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THE DETERMINANTS OF THE PERFORMANCE OF THE BANKING SECTOR: EVIDENCE FROM AN EMERGING MARKET

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Abstract

Unlike preceding investigations, the current study applies a ROA-bank performance panel model to study the determinants of the banking sector's performance in emerging market economies. With the aid of Eviews 10 and annual times series data from 2001 to 2018, random effect and fixed-effect models were modeled using data collected from 8 public banks in Turkey. The results revealed that an increase in bank deposits results in an improvement in the public banks' performance. The findings also revealed that an increase in inflation and economic growth had inelastic positive effects on bank performance. The suggested study ideas unveiled that adopting and implementing IFRS led to improved corporate governance, and good ethical conduct which helped to enhance public banks' performance. The study recommends that bank managers should enact measures to guard against the effects of inflation, hedge, and diversify to lower banking risks undermining public bank's performance. The study contributes to developing a conceptual and economic model to analyse bank performance across the entire banking sector in emerging markets.

Keywords: Asset quality, economic growth, emerging market, banking sector performance, inflation, international financial reporting standards, total assets, total deposits

1. Introduction

Concerns about the factors influencing banks' performance in an economy are widely presumed to be similar (AlTamimi & Charif, 2011; Dietrich & Wanzenried, 2011; Goddard, Liu, Molyneux & Wilson, 2011). However, what differs is the context under which they are applied. By the same notion, existing studies that explore the determinants of bank performance are widely concentrated on commercial banks

(Ali & Puah, 2019; Batten & Vo, 2019; Jadah, Alghanimi, Al-Dahaan & Al-Husainy, 2020; Uralov, 2020), and this consequently, puts public banks out of the picture. This empirical gap requires significant major attention if sound economic policies are to be developed to address challenges undermining an economy's performance, notably emerging market economies (EMEs). Such is crucial if EMEs perform exceptionally well beyond their capacity, which is restricted by the prevalence of various structural, economic and financial challenges like the COVID 19 pandemic, financial and economic crises.

Furthermore, related studies show that EMEs can extensively grow when backed by developing and well-performing banking sectors (Aktan & Bulut, 2008; Saeed 2014). However, such studies only dwell on private banks' role and do not consider the role of public banks. Such provides an impaired description of how the banking sector can be used as a channel to foster and sustain the growth of EMEs. This is because the entire banking sector contributes to the development of an economy, which severely includes the importance of public banks. Such has been the case with Turkey, which has risen to be a significant EME. However, Turkey's growth has been constrained by the severe financial sector and economic challenges. Significant challenges that undermined the Turkish economic performance ranged from the devasting effects of inflation, which has been soaring from 44.51% in 1985 to 104.54% in 2004 to 16.33% in 2018 (Trading Economies, 2020). This also encompasses restrained economic growth, deteriorating asset quality (Akçay, 2019), declining bank total assets, and total deposits (Bilgel & Karahasan, 2019).

Nevertheless, public banks are essential for providing funds not only to individuals and economic agents desiring to fund their consumption and investment activities but also for funding the development of social projects (Demetriades & Andrianova, 2004). Hence, it is critical to ensure that public banks continue to operate viably in a manner that enhances their performance. However, such can prove problematic if their performance's underlying drivers are not determined and explored, which has been the case with EMEs. Furthermore, relying on similar related studies might prove ineffective since these studies are based in non-EMEs and focus on countries such as Tunisia, Philippines, Kenya, and the UK (Saeed 2014; Tarusa et al. 2012). Hence, it is crucial to draw evidence specifically from an EME if a sound examination of the determinants of the banking sector's performance in EMEs is made. Thus, this study seeks to determine and study the determinants of the banking sector's performance by drawing ideas from public banks. This study uses panel data from 2001 to 2018 collected from 8 public banks to model a bank performance model capable of providing details about the factors influencing public banks' performance. Such is vital for establishing the nature and impact of the variables (Gujarat, 2013).

This study's theoretical implications are embedded in the idea that understanding the role and importance of these factors is essential for enhancing the performance of both public banks and the entire banking sector. It also provides a basis upon which a widely applicable bank performance model can be developed and widely applied across all banking institutions in EMEs and non-EMEs. Besides, practical ideas can be established from this study regarding how monetary authorities can influence the banking sector and economic variables to promote banking sector stability, growth, and development. Such sets a solid foundation for boosting the performance of EMEs like Turkey beyond their limitations.

