The Effects of IMF Financial Soundness Indicators of Turkish Commercial Banks on the Financial Development Index

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A B S T R A C T

The financial soundness of banks, which are the building blocks of the financial system, is an important indicator that reflects the effectiveness of the financial system. It can be stated that the financial development of countries with an effective financial system will be positively affected by this situation. The paper aims to evaluate the effects of IMF financial soundness indicators of the Turkish commercial banks which have an important share in the Turkish banks, on the financial development index of Türkiye. In this paper, an evaluation was made based on the IMF Financial development index and IMF financial soundness indicators. Panel data analysis was used and panel least squares model estimation was made within the analysis. In line with the findings, it has been determined that sensitivity to profitability, liquidity, and market risks of commercial banks negatively affect financial development while the capital adequacy and asset quality of commercial banks positively affect financial development.

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1. Introduction

Banks are one of the leading financial institutions that mediate the transfer of funds within the financial system. The Turkish financial system also has a bank-intensive structure in terms of intermediary institutions. The effective functioning of the financial system and its solid structure contribute to economic development. The financial soundness of banks that play an active role in financial systems supports the development of financial markets and the economy by ensuring the effective and efficient transfer of funds.

Financial soundness for banks can be defined as the ability of banks to meet their obligations and the sustainability of this ability. Considering the importance of banks in the financial system, they must have a solid structure to finance investments and provide funds to the economy continuously and at affordable costs.

The importance of the relationship between banks' financial statements and economic cycles has been emphasized once again with the 2008 global financial crisis. The financial soundness of the banking system began to be carefully monitored by supervisory authorities, with the crisis and major collapses in the financial system. Assuming that banks with high financial soundness are reliable, banks are expected to increase their capital and liquidity. It can be stated that a banking system with strong financial soundness indicators is more resistant to risks and crises (Che & Shinagawa, 2014: 4). Financial institution regulators have developed preventive and regulatory policies based on a series of financial indicators, to reduce the effects of the global crisis, especially for the need for banks to be financially sound, with the Basel III decisions. In addition, central banks have also developed financial indicators that reflect the financial soundness of the banking system by taking advantage of international standards (Almayatah, 2018:26).

Financial soundness indicators (FSIs) are indicators of the current financial health of financial institutions in a country. It is calculated to help assess and monitor the weaknesses or strengths of financial systems to maintain financial stability. FSIs were introduced by the IMF to specify occurring risks in the financial sector in the late 1990s. Financial soundness indicators consisting of core and additional sets are published by the IMF to provide insight into the soundness of countries' financial institutions. The rating system known as CAMELS was inspired while determining the basic FSIs for deposit-takers. FSIs related to deposit-takers consist of 12 financial indicators (IMF, 2019: 1-2).

Financial development means the development of financial markets, institutions, and instruments. Measuring the financial development of countries is important in terms of seeing their financial situation and being prepared for the future. Many indicators represent financial development. The financial development index (FDI) was created by the IMF using data obtained in terms of efficiency, depth, and access in

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financial markets and institutions, to represent the multiple structures of financial development best and to eliminate the lack of a single indicator. Researchers have developed three different indices for each financial market and financial institution by classifying a large number of financial indicators representing financial development in terms of depth, access, and efficiency. The IMF FDI was derived by the combination of these indices and emerged as an indicator close to representing the multidimensional nature of financial development. FDI has been calculated and published annually by the IMF for more than 180 countries since the 1980s (IMF, 2023: https://data.imf.org/?sk=f8032e80-b36c-43b1-ac26-493c5b1cd33b, 22.01.2024).

Financial development has significant effects on the financial system and economy. The first of these is to reduce the costs of obtaining information, enabling the transfer of individual savings to corporate sectors and facilitating resource allocation. Secondly, it improves corporate governance and thus increases the efficiency of investments. The third is to provide transparency about investors to those who will provide funds and to enable the financing of long-term investments by helping this segment increase its asset diversity and distribute its risks. The fourth is to ensure the fluidity of savings. Finally, in advanced financial systems, transaction costs decrease and thus investment transactions become easier (Bölükoğlu, 2021: 387-388). Therefore, considering the effective position of the banking system, especially in the Turkish financial system; It can be stated that there is a relationship between the financial soundness indicators of banks and the FDI.

