Analyzing the Determinants of Net Interest Margin of Banks in Pakistan

TAYYABA RANI
Mphil-Scholar, Government College University
Faisalabad, Pakistan
FARMAN ULLAH KHAN
MS-Scholar, National University of Modern Languages
Islamabad, Pakistan
ZIA UR RAHMAN
M.phil Economics Gomal University D. I. Khan
Pakistan
USMAN ULLAH KHAN
Department of Economics, Hazara University
Mansehra, Pakistan

Abstract:

The purpose of this study is to examine the determinants of Net Interest Margin of banks in Pakistan under financial variables (operating expense, capital adequacy, bank size, credit risk, Liquidity and the specific industry factor is Market power. In order to avoid spurious regression, Levin, Lin and Chu (2002) tests was applied to check the stationarity of the data. The study carried out Fixed effect model and Hausman test using Panel data spanning from 2007 to 2013. The results suggested that operating expense has the positive and most significant effect on banks' interest margin. The higher costs of operating expense are transferred to customers either by increasing the lending rate or by reducing the deposit rate, resulting in higher interest margin. Credit risk, Bank size and Liquidity and capital adequacy have negative relationship with Interest Margin.

Key words: Net interest margin, Panel data, Pakistan.
JEL classification: G21, P34

INTRODUCTION

Financial intermediation is very important for economic growth. According to financial expert, Pakistan requires a secure and well-organized banking system. Despite the fact, that Pakistan has built some progress because deregulation of its banking industry, bank margins remain certainly sky-scraping. Financial institutions have different ways to measure its performance. One of the most basic is net interest margin. It is calculated for a period of time, quarterly or a yearly, and is expressed as a proportion. Bank interest margin is also known as the net yield on interest earning assets. It is often confused that the Net interest margin and spread is the same perception while spread is the difference between lending and borrowing rates without earning assets. Interest margin is used to find out the profitability of a bank by investing and lending activities over a period of time. If generated interest income from the investing yield is low it means that the cost charged (interest expenses) are greater than interest income generated by investing assets. High net interest margin does not a mean high profitability if difference between interest income and interest expenses is high than people do not invest in banking industry and prefer to keep their saving in their home which shows the inefficiency of banks.

In developing countries like Pakistan, interest rate has been high from last few years. Nonetheless, interpretations of comparatively high margins engross a trade-off. From one viewpoint, are generally related to the minimum degree of proficiency and also non-competitive economic scenarios.

The net interest margin (NIM) is the difference between net interest income and interest expenses by total assets. It is tool of bank efficiency measurement. Bank can achieve its aim position of efficiency through following numerous strategies. One approach is to maximize the interest margin connecting deposit and loan rates. Conversely, for enhancing the efficiency

subsequently this approach is controlled by the viable hard work of another bank.

The aim of this particular study is usually to evaluate the trends and level in interest rates margin in Pakistan over the 2007 – 2013 periods. The research possesses particular aims as to determine the bank specific and industry specific determinants associated with interest rate margin with Pakistan.

Section 1, provides the introduction. Background and an overview of the financial sector in Pakistan. Section 2 provides literature review. Section 3 is the methodology explains the way to collect and analyze the samples of the study and the model used in this study and clarify the relationship among dependent and independent variables. Section 4 addresses the results of the study. Section 5 is the conclusion. This Section 6 includes discussion, limitations, recommend actions and suggestions for the future research.

LITERATURE REVIEW

In the literature, bank net interest margin is important indicator for banks and intermediation process. It is associated with the cost of financial intermediation. The IMF (2004) recommended that profitability of bank and pricing behavior is checked by the interest margin of bank while spread between high and low interest rates can be employed for an early sign of change in risk perception. Bank earnings usually portrayed as being a perform regarding central and also exterior determinants. According to (Ho and Saunders 1981) Lender sets mortgage rates in deposits and also financial loans for example time period to maximize earnings, and also confront unevenness between the timing of down payment provide, and also demand pertaining to financial loans. This 'transactions uncertainty' because of how the traditional bank may constantly demand a positive curiosity multiply whiles the price