This study's originality is embedded in its potency to use data collected from public banks and model a panel bank performance model that estimates bank and economic variables' influence on the public banks' performance. This study contributes to the existing literature by drawing ideas from public banks and illustrating the significance of improving their performance and how it influences the performance of EMEs.

2. Literature Review

There are studies that examine variations in bank performance attributed to changes in both internal and external bank variables (Batten & Vo, 2019; Jadah, Alghanimi, Al-Dahaan & Al-Husainy, 2020). The effects of these variables have been examined in a number of countries that include among others Iraq (Jadah et al., 2020), Tunisia (Angraini & Prastiwi, 2020) and Vietnam (Batten & Vo, 2019). All these studies focus on the effects of external elements such as GDP, interest rate, and inflation, and internal variables which include price earnings ratio, assets, asset and liquidity management. The notable outcome that can be observed from these variables is that the effects of both variables varied significantly between countries and thus, expectations are that a similar experience will be observed in Turkey.

A number of studies that examines variations in bank performance attributed to changes in both bank,

industry and macroeconomic factors in EMEs are based on the use of a GMM estimator, (Chowdhury, Haque & Masih, 2017; Djebali & Zaghdoudi, 2020; Messai, Gallali & Jouni, 2015). This has proved important for dealing with issues limiting the examination of factors influencing bank performance. Furthermore, the GMM has been considered to be important for factoring bank characteristics and variations in profit levels (Trujillo-Ponce 2013). This is because there are certain banking aspects that can prove to be difficult for banks to measure. Such aspects are termed unobserved heterogeneity (García-Herrero et al. 2009).

The GMM has been employed in the examination of the nexus between bank performance and its determinants in a group of countries (Paoloni, Paolucci & Menicucci, 2017). This study will focus on the examination of a single EME, that is, Turkey. In addition, the study will also focus on the application of fixed and random effects models as it draws data from a list of commercial banks in Turkey. In addition, it also extends ideas provided by Orazalin, Mahmood and Lee (2016), which focused on the examination of 418 regional banks in USA which incorporated both macroeconomic and bank specific determinants. The originality of this study centers on the combined use of both bank, industry and macroeconomic determinants.

Menicucci and Paolucci (2016) conducted a study that used information drawn from 35 banks in Europe using a GMM. All the bank and industry specific variables were established to be causing positive changes in bank performance. Similar findings were made by a study conducted by Orazalin, Mahmood and Lee (2016) which focused on 14 years of annual data and information drawn from 105 banks in developed countries. It was noted that there is a positive interaction between bank deposits, credit quality, capital adequacy and NIM. However, equity and management efficiency were noted to be having negative effects on NIM. Their findings were also supported by findings made from the study of 275 banks in developed economies by Djalilov and Piesse (2016) using FEM and REM models.

There are insights which contend that sources of profitability have an influence on the determination of variables influencing bank performance (Ali & Puah, 2019; Batten & Vo, 2019; Jadah et al., 2020; Uralov, 2020).The ideas revealed that bank liquidity plays a vital role in determining the level of profits earned by the bank. Initially, it was discovered that liquidity hinders bank performance (Molyneux & Thornton, 1992). Subsequent studies showed that there is a positive interaction between liquidity and bank performance (Goddard et al. 2004; Maudos 2017). All these studies are based on examinations that were made on European banks and the findings might prove to be different from the expected findings to be made on commercial banks in Turkey.

Meanwhile, the use of panel data has been considered to offer more detailed information about the interaction between bank performance and its determinants (Chowdhury, Haque & Masih, 2017; Messai, Gallali & Jouni, 2015). Furthermore, panel data models have also been established to yield robust findings that accurately describe the situation under hand (Djebali & Zaghdoudi, 2020). This reinforces the importance of using FEM and REM models in this study.

Athanasoglou, Brissimis and Delis (2008) did a study that highlighted the need to encompass both 3 categories of bank performance determinants. This was based on the contention that different results are inevitable when an analysis focuses on a single categories of bank performance determinants. Thus, this study heads such a recommendation and extends the effects of both categories of bank performance determinants to examine how they influence the performance of banks in Turkey.