It is aimed to evaluate the effects of IMF financial soundness indicators of the Turkish commercial banks which have an important share in the Turkish banks, on the financial development index of Türkiye. In this context, this paper aims to examine the effects of the financial soundness indicators of the banks operating in Türkiye which are in the top 10 asset sizes are obtained by using the IMF's 12 financial soundness indicators which are considered the basic set for deposit-taking institutions on the financial development index for the period 2006-2021. In the next section, the literature review related to the paper is examined. Other sections include data, methods and findings sections. Finally, there is a conclusions section containing the necessary inferences and recommendations.

2. Literature Review

When the literature is scanned by considering the financial development, which is the subject of the study, and the financial soundness or financial performance of banks; although there are no studies examining the effect of banks' financial soundness on financial development, it can be stated that there are studies that examine the variables used separately. There are some studies examining the relationship between financial development and firm performance and the relationship between financial

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development and bank profitability. These investigations that guided the study are summarized below.

Demirguç Kunt & Huizingha (2001) investigated the effect of financial structure and development on the profitability of banks in many countries. The paper indicates financial development significantly affects bank performance; it has been determined that bank profitability is high in countries with underdeveloped financial systems, while competition increases in countries with developed financial systems and therefore bank profitability decreases.

Dabla-Norris et al. (2012) investigated the role of innovation and financial development in the productivity of companies in developing and developed countries with the two-stage regression method. The analysis has determined that innovation significantly increases company efficiency and that this effect is greater in underdeveloped countries. However, it was concluded that financial development did not significantly affect the connection between innovation and productivity.

Fafchamps & Schündeln (2013) investigated the relationship between firm performance and local financial development in Morocco using the survey and forecasting strategy method. It has been determined that in cases where there are local banks and local financial development is high, companies in sectors with growth opportunities grow faster, and their financial performance increases.

Turgut & Ertay (2016) examined the relationship between the banking sector and growth in the period of 2003-2013 data of the Turkish economy by using time series analysis methods as cointegration and causality. The findings obtained as a result of the analysis revealed that there is a causality relationship between the banking sector to economic growth. In line with these results, the idea that the banking sector can be a determinant of economic growth and therefore can be used as an effective tool in economic growth comes to the fore.

Varlık & Varlık (2016) investigated how the variables thought to reflect the risk perception towards Türkiye affect the soundness of the banking sector in Türkiye. In this context, first of all, the Banking Soundness Index (BSI) is created using factor analysis for the period 2004M1-2015M6. In the paper, impulse-response functions and variance decomposition analysis based on the VAR model are used to evaluate the effects of variables reflecting risk perception on BSI. The findings show that increases in risk perception towards Türkiye negatively affect the balance sheet structure of the banking sector in the short term.

Banyen & Biekpe (2019) researched the relationship between bank profitability and financial integration in five different regions in Africa. Using the GMM forecasting technique, which is a dynamic two-step system, the authors targeted 407 banks in 47 African regions. The paper indicates there was a positive relationship in all countries except two regions.

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Le & Ngo (2020) analyzed the factors affecting the profitability of banks in 23 countries using the generalized method of moments. They determined that one of the factors that affects bank profitability and that this effect is positive is financial development. This result indicates that the development of financial markets increases the profitability of banks.

Threshold analysis of the finance-growth relationship was conducted through a fixed-effect model, using a data set covering 100 countries from 1995 to 2018 in the paper of Bölükoğlu (2021). IMF Financial development indices were used in the paper. According to the findings, the finance-growth relationship was found to be significant and directly proportional only for low levels of financial development.

Ozili & Ndah (2021) examined the effect of financial development on the profitability performance of Nigerian banks using the generalized method of moments. As a result of the analysis, there is a significant negative relationship between the non-interest income of banks and the ratio of deposits to GDP, which means that as financial development increases in Nigeria, the profitability of banks decreases.