tag on intermediation; the item is called traditional bank curiosity border. According to the view of researchers, bank interest margin depends on four factors: degree of risk aversion, market structure, transactions size of bank, and variance of interest rates on loans and deposits. Researcher did the test on US commercial banks and analyzed quarterly data. In their model, they included four factors namely; the amount associated with lender supervision chance aversion, supervision structure when the banking companies perform common size associated with lender orders, as well as deviation associated with rate of interest. With including some assumptions for their model they finally develop 'the Dynamic Intermediation or Dealership Approach' to determine the interest margin which is highly used in research. Based on this empirical approach, (Saunders and Schumacher 2000) observed which interest margins inside six the European Union and also the US. ALL are influenced by the amount involving lender capitalization, lender marketplace construction, and also the volatility involving rates.(Goddard, Molyneux et al. 2004) well documented that some ratios are generally used to alternative for risk with liquidity and credit relation. In theory, a high credit ratio implied that bank is working cautiously and disregarding intentionally profitable savings opportunities. Banking institutions relatively has highly liquid assets make high profits but less depiction of risk consequently shareholders accept a lower return on equity.(Madura and Zarruk 1995) found that risk of bank interest margin rate fluctuates among countries supported to confine interest rate risk inequality in risk based capital requirements. Further (Yu 1995) using Canadian data, reported   rate of interest margins regarding banks depending on possibility basic which in turn focused to optimize the actual return in equity. (Yu 1995) shown a consistent sizing result inside rate of interest margins determinants. Additionally, figured curiosity perimeter fee is usually elevated using bank equity in order to resource

proportion, implicating of which improve inside charge regarding equity come by equity regulation regarding banks taken place to get used in debtors but zero immediate network concerning rate of interest margins and also non-interest charges regarding bank seemed to be determined. Other research results suggested in which current market defects expand interest distributed. Industry can be controlled as a result of lender size in addition to found large variation within distributed in between small in addition to significant banking companies. Big banking companies had lower spreads in comparison with small banking companies. In a competitive banking arrangement, (Guru, Staunton et al. 2002)investigated the determinants to improve this profitability overall performance on the corporations according to 19 Malaysian professional banks for your period of 1986-1995. Determinants were broken down directly into a couple classes, central determinants (capital adequacy along with expenditures managing, liquidity) along with additional determinants (firm size, property along with additional monetary conditions). The effect discovered that will successful functioning price tag seem to be most important inside unscrambling higher financial institution profitability. Involving macro signs, inflation provides optimistic effect along with higher interest relation seemed to be related with low financial institution profitability. Another study on commercial bank interest margins and Profitability by (Abreu and Mendes 2001) who explored that properly capitalized banks include lower a bankruptcy proceeding prices as well as higher bank interest margins on assets. The interest margin responded positively to overhead costs and the loan to asset ratio has a positive effect on NIM and profitability regarding bank specific factors while inflation had negatively influences the net interest margins. (Naceur and Goaied 2003)noticed Tunisian banking industry using Random Effect Model; the consequences showed of which higher net fascination margin in addition to earning are often linked to

banking institutions having higher amount of cash in addition to significant costs. Additional researcher thought to be different determinants like financial institution measurement possesses adverse in addition to lending products possesses beneficial effect on earnings. Europe countries (Germany, United Kingdom, Italy, France, and Spain) for the period of 1993 to 2000. The consequences of (Williams 2007), (Hawtrey and Liang 2008) were alike to the result of (Maudos and De Guevara 2004),However some contradictory results were reported, (Williams 2007) concluded by using Australian data a negative relationship concerning credit history threat in addition to awareness perimeter, Hawtrey in addition to Liang(2008) claimed an adverse influence of managerial performance. Incorporating opportunity cost, risk aversion as well as interest rate volatility.

Hypothesis Development
H1: Market power has positive relation with net interest margin of bank.
H2: The larger the bank size, the higher the interest margin of bank.
H3: Liquidity is positively linked with the interest margin of bank.
H4: Higher the capital adequacy, higher the bank interest margin.
H5: Higher the credit risk, lower the interest margin of bank.
H6: Operating cost is positively associated with net interest margin of bank.

