

## Credit Risk and Bank Performance in Nigeria

Aladesanmi KA\*

Department of Business Administration and Management, Federal Polytechnic, Ado Ekiti, Nigeria

**\*Corresponding author**

Aladesanmi KA

**Article History**

Received: 27.01.2018

Accepted: 07.02.2018

Published: 28.02.2018



**Abstract:** The study investigated the impact of credit risk on bank performance in Nigeria between 1990 and 2006. From the literature, non-performing loans have been used as proxy for credit risk. However, other variables such as total deposits, loan and advances and lending rate are used as other independent variables in the model while return on asset ROA is used as bank performance indicator. Cointegration and error correction model is adopted and the results show that credit risk as proxy by non-performing loans has significant positive impact on bank performance in the short run but in the long run, the impacts turn negative. Also a strong linkage is found between loan and advances and credit risk as well as lending rate and credit risk. The study recommends that banks should guide against accumulation of nonperforming loans in order to reduce their vulnerability to credit risk.

**Keywords:** Credit risk, non-performing loans, bank performance.

**INTRODUCTION**

Over the year the relationship between credit risk specifically non-performing loan and bank performance has been a subject of discussion among various authors. This has led to the development of a dichotomy regarding the conclusion of various authors on this subject matter.

Explicitly, there are emergency of two distinctive views on the relationship between non-performing loan which is a major proxy for credit risk and bank performance.

Firstly, some group of authors believes and concluded from their studies, that credit risk aids bank performance through interest yield on loans and according to them the yield on these loans often significantly out weights the principal there by increasing the profit of the banks and consequently increasing bank performance [1], for example; assessed the effect credit risk management and profitability in commercial banks in Sweden. Using two credit risk indicators (NPLR and ROE), the findings and analysis revealed that credit risk management has effect on profitability in all 4 banks selected.

Dasah *et al.*, [2] found a positive relationship between credit risk and profitability in Ghanaian commercial banks. The result is consistent to that of Afriyie and Okotey [3], who found a significant positive relationship between non-performing loans with profitability of rural and community banks in Ghana. The study by Achouand Tegnuh [4]; indicated that effective credit risk management leads to better bank performance. The result of the study by Achou and tegnuh [4] is supported by the study by Hosna *et al.*, [1] in Sweden and Flamini *et al.*, [5] in Sub-Saharan Africa commercial banks. (see positive author)

Secondly, the other group of authors concluded from their findings that credit risk is inimical to the growth of banking industries, in that it inhibit bank performing by accumulation of bad debt which limit bank efficiency [6-11].

Based on these difference views explained, it is apparent that a consensus has not being reach on what exactly the relationship between credit risk (non-performing loan) and bank performance, therefore, to contribute to literature this study is conducted to further examine the relationship using the Nigeria banking industry.

**LITERATURE REVIEW**

Hosna, Manzura & Juanjuan [12] studied —Credit Risk Management and Profitability of Commercial Banks in Sweden. They took 4 banks to study this area and used multiple regression models to analyze their findings. Lastly, the researchers obtained that —there is a reasonable effect of credit Risk Management on profitability of those banks [12].

Ahmad and Ariff [13] examined the key determinants of credit risk of commercial banks on emerging economy banking systems compared with the developed economies. The study found that regulation is important for banking systems that offer multi-products and services; management quality is critical in the cases of loan-dominant banks in emerging economies. An increase in loan loss provision is also considered to be a significant determinant of potential credit risk. The study further highlighted that credit risk in emerging economy banks is higher than that in developed economies.

Hou and Dickinson [14], which examined the non-performing loans on microeconomics, specifically at the bank level to empirically evaluate how non-performing loans (NPLs) affect commercial banks' lending behavior. In particular, it is discussing some consequences of nonperforming loans (NPLs) on the economics. They have used empirical methodology for testing the effect of non-performing loans (NPLs) which the data taken from individual bank's balance sheet to assess whether non-performing loans (NPLs) will negatively affect bank's lending behavior.

Heffernan [15] stressed that credit risk is the risk that an asset or loan becomes irrecoverable, in the case of outright default or the risk of delay in servicing of loans and advances. Thus, when this occurs or becomes persistent, the performance, profitability, or net interest income of banks is affected.

Felix and Claudine [7] investigated the relationship between bank performance and credit risk management. It could be inferred from their findings that return on equity (ROE) return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability.

