; liquidity, capital adequacy, and expense management. Whereas, exogenic factors could be divided into two; the first group is composed of; ownership, firm size, and economic conditions, and the second group deal with bank profitability dependent on the proper expense management. Yet rising interest rates and rising inflationary tendencies are attributable to low bank profitability.

Given the works of these authors; (Sun et al., 2017; Rekik and Kalai, 2018; Yanikkaya et al., 2018), explain their findings about the study done on motivation forces of banks' profitability among OIC nations though the study never involved all the banks operating on conventional principles in the banking industry. More so, the research considered duo profitability figures so that a reasonable level of variables could be included in the research study. In precise, OIC countries harbor a number of Islamic banks as well as conventional banks that provide similar Islamic products and these banks account for about 90% of the banks in the world. Still, conventional banks take up and monopolize the financial

industry in OIC nations, besides Iran and Sudan that have Islamic banking systems. The fact is that IH2014 given the Islamic Financial Services Board, 2015, reveals that Islamic banking assets take less than 10% of the sum of banking assets in Algeria, Egypt, Indonesia, Oman, Tunisia, and Azerbaijan. Solely, the figure of banks in any given nation is considerably very low, yet reasonable data about similar subject is still desirable for clear analysis to derive unbiased findings.

In the study carried out by Ben Khediria et al. (2015) explain Islamic banks fetch reasonable liquid, sound capitalization, moreover with lower credit risk and above all more successful compared to traditional banks. In respect of; Alrawashedh et al., (2014), used financial ratio analysis in general, besides considering the size of ratios to determine which one between the two that is believed to be important from both financial institutions. Considering the general output, income-to-expenditure ratio and profitability as calculated by use of Return-on-Equity (ROE), Islamic banks excel and transcend the traditional banks. The Islamic banks assume to cause positive yet rapid growth in equity, deposits, investments, and total assets, improved asset return and capital accumulation positively boost credit achievement, less risk from excess liquidity, and increased investments from government financial instruments like; bonds and treasury bills (Abdul-Majida et al., 2011).

Another research was conducted by (Zarrouk et al. (2016) to find out the profitability relationship among Islamic banks in the Arab middle East and North Africa. This research was carried out from the years, 1994 to 2012, it employed GMM panel system on a sample of 51 Islamic banks in Jordan, the United Arab Emirates, Turkey, Egypt, Yemen, Kuwait, Sudan, Bahrain, Saudi Arabia, and Qatar, also, the variables under study included; risk and solvency, efficiency ratios, liquidity, asset quality, annual stock data, and capital, besides, macroeconomic variables include; gross domestic product, consumer price index, GDP investment ratio, and capital. The results were; the asset quality, cost-effectiveness, and capitalization of both banks had a positive effect on profitability. Olson and Zoubi(2017). However, doubts emerge if the global financial crisis (GFC) contributed to the overall achievement of Islamic and commercial banks in the MENA region (22 countries) from 1996 to 2014, after employing similar methodologies like panel model with performance ratios like ROA as an internal variable, particular bank accounting ratios like ROE, as financial variables which represent independent variables. The results showed that Islamic banks excelled over commercial banks.

Any researcher who undertook investigations by use of CAMELS model to evaluate and analyze banks financial achievement find out that a lot of advantages accrue to financial institutions based on Islamic banking as stated by Rashid and Jaben (2016) after carrying out their findings in relation to both Islamic and commercial banks in the country such as; Pakistan. The results showed that financial performance index (FPI) using CAMELS ratios as well as calculated index to the CAMELS variables. The researcher

also employed GLS regression on unbalanced yearly panel data from 2006 to 2012. The achievements of the traditional banks showed effects on the activities of efficiency, reserves, and overheads, while the achievements of Islamic banks was being affected by efficiency, market emphasis, and deposits.

Alharbi (2017) employed panel fixed-effects regression to analyze the variables affecting Islamic banks' financial achievement in regard to profitability. The researcher used simple sample of 110 Islamic banks in 25 nations under Organization of Islamic Cooperation (OIC) from 1992 to 2008; the findings showed that Islamic banks' profitability, return on assets average (ROAA), internal variables (operating income (OOI), capital ratio), and exogenic variables (GDP per capita, GDP and Oil) . Equity, bank size, operating income, oil prices, and GDP per capita cause a positive effect on Islamic banks.

