**Determinants of bank net interest margin : Case of Tunisia**

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 **Abstract**

 Net interest margin is a significant indicator of the efficiency of the banking financial intermediation . In general , the level of net interest margin is primarily a consequence of result of the level of development and competitiveness of the financial system of country .Therefore , It is important to determine their determinants. In this article , we analyze the determinants of net interest margin of 18 banks in Tunisia between ( 2000…2013) . We found that among the internal factors, size , deposits , TLA , CEA , risk have an significant impact on net interest margin. In external factors , only inflation have a significant impact on net interest margin.

**Key words: Banking , Tunisia , net interest margin , Size , deposits , inflation ,risk**

**JEL classification :G21 , G28, G35**

**1-Introduction**

 In general , the level of net interest margin is primarily a consequence of result of the level of development and competitiveness of the financial system of country ( Plakalovic and Alihodzic 2015). High net interest margin is often associated with the presence of inefficiencies in the banking system , particularly in developing countries , due to costs incurred as a result of inefficiency which are transferred to bank customers by charging high interest rates ( Fry ( 1995) , Randall (1998) , Barjas et al ( 1999)).

 Efficient intermediation costs are indicated by low interest rates and reflects the effectiveness of monetary policy , well maintained financial stability , and competitive banking system . High intermediation costs would reduce the incentive for economic actors ( Hadad and al ( 2003)).

Moreover , interest rate margins is among the most important factors that gauge the efficiency of financial intermediation , and wide interest margin is seen to have negative impact for financial intermediation and financial developments . There are concerns mainly in the developing economies about the structure and the level of interest rates ( which remain high) and their implications for the efficiency of the banking sector .

Thus , interest margins are an important policy factor as it show how efficiently bank performance their intermediary roles of collecting savings and allocating loans .( Chekol , Mutriol ( 2012)).

So it is important to determine the factors that influence the net interest margin of banks . In this article , we will show the determinants of bank’s net interest margin in Tunisia over the period ( 2000…2013) . We will use an approach consists of 3 parts ( literature Review , empirical study , conclusion ) .

**2-Literature Review**

**2-1 Net interest margin and bank size**

Bank net interest margins are expected to be higher when the yield curve is steeper for a sustained period because , one assets and liabilities have repriced , a steeper yield curve implies higher rates on assets relative to those on liabilities . In addition , for a given yield curve slope , an increase in both short term and long term interest rates is expected to temporarily reduce net interest income , reflecting the more rapid adjustment of yields on liabilities than yields on assets .( BIS Quarterly Review 2002).

In the other hand , Bush, Mummel ( 2014) assume that expected loss rate of a loan depends on the loan initial maturity and the industry of the borrower . They further assume that the expected loss rates are time –dependent and that a bank uses then prevailing expected loss rates when it sets the rates it charges for newly granted loans .

Therefore the contribution to a bank’s net interest margin that covers the expected losses in the bank’s credit portfolio is a weighted average of past and current expected loss rates for different maturities and industries . Besides , Kalluci ( 2014) indicated that the higher the level of non performing loans , the higher the credit risk , and consequently the higher will be the interest margins .

 The bank will need to cover the losses caused by this kind of loans , by passing on the additional costs to its customers , in the form of higher loan rates or lower deposit rates , or a combination of them . Maudos and Fernandez De Guevara ( 2004) , Brock and Franken(2002) , Demirguc Kunt and Huizinga ( 1998) have found a positive correlation between interest margins and credit risk .

 Studies performed for some latin American countries have showed that there is a negative correlation between the 2 variables ( Brock , Rajas Suarez ( 2000)). This fact can be explained by the decrease of loan interest rates or the increase of deposit interest rates . The reduction in loan rates may happen in banks , which despite of the high level of bad loans , put in risk their income cuming the market share increase .

On the other side , the deposit rate increases comes as a reaction toward the increase of the non performing loans at the industry level .