Pascual, Trujillo-Ponce and Cardone-Riportella (2013) noted that empirical examinations need to be changed to suite the prevailing economic situation so as to accurately capture the desired constructs. This entails that the same research issue provides different implications when used to analyze bank contexts in developed economies from EMEs. With existing studies focusing on countries such as Tunisia, Philippines, Kenya and UK (Saeed 2014; Tarusa et al. 2012).This entails that focusing on Turkey as an EME results in potentially significant different implications.

Bearing all these ideas in mind entails that there is a greater need to examine the influence of bank performance with respect to EMEs using different analytical tools that are separate from the GMM method. The importance of conducting this study is embedded its vital role to promote financial and economic stability as well as development and innovation.

3. Method

The study is centered on estimating a ROA-bank performance panel model using data collected from 8 commercial banks in Turkey. Initial model estimation tests were carried out to determine the estimated ROA-bank performance panel model's validity and reliability using a combination of stationarity, serial correlation, and fixed effect redundancy tests. The conducted tests revealed that the model variables had no irregularities that would undermine their potential capacity to warranty robust findings adequate for making policy decisions. Subsequently, the ROA-bank performance panel model was estimated using 6 independent variables. Such was done in conjunction with annual time series data from the year 2001 to 2018 and led to the estimation of a Fixed Effect Model (FEM) and Random Effect Model (REM) using Eviews 10. The main difference between a FEM and REM is that a FEM assumes that all the parameters are fixed, whereas a REM regards all the parameters to be random (Liu et al., 2016). The REM is believed to be more realistic than the FEM, but the decision to choose between the REM and FEM to determine which model accurately predicts the desired constructs were established using the Hausman test (Pangestika, 2015).

3.1 Model Estimation Tests

Stationarity tests were significant in this study for determining if the variables had no unit-roots. Hong, Wang and Wang (2017) consider unit-roots as a non-homogeneity condition that occurs with the collected data concerning its mean and variance. Such implies that variables are not stationary when they have unit-roots. Hence, stationarity tests were crucial in this study for ensuring that the obtained results were not spurious (Aue & Van Delft, 2017). Thus, the Phillips and Perron PP), Augmented Dickey-Fuller (ADF), and the Levin and Chu test were used to check the variables for unit roots. All the variables were established to be stationary at both levels, and the first difference ($\rho<0.05$).

Serial correlation is a significant predicament that influences an estimated model's reliability to offer authentic interpretations of the modeled economic model (Gujarat, 2003). Serial correlation occurs when the error terms are correlated (Hayakawa, Nagata & Yamagata, 2018). Any model that suffers from serial correlation problems tends is restricted in terms of validity and reliability. For instance, Born and Breitung (2016) contend that serial correlation causes the parameters to be biased and not to be BLUE. Serial correlation exists either as positive serial correlation, and the former occurs when the Durbin Watson statistic is below 2 while the latter takes effect when the Durbin Watson value exceeds 2 (Born & Breitung, 2016). Both positive and negative serial correlations are undesirable and tend to demand adjustment tests to ensure that the model offers reliable insights. For this reason, the Durbin Watson values were compared with the values of the lower and upper bound to ascertain the presence of serial correlation.

3.2 Model Selection Tests

Since panel data estimation models involves estimating both a FEM and REM, the Hausman test was applied to determine which of the two models offers reliable explanations about the determinants of the performance of the banking sector in an emerging market (Liu et al., 2016). This is based on the formulation of the following hypothesis;

- **H_0:** The REM models better the determinants of the performance of the banking sector in EMEs than a FEM.
- **H_1:** The FEM models better the determinants of the performance of the banking sector in EMEs than a REM.

The decision was reached using EViews 10. Since the Hausman p-value was less than 0.05. Hence, the null hypothesis was rejected, and a decision was reached that the FEM models better the determinants of the performance of the banking sector in EMEs than a REM. Further tests were undertaken to ascertain the validity of the estimated FEM model. The redundancy test helped test the ability of the FEM to provide valid insights reliably (Pangestika, 2015).The null hypothesis of redundancy was used to test the FEM is as follows;

- **H_0:** The FEM models does not provide a redundant estimation of the determinants of the performance of the banking sector in EMEs.
- **H_1:**The FEM models provides a redundant estimation of the determinants of the performance of the banking sector in EMEs.