Djalilov and Piesse (2016) have also studied about bank financial performance with profitability factors among central and Eastern Europe. The GMM system and random-effects regression on a sample of 275 banks from 16 transition economies, eight of them were former Soviet Union, the rest from CEE, and the Baltic States, over the period 2000-2013. The independent variables included; capital, credit risk, cost, bank size, bank market share, GDP growth, inflation, government expenditure, fiscal freedom, and monetary freedom, with ROA as the dependent variable. The results revealed that credit risk impacted positively on the bank profitability in the early transition nations IES 28, 1 50, and that government expenditure and adequately capitalized banks reflect a competitive edge in the early transition nations.

The factors of the banking industry management are largely used to analyze the achievement of banks in respect to various methodologies that were used to assess both endogenic and exogenic variables influencing the achievement of the banks. The clarity between traditional and Islamic organizations provide a clear view despite the fewer studies done in countries like OIC member countries such as; Turkey, Islamic Republic of Iran, Saudi Arabia, Egypt, Indonesia, and Algeria. In a nutshell, this research report was focused to assess and conclude if dissimilarities exist in performance between traditional and Islamic banking practices.

Alper and Anbar (2011) seek to investigate the bank-specific and macroeconomic factors of commercial bank profitability in Turkey from 2002 to 2010. In terms of macroeconomic variables, they discover that only the real interest rate is positively associated to profitability. Gündodu and Aksu (2011) look at the short and long term relationships between deposit bank profitability and macroeconomic variables in Turkey. The study's findings reveal that in the long and short run, real interest rates, consumer prices, the consolidated budget deficit, and industrial production all have an impact on bank profitability. Kakilli and Alm (2013) investigate the bank-specific and macroeconomic factors that influence the profitability of Turkish commercial banks between 1998 and 2011. The study's empirical findings imply that bank-specific

characteristics have a greater impact on commercial bank profitability in Turkey than macroeconomic factors.

Hassan Ghodrati and Mohammad Ghasemib (2013) conduct an empirical study on the influence of various factors on return on assets and return on equity for 18 chosen Iranian enterprises from 2002 to 2011. The study examines the effects of total assets, debt ratios, and other factors on return of assets (ROA) and return on equities (ROE) on selected eighteen Iranian banks as a statistical community, using various regression models. Total assets, ownership ratio, deposits to assets ratio, and loans to assets ratio are all independent factors in their research, whereas ROE and ROA are dependent variables. The findings show that private banks outperformed governmental banks, whereas commercial banks outperformed special banks.

The research on the Egyptian banking system (Mohie5ldin, 2000, El-Shazly, 2001; Nasr, 2012; Herrera and Youssef 2013) concentrated on the banking sector's market structure, as well as sector developments and restructuring, rather than the factors of profitability. As a result, this study seeks to address this gap by investigating the causes of profitability in order to give policymakers with insights on how to improve the performance of this important industry. This study can potentially be used as a foundation for further research on the profitability of the Egyptian banking sector, such as adding new variables to the analysis or looking into different types of econometric models.

The majority of studies have focused on the differences between conventional and Islamic banks (Ashraf and Zia-Ur-Rehman, 2011; Jaffar and Manarvi, 2011; Hanif et al., 2012; Siraj and Pillai, 2012; Usman and Khan, 2012). Zeitun (2012) uses a cross-sectional time-series to explore the impact of certain relevant factors (foreign ownership, bank-specific variables, and macroeconomic factors) on Islamic and conventional banks in Gulf Cooperation Council (GCC) nations from 2002 to 2009. (panel data). The findings suggest that bank equity is only useful in explaining and boosting the profitability of traditional banks. The cost-to-income ratio had a negative and considerable impact on the performance of Islamic and conventional banks. Furthermore, using the ROE, the estimated effect of size demonstrates economies of scale in Islamic banking, although it is not significant for traditional banks. Foreign ownership, on the other hand, has little effect on the performance of Islamic and conventional banks. Furthermore, the history and development of a bank have little bearing on its performance. Finally, GDP has a positive relationship with bank profitability, whereas inflation has a negative relationship with bank profitability.