**2-2 Net interest margin and bank capital**

 Brock and Rajas Suarez ( 2000) , reported significant and insignificant positive relationship between capital to asset ratio and margin for Latin American economies and attribute this differences to the fictitious capital of banks . kasman and al ( 2010) studied the relationship between net interest margin and capital ratio for the new European member and candidate countries in the pre and post consolidation period .

They stated that the economic conditions are important , since results are different for pre and post consolidation periods . Strong capital structure is essential for banks in developing economies , since it provides additional strength to withstand financial crisis and increased safety for depositors during unstable macroeconomic conditions .

Furthermore , lower capital ratios imply higher leverage and risk , which therefore lead to greater borrowing cost . Thus , net interest margin should be higher for the better capitalized bank ( Staikouras and Wood ( 2003)). On the other hand , a relatively high capital asset ratio may signify that a bank is operating cautiously and ignoring potentially profitable diversification or other opportunities ( Ali et al ( 2011)).

Besides , Iloska ( 2014) found a positive relationship between net interest margin and bank capital in Macedonia . High net interest margin indicates high profitability that may increase bank capitalization . This condition is expected to diminish the negative shocks when it happened .

At the end , will bring positive effects in terms of the bank as business unity , where banks must be in optimum position both as a intermediary institution and as a business entity ( Sidabalok , Viverita ( 2012)).

**2-3 Relationship between net interest margin and bank size**

Bank size is usually considered an important determinant , but with non consensus on the direction of its influence . Generally , the effect of a growing size has benefits like economies of scale and reduced costs or economies of scope and product diversification , that provides access to markets that small banks cannot entry ( Iloska ( 2014)).

Accordingly , the size –net interest margin relationship is expected to be non linear ( Ali et al( 2011)) . On the other hand , Naceur ( 2003) says that big banks tend to lower margins as a result of economies of scale . Besides , Ho and Saunders ( 1981) , Maudos and Solos ( 2009) find a positive relationship because the larger the transaction , the larger the potential loss will be . Funcagova and Poghosyan (2009) , Maudos and Fernando De Guevara ( 2004) , Angbazo ( 1997) , among others , report a negative association between bank size and interest margins , pointing to the cost reduction attributed to economies of scale .

**2-4 Relationship between net interest margin and other internal factors of bank**

Demicic and Ridzak ( 2013) indicated that the cost to income ratio is negatively correlated with net interest margin , implying that relatively less efficient banks marked by higher cost to income ratio had higher net interest margin . The ratio of non interest income to gross revenue is significant and negative suggesting that banks with a higher share of non interest income in their gross revenues charged lower margins for loans granted and collected additional revenue through various charges connected to credit activity .

Besides , Martinez and Mody ( 2004) , and Drakos ( 2003) found that foreign banks realize lower margins than domestic banks in transition countries . The opposite conclusion is reached by Schwaiger and Liebig ( 2008) on a sample of CEE countries , through Dabla Norris and Floerkemeir ( 2007) find no effect of foreign ownership on bank interest margin in Armenia .

Bank expenses are also a very important determinant , closely related to the approach of efficient expense management , because they offer a major opportunity to be decreased ( in this era of new electronic technology ) and hence improve efficiency and performance ( Iloska(2014)).

The relationship between operations costs and net interest margin is usually negative , as banks that are more productive and efficient aim to minimize their operating costs . On the other hand , if banks are also to transfer part of their operating expenses to their clients , this relationship may become positive ( Vong ( 2005)).

**2-5 The relationship between net interest margin and external factors**

Abreu and Mendes ( 2003) , Maria and Agoraki ( 2010) found a negative relationship between inflation and net interest margin , indicating that bank costs increase more than bank revenue do most probably because of regulatory constraints on adjusting lending rates.

On the other hand , Ben Nassar and al ( 2014) found the estimated coefficient for market concentration is negative and statistically significant . This is true for all banks and indicates that the market is contestable .

In other words , higher concentration is a consequence of tougher competition among banks ( Boone and Weigand ( 2000)). A possible rationale is that more efficient banks have lower costs , serve the best quality borrowers and garner greater market share , thereby forcing less efficient banks to consolidate and reduce operating costs in order to offer competitive interest margins .