3.3 Data Analysis

It is worthy to consider that this study is quantitative approach to the study of the determinants of the performance of the banking sector in EMEs. Hence, it relies on the use of econometric models and statistical tests to model the relationships between bank performance and its underlying determinants in EMEs. Thus, EViews version 10 was used to analyze the collected data and this was based on the following mathematical model;

BP = F(economic growth, asset quality, total assets, total deposits, inflation, and IFRS incidences) (1)

Meanwhile, bank performance is measured in three distinct ways. That is, using ROA, ROE, and NIM (Bodie et al., 2005; Husni et al., 2011; Memmel & Raupach, 2010). However, in this study, special attention was given to ROA, and this was because there were significant variations of Turkish commercial banks' ROA for the period from 2001 to 2018. Thus, focusing on ROA variations from 2001 to 2018 served an essential role in capturing such variations. Hence, a bank performance panel model was estimated concerning ROA as follows;

$$ROA = \alpha = \beta 1LGDP + \beta 2LASQ + \beta 3LTA + \beta 4TD + \beta 5LINF + \beta 6DVIFRS + \mu \quad (2)$$

Where GDP=economic growth, ASQ=asset quality, TA=total assets (size), TD= total deposits, INF=inflation. DVIFRS is a dummy variable which catered for the effects of the 2008 financial crisis (1= prevalence of the IFRS restrictions and 0 = absence of the IFRS restrictions), β1 to β6 and μ=error term.

3.4 Model Data Sources

The models were estimated using annual times series data from the year 2001 to 2018 using data collected from 8 public banks. The data was collected from the BAT website (see Table 3.1). Fibabanka A.Ş., Turkish Bank A.Ş., Anadolubank A.Ş. were noted to be the bisggest commercial banks in Turkey in terms of capital ratio in 2018.

Table 3.1. Population description, data period and sources

	Type of banks	Capital ratio in 2018	Period	Source
1	Akbank T.A.Ş.	18.2%	2001-2018	BAT*
2	Anadolubank A.Ş.	18.6%	2001-2018	BAT*
3	Fibabanka A.Ş.	19.5%	2001-2018	BAT*
4	Şekerbank T.A.Ş.	15.1%	2001-2018	BAT*
5	Turkish Bank A.Ş.	18.7%	2001-2018	BAT*
6	Türk Ekonomi Bankası A.Ş.	16.9%	2001-2018	BAT*
7	Türkiye İş Bankası A.Ş.	16.5%	2001-2018	BAT*
8	Yapıve Kredi Bankası A.Ş.	16.1%	2001-2018	BAT*

** Bankers Association of Turkey*

3.5 Definition and Justification of Variables

The operational definitions of the variables used in this study together with their expected signs are shown in Table 3.2, as follows;

Table 3.2. Variable description and expected relationships

	Variables	Abbreviation	Operational definition	Expected impact
Dependent variables	Return on assets	ROA	A reflection of bank managers' ability to manage the banks' assets. A high ROA shows that the bank is generating move revenue from the use of its assets.	-
Independent variables	Bank deposits	BC	Total deposits received from individuals and corporation	+
	Asset quality	ASQ	These are assets that bring in high returns and have no possibility of default.	-/+
	Size	TA	Shows amount of assets owned by the bank as noted by total assets. Big banks with a lot of assets are posed to reap huge profits from the market	+
	Inflation	INF	Sustain increase in the general price level. CPI will be used as a measure of inflation.	-/+
	Economic growth	GDP	Measures changes in output from year to the other (economic performance)	+
	IFRS	DVIFRS	Is a dummy variable which signifies the adoption of the IFRS. The variable assumes a value of 1 representing a period when the IFRS was implemented and a value of 0 denoting a period when the IFRS was not put into effective use.	-/+

4. Results

The findings presented herein were established as a result of the application of panel data estimation methods that were applied on annual data from the year 2008 to 2018. The data was collected from 8 public banks in Turkey and discussion of findings were made based on the computed findings.