Ali Bendob (2021) wrote a study that aims to measure the efficiency of commercial banks in Algeria between 2010 and 2016, based on a sample of 9 commercial banks, using the nonparametric method represented by the DEA, to solve the study's performance, which is represented in determining the factors that can affect bank efficiency using tobit regression. As a result, the study came to the following major

conclusions: Because the growth of efficiency degrees shows a poor trend in efficiency levels due to the lack of optimal resource utilization during the study period, financial reforms did not enable banks in Algeria to improve their technical efficiency levels. Furthermore, measures of liquidity, profitability, bank size, and state ownership had a favorable impact on bank efficiency in all three dimensions (TE, PTE, and SE), whereas credit risk had a negative impact.

To some extent, banks' poor performance during economic change is related to economic and legal constraints. Large asymmetry between borrowers and intermediaries is a key element of the banking transition, leading to adverse selection, moral hazard, and poor monitoring incentives (Piloff & Rhoades, 2002). To improve bank performance, the Indonesian government has changed banking regulations, one of which is merging various banks, such as BBD, BDN, Bapindo, and Bank Exim, to become Bank Mandiri. However, this approach has yet to show that it improves bank performance, and many banks continue to fail (Indonesia Bank, 1998). Bank operations are inefficient, and as a result, they are unable to compete. The efficiency of a banking organization, particularly in management, will be able to maximize profit (Berger, Hunter, & Timme, 1993).

3. Data Methodology and Model

In this part, we attempt to investigate and assesses the determinant of banking sector performance in some selected OIC member countries. We framed panel of six sample countries from the largest nations in OIC countries which were randomly selected according to their geographical location and in respect of their banking sector development as well. The study employed panel data by spanning the period of 2010-2020. We have collected and analyzed annual data of at least 60 observations out of 6 countries' data from OIC Nations. The size of the sample is restricted by the availability of data especially on variables related banking external environment and geographical locations of banks in order to generalize the upcoming results as a whole in population. We assessed the necessary of getting a sample representing the whole OIC nations by considering how these countries be fit for its population in terms of banking sector development and in terms of geographical location which are accessible and easy to find their banking data by using Theglobeconomy.com, World Bank data, OIC data and IMF websites. We are confident and rely on the econometric model which we employed in our methodology and believe that it is capable measuring broad banking sector performance and factors behind and beyond these impact in place. We have categorized the variables into main three categories including internal banking factors: For instance, Efficiency, Liquidity, Capitalization and Banking size. Other section labeled external bank factors which are Economic growth and Inflation. The interested variables are as follows:

The Efficiency – as we discussed earlier, there are theoretical arguments referred to several researchers predicting the positive impact of efficiency on banking sector performance if

banks reduce their operational cost by simultaneously increasing the revenue and income of banks then the profitability of banks. Similar studies propose at same time it could affect banks negatively if banks fail managing their costs shifting to be low.

The liquidity – is another internal bank variable and good for banks to have liquid cash for paying the clients’ depositors and funding ne customers by borrowing money to them and in this way banks can make profit and excellent performance. Most researchers agree that the greater the liquidity the better the operation of banks which lead and grow banks’ reputation and performance.

The Capitalization which is the ration of equity by total assets is one of the banking performance indicators. It may have impact either positive or negative on banking profitability which is likely same as efficiency. Some scholars who claim that capitalization is better stands the idea of better capitalization leads strengthen bank performance by indirectly effect banks generate much profit margin in this way , however some researchers criticize the profitability of high capitalization brings low risk and low risk leads low return so

return and capitalization have not relative relationship to earn more profit .