Besides , some studies found that net interest margins tend to increase with bank concentration and market power ( Angbazo ( 1997) , William ( 2007) , Saunders et Schumacher ( 2000) , Maudos et Solos ( 2009)). Demirguc Kunt and others ( 2004) found that the positive association between concentration and bank margins diseappears when institutions quality variables are included .

Beck and Hess ( 2009) reject the positive association between concentration and bank margins , suggesting that contestability and other non price factors are better measures of bank competition . However , Claessens and Leaven ( 2004) attribute the absence of links between market structure and bank’s spread to the fact that concentration variables are not good proxies , for competition of banking . Besides , Ben Nassar and al ( 2014) found that economic growth ( the business cycle ) has no statistically significant impact on bank interest margins . This finding suggests that banks are not adequately pricing intrinsic risks of project and so are not allocating resources efficiently ( Rajan and Zingales ( 1998)).

On the other hand , an increase in economic growth can be translated to better market conditions , more positive business activities , and improvement in business performance .This would help mitigate the risk that business can not fulfill their financial obligations to banks their creditors .( Khan , Tra ( 2015)).

Thus , risk premium would reduce , and banks would tend to lower their interest margins ( Maria , Agoraki (2010)). In contrast , bad economic growth would increase the credit risk banks face form making loans to business , which in turn would increase the risk premium and bank’s required interest margins .

**Section 3: Empirical study**

The determinants of bank net interest margin have been the object of serveal studies (Raharjo and l ( 2014) , Chekol and Mutwol (2012) , Hamdi and Awedh (2012) , Dimic and Ridzak ( 2012) , Konar ( 2014) , Marinkovic , Radovic ( 2014)….).

Prompting us to study this problem in the Tunisian context . Under this section , we will identify the sample at the beginning , then , we specify the variables and models . On the other hand , we carry out the necessary econometric tests . Finally , we show the estimation results of the model and their interpretations .

**3-1 Sample**

We will use 18 banks ( table 1) that belong to professional association of banks in Tunisia over the period of ( 2000…2013).

Financial data are collected through the website of the professional association of banks in Tunisia over the period ( 2000…2013).

Macroeconomic data are collected from site of central bank of Tunisia and national statistic institution .

**Table 1: Specification of sample**

|  |  |
| --- | --- |
| **Index of bank**  | **Name of bank** |
| **AB** | **AMEN BANK** |
| **ABC** | **ARAB BANKING CORPORATION** |
| **ATB** | **ARAB TUNISIAN BANKING** |
| **Attijari bank** | **Attijari bank of Tunisa**  |
| **BH** | **Bank of Housing**  |
| **BTE** | **Tunsia and Emirate Bank of Tunisia**  |
| **BT** | **Bank of Tunisia**  |
| **BIAT** | **Arab international bank of Tunisia**  |
| **BNA** | **National agriculture bank**  |
| **BTS** | **Tunisian solidarity bank**  |
| **BTL** | **Tuniso lybian bank**  |
| **CB** | **CITI BANK** |
| **STB** | **Tunisian banking society**  |
| **SB** | **STUSID BANK** |
| **TQB** | **Tuniso quatari bank** |
| **UBCI** | **Banking Union of Trade and industry**  |
| **UIB** | **International banking Union**  |
| **BTK** | **Tuniso kwaiti banking**  |

**3-2 Estimation Method**

We will utilize panel static because it can control :

* The time and individual variation in the observable behavior or access cross sectional time series aggregated
* The observed or unobserved individual heterogeneity
* The hierarchical structure

**3-3 Specification of variables**

We will estimate the following model :

$$NIMi,t=b0+b1.Riski,t+b2.Sizei,t+b3.CAPi,t+b4.TLAi,t+b5.CEAi,t+b6.CFCi,t+b7..Tdepositi,t$$

$$+b8.ALAi,t+b9.Foreigni,t+b10.Privi,t+b11.TPIBi,t+b12.TINFi,t+Ei,t$$

**NIM = interest receivables – interest incurred / total assets**

Interest receivables ( by borrowers )

Interest incurred ( paid by the bank to the creditors and depositors )

NIM indicates that efficiency of financial intermediation ( Hamadi , Awdeh ( 2012)).