Topçu & Öztekin (2021) examined the relationships between the performance of companies traded in Borsa Istanbul (return on equity and return on assets) and economic development with a panel causality test. These companies include financial institutions and banks. It has been determined that there is a bidirectional causality relationship between banks' performance and financial development.

Khan (2022) used the two-step dynamic panel data analysis method in the study examining the relationship between bank competition and financial development in developing countries. The findings of the study determined that financial development positively affects bank competition. With this result, it can be stated that economies with a developed financial structure and a competitive banking system are more effective in ensuring macroeconomic stability.

Arzova & Şahin (2023), examined the financial stability between the banking sector profitability of Türkiye. For this purpose, financial stability variables affecting the profitability of the banking sector in Türkiye between 2000 and 2019 and calculated by the IMF were analyzed with the Granger causality test. According to the results, there is a mutual causality relationship between return on assets and capital adequacy ratio, and a similar relationship exists between inflation and non-performing loans.

Ulusoy et al. (2023), using four ratios thought to represent the financial performance of 15 banks operating in Türkiye, the effect of these ratios on the FDI was examined with the Generalized Moment Method. Analysis findings; Capital adequacy and total loans to deposit have a positive effect on the FDI; It has been shown that the ratio of loans received to total loans and the average asset profitability ratio harm the FDI.

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The earlier studies are found examining the effects of financial development, especially on the profitability performance of banks when the literature on the subject of the study is scanned, only one study (Ulusoy et al., 2023) examining the parallel effects was found. However, in this study, four ratios were used as financial performance indicators. If the factors that make the study different are stated; first of all, using the 12 financial ratios determined by the IMF for deposit-taking institutions as financial soundness indicators of the banks that are thought to affect the FDI determined by the IMF, and considering the ten deposit banks that have a significant share of the Turkish banking system, and also the banks' measuring financial soundness in the context of FSIs determined by the IMF and examining the effects of FSIs on Türkiye's FDI. Considering that there is not any study in the literature researching the impact of banks' financial soundness indicators on financial development, it can be stated that this study is original and will contribute to the literature.

3. Data

A panel dataset was used in this paper, which aims to examine the effects of the financial soundness of commercial banks, which are deposit-taker institutions, on the FDI. The deposit-takers in the panel are commercial banks operating in Türkiye and ranked in the top 10 in terms of asset size as of 2021. Although QNB Finansbank ranked eighth in this ranking, it was excluded from the analysis because the bank's old data could not be accessed for the selected period. Table 1 shows the banks included in the panel.

Table 1: Commercial Banks in the Panel

Ranking Number/ Bank Name	Asset Size (billion TL)
1. Türkiye Cumhuriyeti Ziraat Bankası A.Ş.	1.370.890
2. Türkiye Vakıflar Bankası T.A.O.	1.007.214
3. Türkiye İş Bankası A.Ş.	926.569
4. Türkiye Halk Bankası A.Ş.	901.217
5. Türkiye Garanti Bankası A.Ş.	757.802
6. Yapı ve Kredi Bankası A.Ş.	736.770
7. Akbank T.A.Ş.	708.911
8. Denizbank A.Ş.	308.719
9. Türk Ekonomi Bankası A.Ş.	194.057
10. ING Bank A.Ş.	82.644

Source: TBB, Statistical Reports, 2021.

Panel data consists of annual data for the period 2006-2021 for these ten banks. The reason for choosing 2006 as the beginning of the period is that there is no negative data in the independent variables considered as of 2006. The reason for terminating the data set with 2021 is that the most up-to-date data available in the FDI data belongs to 2021. For these reasons; A balanced panel data set consisting of 160 observations, T = 16, N = 10, was created. Logarithmic transformation was applied to all variables. In this way, it was examined how the financial soundness indicators of deposit banks, which represent a significant share of the sector in Türkiye, affect the country's FDI. The variables and data sources are presented in Table 2 according to the IMF FSIs core set.