DATA AND METHODOLOGY

Data
All the data of bank specific variables have been collected from the Websites of all related banks, the State bank of Pakistan (SBP) and financial statement analysis 2007 to 2013 for this

research study. The methodology will use to analyze the static panel data Hausman tested via the E.VIEWS (Version 7) computer software.

Operational Definitions of Variables

The variables used in this study are generally measured by following the past studies. Two variable types are used, discussed below:

Dependent variable

Net Interest Margin

Net interest margin (NIM) is difference between net interest income and net interest expenses divided by Total assets of the bank. It is used to compute the bank's profitability. Interest income and interest expense tend to rise and fall together, concentrating on net interest pay permits the researcher to particular the nature of bank execution from changing financial conditions. It can be calculated as:

Net Interest Margin= Interest income - Interest expenses / total assets

Independent Variables

There are total six independent variables including internal variables (bank size, liquidity, credit risk, capital adequacy, and operational efficiency) while external variable is Market power are used in current study.

Market Power

Market power means the combined market share of banks in an industry. Total deposits of a bank by total deposits of all banks are used to measure the market concentration. High market concentration means less competition, allowing banks to have some degree of monopolistic powers over interest rates. Market

power is measured with Market power. S is the market share of

each firm expressed as a whole number, not a decimal).

$$HHI = s_1{}^{\wedge}2 + s_2{}^{\wedge}2 + s_3{}^{\wedge}2 + ... + s_n{}^{\wedge}2$$

Liquidity

The ability of a bank or a firm to pay off its short-term obligation when creditors require payment. This ratio gauged the capacity of the bank to convene its short-term requirement, to sustain cash position, and accumulate receivables. In broad spectrum, the high liquidity ratio means a bank has huge safety margin and capability to cover its small debts. Because transaction deposits and saving accounts can be reserved at any moment. It can be measured as:

Liquidity = Liquid assets / Demand liabilities

Operational Efficiency

It is the capability of a bank to deliver goods and services to its clients in the most cost effective method while still ensuring the high quality of its products, service and support. In the equivalent high operational competence allows banks to low interest margins in the course of low rates of loans or high rates of deposit (Claeys and Vander Vennet 2004). It can be calculated as

Operational Efficiency =Operating expenses / Total assets

Bank size

Bank size is measured by taking the logarithm of total assets. Bank size may influence the profitability of the bank. Bank size is quite essential variables since the larger banks disburse less because of the allocation of their fixed cost and it is supportive for banks to confine a large market share and high abundance. It can be calculated as

Bank size = Logarithm of total assets

Credit Risk

Credit risk is the risk of nonpayment of loan of financial institution. Risk includes lost of principal amount and generated from the investment. The banking sector is called an uncertain industry since that risk can't be cut off from business activities of each bank. Its main function in intermediary institution to face the greatest risk that is called credit risk. Nonperforming loans means reserve account to cover unexpected defaults on loans by borrowers.

Credit Risk = Nonperforming loans / Total loans

Capital Adequacy

It is used to check the stability of financial systems. Equity variable is the first bank level variable used for solvency and stability of a bank that represents a premium on bank margins. A well-capitalized bank have high capital ratio that may reveal better stability and minor interest rate margins that protects the depositors and provides the consistency, constancy and competence of banks. Capital adequacy can be calculated as

Capital Adequacy = Total equity / Total asset

RESULTS AND DISCUSSIONS

The study has explained the results of panel data regression analysis to analyze the determinants of net interest margin of banking sector in Pakistan. This Section includes the correlation analysis, descriptive statistics outcomes, and Fixed and random effect modal analysis (Hausman and Taylor 1981) over the period of time. Data should not be time dependent, suffering from trend or seasonality, Otherwise the regression would be spurious (false correction).

Stationary test is used to check the time or seasonality trend. Results obtained by using non-stationary data are unpredictable and cannot be modeled or forecasted. It needs to transform non-stationary data into stationary data. Therefore

Researcher used (Levin, Lin et al. 2002) for checking the stationary of data.