Bank size which is the last one of internal bank variables have also impact on banking performance .it depends how size of the capital of banks. Sometimes small banks are better than big ones because of economic scale. The more the bank bigger the control is losing and this ultimately cause banks shifting to incur higher expenses which leads declining low profit .Moreover , external bank variable are part of our economic model .They are Inflation and economic growth . Firstly, Inflation which means high increasing of the price of goods in the economy can lead economics to go recession .In this regards affects the interest rate which goes to high .If it goes high, customers will not take loans to invest and finally cause banks’ profit by low. Apparently, low inflation leads low interest rate which brings client take more loans to invest then banks performance increases in this manner. On the other hand, economic performance is similar to inflation it may have both positive and negative impact on the performance of banking sector. The more economic growth the better banking profitability and the lower economic growth the slower banking sector performance.

The following table aims to figure out how banking internal and external variables affect banking sector performance and it is the expected outcome could be positive or negative or both at one time in some variables as we mentioned our discussion above .

No	Determinants of banking variables both internal and external dimension		Banking sector performance indicators	
	Impact of internal and external variables on banking performance	Expected sign + or -	Return of Assets (ROA)	Return on equity (ROE)
1	Economic growth		+/-	+/-
2	Inflation		-	-
3	Liquidity		+	+
4	Efficiency		+/-	+/-
5	Capitalization		+	+
6	Bank size		-	-

The formula of regression equations looks as follows:

$$ROA_{it} = \alpha + \beta_{effec} + \beta_{liq} + \beta_{cap} + \beta_{banksiz} + \beta_{ECG} + \beta_{INF}$$

$$ROE_{it} = \alpha + \beta_{effec} + \beta_{liq} + \beta_{cap} + \beta_{banksiz} + \beta_{ECG} + \beta_{INF}$$

Where: ROA is the return on asset; effec; whereas ROE is return on equity. Effec is stands for efficiency whereas, cap is for capitalization and next one for bank size. ECG is for economic growth and INF is related for Inflation.

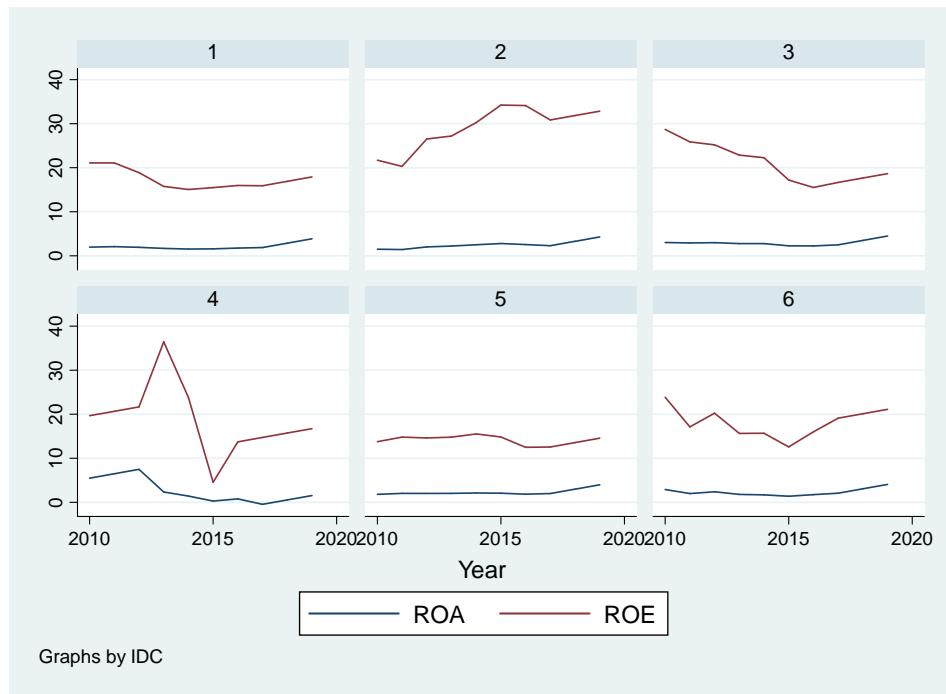
4. Findings and Discussion of the result

The results and findings from the Stata analysis output will be discussed in this section. Several econometric approaches and

graphs were employed to make the analysis more understandable for the researchers and readers. Fixed and Random effects models have been used to derive the study's data, conclusion, and implications. In order to grasp our data characteristics and the nature of analysis, we have employed some other supplement models to check the applicability of our main models. The Housman test, autocorrelation test, heterogeneity test, and time effect test are the four tests.