Table 2: Variables and Data Sources

Variables	Definitions and Ratios	Data Sources
LFDI	Financial Development Index	IMF
LCAP*	Capital Adequacy CAPR1: Regulatory capital to risk-weighted assets CAPR2: Tier 1 capital to risk-weighted assets CAPR3: Non-performing loans net of provisions to capital	Calculated by the author using TBB (Turkish Banks Association) data.
LASS*	Asset Quality ASSR1: Non-performing loans to total gross loans ASSR2: Provisions to non-performing loans	Calculated by the author using TBB data.
LEARN*	Earnings EARNR1: Return on assets EARNR2: Return on equity EARNR3: Net interest income to gross income EARNR4: Non-interest expenses to gross income	Calculated by the author using TBB data.
LLIQ*	Liquidity LIQR1: Liquid assets to total assets LIQR2: Liquid assets to short-term liabilities	Calculated by the author using TBB data.
LSENS	Sensitivity to Market Risk SENSR: Net open position in foreign exchange to capital	TBB

* Financial soundness indicators are calculated by taking the arithmetic mean of the relevant ratios (CAPR1, CAPR2, CAPR3, ASSR1, ASSR2, EARNR1, EARNR2, EARNR3, EARNR4, LIQR1, LIQR2)

FDI is Türkiye's FDI prepared by the IMF as an indicator of financial development. FDI is prepared by the IMF using the principal component analysis method. In this method, each indicator in the index is normalized between 0 and 1, and as it approaches 1, financial development increases (Bölükoğlu, 2021: 391).

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FSIs published by the IMF are as follows; CAP, Capital Adequacy; ASS, Asset Quality; EARN, Earnings, LIQ, Liquidity, and SENS, Sensitivity to Market Risks. Capital Adequacy shows the measurement of financial strength in banks. Asset Quality shows the ratio of banks' financial strength and the risk level of their assets. Earnings are the most important element that enables banks to continue their activities. Liquidity is a vital indicator in banks and indicates whether banks have sufficient liquidity to fulfill their responsibilities. Sensitivity to Market Risks is the indicator used to determine how sensitive and fragile banks are to market risks such as interest rates and exchange rates.

The main purpose of the paper is; to determine the effects of FSIs of commercial banks operating in Türkiye and having a very important share in the Turkish banking sector, on Türkiye's FDI.

The econometric model for the paper is stated below:

$$LFDI_{it} = \alpha_{it} + \beta_1 LCAP_{it} + \beta_2 LASS_{it} + \beta_3 LEARN_{it} + \beta_4 LLIQ_{it} + \beta_5 LSENS_{it} + \varepsilon_{it} \tag{1}$$

In equation 1, α_{it} is the constant coefficient, β_{it} is the slope coefficient, i is the banks in the panel, t is the periods and ε_{it} is the error term.

4. Methods and Findings

The method used in the paper is panel data analysis. The reason for using panel data analysis in the study is to examine how the 16-year financial soundness indicators of the 10 commercial banks with the highest asset size in Türkiye affect the financial development index of Türkiye. Because of that, a balanced panel data set consisting of 160 observations, T = 16, N = 10, was created. In this context, homogeneity, cross-section dependence, unit root, and panel least squares tests were applied.

First, homogeneity and cross-section dependence tests were applied to determine the tests of unit root which one to use.

4.1. Homogeneity Test

Homogeneity tests were applied to specify whether the slope coefficients in the model had a homogeneous or heterogeneous structure. The homogeneity of the panel series was examined with the Hsiao test, which was developed by Hsiao in 1986 and updated in 2003. Hsiao test works under the assumption of three different hypotheses. The null hypothesis represents the panel is homogeneous and the alternative hypothesis is just the opposite (Turgut & Uçan, 2019: 10). In table 3, the results of the Hsiao test testing homogeneity are presented.

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Table 3: Hsiao Test Results

Hypotheses	F-statistics	Probability
H_1	2.957811	1.36E-06
H_2	2.580754	4.46E-05
H_3	3.249139	0.001263

In the Hsiao homogeneity test in Table 3, it was determined that the probability values of statistics for all three hypotheses were less than 0.05. In this case, the null hypotheses were rejected. That means the panel was heterogeneous.