**Risk =σ(ROA)/E(ROA)+CAP**

Risk= insolvency risk of bank

σ (ROA) = standard deviation of return on assets

E (ROA)= expectation of return on assets

CAP= equity /total assets

**Size = size of the bank = natural logarithm of total assets**

Size can show the economies of scale . The large banks benefit from economies of scale which reduces the cost of production and information gathering . ( Boyd , Runkhle ( 1993)).

Bank size has a positive relationship with the bank revenue to a certain extent , and will have a negative impact if the size of very large banks , because of bureaucratie or other reasons.

( Raharjo et al ( 2014)). The size of domestic banks influence negatively net interest margin and significant at 1% level in all presented model .

Large domestic banks have significantly lower interest margins than smaller ones , which suggest that the former pay high interest on deposits and or charge lower interest rates to loans .

Therefore , it seems that larger domestic banks rely less on interest income then their small counterparties , since they have the capability to provide more fee based services and products . Besides , large banks may offer high rates to deposits to benefits from cross-selling and economies of scale ( Hamdi , Awedh( 2012).

**CAP= equity / total assets**

Capital adequacy is a common proxy for bank’s credit worthiness ( Kasman et al ( 2009)), as capital adequacy rules aims at preventing banks from accepting too much risk and ensuring banking sector stability ( Clayes , Vander Vannet ( 2008)).

 On the other hand , it might also be expected that less capitalized banks are inclined to accept more risk seeking for higher returns , what might result with moral hazard behavior.

Strong capital structure is essential for banks in developing economies , since it provides additional strength to withstand financial crises and increased safety for depositors during unstable macroeconomic conditions ( Iloska ( 2013)).

Furthermore , lower capital ratios imply higher leverage and risk , with therefore lead to greater borrowing costs . Thus , NIM should be higher for the better capitalized banks ( Staikouras , Wood ( 2003)).

**TLA = Total credits / Total assets**

**CEA=Operating expenses / Total assets**

Theory indicates that variation in operating expenses is reflected in variation in bank interest margin , as banks pass on their operating costs to the depositors and lenders . Several studies show that there is a positive relationship between operating expenses and net interest margin of commercial banks ( Claessens et al ( 2001), Abreu and Mendes ( 2003) , Carbo and Rodriguez ( 2007), Maria and Agoraki (2010)).

This is because banks bearing high average operating expenses may resort to charge higher margins to offset higher operating costs ( Maudos , Fernandez De Guevara ( 2004) , Martinez , Peria et Mody ( 2004)). On the other hand , higher operational efficiency may induce banks to pass the lower costs on their customers in the form of lower loan rates and or higher deposit rates , thereby lowering interest margins .( Clayes , Vander Vannet ( 2007)).

**CFC= financial expenses / total credits**

**Tdeposit = total deposit / total assets**

**Foreign = 1** if more of 50% of bank capital is owned by foreign investors , 0 otherwise

**Priv = 1** if more of 50 of bank capital is owned by private national investors , 0 otherwise

**TPIB = rate of growth economic**

Increased economic activity can heighten demand for loans leading to higher lending rates. On the other hand , increased economic activity can make projects more profitable , reduce defaults , and increase deposits , all of which reduce the spread .(Were , Wambur ( 2014)).

**TINF= rate of inflation**

Research have paid little attention on the impact of inflation on net interest margin ( Rasiah (2010)). This not withstanding , theory predicts a relationship between inflation and bank

interest rate margin . For example , Perry ( 1992) argues that the effect of inflation on bank interest depend on whether inflation is anticipated or unanticipated .

If inflation is anticipated , then the banks adjust interest rate accordingly , thereby increasing the interest rate margin .

On the other hand , if inflation is not anticipated , then banks may be slow in adjusting their interest rates and so may affect the interest margin negatively because of increased costs occasion by inflation . Demirguc Kunt and Huizinga ( 1999) found a positive relationship between inflation and net interest margin in a study of 80 developed and developing countries.