Table 1: Panel unit root test results
Levin, Lin and Chu (2002)

Variable name	T Statistics	Level or 1st Differ.	Decision
Net Interest Margin	9.24051	I(0)	Stationary
Bank Size	20.93	I(0)	Stationary
Credit Risk	-99.08	I(0)	Stationary
Operational Efficiency	-26.98	I(0)	Stationary
Liquidity	26.98	I(1)	Stationary
Capital Adequacy	-5.03	I(0)	Stationary
Herfindahl Index	-7.18	I(0)	Stationary

Note:

Null Hypothesis (H_0): Data is not stationary

Alternative Hypothesis (H_1): Data is stationary

It shows that the T- statistics are in most cases significant at all the usual testing levels. Therefore, the null hypothesis (H_0) can be rejected, indicating that the series are stationary. In addition, removing the cross-sectional mean from the series to mitigate the effects of cross-sectional correlation obtains test statistics that are significant. All the explanatory variables are stationary at the level except Liquidity; it is stationary at first difference. Stationary has a property that the mean and variance do not change over time.

Correlation Analysis

The main objective of analyzing the strength or relationship among explanatory variables used in correlation regression analysis. The Classical linear regression model (CLRM) has one assumption that there is no multicollinearity among the independent variables. If there is high correlation among independent variables then regression coefficients are estimated but with large standard errors. Correlation variables having value less than 0.80 are preferable that indicate no multicollinearity problem (Baltagi 1995).

Table 2: Correlation among variables

	NIM	HHI	BS	LIQ	OE	CR	CA
NIM	1.0000						
HHI	0.2418	1.0000					
BS	0.3241	0.4005	1.0000				
LIQ	-0.0178	-0.0624	-0.1134	1.0000			
OE	-0.0077	0.3676	0.0459	-0.0635	1.0000		
CR	-0.0358	-0.0312	-0.1045	-0.0141	0.0162	1.0000	
CA	-0.2227	0.0069	-0.0814	-0.0018	0.0721	-0.0328	1.0000

(The regression results focusing on the relationship between bank profitability and the explanatory variables are presented)

According to the view of (Kennedy 2008); there may be problem is greater than 0.80 which is not in this case. When correlation or covariance between two or more than two explanatory variables are not equal to zero, this problem is known as multicollinearity. COV (Xi, Xj) ≠0, this is multicollinearity. At the point   When correlation between two explanatory variables are greater than 0.05, this is partial multicolinearity and correlation equal to 1, this is perfect multicolinearity. Low correlation coefficients between the variables recommend that there is little risk of multicollinearity in the data.

The result suggested that the correlations between all independent variables have fairly low correlations with Net Interest Margin (NIM) and operational efficiency (OE) demonstrating the lowest correlation among all at -0.007 and usually specify a no existence of multicolleniarity issue. The correlation matrix demonstrates that Liquidity (LIQ), Credit Risk (CR), Operational Efficiency (OE), Capital Adequacy (CAP) have a negative relationship with NIM, while Herfindahl Index (HHI), Bank Size (BS) has positively correlated which implies that larger banks have higher NIM. Since increment of inflation in the financial system, the banks interest rate on credits would increase then bank's interest income would show significant boost.

Fixed and Random Effect Model

This research applies popular techniques of Panel fixed and random effect models. It has less possibility of collinear relationship, more degrees of freedom and more efficient characteristic that measures the effects which can't be easily observed in time series. (Hausman 1978) describes whether fixed effect is better or random effect. The subsequently step is running the regression by FEM with cross section fix effects and then testing whether FEM is necessary or not. E.Views table shows the result of p=0.00< 0.05 and p=0.00< 0.10 so the null hypothesis is rejected in the favor of alternative hypothesis. It means that there is cross section fixed effect.

