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An Empirical Application for Determining the Factors of Net Interest Margin of Turkish Deposit Banks

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Abstract

This study aims to identify the factors influencing the net interest margin (NFM) based on micro variables within the Turkish deposit banking sector. Secondary data sources were utilized to gather the necessary data for the analysis. Descriptive design was chosen as the model for analysis, and NFM levels were initially grouped through clustering. During the analysis, NFM levels were examined across relevant periods and banks to determine where high and medium NFM levels were concentrated. Consequently, it was observed that LR, ROA, AQ, MO, SCL, MKDO, FVO, and MO, MKDO, and FVO levels significantly impact the NFM level, whereas ROA and AQ levels, along with the NFM level itself, exhibit a lower influence.

Keywords: *Banking Sector, Net Interest Margin, Financial system, Deposit to Loan Ratio, Asset Quality*

INTRODUCTION

Banks are essential actors in the economic landscape, playing a crucial role in the economic development of a nation. Their efficiency in carrying out the function of financial intermediation can significantly boost the economic growth of a country, especially in economies where banks are the primary source of financial support. At the broader economic level, banks serve as instruments for the implementation of monetary policy, while at the individual and business level, they provide essential funding. The ability of deposit money banks to facilitate financial intermediation effectively is vital for both economic growth and stability within a country. If the banking sector underperforms, it has the potential to lead to bank collapses, potentially sparking a crisis of trust within the banking sector that could slow down economic expansion or even trigger a downturn. Conversely, a robust and profitable banking sector can absorb shocks, contributing to the stability of the financial system. In economies predominantly reliant on deposit banks, any breakdown within this sector can severely impact economic growth due to the widespread financial and economic turmoil it may cause. The efficiency of the banking system is often reflected in bank interest margins, with the net interest margin (referred to as NFM in this article) serving as a crucial indicator. It measures the efficiency of a bank by comparing its interest income from loans and other revenue streams against the interest expenses paid to depositors and borrowers, relative to the total earning assets. Thus, NFM is essential for evaluating a bank's investment performance.

Efficient cost of intermediation serves as a barometer for the efficacy of a country's monetary policy, the robustness of its financial stability, and competitiveness within its banking sector. A competitive banking landscape fosters enhanced efficiency through reduced net interest margins, whereas elevated margins might obstruct the expansion of financial intermediation. Insufficient deposit rates deter savings, and elevated lending rates curtail the investment capabilities of banks. Banks are tasked with executing their intermediation roles at minimal costs to catalyze the economic growth of their nation. Particularly in emerging economies, the banking sector is pivotal for economic advancement, as the majority of entities and individuals depend on deposit banks for financial needs in light of immature capital markets. The net interest margin stands as a pivotal metric for gauging the efficacy of banks' financial intermediation. Unraveling the factors of NFM is critical, given its susceptibility to the nuances of a country's financial infrastructure maturity, its competitive landscape, and the banking sector's efficiency in financial intermediation. The influences on the NFM are diverse across different economies, nations, and sectors, yet its significance in the banking sector's intermediation capability and

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financial system resilience is undeniable. Affected by both internal and external factors, scholarly investigations often delve into bank-specific and macroeconomic factors.

This exploration seeks to pinpoint the determinants of NFM through the lens of micro variables within the Turkish deposit banking sector. A robust equity ratio signals a bank's enhanced capacity for lending, indicative of financial stability and a substantial capital foundation, enabling the bank to embrace more lending risks and propel economic growth domestically. Grasping these determinants is paramount for policymakers, regulatory bodies, and investors to evaluate the banking sector's vitality and performance, thereby making enlightened decisions regarding monetary policies and financial stability interventions. Essentially, a bank reliant on fewer external resources incurs lower interest expenses. This ratio underscores a financial institution's solidity, especially pertinent for banks dispensing long-term loans. An uptick in the loan-to-asset ratio escalates the interest income from loans, positively influencing the NFM — the difference between interest revenue and expenses. An anticipated direct correlation exists between loan volume and NFM.

However, an increased presence of doubtful loans elevates credit risk and, consequently, the interest margin, necessitating banks to transfer additional costs to consumers to offset losses from such loans. A high liquidity ratio signals a bank's reduced loan disbursement, curbing interest income generation on these liquid assets, thereby significantly affecting the net interest margin. Research presents varied findings on the correlation between NFM and total assets, directly associating NFM with asset quality. Moreover, a bank's substantial deposit base implies higher interest expenses, reducing the NFM. A significant chunk of a bank's earnings typically stems from interest income.