However , Abreu and Mendes ( 2003) found negative relationship between inflation and net interest margin On a cross country of Portugal , Spain , France , Germany . Maria , Agoraki(2010) found a negative relationship between inflation and net interest margin on Southeast European countries .

Ei,t=Disturbance term

b 0,b1,b2,b3,b4,b5,b6,b7,b8,b9,b10,b11,b12,b13: Coefficients estimated

**3-4 Analysis of descriptive statistics**

**Table 2: Statistic descriptive**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **Observations** | **Mean** | **Standard deviation** | **Minimium** | **Maximum** |
| **Risk** | 252 | 0.00185 | 0.059 | 0.00056 | 0.0095 |
| **NIM** | 252 | 0.0284219 | 0.063 | 0 | 0.2193 |
| **Size** | 252 | 13.85563 | 1.312 | 10.19 | 15.98 |
| **CAP** | 252 | 0.1812312 | 0.188 | 0.0013 | 0.97 |
| **TLA** | 252 | 0.6970536 | 0.198 | 0.057 | 0.95 |
| **CEA** | 252 | 0.0279692 | 0.029 | 0.0023 | 0.42 |
| **CFC** | 252 | 0.0337711 | 0.030 | 0.0017 | 0.3532 |
| **Tdeposit** | 252 | 0.63594 | 0.273 | 0.0066 | 0.956 |
| **ALA** | 252 | 0.043 | 0.051 | 0.00396 | 0.44 |
| **TPIB** | 252 | 0.037 | 0.067 | -1.08 | 0.0611 |
| **TINF** | 252 | 0.043 | 0.011 | 0.03 | 0.065 |
| **Foreign** | 252 | 0.5 | 0.500 | 0 | 1 |
| **Priv** | 252 | 0.777 | 0.41 | 0 | 1 |

252=14\*18=total number of observations

14= number of years ( 2000….2013)

18= Number of banks

NIM ( mean ( 0.0284)). The interest margin represent 2.84% on average of total assets .

The standard deviation is low . However , Size ( average = 13.85) . Most banks have a small and medium size . There is no large variation in size between banks .

CAP ( average = 0.1812) . The stockholders equity represents on average 18.12% of total assets . But there is a large variation in CAP between banks ( standard deviation = 18.83%).

Moreover , TLA ( average = 0.6970) . The total credits represent on average 69.70% of total assets . This shows the importance of financial intermediation of banks but there is a great deviation between banks in TLA ( standard deviation = 19.86%) .

On the other hand , CEA ( average = 0.0279) . Operating expenses represent on average 2.79% of total assets .

Thus , there is a good efficiency for banks . There is a slight variation of CEA between banks.

Besides , CFC ( average = 0.033) . Financial expenses represent on average 3.33% of total credits. So there is an effective management of financial expenses in banks . There is a small variation between banks in CFC .

Also , Tdeposit ( average = 0.6354) . The deposit represent 63.54% on average of total assets.

This shows a great ability to attract deposits , deposits are important in the banking system .

Moreover , TPIB ( average = 3.76%) . The rate of economic growth represent on average 3.76% in period of study ( 2000…2013). There is a negative growth economic in 2011 and 2012 because the negative consequences of revolution in economic .

On the other hand , Foreign ( average = 0.5) . Foreign ownership represent 50% of total ownership .

In the last , Priv ( average = 41.65%) .41.65% of ownership is national private .