Hausman Test Results

The result of Hausman test gives Chi-square Probability value is 0.0327 < 0.05, which means that the null hypothesis is rejected and accept the alternative hypothesis that Fixed effect is preferred over random effect. The FEM and REM are not equal. Therefore, the suitable technique used herein is FEM. The FEM regression showed again to analysis the model of NIM in Pakistani banking system. The coefficients whose values are positive of a variable, means this variable has positive impact with dependent variable and negative value of coefficient of a variable shows that this variable has negative impact on dependent variable.

Table 4: Hausman Test Results

Correlated Random Effects - Hausman Test Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	D.F	Prob.
Cross-section random	13.7406	6	0.0327

The model for the bank's profitability is chosen on the bases of strong diagnostics and high value for the R-squared. The value of R squared is 0.7428 which endorses that 74% of the discrepancy in response variable (Net Interest Margin) is

explained by six explanatory variables of the model. Adjusted R –squared value is also high 0.6892 indicating that 68.92%variation in the dependent variable (Net interest margin) can be explainable through three significant variables; bank size, liquidity and operating efficiency.

Table 5: Fixed Effect Model Results:

Variable	Coefficient	t- Statistic	Prob.
C	8.3249	2.381096	0.0182
HHI	-46.67289	-0.680059	0.4972
BS	-0.6565	-1.884181	0.0610*
LIQ	-0.23812	-2.880453	0.0047**
OE	0.44785	0.579664	0.0568**
CR	-0.0547	-0.326407	0.7445
CA	-0.082	-0.778585	0.4371

R-squared=0.7428   F-statistic value =13.50

Adjusted R squared =0.6879   Durbin-Watson test =2.11

* Indicates level of significance at 10%.

** Indicates level of significance at 5%.

The value of F-statistic is 13.50 and is reasonably significant approving the validity and stability of the model relevant for the study. The Durbin-Watson (D.W) test is applied to measure the autocorrelation; the reported values (D.W) test indicates that there is no existent auto correlation problem among variables. Market Power, Credit risk and capital adequacy are not found to be significant.

According to first hypotheses of the current research, Market power is negatively associated with net interest margin but the results of market power showed that it is one of significant in explaining NIM. Surprisingly, it is really negative in amplifying the changes in NIM of banks in Pakistan. It means with the increase of market power, Net interest margin of bank decreases keeping other factors constant. It supports the previous research such as (Tarus, Chekol et al. 2012); (Kalluci and e Shqipërisë 2010),(Park 2009) found that market concentration has a negatively associated with bank margin.

Second hypothesis shows there is negative relationship between interest margin and bank size. The results of the study

indicate that bank size significantly and negatively related to bank interest margin. When bank size increases then interest margin of bank decreases(Beck and Hesse 2009). This research has matched with previous researches, such as (Dietrich and Wanzenried 2011), Funga and Poghosyan(2011), Naceur and Goaied (2003), Maudos and Fernandez (2004), SA Raza (**(2013**.Angbanzo (1997).

According to third hypothesis to the research, liquidity is negatively associated with net interest margin and the result are consistent with the finding of Lee and Hsieh (2013) and Fungacova and Poghosyan (2011) who found a negative association between the liquidity and bank interest margins for Russia.

Forth hypothesis shows that there is optimistic relationship of net interest margin with operating efficiency. The value of its coefficient (OE) is 0.447 in interest margin that means 44.7% of banks overhead costs are transferred to its depositors and lenders. The findings of researcher is consistent with the findings of Saunders and Schumacher (2000), Fernandez and Valverde (2007), Sharma **(2011**, Maudos and Solis (2009).

As well as fifth hypothesis shows that credit risk is a decreasing function of bank interest margin. It shows that with increase in credit risk decrease the bank margin. Results of the credit risk are statistically insignificant which means that there is no impact of nonperforming loans with profitability.

Final hypothesis of the current study declares that capital adequacy has a negative association with NIM. The results of the study indicate that capital adequacy is insignificantly and negatively related to interest margin of bank. According to the results capital adequacy has no impact on banks profitability. Results are consistent with Saunders, and Schumacher (2000), Horváth (2009) and Tan (2012).