5. Diagnostic test

Graph 1.0

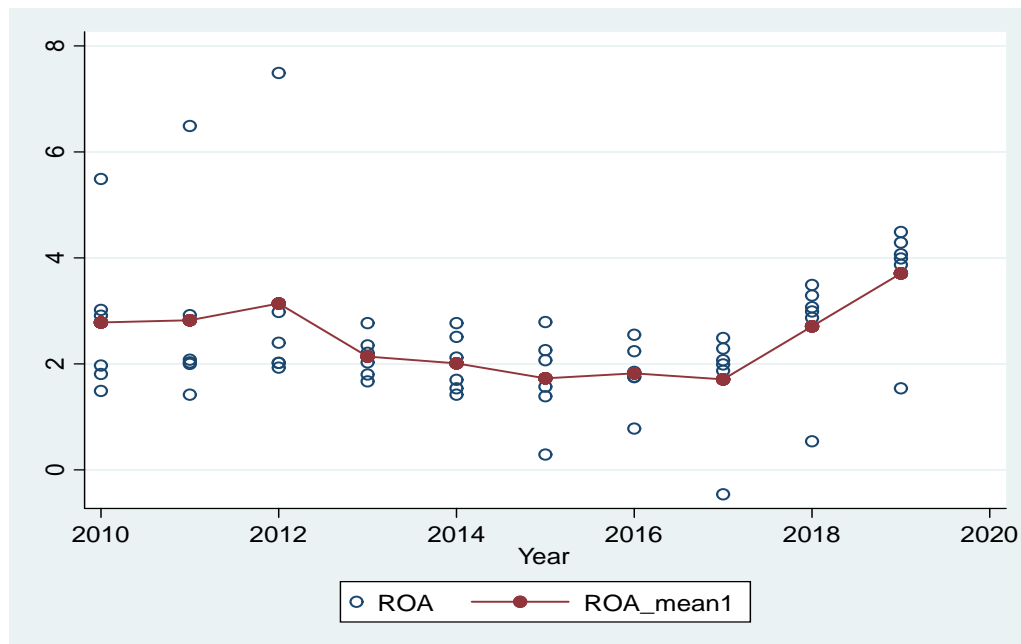


This graph depicts bank performance by country, with Algeria, Egypt, Indonesia, Iran, Saudi Arabia, and Turkey numbered 1 to 6 in alphabetical order. As previously said, Egypt's banking system is performing well, and its banks' return on equity is expanding faster than in other countries. Iran's banks have been performing poorly since the peak years of 2010-2012, and their return on investment (ROI) has remained stagnant since 2015. Algerian and Indonesian banks appear to have grown at a comparable rate, as evidenced by the fact that both had strong performance in 2010, albeit a slight decline after that. Turkey's banks have recently expanded at a faster rate than Saudi Arabia's, despite the fact that Saudi Arabia's

growth in the first five years was stronger than Turkey's, which is currently increasing as well.

Graph 2.0: Heterogeneity across time

When employing fixed effects, you should examine and calculate variance in time to determine whether there is heterogeneity over time or not, as well as the effect of time. The following curves, which are drawn at random positions along the line, will show us whether or not there are any. As you can see, there are points plotted above and below the lines, indicating that there is a heterogeneity effect that resulted in the time period. As a result, we infer that there is heterogeneity in this study throughout time.



