

Impact of Financial Crisis and Non-Performing Loans on Performance of Banks in UK

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Abstract: The present study was aimed to analyze the impact and causes of non-performing loans and financial crisis on the banking industry evidence from all listed bank of London stock exchange (UK) during the period of the 2001 to 2015. To measure the impact of non-performing loans as well as to check the impact of financial crisis on the banking sector of the UK banks performance, OLS model, Robust test, Hausman test, to check the Heteroscedasticity through Breusch-Pagan and Jarque-Bera test on pool regression model and multicollinearity utilized through the variables ROA, ROE, FC, NPL for the analysis of pre and post financial crisis and non-performing loans impact on the performance of the banking sector. The author also reviewed the research on the relationship between non-performing loans and financial crisis with the same test utilization. She argued that non-performing loans and financial crisis both are harmful for the banking industry but the financial crisis pre and post impact show the result clearly were badly affected most of the banks other than two or three and due to non-performing loans banks become privatized because of bad performance.

Key words: ROA (return on assets) • ROE (return on equity) • T-test • Robust • Hausman • NPL (non-performing loans) FC (financial crisis) OLS (ordinary least square)

INTRODUCTION

Banking section is one of the main instruments of the development of the economy of the country. Development tasks managed by banking industry established the step for the development of economy. Stability of the banking sector is too much important for the development of the country. The main functions of the banks to give loans use their surplus deposit which get from people those have extra money. Banks give loan and advance to various sector of the country such as agriculture, industry, personal and governments. On November 16 2015, the European commission central's banks and the international monetary funds issued a joint statement to review the economic assistance programmer "Reducing the excessive level of NPL (non-performing loans) remains the number one priority" for economic recovery in the country.

Their statement underscores that NPL plays central role in the financial crisis. The prominence of NPL in today's nothing new. On the contrary, NPL are a recurring

feature of economic and banking crisis. Our research is based on the UK banking sector. During 1694 in 17th century the bank of England was founded means in the 17th century the banking activities were started in UK total forty six banks which are listed in London stock exchange from these forty six take forty three banks and use fifteen banks as sample for the analysis of causes of the non-performing loans and financial crisis. UK banking sector is dominated by a few large banks, including the Lloyd group, Barclays, Royal bank of Scotland and HSBC. In term of market shares for all categories of business the market is clearly oligopolistic.

Islam *et al.* [1] investigated the non-performing loans its causes and consequences on Bangladesh banking sector and found that credit operations weakness had a reason for the less loan repayment and less people save their money in banks which is the main source of the new investment for that govt should follow rules and make policies for the reduction in NPL. Thus, given the unique features of banking sector and environment in which they operate and also rapid expansion of banking institutions

in UK. Different studies among researchers give inconsistent results which is also another motive to conduct this study. To this end the main motive of this study is to examine the cause's impact of non-performing loans and financial crisis in the UK. This commence the bank executive and management to managed identified variables efficiently and displayed these variables in understandable way that will improve the efficiency of the banks and quality of the loan and should reduce the causes of the NPL and crisis.

Statement of The Problem: Causes of financial crisis and non-performing loans increased from past few decades. Poor loan management will contribute to NPL and poor regulations and not followed the accounting rules led to the financial crisis. It is crucial for every bank to manage bad loan and crisis situation. Different countries are suffering from non-performing loans and financial crisis. In non-performing loans situation banks are not able to get profit out of loans if the loan is well managed it will increase the bank's profitability and sustainability in the future. However, if fail to do so it will be the major threat for the survival. NPLs are determined by different factors such as level of GDP, Inflation, Unemployment, Volume of deposit, Return on equity, Return on assets, capital adequacy, Total loan, Liquidity, Bank size, Excessive lending, Interest rate and Credit growth. These factors analyzed by the different researchers in different countries [2, 3]. Thus, there are several researches that are conducted at a global level to investigate the NPL and financial crisis impact and causes. Most of the studies were related to the developed countries Italy, Spain, USA, like UK. The operation of organized and modern financial institutions is the ultimate critical part for every country to ensure the development and enhancement of economic. In case financial sector of UK banking sector is dominated by the economy of the UK. So, it is important to investigate their assets and equity quality. Generally, the basic cause of this study is that, different studies were done in Western Europe and east African and other countries [1, 4] etc. Another motive of this study is financial crisis and banking industry for that [5] examined the financial crisis and banking funding behavior in euro area. Found that there is a strong relationship between financial crisis and bank funding. There is a stressed condition make a long term and short term fund.in financial crisis the financial markets face ultimately tensions. Show the significant relation between funding of bank, liquidity, debt retentions and financial crisis.