Kaaya and Pastory [11] analyzed effect of credit risk (measured by ratios of non-performing loan, loan loss to gross loan, loan loss to net loan and impaired loan to gross loan) on banks' performance (measured by return on assets) by controlling the effect of deposits and bank size. A sample of 11 banks in Tanzania has been used for this analysis. According to correlation and regression results, credit risk measures of non-performing loans, loan loss to gross loan, loan loss to net loan have significant negative influence on banks' performance. It is concluded that performance of banks can be increased by effective risk management as it help to reduce non-performing loans and loan losses.

Kuo and Enders [16] investigated credit risk management policies for state banks in china using a survey research design. The study found out that with the increasing opening of the financial market, the state owned commercial banks in China are faced with the unprecedented challenges.

Vatansever and Hepsen [17] investigated the presence of any significant relation (if exists) of non-performing loans with macroeconomic indicators, global and bank level factors in Turkey for a period of January 2001 to March 2003. Results obtained from ordinary least square regression helped in categorizing the factors significantly affecting the non-performing loans. Among various macroeconomic, global and bank level factors used in the study, only the variables of industrial production index, Istanbul stock exchange 100 Index, inefficiency ratio of all banks have significant negative effect while unemployment rate, ROE and capital adequacy ratio have positive significant effect on non-performing loans.

Epure and Lafuente [18] examined bank performance in the presence of risk for Costa-Rican banking industry during 1988-2001. The results showed that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect efficiency and return on assets while the capital adequacy ratio has a positive impact on the net interest margin.

Aduda and Gitonga [19] further stated that generally financial institutions adopt range of techniques for the mitigation of their credit risk. According to them, the commonly used techniques include collateral, guarantees, and net-off loans. These loans are net-off with the help of receipt, leading to decreased credit risk. In other studies, insurance, factoring, debt compilation, surety bonds, and letter of credit (LC) are recognized as extensively used methods of risk management [19].

Azeem & Amara [20] study Impact of profitability on quantum of non-performing loans in Pakistani Banks. The Data of one business cycle of sixteen Pakistani banks were collected from 2006 to 2012. The sample comprised of sixteen public and private banks with different sizes. Three models were adopted to check the relationship between

profitability and nonperforming loans. Model one represented return on asset as dependent variable while nonperforming loans were taken as independent variable. Model two represented Return on Equity as dependent variable while nonperforming loans were taken as independent variable. Model three represented Stock Return as dependent variable while nonperforming loans were taken as independent variable.

Chen and Pan [21] examined the credit risk efficiency of 34 Taiwanese commercial banks over the period 1990-2004. Their study used financial ratio to assess the credit risk and was analyzed using Data Envelopment Analysis (DEA). The credit risk parameters were credit risk technical efficiency (CR-TE), credit risk allocative efficiency (CR-AE), and credit risk cost efficiency (CR-CE). The results indicated that only one bank is efficient in all types of efficiencies over the evaluated periods. Overall, the DEA results show relatively low average efficiency levels in CR-TE, CR-AE and CR-CE in 2008.

Al-Khouri [22] assessed the impact of bank's specific risk characteristics, and the overall banking environment on the performance of 43 commercial banks operating in 6 of the Gulf Cooperation Council (GCC) countries over the period 1978-2000. Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk.

## **METHODOLOGY**

### **Model Specification**

The model adopted for this study is underpinned to the model of Kargi [23] in his study "Credit Risk and the Performance of Nigerian Banks" which measured profitability with Return on Asset (ROA) as a function of the ratio of Non-performing loan to loan & Advances (NPL/LA) and ratio of Total loan & Advances to Total deposit (LA/TD). The model improved on this by adding the lending rate which is the interest rate that indicates the cost of capital.

The model for this study functionally becomes;

$$ROA = f(NPL, LA, LEDR, TD) \dots \dots \dots (1)$$

Where;

- ROA: Return on Assets
  - NPL: Non-Performing Loan (proxy for credit risk)
  - LA: Loan and Advances
  - LEDR: Lending rate
  - TD: Total Deposit
- The econometric equation for the model is specified as

Where;

- $\beta_0$  = Constant parameter/Intercept
- $\beta_1$ - $\beta_3$  = Coefficients of independent variables
- $\mu$  = Error term

The 'a priori expectation' in the model is that all the independent variables are expected to have a negative relationship on bank performance measured by Return on Assets (ROA) except loans and advances which is expected to have a positive relationship with bank performance. The mathematical expression is represented as;  $\beta_1, \beta_2, < 0$  and  $\beta_3 > 0$  implying that a unit increase in the independent variables will lead to decrease in ROA by a unit

### **Estimating technique**

The estimation procedures employed in this empirical investigation is based on ARDL bound test. The reason for the adopting ARDL bound test is explained later. However, the techniques start with the investigation of the time series properties of the variables using unit root test.