**3-5 Econometric test**

**3-5-1 Test of multi-colinearity**

**Table3 : multi-colinearity between variables**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **Risk** | **NIM** | **Size** | **CAP** | **TLA** | **CEA** |
| **Risk** | 1.000 |  |  |  |  |  |
| **NIM** | 0.0458 | 1.000 |  |  |  |  |
| **SIZE** | 0.026 | 0.0369 | 1.000 |  |  |  |
| **CAP** | 0.0081 | 0.1555 | -0.4679 | 1.000 |  |  |
| **TLA** | 0.051 | 0.1288 | 0.2678 | -0.0508 | 1.000 |  |
| **CEA** | -0.0147 | -0.0098 | 0.0588 | -0.0142 | -0.041 | 1.000 |
| **CFC** | 0.013 | 0.0293 | -0.0067 | -0.0856 | -0.2019 | 0.1623 |
| **Tdeposit** | 0.019 | -0.0830 | 0.4731 | -0.6106 | -0.0890 | 0.1490 |
| **ALA** | -0.018 | 0.0348 | -0.1202 | 0.0862 | -0.1213 | -0.0612 |
| **TPIB** | 0.036 | 0.1091 | -0.1102 | 0.1052 | -0.1755 | 0.0350 |
| **TINF** | 0.0412 | -0.1339 | 0.2998 | -0.26 | 0.3097 | -0.1206 |
| **Foreign** | -0.0129 | -0.0855 | -0.6609 | 0.3425 | -0.2518 | 0.0290 |
| **Priv** | -0.059 | -0.0141 | 0.35 | 0.1356 | -0.1979 | 0.1124 |

**Table 4 : suite of multi-colinearity between variables**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | CFC | Tdeposit | ALA | TPIB | TINF | Foreign | Priv |
| CFC | 1.000 |  |  |  |  |  |  |
| Tdeposit | 0.2313 | 1.0000 |  |  |  |  |  |
| ALA | -0.0341 | -0.2390 | 1.000 |  |  |  |  |
| TPIB | 0.0746 | -0.0898 | 0.0446 | 1.000 |  |  |  |
| TINF | -0.099 | 0.2182 | -0.2132 | -0.4533 | 1.000 |  |  |
| fOREIGN | 0.1207 | -0.1170 | 0.064 | 0.001 | -0.003 | 1.000 |  |
| pRIV | 0.1292 | 0.2153 | -0.415 | 0.0003 | -0.0002 | 0.5362 | 1.000 |
|  |  |  |  |  |  |  |  |

All coefficients of Variables are inferior to 70% , there is no problem of multi-colinearity.

**Test of VIF**

Multicolinearity refers to a situation in which 2 or more explanatory variables in a multiple regression model are highly linearly related . We have perfect multicolinearity if for example as in the equation above , the correlation between 2 independent variables is equal to 1 or -1.

**Table 5: Test of VIF**

|  |  |
| --- | --- |
|  | VIF |
| Size  | 3.23 |
| Tdeposit | 2.63 |
| Foreign | 2.53 |
| CAP | 2.24 |
| Priv | 1.87 |
| Tinf | 1.64 |
| Risk | 1.58 |
| TPIB | 1.31 |
| CFC | 1.13 |
| ALA | 1.12 |
| CEA | 1.10 |
| NIM | 1.08 |

Variance inflation factor ( VIF) quantifies how much the variance is inflated .

VIF = 1/1-R2K

R2K is the R2 value obtained by regressing the Kth predictor on the remaining predictors .

VIF inferior to 5 , there is no problem of multi-colinearity ( Gujarati (2005)).

**3-5-2Hausman test**

It determines if the individual effects are fixed or random . It determines if the coefficient ( beta) and 2 fixed or random estimates are not statistically different. Under the null hypothesis of independent between errors and explanatory variables , both estimators are unbiaised , so the estimated coefficients becomes somewhat different .

The fixed effect model assumes that the influence of explanatory variables on the dependent variable is the same for the all individuous , and that whatever the period ( Sevestre ( 2001)).

The random effect model assumes that the relationship between the dependent variable and the explanatory variable is not fixed but random , the individual effect is not fixed parameter but a random variable ( Bourbonnais ( 2009)).

The null hypothesis of the test is following : H0: The presence of random effect

The hausman test blends in Pv = Chi2

If 5%<Pv , we accepted H0 ( presence of random effect ) , if not we accept H1 ( presence of fixed effect )

In our model Pv = 0.42 , superior to 5% , we accept random effect .