Hence, it is anticipated that net profit will influence the NFM. For this research, a descriptive design is adopted to determine the factors influencing the NFM within Turkish banks that accept both domestic and foreign capital deposits. The study utilizes financial ratios from the years 2012 to 2022, categorizing NFM levels primarily through clustering techniques. The benefit of this approach lies in its ability to pinpoint periods of high or low NFM levels in banks with domestic and foreign capital deposits, as well as establishing a threshold for differentiation. The analysis incorporates bank-specific variables such as Non-Performing Loans, Return on Assets, Non-Interest Income, Equity Ratio, Asset Quality, Bank Size, Deposit Ratio, Liquidity Risk, Loan Loss Provisions, Deposit to Loan Ratio, Return on Equity, Financial Asset Ratio, Capital Adequacy Ratio, and Interest Income Ratio, using secondary data for information gathering. In this analytical process, NFM levels are scrutinized for the specified timeframe and banks, identifying the periods and institutions where high and medium NFM levels predominantly occur. The subsequent phase involves determining the significance and confidence intervals of the variables impacting NFM levels. It was found that periods of high NFM levels are more prevalent among banks with foreign capital. An NFM level of approximately 3 is considered medium, whereas a level of 12 is deemed high. However, this benchmark, crucial to the study's limitations, is specific to the timeframe of 2012-2022 and the banks under examination. Ultimately, the study observes that factors such as Liquidity Risk (LR), Return on Assets (ROA), Asset Quality (AQ), Market Orientation (MO), Size Category of Loans (SCL), Market Share Ratio (MSR), and Foreign Capital Flow Orientation (FCFO) impact NFM levels. Notably, MO, MSR, and FCFO exert a significant influence on NFM, whereas ROA and AQ have a lesser impact. Data for the analysis were sourced from the Banks Association of Turkey's official website and the Central Bank of the Republic of Turkey's Electronic Data Delivery System for banking statistics.

LITERATURE

In this section, previous research on the factors affecting NFM is examined.

Ho and Saunders (1981) aim to analyze the variables influencing bank margins by merging the concepts of hedging and expected utility, excluding consideration of banks' institutional limitations and various broad financial management challenges that affect the establishment of margins. The research suggests a direct link between the breadth of bank spreads or margins and the practice of theoretical and empirical modeling. It argues that models similar to the one proposed here could serve as invaluable financial management instruments for banks in the face of increasing uncertainties about future interest rates.

Tarusa, Chekolb, and Mutwolc (2012) investigated the determinants of NFM in Kenyan commercial banks by utilizing data and employing both aggregate and fixed effects regression techniques on a dataset spanning from 2000 to 2009, encompassing various Kenyan banks. Their findings suggest that operational costs and credit risk, as well as inflation and economic expansion, play significant roles in shaping the NFM of commercial banks in Kenya. Additionally, they observed that market concentration has a detrimental impact on it.

Demirgüç-Kunt and Huizinga (1999) investigated the factors that cause variations in NFM and profitability across banks, utilizing data spanning 1988 to 1995. The study covers a range of factors including individual bank characteristics, macroeconomic scenarios, taxation on banks, regulations surrounding deposit insurance, the broader financial system, and crucial legal and institutional frameworks. The research findings indicate that when a bank's assets relative to the GDP are higher and the market is less concentrated, it tends to have lower margins and profitability. Conversely, in developing countries, foreign banks tend to experience higher margins and profits, a trend that shifts in more developed nations.

Zhou K. and Wong M.C.S. (2008) conducted an empirical examination of the factors affecting NFM of Chinese commercial banks. They expanded on the Ho and Saunders (1981) model to identify the various factors influencing NFM. The study discovered that the determinants of net interest margins in the Chinese market encompassed the structure of market competition, average operating costs, degree of risk aversion, transaction size, implied interest payments, opportunity cost of reserves, and management effectiveness.

Almarzoqi R. and Naceur S.B. (2015) investigated the determinants of interest margins of banks in the Caucasus and Central Asia (CCA) using a panel dataset spanning from 1998 to 2013. They employed Ho and Saunders' (1981) franchise model and its extensions to evaluate the extent to which banks' high margins in CCA relied on bank-specific variables, competition, and macroeconomic factors. The study revealed that operational cost, credit risk, liquidity risk, bank size, bank diversification, banking sector competition, and macroeconomic policies were influential in affecting interest margins, although the effects varied across countries.