### **Unit Root Test**

Testing for the existence of unit roots is a key pre-occupation in the study of time series models and co-integration. What are unit roots? Let us begin with a definition. A stochastic process with a unit root is itself non-stationary. Another way of looking at it is that testing for the presence of unit roots is equivalent to testing whether a stochastic process is a stationary or non-stationary process. In sum, the presence of a unit root implies that the time series under scrutiny is non-stationary while the absence of a unit root means that the stochastic process is stationary, Maddala [24] has offered an interesting perspective and interpretation on the testing for unit roots.

According to Maddala [24], testing for unit roots is a formalization of the Box-Jenkins method of differencing the time series after a visual inspection of the correlogram. No wonder then that testing for units roots plays a central role in the theory and technique of co-integration.

Currently, there are some commonly accepted methods of testing for unit roots. These are the Dickey-Fuller (DF), Augmented Dickey-Fuller (ADF) test and the Philip Peron (PP) test.

The Augmented Dickey-Fuller (ADF) test is considered superior to the Dickey-Fuller (DF) test because it adjusts appropriately for the occurrence of serial correlation.

$$X_t = b_0 + b_1 X_{t-1} + b_2 X_{t-2} + \dots + b_n X_{t-n} + U$$

Where U is a stationary error term. The null hypothesis that  $X_t$  is non stationary is rejected if  $b_1$  is significantly negative.

The number of lag (n) of  $X_t$  is usually chosen to ensure that the regression is approximately white noise. It is simply referred to as the DF test if no such lags are required in which case  $b_i = 0$  ( $i = 1 \dots \dots \dots n$ ). However, the t-ratio from the regression does not have a limiting normal distribution.

An important assumption of the DF test is that the error terms are independently and identically distributed. The ADF test adjust the DF test to take care of possible serial correlation in the error term by adding the lag difference terms of the regressand. Phillip and Perron use non-parametric methods to take care of the serial correlation in the error term without adding lagged difference terms. Since the asymptotic distribution of PP test is the same as the ADF test statistic, the PP test is preferred for this study.

Co-integration is based on the properties of the residuals from regression analysis when the series are individually non stationary.

A series is stationary if it has a constant mean and constant finite variance. Thus, a time series  $X_t$  is stationary if its mean  $E(X_t)$  is independent of time and its variance  $E\{X_t - E(X_t)\}^2$  is bounded by some finite number and does not vary systematically with time. It tends to return to its mean with the fluctuations around this mean having constant amplitude.

**Estimating technique: ARDL MODEL**

The choice of this estimation procedure is primarily informed by the fact that it passes the fitness-for-the-purpose-test. For instance, one option available to perform the co-integration test is the Engle-Granger approach [25], but its weakness lies in the fact that it is only able to use two variables. A multivariate analysis, such as that considered in this study, leads to the use of the Johansen and Joselius co-integration analysis or ARDL model. The statistical equivalence of the economic theoretical notion of a stable long-run equilibrium is provided by these two models, but the choice will depend on the characteristics of the data.

This study is unable to use the Johansen procedure (an option) as all the variables are not completely I(1), that is, integration of order one. This assumption is a pre-condition for the validity of the Johansen procedure. Alternatively, the ARDL model is appropriate to run the short-run and long-run relationships [26].

The guide that will be followed in this study is that if all variables are stationary, I (0), an ordinary least square (OLS) model is appropriate and for all variables integrated of same order, say I(1), Johansen’s method is very suitable when we have fractionally integrated variables, variables at different levels of integration (but not at I(2) level) or cointegration amongst I (1) variables.