4.1 Unit Root Tests

Unit root test were conducted using the PP, ADF and Levin, Lin and Chu methods. The decision was to consider the variables as having unit roots when the computed p-values were more than 0.05.

Table 4.1. Stationarity test results

@ 1st difference						
	PP		ADF		Levin, Lin & Chu t.	
Variable	Stat.	Prob.	Stat.	Prob.	Stat.	Prob.
LROA	108.444	0.0000	66.9065	0.0000	-10.7157	0.0000
LASQ	83.2347	0.0000	33.0267	0.0029	-6.58432	0.0000
LTA	95.8341	0.0000	43.6756	0.3523	-10.3540	0.0000
LTD	45.5461	0.0000	33.0267	0.0029	-6.58432	0.0000
LINF	59.9620	0.0000	51.6550	0.0013	-9.04662	0.0000
LEG	103.546	0.0000	70.8067	0.0000	-11.6765	0.0000

* Newey-West automatic bandwidth selection and Bartlett kernel

Using the computed results shown in Table 4.1, it was noted that the variables did not have unit roots as supported by all the PP, ADF and Levin, Lin and Chu methods. Hence, this implied that the results of the estimated panel models were not spurious (Gujarat, 2003).

4.2 Descriptive Statistics

Descriptive statistics were computed for the 8 public banks in Turkey and the information showed that the public banks had a maximum asset quality of 4.827 for the period from 2008 to 2018. A significant amount of variation was noted to be with respect to total assets which had a highest standard deviation of 1.723. This was subsequently followed by total deposits which had an elastic responsiveness of 1.691 whereas the variable economic growth had an elastic response of 1.087.

Table 4.2. Descriptive statistics in log terms

Variable	Mean	Min.	Max.	Std. Dev
Total assets (LTA)	0.540	-2.303	2.653	1.723
Total deposits (LTD)	0.602	-2.303	2.667	1.691
Inflation (Linf)	2.214	1.833	2.793	0.307
Asset quality (LASQ)	4.574	3.786	4.827	0.203
Economic growth (LEG)	2.046	-1.204	2.901	1.087
ROA (LROA)	1.031	-2.303	1.609	0.525

On average basis, the rate of inflation had huge elastic mean effect between the period 2008 to 2018 and this shows that the effects of inflation in this were widespread. Also, the effects of inflation on other economic and bank specific variables can be said to have been undeniable.

4.3 Correlation Coefficient Analyses

Meanwhile, correlation coefficient tests were done using the Pearson correlation coefficient test to determine how the performance of the banks (ROA) was correlated with other economic and bank specific variables. A significant moderate and positive correlation of 0.492 was established to exist between ROA and the banks' size (TA). This shows that an increase in the size of the banks was also associated with an improvement in the performance of the public banks. However, the size of the banks was highly and positively correlated with the banks' deposits by 0.997. This entails that an increase in the size of the banks resulted in an increase in the banks' potential to attract deposits from customers. Meanwhile, negative correlations were observed between bank deposits and the IFRS incidences or requirements by -0.656, inflation by -0.167 and economic growth by -0.155. This possibly shows that the IFRS requirements were connected to a decline in bank deposits, inflation and economic growth (see Table 4.3).

Table 4.3. Correlation coefficient test results

	LROA	LTA	DFRS	LTD	LINF	LASQ	LEG
LROA	1.000						
LTA	0.492* (0.000)	1.000					
DFRS	0.008 (0.944)	-0.059 (0.589)	1.000				
LTD	0.469* (0.000)	0.997* (0.000)	-0.066 (0.546)	1.000			
LINF	0.068 (0.531)	0.040 (0.712)	-0.167 (0.122)	0.041 (0.703)	1.000		
LASQ	0.160 (0.138)	0.320 (0.003)	-0.352 (0.001)	0.326 (0.002)	-0.157 (0.147)	1.000	
LEG	0.096 (0.378)	0.032 (0.770)	-0.155 (0.151)	0.022 (0.843)	-0.356 (0.000)	0.376 (0.000)	1.000

Probability values are in parenthesis; * indicates that the correlation is significant at 0.001 level

4.4 Fixed Effect Model Estimation

A FEM and REM were estimated using EViews version 10 to examine the determinants of the performance of the banking sector in Turkey. This was done to assist in determining both the mature and magnitude of the relationships between the variables.