CONCLUSION

Current study has analyzed the determinants of net interest margin of banks in Pakistan. Financial determinants are bank size, Liquidity, Capital adequacy, credit risk, operational efficiency and industry specific indicator is Market power. For this purpose, Data of 35 banks have been collected from the financial statement analysis during 2007 to 2013. Hausman test is applied on this balanced panel data. The empirical result explored that three variables bank size, liquidity, and operational efficiency are found statistically significant while other three variables market power, credit risk and capital adequacy are not statistically insignificant.

Table 6: Summary of Fixed Effect Model analysis

H1:	**Herfindahl index** has positive relation with net interest margin of bank.	Not accepted
H2:	The larger the **bank size**, the higher the interest margin of bank	Accepted
H3:	**Liquidity** is positively linked with the interest margin of bank.	Accepted
H4:	Higher the **capital adequacy**, higher the bank interest margin.	Not accepted
H5:	Higher the **credit risk**, lower the interest margin of bank.	Not accepted
H6:	**Operating efficiency** is positively associated with net interest margin	Accepted

Only significant variables like bank size, liquidity and operational efficiency are the determinants of banks profitability while other three variables market power, credit risk and capital adequacy has no relationship with net interest margin of banks.

Limitations, Policy Implications and Recommendation
The final results of this empirical research are helpful for banks policy makers and academic researchers. Results of this study are also beneficial for external and internal investors while taking decision regarding investment in respective capital

market. The study might be beneficial for the mangers of banking sector in order to focus on the variables actually affect the net interest margin of banks, it will make them able to take more strategic approach to add value in the financial organization. Complete understanding of factors related to bank interest margins is very fruitful for financial policy makers. Depositor's prospects are very essential and financial policy makers should take them into account at the time of policy making. Banks should mobilize the deposits and offer a high return to the depositors that may encourage the saving habits to them. There is no ambiguity that this research is very important for investors and finance managers but still there are a few limitations that sample size is small and only thirty-five banks are included in this study for analysis. Development Finance Institution and Microfinance Banks are beyond the scope of this study. This research is also limited to the period of 2007 to 2013. From the analysis mentioned above, there have been numerous fluctuations in the banking operation in this time period. State bank of Pakistan put special attention in banking operation and the interest rate policy in this period.

The research is done by using the data of banking sector of Pakistan; therefore, the results of this study may not be generalized on other sectors of economy. Hence future research can use the data from all the banks of economy to make results generalizable to entire economy. The estimation of net interest margin suspected that capital markets tend to be competitive and efficient so the results of this study may not be the same in case analysis is conducted in imperfect market. Future research can also employ economic determinants for instance Gross Domestic Product (GDP) growth, Inflation, Exchange rate and taxes as determinants of bank margin. Additional studies should be done to investigate the effect of macroeconomic variables.

REFERENCES:

1. Abreu, M. and V. Mendes (2001). Commercial bank interest margins and profitability: evidence for some EU countries. Pan-European Conference Jointly Organised by the IEFS-UK & University of Macedonia Economic & Social Sciences, Thessaloniki, Greece, May.
2. Aburime, T. U. (2008). "Impact of ownership structure on bank profitability in Nigeria." Available at SSRN 1107760.
3. Andersen, H., et al. (2008). The dynamics of operating income in the Norwegian banking sector.
4. Angbazo, L. (1997). "Commercial bank net interest margins, default risk, interest-rate risk, and off-balance sheet banking." Journal of Banking & Finance 21(1): 55-87.
5. Baltagi, B. H. (1995). "Economic analysis of panel data." Published by Willy&Sons Ltd.
6. Beck, T., et al. (2003). "Law, endowments, and finance." Journal of Financial Economics 70(2): 137-181.
7. Beck, T. and H. Hesse (2009). "Why are interest spreads so high in Uganda?" Journal of Development Economics 88(2): 192-204.
8. Claeys, S. and R. Vander Vennet (2004). "Determinants of Bank Interest Margins in Central and Eastern Europe." Forthcoming in: Economic Systems.
9. Claeys, S. and R. Vander Vennet (2008). "Determinants of bank interest margins in Central and Eastern Europe: A comparison with the West." Economic Systems 32(2): 197-216.
10. Dietrich, A. and G. Wanzenried (2011). "Determinants of bank profitability before and during the crisis: Evidence from Switzerland." Journal of International Financial Markets, Institutions and Money 21(3): 307-327.
11. Dumičić, M. and T. Rizdak (2013). "Determinants of banks' net interest margins in Central and Eastern Europe." Financial Theory and Practice 37(1): 1-30.
12. Fungáčová, Z. and T. Poghosyan (2011). "Determinants of bank interest margins in Russia: Does bank ownership matter?" Economic Systems 35(4): 481-495.