Setiawan C. and Wisna M. M. (2021) analyzed the endogenous and exogenous factors of NFM for Category-IV banks in Indonesia during the period from 2014 to 2017. They utilized the deposit loan ratio, operating efficiency ratio, and capital adequacy ratio as independent variables for endogenous determinants, and interest rate volatility and inflation as exogenous determinants. The analysis unveiled that the deposit loan ratio, operating efficiency ratio, and inflation had a positive and significant impact on NFM. However, the capital adequacy ratio had a negative and significant effect, while interest rate volatility made an insignificant contribution. The overall findings underscored the consistent contribution of endogenous factors in significantly influencing the value of NFM.

Zhou and Wong (2008) undertook a detailed investigation into what drives the net interest margins of Chinese commercial banks from 1996 to 2003, refining the model initially proposed by Ho and Saunders (1981) to pinpoint the elements impacting net interest margins. Their research identified that the factors influencing net interest margins in China included the competitive market structure, the average costs of operation, risk aversion levels, the size of transactions, the implied costs of interest payments, the opportunity costs associated with reserves, and the efficacy of management.

Bennaceur and Goaid (2008) explored the influence of financial structures and macroeconomic indicators on the NFM and profitability within the Tunisian banking sector. Their research revealed that banks exhibiting higher capital levels and larger expenditures tend to have elevated NFM and profitability, whereas a bank's size negatively influences its profitability. Additionally, the study determined that macroeconomic indicators do not significantly impact the profitability of banks in Tunisia. Regarding the financial structure's effect on both interest margins and profitability, the results indicated that the advancement of the stock market has a beneficial impact on the profitability of banks.

Horváth (2009) investigated the factors affecting the interest margins of Czech banks, analyzing data from 2000 to 2006 at the bank level. The findings indicated that banks with higher efficiency experienced lower margins, and an increase in capital adequacy was linked to reduced margins, enhancing the steadiness of the banking

industry. The factors affecting the interest margins of Czech banks were found to align with those identified in studies of developed countries.

Megawaty and Ugut (2022) focused on determining the factors influencing NFM in Indonesia, particularly within commercial banks classified under BUKU III and IV categories. Employing a data panel regression method with bank-specific and macroeconomic indicators based on secondary data from 2015 to 2019, the study identified that capital adequacy, asset quality, deposits, asset management, and exchange rates significantly impact NFM.

Qi and Yumo (2016) examined the factors of new financial models in Chinese financial institutions, specifically assessing the impact of short-term financing and the involvement of foreign banks. Their research found that both short-term financing and foreign bank presence negatively influence the NFM of domestic banks in China, with the study highlighting differences in share structures and analyzing net interest margins pre and post banking liberalization.

Ahokpossi C. (2013) undertook an extensive analysis of the various elements affecting bank NFM, examining a large dataset of banks across Sub-Saharan African countries. The research uncovered a notable correlation between market concentration and interest margins, indicating that banks operating in concentrated markets tend to see more substantial increases in margin, particularly those that demonstrate higher efficiency compared to their less efficient counterparts. This result suggests that policies aimed at increasing competition and reducing market concentration could effectively lower interest margins in Sub-Saharan Africa. Additionally, the research identified key bank-specific factors such as credit risk, liquidity risk, and bank equity as the main drivers of NFM.

In their 2014 study, Raharjo P.G. and colleagues undertook a comprehensive analysis to identify the factors of NFM within Indonesian commercial banks, thoroughly examining both internal and external contributors. The study highlighted the subtle effects of various internal variables on the NFM of Indonesian banks, pinpointing inflation as the primary external factor significantly impacting interest margins.

Nassar K.B., Martinez E., and Pineda A. in 2014, conducted a detailed investigation into the factors influencing net interest margins in Honduran banks from 1998 to 2013. Their detailed examination revealed a strong link between the increase in net interest margins and the presence of foreign banks as well as banking consolidation. Operational costs were found to be the most critical factor affecting net interest margins, with banking competition leading to increased market concentration and contributions from parent bank financing positively affecting the NFM of foreign banks.