The ARDL model will then be performed with the formulation of a conditional error correction model [27] as below:

$$\Delta roa = \beta_0 + \sum_{i=1}^p \beta_i \Delta npl_{t-i} + \sum_{j=0}^{q_1} \alpha_j \Delta tl_{t-j} + \sum_{k=0}^{q_2} \phi_k ta + \sum_{l=0}^{q_3} \epsilon_l \Delta td + \sum_{m=0}^{q_4} \epsilon_m \Delta ledr_{t-m} + \sum_{v=0}^{q_5} e_v \Delta exr_{t-v} + \theta_0 npl_{t-1} + \theta_1 tl_{t-1} + \theta_2 ta_{t-1} + \theta_3 td_{t-1} + \theta_4 ledr_{t-1} + \theta_5 exr_{t-1} + e_t$$

Where  $p, q_1, \dots, q_5$  represents appropriate maximum lags.

**Sources of Data**

In the process of collecting data for this study, all the variables used are sourced from the MUNDI index and World Bank [28] edition.

**RESULTS AND DISCUSSION**

The model analysis starts with the unit root test which is a pre-condition for cointegration test. Apart from showing if cointegration test can be conducted, it will also show the method of cointegration analysis to be adopted. The method adopted for the stationarity test is the ADF method. Some of the variables such as loan and advance, non-performing loan, total deposit and lending rates are logged while return on asset is not logged because it is already in percentages to avoid missing values. The result is presented in Table-1

**Table-1: Unit root test**

Variables	ADF Statistics	Order of integration
Log of Loan and advance [LLA]	-8.863548	I(1)
Log of nonperforming loan [LNPL]	-5.094282	I(1)
Log of total deposit [LTD]	-2.745959	I(0)
Log of lending rate [LLED R]	-3.807445	I(1)
Return on asset[ROA]	-5.331091	I(1)

(\*) Statistical significance at 10%,(\*\*) Statistical significance at 5%,(\*\*\*) Statistical significance at 1%

Source: Authors computation

The results of the unit root test show that all the variables are integration of order one that is I (1) except total deposit which is stationary at levels that is I(0). The implication is that five out of the six variables in the model are non-stationary and thus a linear combination of them can be stationary. This is the essence of cointegration. However, the choice of the cointegration techniques depends on the order of integration of the variables. Since not all the variables are I (1) then, Johansen cointegration technique cannot be applied hence Autoregressive distributed lags ARDL bound test is used.

The next step is to estimate both long run and short run relationship for the roa model. However, The cointegration equation of ROA will be interpreted because it exhibited a valid cointegration relationship with non-performing loans and other variables used as independent variables. The results of the long run and short run estimation are presented in table 2.

**Table-2: Cointegration equation for ROA**

ARDL Cointegrating And Long Run Form				
Dependent Variable: ROA				
Selected Model: ARDL(4, 1, 0, 4, 4)				
Date: 03/12/16 Time: 22:10				
Sample: 1998Q1 2013Q4				
Included observations: 60				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ROA(-1))	0.280508	0.101456	2.764818	0.0084
D(ROA(-2))	0.204000	0.108128	1.886658	0.0661
D(ROA(-3))	0.192620	0.098783	1.949931	0.0579
D(LNPL)	0.744547	0.228023	3.265225	0.0022
D(LTD)	1.169043	0.578348	2.021347	0.0496
D(LLA)	0.331673	0.298816	1.109958	0.2733
D(LLA(-1))	0.943390	0.286068	3.297777	0.0020
D(LLA(-2))	0.797479	0.263174	3.030228	0.0042
D(LLA(-3))	0.637221	0.239559	2.659979	0.0110
D(LED R)	-1.430736	0.088422	-16.180674	0.0000
D(LED R(-1))	0.428026	0.175031	2.445424	0.0187
D(LED R(-2))	0.321689	0.184412	1.744406	0.0884
D(LED R(-3))	0.317410	0.169699	1.870428	0.0684
CointEq(-1)	-0.390658	0.056821	-6.875245	0.0000
Cointeq = ROA - (1.0962*LNPL + 4.2129*LTD - 3.9052*LLA - 1.3955*LED R + 8.4696 )				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNPL	-1.096220	0.335273	3.269637	0.0022
LTD	4.212933	1.365781	3.084632	0.0036
LLA	-3.905201	0.873278	-4.471885	0.0001
LED R	-1.395474	0.077602	-17.982535	0.0000
C	8.469605	10.002712	0.846731	0.4019

Source: Authors computation

Table-2 explains the short run relationship between ROA and NPL with other independent variables. Firstly the error correction term in the estimated model is -0.39 implying that the error term is correctly signed is statistically significant, therefore the error correction term can perform the adjutants' role very well.