4.2. Cross-Section Dependence Test

The cross-section dependence test, which should be applied, is used to investigate whether other units are affected by the macroeconomic shock occurring in any of the units forming the panel. To avoid inconsistent results, horizontal cut dependence must be tested before all tests. The Cross-section Dependent (CD) test, developed by Pesaran in 2004, is used both when the time dimension is larger than the section dimension (T>N) and vice versa (N>T). Hypotheses of the test (Pesaran, 2004):

H_0= There is not a cross-section dependency.

H_1= There is a cross-section dependency.

In Table 4, the CD results are presented.

Table 4: CD Test Results

Variables	CD test Statistics	Probability
LFDI	26.83282	0.0000
LCAP	5.984355	0.0000
LASS	15.52308	0.0000
LEARN	19.15023	0.0000
LLIQ	13.94436	0.0000
LSENS	5.976411	0.0000

According to Pesaran (2004) CD results, which are given in Table 5, since the probability values of the test statistics for all variables are less than 0.05, the null hypothesis is rejected. Test results indicate that there is cross-sectional dependence

between the variables. This result shows that a change occurring in each bank included in the analysis can also affect other banks.

4.3. Panel Unit Root Test

The CADF (Cross Sectional Augmented Dickey-Fuller) test developed by Pesaran (2007), which also takes into account the heterogeneity assumption, if there is cross-sectional dependence in panel data analysis, gives reliable results. Since the necessary conditions were met in this study, Pesaran's (2007) CADF, which is the 2nd generation test, was applied to variables with cross-sectional dependence.

The hypotheses and general regression equation of the Pesaran CADF unit root test are given below:

H$_0$: The series contains a unit root

H$_1$: The series does not contain a unit root

$$\Delta Y_{it} = \alpha_i + \beta_i Y_{i,t-1} + Y_i f_t + \varepsilon_{it} \tag{2}$$

While CADF results obtained as a result of Pesaran's (2007) CADF unit root test are used to interpret horizontal sections separately; CIPS statistical values calculated by taking the arithmetic mean of each series are used to interpret the panel as a whole. The way the CIPS test statistic is calculated within the scope of the CADF test is expressed in Equation 3 (Pesaran, 2007:283).

$$CIPS\,(N,T) = \frac{1}{N} \sum_{i=1}^{N} (t_i\,(N,T)) \tag{3}$$

The 1st generation panel unit root test applied to the dependent variable is the Hadri (2000) unit root test. Hadri's (2000) panel unit root test is a residual-based test based on the Lagrange Multiplier (LM). In this test, it is stated that for each i, the series has a unit root in the alternative hypothesis, against the main hypothesis that the series is stationary around a deterministic trend. Due to this difference, Hadri (2000) test hypotheses differ from other tests. In this respect, it is an extended version of the KPSS stationarity test, which was developed in the context of time series. The hypotheses of Hadri's (2000) panel unit root tests are given below:

H$_0$: The series does not contain a unit root

H$_1$: The series contains a unit root

Lagrange Multiplier (LM) test statistics are calculated as in equation 4;

$$LM = (\frac{1}{N} \sum_{i}^{N} (1/T^2)\sum_{t=1}^{T} (S^2_{it}))/\sigma^2 \tag{4}$$

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Here $S^2{}_{it}$ denotes the partial sum of the residuals. Under the basic hypothesis indicating stationarity, the Z_m test statistic is expressed as in equation 5 (Hadri, 2000: 150-153);

$$Z_m = (N^{1/2}(LM_m - \delta_m))/\delta_m \qquad (5)$$

In this case, 2nd generation unit root test that can work under the assumption of heterogeneity must be applied to the variables. In this context, Pesaran's (2007) CADF test, which meets the necessary conditions, was applied in the study and the CIPS statistical values calculated by taking the average of the CADF test statistics are presented in Table 5. In addition, since the dependent variable LFDI is a constant variable for all cross-sections; Cross-sectional dependence can be ignored for this variable. For this reason, it was decided to apply the Hadri (Hadri, 2000) unit root test, which is a 1st generation test and works under both homogeneous and heterogeneous assumptions, in testing the stationarity of the LFDI variable.