Breib, M., Birchwood A., and Noela D. (2016) analyzed the factors affecting bank NFM across Central America and the Caribbean between 1998 and 2014. This study focused on the role of market structure and regulatory differences across countries in explaining the variations in retail banks' NFM. The results showed that lower loan-to-deposit spreads are associated with higher GDP growth and greater income diversity. Conversely, increased bank market power, operational efficiency, credit risk, holdings of liquid assets, and interest rate risk were all factors that contributed to widening the gap between loan and deposit rates.

Ben Moussa M.A. and Wiem M. (2016) undertook a study to probe the determinants impacting the NFM across 18 Tunisian banks from 2000 to 2013. Their analysis indicated significant influences of internal variables such as bank size, deposit levels, overall loan volumes, return on equity, and risk factors on the NFM. For external variables, inflation was identified as having a meaningful impact on the NFM.

Azeez A.A. and Gamage S. (2013) carried out an in-depth investigation to determine the effect of bank-specific, industry-specific, and macroeconomic indicators on the NFM of retail banks in Sri Lanka between 1999 and 2011. Utilizing the framework initially proposed by Ho and Saunders (1981), their study found that factors including staff costs, capital costs, market dominance, inflation, and the interest rates on treasury bills positively affect the NFM. In contrast, management effectiveness, mandatory reserve requirements, and GDP growth were identified as negatively impacting factors. The study also noted that the overall size and prominence of banks did not have a substantial effect on the determinants that influence the NFM.

Jima M. D. (2017) carried out an extensive research project to pinpoint the variables impacting the NFM within Ethiopia's banking sector. Leveraging unbalanced panel data from the annual reports of retail banks and the National Bank of Ethiopia covering 1997-2014, and employing a Fixed Effect unbalanced panel data model, the study highlighted cost efficiency, indirect interest payments, competition, and scale efficiency as having a positive influence on NFM. Conversely, it found that liquidity risk and management efficiency adversely affect NFM, while inflation and GDP growth lack significant influence.

Angori G., Aristei D., and Gallo M. (2019) delved into the factors influencing NFM across the Eurozone, identifying market dominance, financial strength, interest rate volatility, and productivity level as key determinants. The research concluded that the European Central Bank's monetary policies had somewhat countered the trend of persistently low profitability within the Eurozone. Additionally, it was noted that variations in productivity levels, especially those tied to increased informal activities and elevated operational costs, have played a role in reducing bank margins from conventional banking activities.

Khan M. and Jalil A. (2020) explored the factors of NFM by analyzing unbalanced panel data covering 2003-2017. Their findings indicated significant positive correlations between NFM and multiple factors, encompassing operating expenses, taxation on profits, volatility in interest rates, Lerner index, domestic savings, monetary base, and the yields on government bonds. Conversely, the size of operations, credit risk, and inflation rate were found to negatively influence NFM. The study underscored the significance of operating costs, taxation, and money supply as crucial determinants affecting NFM.

METHODOLOGY AND DATA

The research utilized descriptive statistics, such as averages, deviations from the mean, occurrence rates, and proportions, to elaborate on the data analysis. K-means clustering analysis was utilized to categorize groups based on their NFM levels, while logistic regression analysis was conducted to determine the 95% confidence intervals for the impact of micro risk parameters on NFM levels. The statistical analyses were carried out using the SPSS 25.0 software package for Windows, with a significance threshold set at 0.05. The analysis incorporated financial ratios from deposit banks active in the Turkish banking sector over the period from 2012 to 2022. Data for the financial ratios and other variables analyzed were sourced from the Banks Association of Turkey's official website and the Central Bank of the Republic of Turkey's Electronic Data Delivery System for banking statistics. The deposit banks and the variables that were analyzed are outlined in Tables 1 and 2, as mentioned in the study.

Table 1. Deposit Banks Included in the Analysis

Deposit Banks Operating in the Public and Private Turkish Banking Sector	
T.C Ziraat Bankası AŞ	Deutsche Bank AŞ
Türkiye Halkbankası AŞ	Deniz Bank AŞ
Türkiye Vakıfbanklar Bankası T.A.O	Citibank AŞ
Türkiye Garanti Bankası AŞ	Burgan Bank AŞ
Turkland Bank AŞ	Bank of China Turkey AŞ
Rabobank AŞ	Arap Türk Bankası AŞ
QNB Finansbank AŞ	Alternatif Bank AŞ
Odea Bank AŞ	Yapı ve Kredi Bankası AŞ
MUFG Bank Turkey AŞ	Türkiye İş Bankası AŞ
ING Bank	Türk Ekonomi Bankası AŞ
ICBC Turkey Bank AŞ	Turkish Bank AŞ
HSBC Bank AŞ	Akbank T.A.Ş
Anadolubank AŞ	Fibabanka AŞ
Şekbank T.A.Ş	