The results revealed that an increase in bank size as denoted by total assets by 1 unit resulted in an increase in bank performance by 1.849 units. This is in line with findings made by Bikker and Hu (2002), which showed that an increase in the bank's assets represents an increase in capacity to generate more returns. The adoption of the IFRS had positive effects on the performance of public banks as noted by a positive coefficient of 0.183. Possible reasons suggest that this was as a result of increased assurance levels and value audits which maximize the use of the banks' resources in an effective and efficient manner (Macit, 2011).

Table 4.4. Fixed effect model estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTA	1.849	0.321	5.759	0.0000
DFRS	0.183	0.078	2.348	0.0216
LTD	-0.606	0.325	-1.868	0.0658
LINF	0.202	0.117	1.734	0.0872
LASQ	0.026	0.248	0.105	0.9166
LEG	0.004	0.035	0.102	0.9189
C	-0.293	1.225	-0.239	0.8118

R2= 0.7377, adjusted R2= 0.6909, F-statistic=15, 78945(0.000), DW stat=1.64055

On the other hand, an increase in bank deposits by 1 unit resulted in a decrease in bank performance by 0.606. This is in contrast to findings established by Memmel and Raupach, (2010), which showed that there is a positive relationship between bank deposits and performance. Similar observations were made with regards to the effects of inflation on bank performance. That is, an increase in inflation by 1 unit was observed to be having inelastic positive effects of bank performance of 0.202. This suggests that the banks had invested a lot in variable interest earning assets who value was inflation adjusted.

It was noted that an improvement in the public banks' asset quality was responsible for causing an increase in bank performance by 0.026 units. Batten and Vo (2019), suggested that this is because high quality assets are able to generate more returns at a lower cost over a short period of time. Similar deductions can be made with regards to an increase in economic growth. That is, an increase in economic growth by 1 unit caused an increase in bank performance by 0.0035. Related studies showed that an increase in bank performance is associated with an increase in income which allows bank customers to save more deposits with banks (Staikouras & Wood, 2003). In addition, it also causes consumers and firms to borrow more to finance consumption and production activities respectively.

Meanwhile, we can accept that the size of the banking institutions has a significant positive effect on the performance of the banking institutions asnoted by Angraini and Prastiwi (2020). This can be evidenced by a positive coefficient of 1.8488 which is significant at 1%. This highlights that size is an important element in finance and huge banking institutions stand a good chance to earn high profits as compared to smaller firms. The reason can be embedded in economies of scales which large banking institutions stand to benefit from.

A related idea about the positive effects of IFRS on the performance of the banking institutions was considered to be valid as indicated by Akinleye (2016). This implies that IFRS resulted in the implementation of good corporate governance practices by the banking institutions. As such, this further resulted in an improvement in the banking institutions' ethical standards, trustworthiness and the banks' levels of customer engagement services. This equated an increase in bank performance.

Ideas by Jadah et al. (2020) suggesting the existence of a significant positive relationship between total deposits, asset quality and economic growth on bank performance, were rejected. Asset quality and economic growth did have a positive effects on bank performance. This implied that an increase in economic growth creates good banking conditions which causes banks to accumulate high quality assets. Thus, good economic conditions favour the accumulation and growth of high quality assets which reduces loan loss provisions which reduce profitability. Hence, it can be said that an increase in both asset quality and economic growth do cause an increase in bank performance. The tendency to hypothesise that inflation has a significant negative effect on bank performance was rejected at 5%. Meaning that inflation actually resulted in an increase in bank performance. This is because lower levels especially below 3% have in most cases been found to be favourable for bank performance and economic growth.

4.5 Model Tests

The Hausman test was used to determine which of the two models between the FEM and REM would be used to offer insights about the determinants of the performance of the banking sector in Turkey. The probability of the Hausman test was set at 0 and the led to the rejection of the null hypothesis which states that the REM offers the best explanatory insights of the determinants of the performance of the banking sector in Turkey. Thus, it was accepted that the FEM offers the best explanatory insights of the determinants of the performance of the banking sector in Turkey.