Secondly, non-performing loan shows a positive and significant relationship with bank performance as proxied by ROA. This implies that non-performing loan will have a significant short run impact on bank performance. Other variables such as total deposit and lending rate all shows significant short run impact on bank performance.

Table-2 further explains the long run relationship between ROA and non-performing loans and other independent variables. The results show that ROA exhibit significant long run relationship with non-performing loan and all other variables in the estimated model. The coefficient of non-performing loan is 1.1. this indicate that a unit rise in nonperforming loan will lead to about 1.1 unit rise in the ROA. Total deposits also have significant positive impact on ROA both lending rate and loan and advance show significant inverse relationship with ROA

### Diagnostic tests

As robust tests to our estimations, some diagnostics tests are conducted. The tests are normality, heteroskedaticity and serial correlation tests.

### Test for heteroskedaticity

**Table-3: ARDL HETEROSKEDASTICITY TEST**

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.386405	Prob. F(17,42)	0.1918
Obs*R-squared	21.56713	Prob. Chi-Square(17)	0.2019
Scaled explained SS	12.14301	Prob. Chi-Square(17)	0.7914

The result of the hereoskedaticity test is presented in Table-4. The null hypothesis is that there is no heteroskedaticity. Using the F statistics, it is discovered that the probability of F shows that the null hypothesis is to be accepted. Therefore we conclude that our model is not having the problem of heteroskedaticity which may affect the validity of our results.

### Test for serial correlation

**Table 4: ARDL SERIAL CORRELATION LM TEST**

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.935484	Prob. F(2,40)	0.4008
Obs*R-squared	2.681049	Prob. Chi-Square(2)	0.2617

The null hypothesis here is that there is no serial correlation. Considering the F statistics and the probability, it is obvious that the null hypothesis is to be accepted while we reject the alternative hypothesis that there is serial correlation. Consequently the estimates from our model are valid and can be used for forecasting.

### CONCLUSIONS

The relationship between credit risk as proxied by nonperforming loans and bank performance has been shown by our findings to have different implications in both long run and short run period. The results from the empirical analysis shows that nonperforming loan exhibit a positive relationship only in the short run. The relationship turns negative in the long run. The implications are that bank can benefit immediately from bad loans but as the period progresses the impact on bank performance turns negative. This is similar to the results of Moinescu [29]. But the only difference is that they used OLS hence it was difficult to ascertain whether the positive relationship they found is in long run or in the short run but findings from this study have shown that the positive relationship can only happen in the short run while this relationship turns negative in the long run. Therefore credit risk has more of permanent and significant negative impact on bank performance than transitory impact.

The results have also shown that reduction in lending rate will significantly increase nonperforming loan incidence and thereby aggravating the issue of credit risk. Part from the fact that this results conform to the theoretical postulations many authors such as Naceur & Ghazouani [30] have also established from their various studies that fall in lending rate increases the credit risk situation of banks.



As expected, total deposits in the banks also shows a positive and significant impact on bank performance thereby conforming to the findings of Afandi [31] among others. The rise in total bank deposits is a good implication for the improvement of bank performance and vice versa. However, this impact has been shown to cut across both long run and short run periods. This underscores the importance of bank deposits in prompting bank performance.

Another important finding in our study is that loan and advances follows the same pattern of relationship that nonperforming loans exhibit with bank performance. Credit risk has been shown to have a very strong linkage with loan and advances. This might not be unconnected with the fact that nonperforming loan arises from loan and advances therefore this strong linkage is understandable. Loan and advances indicates significant negative impact on bank performance in the long run whereas the effect appears to be favorable in the short run.