13. Goddard, J., et al. (2004). "The profitability of European banks: a cross-sectional and dynamic panel analysis." The Manchester School 72(3): 363-381.

14. Goh, S. P. (2006). The Determinants Of Commercial Banks' Interest Margin In Malaysia: An Analysis From The Micro Perspective, USM.

15. Haruna, M. A. (2012). "Analysis of value creation of electronic banking in Nigeria." International Journal of Advanced Research in IT and Engineering, 1 (2), 29 46.

16. Hausman, J. A. (1978). "Specification tests in econometrics." Econometrica: Journal of the Econometric Society: 1251-1271.

17. Hausman, J. A. and W. E. Taylor (1981). "Panel data and unobservable individual effects." Econometrica: Journal of the Econometric Society: 1377-1398.

18. Hawtrey, K. and H. Liang (2008). "Bank interest margins in OECD countries." The North American Journal of Economics and Finance 19(3): 249-260.

19. Hesse, H. (2007). Financial intermediation in the pre-consolidated banking sector in Nigeria, World Bank Publications.

20. Ho, T. S. and A. Saunders (1981). "The determinants of bank interest margins: theory and empirical evidence." Journal of Financial and Quantitative analysis 16(04): 581-600.

21. Horvath, R. (2009). "The determinants of the interest rate margins of Czech banks." Czech Journal of Economics and Finance (Finance a uver) 59(2): 128-136.

22. Javaid, S. (2011). "Determinants of bank profitability in Pakistan: Internal factor analysis." Mediterranean Journal of Social Sciences: 59.

23. Kalluci, I. and B. e Shqipërisë (2010). Determinants of Net Interest Margin in the Albanian Banking System, Bank of Albania.Kennedy, M. T. (2008). "Getting counted: Markets, media, and reality." American Sociological Review 73(2): 270-295.evin, A., et al. (2002). "Unit root tests in panel data: asymptotic and finite-sample properties." Journal of econometrics 108(1): 1-24.

24. Maudos, J. and L. Solís (2009). "The determinants of net interest income in the Mexican banking system: An integrated model." Journal of Banking & Finance 33(10): 1920-1931.

25. Maudos, J. n. and J. F. De Guevara (2004). "Factors explaining the interest margin in the banking sectors of the European Union." Journal of Banking & Finance 28(9): 2259-2281.

26. Moussawi, C. E. and W. Saad (2012). "Measuring the Degree of Competition in the Lebanese Banking System." International Research Journal of Finance and Economics(94).

27. Naceur, S. and M. Goaied (2003). The Determinants of Bank Interest Margin and Profitability: Evidence from Tunisia. 10th Conference of Economic Research Forum, World Bank, Marrakech.

28. Park, K. H. (2009). "Has bank consolidation in Korea lessened competition?" The Quarterly Review of Economics and Finance 49(2): 651-667.

29. Peria, M. S. M. and A. Mody (2004). "How foreign participation and market concentration impact bank spreads: evidence from Latin America." Journal of Money, Credit and Banking: 511-537.

30. Quaden, G. (2004). Efficiency and stability in an evolving financial system. Speech at the National Bank of Belgium Conference.

31. Ross, S. (2005). "Westerfield, Randolph. Jaffe, Jeffrey." Corporate Finance. McGraw-Hill.

32. Saad, W. and C. El-Moussawi (2012). "The Determinants of Net Interest Margins of Commercial Banks in Lebanon." Journal of Money, Investment and Banking 23: 118-132.