**3-5-3 Heteroscedasticity test**

 We will use the Breush-Pagan test developed in 1979 b Trevor Breush and Adrian Pagan. The Breush Pagan tests for conditional heteroskedasticity . It is a chi squared test . The test statistic is n X2 with k degrees of freedom .

It tests the null hypothesis of homoskedasticity . If the chi squared value is significant with p value below an appropriate threshold ( p<0.05) then the null hypothesis of homoskedasticity is rejected and heteroskedasticity assumed .

In our case , p =0.38 superior to 0.05 , there isn’t a problem of heteroskedasticity .

**3-6 Results of estimations and interpretations**

**Table 6: Results of estimations**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **NIM** | **Coefficient** | **Standard error** | **Z** | **Z<P** |
| **Risk** | 0.00156 | 0.004516 | 2.05 | 0.814 |
| **Size** | 0.024035 | 0.0031184 | 2.09\* | 0.926 |
| **TLA** | 0.0180351 | 0.010827 | 2.77\*\*\* | 0.077 |
| **CAP** | 0.0148985 | 0.0136909 | 1.09 | 0.277 |
| **CEA** | -0.01513 | 0.055 | -2.27\*\* | 0.785 |
| **CFC** | 0.0744 | 0.056 | 1.38 | 0.167 |
| **Tdeposit** | -0.004887 | 0.0118028 | -2.41 | 0.679 |
| **TPIB** | 0.112566 | 0.12083 | 0.92 | 0.357 |
| **TINF** | -0.23 | 0.1940 | -3.20\*\*\* | 0.230 |
| **Foreign** | -0.0076 | 0.0082 | -0.92 | 0.356 |
| **Priv** | 0.0049 | 0.0086 | 0.57 | 0.569 |
| **ALA** | 0.0007046 | 0.034 | 0.02 | 0.984 |
| **Cons** | 0.016 | 0.041 | 0.39 | 0.698 |

**(\*)significant at 10%**

**(\*\*)significant at 5%**

**(\*\*\*)significant at 1%**

**Z= t of student**

**Interpretations**

There is a positive relationship between NIM and Risk ( if Risk increases by 1% , NIM will increase by 0.00156%). The increase of risk has a positive effect on net interest margin.This relationship is statistically significant at 5%.

 Besides , there is a positive relationship between NIM and Size ( if Size increases by 1% , NIM will increase by 0.024%) . The increase of size has a positive effect on net interest margin . This relationship has statistically significant at 5% .This result is similar to result found by ( Raharjo and al ( 2014) , Demirguc Kunt et Huizinga ( 2000) , Ugur and Erkens ( 2010)..)but contrary to result found by ( Tin and al ( 2011) , Hamdi and Awedh ( 2012)…).

In general , the case of the bank’s asset growth due to the an increase in the amount of bank loans . If the loan expansion is not managed well , then bank will potentially suffer a loss due to a rising non performing loans .

To anticipate potential losses from non performing loans , the bank will increase the amount of loan loss reserves and finally it encourages banks to raise interest rate spread .

 Theories emphasize economy of scale in intermediation costs , but theory contradicts the supposition that large banks in a small country may impose their market power by raising spreads ( Hovarth ( 2009)).The negative result is in line with Hovarth ( 2009) for Czech banks , Gelos ( 2006) for latin American banks , Maudos and Fernandez De Guevara ( 2004) for European banks , Funcagova and Poghosyan ( 2011) for Russian banks .

On the other hand , there is a positive relationship between TLA and NIM ( if TLA increases by 1% , NIM will increase by 0.018%). The increase of ( Total credits / total assets) has a positive effect on net interest margin .

This relationship is statistically significant at 1%.

Besides , there is a positive relationship between CAP and NIM ( if CAP increases by 1% , NIM will increase by 0.01489%) . The increase of capital has a positive effect on net interest margin .This relationship is not statistically significant . This result is similar to result found by ( Raharjo and al ( 2014) , Konar ( 2014) ; Gustavo and Garcia ( 2010)) but contrary to result found by ( Hamdi and Awedh ( 2012)).