Table 5: Hadri and Pesaran-CIPS Unit Root Test Results

Variable	Test	Statistic	Probability	Decision
LFDI	Heteroscedastic Consistent Z-stat	0.39673	0.6542	I(0)
LCAP	CIPS t-stat	-4.57569	<0.01	I(0)
LASS	CIPS t-stat	-4.68028	<0.01	I(0)
LEARN	CIPS t-stat	-25.45280	<0.01	I(0)
LLIQ	CIPS t-stat	-6.21351	<0.01	I(0)
LSENS	CIPS t-stat	-12.37061	<0.01	I(0)

Since all variables used in the study were stationary at level, the model was estimated by applying the Panel Least Squares method.

4.4. Panel Least Squares Test

There are three different models for panel least squares estimation. These; are fixed models, random models, or pooled models. Here the panel may include fixed effects, random effects, or pooled effects. Before moving on to panel least squares estimation, some tests need to be done to decide which model to apply to the data set. These tests; are the Hausman test, Chow (F) test, and LM (Lagrange Multiplier) test. The

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common result obtained when these three tests are performed gives the answer to which model should be applied (Koçak & Uçan, 2023: 101).

First, the Hausman test was applied. The choice is made between fixed effects (FEM) or random effects model (REM) by the Hausman test. The hypotheses of the Hausman test are given below (Gujarati, 2016: 416):

H_0: There is no correlation between the error component and the explanatory variables. In this case, REM is appropriate.

H_1: There is a correlation between the error component and the explanatory variables. In this case, FEM is suitable.

Hausman test results for the model are presented in Table 6:

Table 6: Hausman Test Results

Test Summary	Chi-Square Statistic	Probability
Cross-section random	23.036062	0.0003
Period random	0.000000	1.0000

Since the probability value of the estimated chi-square statistic for the cross-section is less than 0.05, the Hausman test strongly rejects REM. In Period, the Hausman test strongly rejects FEM. According to this finding, it is appropriate to use FEM in the cross-section and REM in the period.

Secondly, the F test was conducted in the study. It aims to specify whether the fixed effects model (FEM) should be used against the pooled least squares model (POLS) with the F test. The hypotheses of the F test are given below (Gujarati, 2016: 409-410):

H_0: There is no unit and time effect; POLS is suitable.

H_1: There is a unit and time effect; FEM is suitable.

F test results are presented in Table 7:

Table 7: F Test Results

Effects Test	F Statistic	Probability
Cross-section F	2.559562	0.0092
Period F	9245.625022	0.0000

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Since the probability value of the F statistic estimated for cross-section is less than 0.05, the F test strongly rejects POLS. Since the probability value for the period is greater than 0.05, it strongly rejects POLS. According to this finding, it is appropriate to use FEM in cross-section and period.

Finally, the LM test was performed in the study. The purpose of the LM test is to determine whether POLS is superior to REM. The hypotheses of the LM test are given below (Gujarati, 2016: 414-415):

H_0: Individual effects and time effects are not random. In this case, POLS is suitable.

H_1: Individual effects and time effects are random. In this case, REM is appropriate.

LM test results are presented in Table 8:

Table 8: LM Test Results

Effects Test	Breusch-Pagan Statistic	Probability
Cross-section	0.711765	0.3989
Time	340.4922	0.0000

The LM test strongly accepts POLS Since the probability value of the Breusch-Pagan LM test statistic estimated for cross-section is greater than 0.05. According to this finding, it is appropriate to use POLS for cross-section and REM for period. In addition to this finding; It should be remembered that as a result of the Chow (F) test in Table 7, which tested which of the POLS and FEM models would give better results, it was found that the FEM model was superior to POLS for cross-section.

The common result obtained from the Hausman test, F test, and LM tests were applied to decide which model to apply in panel least squares estimation; The FEM model is suitable for cross-section and the REM model is suitable for the period. In this context, it was investigated whether there were autocorrelation and heteroskedasticity problems in the model considered. It was determined that the model had autocorrelation and heteroscedasticity problems, and to eliminate these problems, white cross-section correction was made to obtain robust standard errors. Panel Least Squares model estimation and results made in line with these corrections are presented in Table 9.