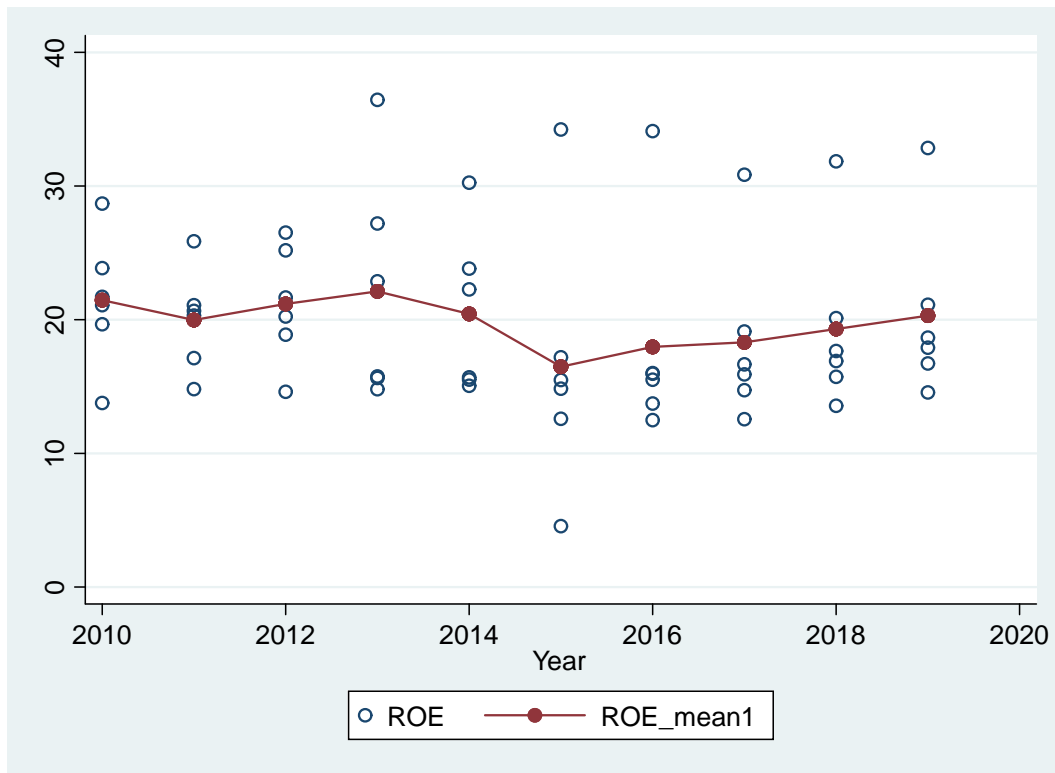


Table 1: Hausman Test -Choice b/w Fixed and Random effects

	(b) fix	(B) ran	(b-B) Difference	sqrt(diag (V_b-V_B)) S.E.
ECG	-.0341005	-.0715793	.0374788	.0253645
INF	.0129168	-.0142308	.0271476	.0180071
Efficiency	.112025	.0903481	.0216768	.0153839
Liquidity	.0202714	.0229753	-.0027039	.0104734
Capitaliza~n	.0115513	.039459	-.0279077	.1294681
Banksize	.0349419	.0092043	.0257376	.0239972

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg
 Test: Ho: difference in coefficients not systematic

$\chi^2(5) = (b-B)'[(V_b-V_B)^{-1}](b-B) = 6.04$
Prob>chi2 = 0.3024

If Ho is less than 5%, fixed effects should be used; otherwise, random effects should be used. Because Ho is more than 5% in the table, we adopt random effect as our right model in this study and acknowledge it as the best model for estimating our variables in the study results.

Table 2: Time effect (testparmi.Year)

(1) 2011.Year	= 0
(2) 2012.Year	= 0
(3) 2013.Year	= 0
(4) 2014.Year	= 0
(5) 2015.Year	= 0
(6) 2016.Year	= 0
(7) 2017.Year	= 0
(8) 2018.Year	= 0
(9) 2019.Year	= 0
F (9, 39)	= 3.08
Prob > F	= 0.0070

If Ho is less than 5%, fixed effects should be used; otherwise, random effects should be used. Because Ho is more than 5% in the table, we adopt random effect as our right model in this study and acknowledge it as the best model for estimating our variables in the study results.