Well capitalized banks are considered less risky and better aible to raise uninsured funds in order to compensate the drop in deposits ( Van Den Hewel ( 2002)).

Capital adequacy is a common proxy for banks creditworthiness ( Kasman and al ( 2009))as capital adequacy rules aims at preventing banks from accepting too much risk and ensuring banking sector stability (Clayes , Vander Vannet ( 2008)).

More risk averse banks ( with a high capital adequacy ratio) desire higher margins for each unit of risk they take ( Konar ( 2014)).

Moreover , there is a negative relationship between CEA and NIM ( if CEA increase by 1% , NIM decreases by 0.015%) . This relationship is statistically significant at 5% .The increase of expenses has a negative effect on NIM .

This result is consistent with result found by but contrary to result found by ( Tarus and al ( 2012) , Gustavo and Garcia ( 2010), Almazroei and Ben Naceur ( 2015)).

The banks with high operating costs will pass them on to consumers in the form of wide margins , especially is the banking environment is not competitive .

There is a positive relationship between CFC and NIM ( if CFC increases by 1% , NIM will increase by 0.0744%) . The increase of CFC has a positive effect on NIM . This relationship is not statistically significant .

There is a negative relationship between T deposit and NIM ( if CFC increases by 1% , Tdeposit will decrease by 0.0048%) . The increase of deposits has a negative effect on net interest margin . This relationship is statistically significant at 1% . This result is contrary to result found by ( Hamdi and Awedh ( 2012)).

Besides , there is a positive relationship between TPIB and NIM ( if TPIB increases by 1% , NIM will increase by 0.1112% ) . The increase of growth economic has a positive effect on net interest margin . This result is similar to result found by ( Gelos ( 2009) , Bernanke and Gerther ( 1990) , Tarus and al ( 2012)) but contrary to result found by ( Nassar , Martinez , Pineda ( 2014)).

However , there is a negative relationship between TINF and NIM ( if TINF increases by 1% , NIM will decrease by 0.23%) . The increase of inflation has a negative effect on net interest margin . This result is similar a result found by ( Almazreoi , Ben Naceur ( 2015)). But contrary to result found ( Rahrajo and al ( 2014) , Hamdi and Awedh ( 2012) , Konar ( 2014) , Tarus and al (2012).

On the other hand , There is a positive relationship between NIM and ALA ( if ALA increases by 1% , NIM will increase by 0.0007046) . The increase of liquidity has a positive effect on net interest margin . This result is similar to result found by Iloska (2013) but contrary to result found by ( Hamadi and Awedh ( 2012) , Konar ( 2014)).

There is a negative relationship between foreign ownership and NIM ( if foreign ownership increases by 1% , NIM will decrease by 0.0076% ) . The increase of foreign ownership has a negative effect on net interest margin .

This result is not statistically significant . This result is contrary to result found by Gustovo and Garcia ( 2010) , Umraugh ( 2015) , Demirguc Kunt and Huizinga ( 1999) , but similar a result found by Martinez and Peria ( 2004) , Dabla Norris Florkmein (2007)). Poghosyan (2010) found that foreign bank participation had no relevant influence on NIM in central and Eastern European countries .

Moreover , there is a positive relationship between Priv and NIM ( if priv increases by 1% , NIM will increase by 0.0049%) . This relationship is not statistically significant . The increase of private ownership has a positive effect on net interest margin .

**4-CONCLUSION**

As financial intermediaries , banks play a crucial role in economy , therefore a sound and well functioning system is essential in providing for sustained growth and development ( Iloska (2014)).

It is notable that bankers have incentives to increase NIM in pursuit of their own profits , while the government assuming a benevolent one which always prioritizes the best for its citizens , would prefer a low average NIM in the banking sector ( Khanh and Tru (2015)).

Therefore , the net interest margin has several specific and external determinants . In the context of this article , we studied a sample of 18 banks in the period of ( 2000…2013).

We found that only risk , size , deposits , operating costs have a significant impact on the net interest margin (NIM) , whereas inflation has a negative impact on NIM .

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