Table 4.5. Redundant fixed effects tests

	Stat.	Df.	Sig.
Cross section F	15.664	(7, 73)	0.000
χ^2	79.788	7	0.000

Redundant fixed effects test was applied on the FEM to determine whether it is redundant in explaining the determinants of the performance of the banking sector in Turkey. The null hypothesis of redundancy was rejected at 5% and this led to the conclusion that the FEM offers the best explanatory details of the determinants of the performance of the banking sector in Turkey.

Table 4.6. Serial correlation test

	FEM	
Description	DWL	DWU
	1.406	1.636
DW estimation values	1.646	

K=6, n=88; p=0.01

Serial correlation tests were done using the established Durbin Watson values in conjunction with the Durbin Watson serial correlation table values. The test was conducted by comparing lower and upper Durbin Watson tables values with the formulated model Durbin Watson value of 1.6460. Since the model Durbin Watson value was greater than both the lower and upper Durbin Watson values, conclusions were made that the model did not have serial correlation problems.

5. Discussion

The aim was to determine and study the determinants of banking sector performance in EMEs using panel data collected from public banks in Turkey. Such was accomplished through the use of the ROA-bank performance panel data model estimated using EViews 10. The results depicted that bank size growth positions public banks for more significant opportunities to enhance their performance. Such is similar to insights provided by previous related studies revealing a positive relationship between bank size and bank performance (Batten & Vo, 2019; Jadah et al., 2020). This reiterates the importance of bank managers establishing methods and approaches that enhance public banks' size in EMEs. The mandatory implementation of IFRS guidelines improved the public banks' performance, as noted by previous studies (Akinleye, 2016). Hence, this significantly shows that transparency and consistency in banking reporting are cruicial for enhancing public banks' performance. The theoretical implication is that stakeholders and shareholders easily trust banks engaging in ethical practices. Such banks tend to attract many bank customers, stakeholders, and shareholders, thereby increasing market share and performance. The results depicted that a decline in public banks' deposits adversely affects their performance. This is because a decrease in bank deposits practically reduces funds available for banks to issue loans and invest in other profitable assets and projects. Thus, the managerial implication is that bank managers must improve and innovate their services to attract more deposit funds from customers. However, contrary results were obtained regarding suggestions that inflation hinders bank performance, as noted by some studies (Bodie et al., 2005). The study results showed that an increase in inflation increases public banks' performance. Possible explanations can be that there is a certain low level of inflation that favaours banking activities, mainly from an increase in economic activities causing economic agents to demand more banking services and funds. Hence, it can be asserted that bank managers ought to improve their service quality during periods of rising inflation levels. An improvement in asset quality was shown to be responsible for enhancing public banks' performance. This is possibly because high-quality assets tend to generate more returns, which translates to high bank revenue. Practically, this implies that banks should devote more effort towards investing in high-quality assets and improve their low-quality assets if impossible. Lastly,

the findings concurred with previous studies denoting that an improvement in economic performance enhances bank performance (Memmel & Raupach, 2010). This is because an improvement in economic performance creates a conducive environment for public banks to operate. Thus, this study shows the significance of enacting good economic management policies for the banking sector to thrive better.

The findings are valid and have revealed that economic growth, asset quality, total assets, total deposits, inflation, and IFRS incidences significantly affected public banks' performance. Such influences public banks' potential capacity to provide meaningful contributions towards promoting Turkey's growth as an EME. Hence, the findings are vital for developing policies that boost and foster banking development and economic growth in EMEs.

The study's practical implications are that a combination of public banks' strategic decisions and the right banking and economic management policies are critical for enhancing public banks' performance. However, the findings cannot be replicated to deal with private banks' related situations in other countries. They cannot be easily generalised to answer similar questions since they focus on public banks in Turkey as an EME. Since bank performance determinants vary across EMEs, future studies need to conduct a cross-sectional examination of data collected from at least two EMEs. The discussed findings are only based on the FEM results because the established test results showed that the FEM offered the best explanations about the changes in public banks' performance as opposed to the REM. This may limit the breadth and significance of perspectives drawn from the study. Therefore, both the FEM and REM need to be incorporated in examining future related research problems.

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