Table 2. Macro and Micro Variables Included in the Analysis

Variables	Notation	Explanation
Independent Variables		
Return on Assets	ROA	Net Profit /Total Assets
Return on Equity	ROE	Net Profit / Total Equity
Non-Performing Loans	NPL	Nonperforming Loans/Total Loans
Non-Interest Income	FDG	Non-Interest Income/Total Assets
Deposit Ratio	MO	Total Deposits /Total Assets
Asset Quality	AQ	Total Loans/Total Assets
Bank Size	BSize	Log (Total Assets)
Equity Ratio	ÖK	Shareholders' Equity /Total Assets
Liquidity Risk	LR	Liquid Assets /Total Assets
Provision for Loan Losses	KZK	Total Provision for Loan Losses/Total Loans
Deposit to Loan Ratio	MKDO	Loans+Receivables/Total Deposits
Financial Asset Ratio	FVO	Financial Assets (Net) / Total Assets
Capital Adequacy Ratio	CAR	Shareholders' Equity/ (Total Risk Weighted Amounts) * 100
Interest Income Ratio	FG	Net Interest Income/Gross Operating Profit after Special Provisions
Dependent Variable		
Net Capital Margin*	NFM	Net Interest Income/Total Assets

ANALYSIS AND FINDINGS

This section presents empirical findings regarding the factors influencing bank NFM in the Turkish banking industry.

Table 3. Identification of Clusters

	Cluster1	Cluster2
	X±s.s.	X±s.s.
NFM	3,92±1,41	12,91±3,13

Based on the outcomes of the clustering analysis, it was observed that NFM levels were clustered in two different groups. In the first group, cluster 1 with n=279 data and NFM levels of 3.92 ± 1.41 and cluster 2 with n=8 data and NFM levels of 12.91 ± 3.13 ($F=12.35$, $p=0.01$, $p<0.05$). In general, it was seen that the NFM levels were realized at very limited levels that can be considered high and that it would be appropriate to make the naming of the clusters as medium and high due to the fact that the NFM levels were realized at an average level as of the years of the period / banks examined. In general interpretations, it was observed that NFM levels were mostly realized at the level of 3.92 ± 1.41 in the banks in the period examined. These parameters can be predicted as a cut-off point for the NFM levels, which are rarely realized at 12.91 ± 3.13 , which can be considered high. In these periods, it can be predicted that the NFM levels of native and foreign capital banks in Turkey approaching the level of 12.91 ± 3.13 is a level that can be considered high. The NFM level close to 3.92 ± 1.41 can be considered as a medium level.

Table 4. Analysis of clusters According to Capital Structure

		NFM Group			
		Medium		High	
		n	%	n	%
Capital Structure	Domestic	88	31,5%	0	0,0%
	Foreign	191	68,5%	8	100,0%

Among the clusters identified in Table 3, it was determined that 3.5% of the medium level NFM groups were observed in domestic capital banks and 68.5% in foreign capital banks. It is determined that the group with high NFM level is realized entirely in foreign capital banks.

Table 5. Examination of Clusters by Periods

	NFM Group			
	Medium		High	
	n	%	n	%
2012	23	8,2%	1	12,5%
2013	25	9,0%	0	0,0%
2014	26	9,3%	0	0,0%
2015	26	9,3%	0	0,0%
2016	26	9,3%	0	0,0%
2017	26	9,3%	0	0,0%
2018	25	9,0%	1	12,5%
2019	24	8,6%	3	37,5%
2020	27	9,7%	0	0,0%
2021	26	9,3%	1	12,5%
2022	25	9,0%	2	25,0%

In the study, 2019 (37.5%), 2022 (25%), 2021 (12.5%), 2012 (12.5%), 2018 (12.5%) were the years with higher realization rates of NFM levels compared to other years.