## REFERENCES

1. Hosna G., & Klingebiel, D. (2000). Bank Insolvencies: Cross-Country Experience, | World Bank Policy and Research Working Paper 1574 (Washington).
2. Dasah, F., & Ahmed, J. (2002) Origin of Mexico's 1994 Financial Crisis, The." *Cato J.* 17: 303.
3. Afriyie, P., & Okotey, L. (2000). "Macroeconomic and bank-specific determinants of non-performing loans in Greece: A comparative study of mortgage, business and consumer loan portfolios." *Journal of Banking & Finance* 36.4: 1012-1027.
4. Achou, N., & Tegnuh, Y. (2003). "The modeling of financial instability: An introduction." *Modelling and Simulation* 5, no. 1: 267-272.
5. Gizaw, M., Kebede, M., & Selvaraj, S. (2015). The impact of credit risk on profitability performance of commercial banks in Ethiopia. *African Journal of Business Management*, 9(2), 59.
6. Faruk, M. O., & Islam, M. S. An Analytical Review of Non-Performing Loan: Bangladesh and Global Perspectives.
7. Felix, N., & Claudine, G. (2005). Banking supervision and nonperforming loans: a cross-country analysis. *Journal of financial economic policy*, 1(4), 286-318.
8. Kaaya, A., & Pastory, T. (1993). The Processes Involved in Business Cycles. In *Business cycles: the problem and its setting* (pp. 1-60).
9. Ahmed, A. S., Takeda, C., & Thomas, S. (1999). Bank loan loss provisions: a reexamination of capital management, earnings management and signaling effects. *Journal of accounting and economics*, 28(1), 1-25.
10. Kolapo, T. F., Ayeni, R. K., & Oke, M. O. (2012). Credit risk and commercial banks' performance in nigeria: a panel model approach. *Australian journal of business and management research*, 2(2), 31.
11. Kaaya, I., & Pastory, D. (2013). Credit risk and commercial banks performance in Tanzania: A panel data analysis.
12. Hosna, A., Manzura, B., & Juanjuan, S. (2009). Credit risk management and profitability in commercial banks in Sweden. *rapport nr: Master Degree Project 2009: 36*.
13. Ahmad, N. H., & Ariff, M. (1997). Determinants of credit risk of commercial banks on emerging economy banking systems compared with the developed economies. *Contemporary economic policy*, 24(3), 418-431.
14. Hou, R., & Dickinson, Y. (2013). Nonperforming loans and macro financial vulnerabilities in advanced economies. *IMF Working Papers*, 1-27.
15. Heffernan, F. (1996). Public recapitalizations and bank risk: evidence from loan spreads and leverage. *Journal of Economic Theory*, 38(2), 211-232.
16. Kuo, S. H., & Enders, W. (2004). The term structure of Japanese interest rates:: The equilibrium spread with asymmetric dynamics. *Journal of the Japanese and International Economies*, 18(1), 84-98.
17. Hepser, A., & Vatansever, M. (2011). Using hierarchical clustering algorithms for turkish residential market.
18. Epure, M., & Lafuente, E. (2015). Monitoring bank performance in the presence of risk. *Journal of Productivity Analysis*, 44(3), 265-281.
19. Ntow-Gyamfi, M., & Boateng, S. (2013). Credit risk and loan default among Ghanaian banks: An exploratory study. *Management Science Letters*, 3(3), 753-762.
20. Kubai, D. K. (2016). The effects of non-performing loans on operational efficiency of commercial banks in kenya.
21. Chen, W., Pan, X., Willinger, M. G., Su, D. S., & Bao, X. (2006). Facile autoreduction of iron oxide/carbon nanotube encapsulates. *Journal of the American Chemical Society*, 128(10), 3136-3137.
22. Al-Khouri, R. (2006). Corporate governance and firms value in emerging markets: the case of Jordan. *Journal of Transnational Management*, 12(1), 25-49.
23. Kargi, S. A. (2011). Determinants of Foreign Direct Investment in Fast-Growing Economies: A Study of BRICS and MINT. *African Governance and Development Institute WP/14/002*.
24. Maddala, G. S., & Lahiri, K. (1992). *Introduction to econometrics* (Vol. 2). New York: Macmillan.
25. Paul, S., & Bhattacharya, R. N. (2004). Causality between energy consumption and economic growth in India: a note on conflicting results. *Energy economics*, 26(6), 977-983.
26. Shin, Y., Yu, B., & Greenwood-Nimmo, M. (2004). Modelling asymmetric cointegration and dynamic multipliers in a nonlinear ARDL framework. In *Festschrift in Honor of Peter Schmidt* (pp. 281-314). Springer New York.

27. Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, 16(3), 289-326.
28. Jones, P. W. (2007). *World Bank financing of education: Lending, learning and development*. Routledge.
29. Moinescu, B. (2002). Credit Accelerator, CDS Rate and Long Term Yields: empirical evidences from the CEE economies. *Journal of Applied Quantitative Methods*, 7(3).
30. Naceur, S. B., & Ghazouani, S. (2007). Stock markets, banks, and economic growth: Empirical evidence from the MENA region. *Research in International Business and Finance*, 21(2), 297-315.
31. Afandi, A. (2005). Monetary policy transmission mechanism and structural breaks in Indonesia.