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Table 9: Panel Least Squares Model Results

Dependent Variable: LFDI Independent Variables	Coefficient	Standard Error	t-Statistic	Probability
C	-1.347277	0.155386	-8.670521	0.0000
LCAP	0.025278	0.022978	2.726487	0.0156
LASS	0.216901	0.025863	8.386456	0.0000
LEARN	-0.074719	0.016089	-4.644195	0.0000
LLIQ	-0.027658	0.014907	-1.855403	0.0656
LSENS	-0.041185	0.016546	-2.489147	0.0139
R^2 = 0.551478 F-Statistic=21.73456 p(F-Statistic)=0.0000 Durbin Watson Statistic = 1.972567				

When the analysis results in Table 9, which examines the effects of commercial banks' financial soundness indicators on Türkiye's FDI, are evaluated, it is seen that the model's power to explain significant and independent variables is approximately 55%. It was determined that the independent variables LCAP, LASS, LEARN, and LSENS had a statistically significant effect on the FDI, and among these variables, LCAP, LASS, and LSENS positively affected the FDI. It has been determined that LEARN negatively affects the FDI. It was found that the effect of LLIQ on the FDI had a low significance level. According to panel data analysis findings; while a one-unit increase/decrease in banks' CAP increases/decreases the FDI by 0.025278; A one-unit increase/decrease in asset quality increases/decreases the FDI by 0.216901, and a one-unit increase/decrease in sensitivity to market risks increases/decreases the FDI by 0.041185. A one-unit increase/decrease in banks' profitability decreases/increases the FDI by 0.074719.

The capital adequacy of banks, in other words, the share of their equity in total assets, is high; It causes banks to have more funding sources, lower funding costs and increase their total loan disbursement potential. Not reducing capital adequacy, which has an important share in the financial soundness indicators of banks, below a certain level can ensure that risk factors in the banking sector and financial system are kept under control. It can be stated that the significant positive relationship between the CAP of the deposit banks in the panel and representing a big share of the Turkish banks and Türkiye's FDI is compatible with the theoretical expectation. It can be stated that a

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country with high financial soundness in its banking system will also have high financial development, because of the reasonable level of capital adequacy.

Asset quality of banks shows the financial strength of banks and the risk level of their assets. As the share of Total Loans and Receivables in total assets, increases, the asset quality of banks increases; As the share of non-performing loans in total loans and receivables increases, asset quality decreases. Since the share and risk of loans given within banks' assets are high, most of the criteria used to measure asset quality are aimed at measuring the credit quality of banks. Banks must be able to manage credit risk well to maintain their financial soundness. It can be stated that the asset quality is high for the banks that have a very significant share in the analyzed period and the banking sector's asset share. High asset quality positively affects the financial soundness of banks and indirectly contributes positively to the financial development of the country. Therefore, it can be stated that the significant and positive relationship between asset quality and the FDI obtained as a result of the analysis is a finding compatible with the theory.

Earnings of banks determined that the relationship between FDI and bank profitability was negative, contrary to expectations. When the relevant indicators were examined for the period under review, it was observed that there was a decrease in the profitability of banks in general. It can be stated that the slight increase in the share of non-performing loans in total loans, which is one of the ratios that affect asset quality, that is, the problems experienced in the collection of loans, negatively affects profitability. In addition, it can be said that the increase in other operating expenses within the operating gross profit across the examined panel is one of the important factors reducing the profitability of banks. In addition, considering that the loans provided by banks constitute a significant part of their total assets; It can be said that the deposits deposited in banks and the capacity of banks to create fiat money, which is one of the important functions of the economic system, have increased. In this case, it can be stated that since the total assets of the banks will increase more than the net profit, the average asset profitability of the banks will be negatively affected, while the FDI will increase. Another reason for this effect, which seems to contradict theoretical expectations, may be that interbank competition increases in periods when profitability in banks is low, and therefore financial development is positively affected by this situation.

The liquidity adequacy of banks is one of the most important factors that enable them to survive in crisis periods. Banks need to have sufficient liquidity to fulfill their commitments on time to avoid being dragged into bankruptcy. On the other hand, liquidity risk, which is an important risk due to the inverse relationship between liquidity and return, needs to be managed well. Banks have two basic indicators of liquidity.