Table 6. Independent risk factors affecting the NFM Level

Factors	W	p	β	95% G.A. β	
				Bottom	Top
LR	6,35	0,01*	2,15	1,17	26,98
ROA	4,16	0,01*	1,36	1,06	1,64
AQ	5,85	0,01*	1,71	1,11	2,94
MO	9,74	0,01*	7,42	1,63	33,65
ÖK	6,62	0,01*	3,24	1,21	4,55
MKDO	13,25	0,01*	8,63	3,25	14,08
FVO	14,44	0,01	9,56	2,56	17,65

*Significant risk factors β =risk level, G.A = Confidence interval for risk level

When the results are analyzed, it is seen that the factors affecting the NFM level are LR, ROA, AQ, MO, SC, MKDO, FVO. It is seen that the other measurements are not among the factors that significantly affect the NFM levels to be at medium or high level. The success level of the model is 84% and the explanatory ability of the model is 0.59 (Neg R2= 0.59). (In general, the rate is quite high because the number of risk factors is high, but there is 41% that is not explained, but it would be better to specify it in the discussion)

In cases with high LR level, the rate of high realization of NFM level is 2.15 times higher (95% CI 1.17-26.98).

In cases with high ROA level, the rate of high realization of NFM level is 1.36 times higher (95% CI 1.06-1.64).

In cases with high AQ level, the rate of high realization of NFM level is 1.71 times higher (95% CI 1.11-2.94).

It was observed that the rate of high realization of NFM level was 7.42 times higher (95% CI 1.63-33.65) in cases with high MO level.

In cases with high SC level, the rate of high realization of NFM level was 3.24 times higher (95% CI 1.21-4.55).

It was observed that the rate of high realization of NFM level was 8.63 times higher (95% CI 3.25-14.08) in cases with high MKDO level.

In cases with high FVO level, the realization rate of high NFM level was 9.56 times higher (95% CI 2.56-17.65).

In the model, it is seen that in the years when LR, ROA, AQ, MO, SC, MKDO and FVO levels are high, NFM levels will also be high. As a result, it is seen that the factors affecting the NFM level are LR, ROA, AQ, MO, SC, MKDO, FVO and MO, MKDO and FVO levels have a high effect on the NFM level, while ROA and AQ levels and NFM level have a low effect.

On the other hand, NPL, ROE, Bsize, CAR, FDG, GF variables do not have a significant effect on the realization of NFM levels at low or medium level.

CONCLUSION

This research aimed to uncover the determinants of NFM within the Turkish banking sector, evaluating financial ratios from 2012 to 2022 to ascertain the factors affecting NFM in banks with both domestic and foreign capital deposits. A descriptive methodology was employed to categorize NFM levels via clustering, facilitating the identification of periods characterized by either high or low NFM levels across banks with domestic and foreign capital, thus providing a strategic method for pinpointing significant shifts. The study focused on selecting bank-specific variables for inclusion in the analysis and utilized secondary data for data gathering. The evaluation of NFM across the specified timeframe and among the banks in question aimed to pinpoint periods and institutions where NFM levels were predominantly high or medium. The subsequent phase involved assessing the impact and significance of various variables on NFM levels, alongside their confidence intervals. It was observed that periods of high NFM levels were primarily associated with banks holding foreign capital. NFM levels at approximately 3 were deemed medium, while levels at 12 were considered high. This classification, while a key limitation of the study, applies to the selected timeframe of 2012-2022 and the specific banks analyzed. The clustering analysis concluded with NFM levels being divided into two distinct groups.

Overall, the analysis revealed that high NFM levels were seldom achieved, suggesting the classification of clusters into medium and high categories based on their average realization throughout the period and among the banks studied. Generally, it was noted that NFM levels typically averaged around 3.92 ± 1.41 in the examined banks. This range is proposed as a benchmark for distinguishing NFM levels, with those rarely reaching 12.91 ± 3.13 considered exceptionally high. Such high NFM levels, approaching 12.91 ± 3.13 , for both domestic and foreign capital banks in Turkey are deemed significantly elevated. A NFM level of 3.92 ± 1.41 is categorized as medium. The analysis highlighted that factors influencing NFM levels include Liquidity Risk (LR), Return on Assets (ROA), Asset Quality (AQ), Market Orientation (MO), Social Capital (SC), Market Knowledge Dissemination (MKDO), and Foreign Venture Orientation (FVO). The model indicates that periods with heightened levels of LR, ROA, AQ, MO, ROA, MKDO, and Earnings Before Interest and Taxes (EBIT) correlate with increased NFM levels. Other metrics were not found to significantly impact whether NFM levels were medium or high. Variables such as Non-Performing Loans (NPL), Return on Equity (ROE), Bank Size (Bsize), Capital Adequacy Ratio (CAR), Foreign Direct Investment (FDG), and Government Funding (GF) did not significantly influence the occurrence of NFM levels at low or medium thresholds.