Table 3: Autocorrelation test

Wooldridge test for autocorrelation in panel data

H0: no first order autocorrelation
 F (1, 5) = 514.646
 Prob> F = 0.0000

As can be seen, the F statistic is less than 0.05, indicating that serial correlation exists in this case. If the F test is less than 0.05, serial correlation exists; otherwise, serial correlation does not exist. As a result of these findings, we can conclude that this data has heterogeneity, temporal, and autocorrelation impacts.

Table 4: Fixed Effects

ROE	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ECG	.3451286	.1939413	1.78	0.081	-.0448165	.7350737
INF	.3752986	.10946	3.43	0.001	.1552147	.5953826
Effeciency	.1538515	.0892002	1.72	0.091	-.0254975	.3332005
Liquidity	.0693721	.0608688	1.14	0.260	-.0530128	.191757
Capitalization	.1407309	.483548	0.29	0.772	-.8315076	1.112969
Banksiz	-.0291659	.0941553	-0.31	0.758	-.2184778	.160146
_cons	6.820093	7.994917	0.85	0.398	-9.254765	22.89495

ROA	Coef.	Std. Err.	Z	P> z	[95% Conf. Interval]	
ECG	-.0715793	.048064	-1.49	0.136	-.1657831	.0226244
INF	-.0142308	.0248308	-0.57	0.567	-.0628983	.0344366
Effeciency	.0903481	.0197007	4.59	0.000	.0517354	.1289608
Liquidity	.0229753	.0134625	1.71	0.088	-.0034106	.0493613
Capitalization	.039459	.0399776	0.99	0.324	-.0388956	.1178136
Banksiz	.0092043	.0109664	0.84	0.401	-.0122895	.030698
_cons	-2.477125	1.559369	-1.59	0.112	-5.533432	.5791815

The effects of internal and external independent variables on the performance of the banking industry in all nations are included in the results in the table above. Economic growth has a favorable impact on return on equity (ROE), but has a negative impact on return on assets (ROA). Because it has the same consequences as the first, inflation has a comparable impact on economic growth. If efficiency is enhanced by 1%, ROE and ROA increase by 15% and 9%, respectively, indicating that efficiency and ROE have a positive connection. In all nations, liquidity and capitalization have a favorable

impact on bank performance, as evidenced by their link with ROA and ROE. In contrast to earlier variables, it appears that bank size has a negative impact on ROA while having a good impact on ROE. As a result, as shown above, both internal and external bank variables have a positive impact on return on assets, with the exception of bank size, which has a negative impact. Return on equity, on the other hand, rises when efficiency, liquidity, and bank capitalization rise, but falls as the economy and inflation fall, indicating a negative relationship between these two variables.

Table 5: Random effects

ROE	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
ECG	.3577333	.2090152	1.71	0.087	-.051929	.7673955
INF	.4313752	.1079812	3.99	0.000	.2197359	.6430146
Effeciency	.0960611	.0856722	1.12	0.262	-.0718533	.2639756
Liquidity	.1054308	.058544	1.80	0.072	-.0093132	.2201748
Capitalization	-.4245524	.1738498	-2.44	0.015	-.7652918	-.0838131
Banksiz	.024538	.0476894	0.51	0.607	-.0689315	.1180074
_cons	12.10462	6.781201	1.79	0.074	-1.186285	25.39553

ROA	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ECG	-.0715793	.048064	-1.49	0.142	-.1679835	.0248249
INF	-.0142308	.0248308	-0.57	0.569	-.0640351	.0355734
Effeciency	.0903481	.0197007	4.59	0.000	.0508335	.1298628
Liquidity	.0229753	.0134625	1.71	0.094	-.0040269	.0499776
Capitalization	.039459	.0399776	0.99	0.328	-.0407259	.1196438
Banksiz	.0092043	.0109664	0.84	0.405	-.0127915	.0312001
_cons	-2.477125	1.559369	-1.59	0.118	-5.604823	.6505725

The results in the table above show the impact of internal and external independent variables on banking sector performance in all countries. Economic growth has a favorable impact on ROE but a negative impact on return on assets (ROA), as seen in the data, which is consistent with fixed effect analysis findings. Because it has the same impacts as economic growth, inflation has similar features. When efficiency improves, both ROE and ROA increase simultaneously, implying that Y (ROA and ROE) has a positive relationship with X. (efficiency). Liquidity and bank size have a positive impact on bank performance in all countries, as indicated by their

relationship with ROA and ROE. In contrast to the preceding criteria, capitalization appears to have a negative impact on ROA while having a positive impact on ROE. Finally, with the exception of capitalization, which has a negative influence on return on assets, all internal and external variables have a positive impact on return on assets. Return on equity, on the other hand, increases as efficiency, liquidity, and bank capitalization increase, but decreases as the economy and inflation decline, demonstrating a negative relationship between these two variables.