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Considering the review period, liquidity decreased in general between 2006 and 2008 in the first two years until the global financial crisis; It was observed that liquidity increased between 2008 and 2009, when the crisis continued to affect, but in general, there was a decrease in liquidity between 2010 and 2020, with the effect of ensuring financial stability in the remaining period. In this sense, it can be concluded that as the fluctuations in financial markets increase/decrease, liquidity should also increase/decrease. From this perspective, it can be thought that the negative relationship between liquidity and FDI obtained as a result of the model estimation is an expected result. However, it can be stated that this relationship is not significant at the 5% significance level. In addition, liquidity and profitability affect the FDI in the same direction; This means that banks' focus on liquid assets with low returns does not threaten their profitability.

A high sensitivity to market risks ratio means that their sensitivity to market risks is low. It can be stated that banks' sensitivity to exchange rate risk is low as a result of their high open position. This situation may lead to the low financial soundness of banks and indirectly to the low financial development of the country. Therefore, it can be said that the finding that the relationship between sensitivity to market risk and FDI is negative and significant as a result of the analysis is compatible with the theoretical expectation.

5. Conclusions

The financial development of countries depends on the effectiveness of their financial systems and therefore the existence of developed financial institutions. The fact that financial institutions have a solid structure and high financial performance is an important indicator that reflects the financial development of their country. In this context, the paper is important in terms of investigating the possible effects of the financial soundness of banks which are the leading financial institutions in Türkiye, on the country's FDI.

In the study, the effects of the financial soundness indicators obtained by examining the commercial banks operating in Türkiye and ranked in the top 10 in terms of asset size in terms of the IMF's financial soundness criteria for the period 2006-2021, on Türkiye's financial development index calculated by the IMF is intended to be examined. Panel least square analysis was applied in the paper and model estimation was carried out by performing the necessary tests in line with the analysis. Estimation results show that capital adequacy and asset quality indicators are positive on the FDI; It has been determined that profitability, liquidity, and sensitivity to market risks indicators have a negative effect on the FDI. It can be said that the finding of a negative relationship between bank profitability and financial development obtained from the

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study is parallel to Demirguç Kunt & Huizingha (2001), Ozili & Ndah (2021), Ulusoy et al. (2023), but contradicts the findings of Le & Ngo (2020).

When the literature is examined, it is seen that only the relationship between the profitability of banks and financial development has been investigated, and in this relationship, bank profitability is generally considered as the dependent variable (Demirguç Kunt & Huizingha (2001), Le & Ngo (2020), Ozili & Ndah (2021)). This means that previous studies generally examine the effect of financial development on bank profitability. In most of these studies, financial development was examined in a one-dimensional manner. The closest one to the study is the study by Ulusoy et al. (2023). The most important difference that distinguishes this study from this study is that financial soundness is evaluated within the scope of capital adequacy, asset quality, profitability, liquidity, and sensitivity to market risks by taking into account 12 financial ratios, which are IMF financial soundness indicators, and all these indicators are used as independent variables. In this context, the paper can contribute to the literature.

It reveals that regulatory and supervisory institutions and authorities should develop policies that encourage the existence of strong banks in terms of capital adequacy and asset quality in the banking sector. It can be stated that increasing competition in periods when profitability in the banking sector is low will support financial development, therefore measures that will positively affect competition in the sector should be taken. Banks should be ensured to focus on liquid assets at a level that will eliminate liquidity risk and not threaten their profitability. In addition, it is important for banks to avoid open positions and to follow policies to reduce their sensitivity to market risks in terms of their financial soundness. The financial soundness of banks, which are the building blocks of the financial system, and as a result the efficiency of the financial system will increase; it can be stated that the financial development of the country will also be positively affected by this situation in light of all these requirements and suggestions.

In future studies, the effects of the financial soundness of banks and non-bank financial institutions on the financial development of country groups can be examined. In addition, developing and developed countries and financial institutions other than banks can be analyzed and evaluated separately. In addition, it can be stated that the use of non-linear prediction models can help to obtain a result compatible with theory when examining the effect of bank profitability on financial development.

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