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Author statement

I also declare that I agree with the submission of the article to ...International Journal of...Religion. and I am responsible for its content and originality. This article has not been published or submitted for publication elsewhere.

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REFERENCES

- Abreu, M. (2001) “Commercial Bank Interest Margins And Profitability: Evidence For Some Eu Countries” https://www.researchgate.net/publication/237460076_COMMERCIAL_BANK_INTEREST_MARGINS_AND_PROFITABILITY_EVIDENCE_FOR_SOME_EU_COUNTRIES
- Ahokossi, C. (2013) “Determinants of Bank Interest Margins in Sub-Saharan Africa” <https://www.imf.org/external/pubs/ft/wp/2013/wp1334.pdf>
- Almarzoqi, R. and Naceur, S.B. (2015) “Determinants of Bank Interest Margins in the Caucasus and Central Asia” <https://www.imf.org/external/pubs/ft/wp/2015/wp1587.pdf>
- Alpera, D. and Anbar, A. (2011) “Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey” [https://berjournal.com/wp-content/plugins/downloads-manager/upload/BERJ%20\(2\)2011%20article8%20pp139-152.pdf](https://berjournal.com/wp-content/plugins/downloads-manager/upload/BERJ%20(2)2011%20article8%20pp139-152.pdf)
- Angori, G. Aristei, D. and Gallo, M. (2019) “Determinants of Banks’ Net Interest Margin: Evidence from the Euro Area during the Crisis and Post- Crisis Period” <https://www.mdpi.com/2071-1050/11/14/3785>
- Azeez, A.A. Gamage, S. (2013) “The Determinants Of Net Interest Margins Of Commercial Banks In Sri Lanka” <http://inet.vidyasagar.ac.in:8080/jspui/bitstream/123456789/1012/2/Azeej.pdf>
- Ben, Moussa M. A. and Wiem, M. (2016) “Determinants of Bank Net Interest Margin: Case of Tunisia” <https://www.ssbfnct.com/ojs/index.php/ijfbs/article/view/351/337>
- Bennaceur, S. and Goaid, M. (2008) “The Determinants of Commercial Bank Interest Margin and Profitability: Evidence from Tunisia” https://www.researchgate.net/publication/228121787_The_Determinant_of_Commercial_Bank_Interest_Margin_and_Profitability_Evidence_from_Tunisia
- Birchwooda, A. Breib, M. and Noela, D. (2016) “Interest margins and bank regulation in Central America and the Caribbean” https://cert-net.com/files/publications/conference/2016/1_3-Birchwood_Brei_Noel-p.pdf
- Demirgüç-Kunt, A. and Huizinga, H. (1999) “Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence” <https://www.jstor.org/stable/3990103>
- Diko, A. (2018) “Determinants of Net Interest Margins in Turkish Banking System: A Panel Data” <https://dergipark.org.tr/tr/doi/10.33203/mfy.474931>
- Ewijk, S., and , Arnold, I. J.M. (2012) “How bank business models drive interest margins: Evidence from U.S. bank-level data” <https://extranet.eba.europa.eu/sites/default/documents/files/documents/10180/598223/ba5877df-d21a-4f43-83fa-e33d023dcd51/van-Ewijk-and-Arnold.pdf?retry=1>
- Gjilkolli, F. S. (2018) “The determinants of bank interest rate margins: A panel analysis for some Balkan countries” <https://knowledgecenter.ubtuni.net/cgi/viewcontent.cgi?article=1934&context=conference>
- Ho, T. S. Y. and Saunders, A. (1981) “The Determinants of Bank Interest Margins: Theory and Empirical Evidence” <https://www.jstor.org/stable/2330377>
- Horváth, R. (2009) “The Determinants of the Interest Rate Margins of Czech Banks” https://journal.fsv.cuni.cz/storage/1154_1154_horvath.pdf
- Jima, M. D. (2017) “Determinants of Net Interest Margin in the Ethiopian Banking Industry” <https://pubs.sciepub.com/jfe/5/3/2/>
- Kalluci, I. (2010) “Determinants of Net Interest Margin in the Albanian Banking System” https://www.bankofalbania.org/rc/doc/Determinants_of_net_interest_margin_in_the_Albanian_banking_system_5983_2_7166.pdf
- Kansoy, F. (2012) “The determinants of net interest margin in the Turkish Banking sector. Does bank ownership matter?” <https://search.trdizin.gov.tr/tr/yayin/detay/142932/the-determinants-of-net-interest-margin-in-the-turkish-banking-sector-does-bank-ownership-matter>
- Khan, M. and Jalil, A. (2020) “Determinants of Interest Margin in Pakistan: A Panel Data Analysis” <https://www.mdpi.com/2227-7099/8/2/25>
- Lestari, H. S. and Chintia, H. and Akbar, I. C. (2021) “Determinants of Net Interest Margin on Conventional Banking: Evidence in Indonesia Stock Exchange” <https://jurnal.unmer.ac.id/index.php/jkdp/article/view/5102/pdf>
- Liebeg, D. and Schwaiger, M. S. (2006) “Determinants of the Interest Rate Margins of Austrian Banks” <https://ideas.repec.org/a/onb/oenbfs/y2006i12b4.html>
- Megawaty, L. and Ugut, G. S. (2022) “Determinants Of Net Interest Margin Of Listed Commercial Banks In Indonesia” <http://jurnal.um-tapsel.ac.id/index.php/nusantara/article/view/5752>
- Memmel, C. and Draisbach Heckmann, L. (2023) “Banks’ net interest margin and changes in the term structure” <https://www.bundesbank.de/resource/blob/901820/b7c5aa03eb14eeef02026842e4bd8ae/mL/2023-03-31-dkp-11-data.pdf>