Table 6: Fixed and Random effect into one tabulated form

	(Fixed effects) ROA	(Random effects) ROA
ECG	0.345 (1.78)	0.358 (1.71)
INF	0.375** (3.43)	0.431*** (3.99)
Efficiency	0.154 (1.72)	0.0961 (1.12)
Liquidity	0.0694 (1.14)	0.105 (1.80)
Capitalization	0.141 (0.29)	-0.425* (-2.44)
Banksize	-0.0292 (-0.31)	0.0245 (0.51)
_cons	6.820 (0.85)	12.10 (1.79)
N	60	60

t statistics in parentheses

** p<0.01, *** p<0.001

	(Fixed effects) ROA	(Random effects) ROA
ECG	-0.0341 (-0.63)	-0.0716 (-1.49)
INF	- 0.0129 (0.43)	-0.0142 (-0.57)
Efficiency	0.112*** (4.53)	0.0903***(4.59)
Liquidity	0.0203 (1.20)	0.0230 (1.71)
Capitalization	0.0116 (0.09)	0.0395 (0.99)
Banksize	0.0349 (1.34)	0.00920 (0.84)
_cons	-4.773* (-2.15)	-2.477 (-1.59)
N	60	60

t statistics in parentheses

** p<0.01, *** p<0.001

As you can see in the table above, it compares both fixed and random effects on banking performance. The first part of the table shows that all internal and external variables have a positive impact on bank performance, as measured by ROA. The table, at the bottom level, shows that all variables have a positive relationship with dependent variables, with the exception of economic growth and inflation, which have a negative impact on return on equity. Finally, we agreed that the majority of internal variables have a direct positive link with return on assets and return on equity, but external variables mainly affect their respective dependent variables in the other direction.

6. Conclusion and Remarks

The purpose of this study is to explore the factors of banking sector performance in OIC member countries by filtering and processing annual data from six key OIC countries from 2010 to 2019. These six countries were chosen at random as a representative sample of other nations, and the findings will be applied to all OIC countries. As estimators, the study used panel data econometric regression methods, specifically fixed and random regression models. In most situations, the study's findings demonstrated that the chosen factors could explain the impact of internal and external variables on banking performance in a good or negative way.

This conclusion demonstrates that increased liquidity, efficiency, capitalization, and economic growth contribute to improved banking performance; however inflation and bank size may reduce bank profitability. In the second table, the comparison of fixed and random effects models indicates that increasing all internal and external variables can result in an increase in return on asset (ROA), which is undoubtedly a

banking performance indicator. Return on equity (ROE) can be enhanced by increasing bank internal variables (liquidity, efficiency, capitalization, and bank size), but external variables are an exception, as they decline proportionally with internal variables. Finally, we came to the conclusion that the majority of internal variables have a direct positive relationship with return on assets and return on equity, whereas external variables have an inverse relationship with their corresponding dependent variables and have a positive impact on bank performance. Despite the fact that the study's findings reveal a positive association between internal bank characteristics and bank profitability indicators, some variables may be opposite to what we expect and have opposing effects in the same study. As a researcher, I believe that all drivers of banking performance cannot be limited to those I have mentioned in this study; there may be many more aspects, such as exchange rate, foreign direct investment, and banking governance, that have a greater impact and are not addressed in my study.

The study suggests that additional research be conducted by including variables not included in our study, such as interest margins, bank risk measuring variables, GNP, and so on. The model's limitations could be another component that, if used in a dynamic model, could lead to different conclusions and outcomes, enhancing the model's usefulness.

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