- Nassar, K.B. Martinez, E. and Pineda, A. (2014) "Determinants of Banks' Net Interest Margins in Honduras" <https://www.imf.org/external/pubs/ft/wp/2014/wp14163.pdf>
- NYS, E. (2003) "A European study of bank interest margins: Is net fee revenue a determinant?" <http://fmwww.bc.edu/RePEc/mmfc03/Nys.PDF>
- Qi, M. and Yumo, Y. (2016) "The Determinants of Bank Interest Margins: A Short-term Funding Perspective" <https://core.ac.uk/download/pdf/228084609.pdf>
- Raharjo, P.G. Hakim, D. B. Adler, Manurung, H. and Maulana, T. N.A. (2014) "The Determinant of Commercial Banks' Interest Margin in Indonesia: An Analysis of Fixed Effect Panel Regression" <https://dergipark.org.tr/tr/download/article-file/362861>
- Rami, Obeid. and Adeinat, M. (2017) "Determinants of Net Interest Margin: An Analytical Study on the Commercial Banks Operating in Jordan (2005-2015)" <https://dergipark.org.tr/en/download/article-file/364624>
- Samahiya, M. and Kaakunga, E. (2014) "Determinants of Commercial Banks' Interest Rate Spread in Namibia: An Econometric Exploration" <https://www.ajol.info/index.php/boje/article/view/109931/99668>
- Serwadda, I. (2018) "Determinants Of Commercial Banks' Profitability. Evidence From Hungary" <https://acta.mendelu.cz/pdfs/acu/2018/05/27.pdf>
- Setawan, C. Wisna, M. M. (2021) "The Determinants of Net Interest Margin: An Empirical Study of Indonesia Category-IV Banks for the Period of 2014- 2017" <https://ojs.ual.es/ojs/index.php/eea/article/view/6179>
- Tarusa, D. K., Chekolb, Y. B. and Mutwolc, M. (2012) Determinants of Net Interest Margins of Commercial Banks in Kenya: A Panel Study <https://www.sciencedirect.com/science/article/pii/S2212567112000809>
- Umrough, S. (2015) "An Investigation of the Determinants of Banks' Net Interest Margins in Jamaica" https://boj.org.jm/uploads/pdf/papers_pamphlets/papers_pamphlets_An_Investigation_of_the_Determinants_of_Banks_Net_Interest_Margins_in_Jamaica.pdf
- Zhou, K. and . Wong, M.C.S. (2008) "The Determinants of Net Interest Margins of Commercial Banks in Mainland China" https://www.researchgate.net/publication/23636963_The_Determinants_of_Net_Interest_Margins_of_Commercial_Banks_in_Mainland_China