Objectives of the Study:

- To examine bank specific causes of the non-performing loans of UK banking industry.
- To examine the impact of 2007-2009 financial crisis in the UK banking sector (fifteen banks which are listed in the London stock exchange included).

Literature Review: By investigating the determinants of non-performing loan evidence from Southeastern European banking system. The Interesting area which are taken examine of Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldavia, Montenegro, Romania, Serbia and Slovenia comprised on the 69 banks of these countries aimed the author of this paper is to investigate The Enhancement of non-performing loans and Their impact on performance of the banking system by the use of GMM model (Generalized method of moments) evaluate for dynamic panel models and use sargan test for the Correlation between the variables. outcomes present that the non-performing loans are higher if the Economic enhancement level lowers the inflation and interest rate was higher also the credit hazard is influenced by bank-specific variables such as performance (ROA) solvency and banks size of Croatia [6, 7] also analyzed the Non-performing loans of PSU Banks area under the discussion is India for this purpose take. Variables used by the researcher are common intercept, year intercept, indicator of solvency, slope coefficient range of the data is annually from (1999-2000). Results on the base of these models were that the explanatory power was better in fixed-effect model than the Housemen Statistics. Gross NPA is the best measures than the Net NPA to check status of the loan portfolios overall results describe that the non-performing assert of the bank become efficient. [8]determinants of non-performing loans. Study conducted in US Banking sector. Purpose of investigation of this paper is to determine the factor that is responsible for non-performing loans in the bank. Outcomes of research recommend that US banks in term of precede loans should remember the real GDP per capita. By researching the determinants of non-performing loans in banking sector of Ghana Methodology ground on the regression model fixed effect model. Random effect Housman test data collected from the bank of Ghana for the analysis in view of the discoveries of the study the small bank of Ghana should kept in mind the bank specific factors and the large bank take precautions to both bank specific and macroeconomics factors when both type of bankers producing loans keeping in mind the end goal to

limit the level of NPLS [9, 10] also examined the Micro and macro determinants of non-performing loans. Sample data is consisting on Italy, Greece and Spain. Variable used for analysis are macro-economic variable (GDP GROWTH RATES, UNEMPLOYMENT RATE, REAL INTREST RATE) Specific variable (Return on asserts change in loans, loan based on person correlation matrix, Housman test. Data gathered for this purpose from the world development Indicator, Global development Finance, Bank scope database. Consequences of the research described that GDD GROWTH and return on assets of credit organization had a unfavorable effect on non-performing loans. [11] inquired the impact of microeconomic variables on the non-performing loans in the banking system sample of the data consists on the paper give attention to discover the relations of non-performing loans ratio and macroeconomic variables. Results of the regression analysis showed that the relationship among the GDP and NPL ratio positive which was against the globally conformation. By examine non-performing loans sensitivity to macro variables from Malaysian commercial banks. Variables under the analysis are GDP, (ending interest rate, consumer price Index, inflation, foreign direct investment outflow. By using regression model and GMM Result of the research revealed that lending rate and foreign direct investment outflow had favorable relation with NPL and become unfavorable after one year. It is proved that there is a sensitive (crucial) situation of the Malaysian banking system. [12] Impact of profitability on Quantum of non-performing loan Country under the consideration is Pakistan. Intrinsic review of the study of this paper is to determine the impact of non-performing loans on profitability of banking system. Methodology consists on descriptive analysis, fixed effect model, Housman test. Data collection period based on (2006 to 2012). Outcomes of the research showed that the state bank of Pakistan has discovered few causes which raise this problem. Include markup on markup, Theft in sum, wrong figuring techniques and different practices in ascertaining measure of NPL's. Profitability was divided into two parts one is market based calculation and other include firm based profitability calculations. Estimation of both model disclose the result that return on assert and return on equity unfavorably impact on non-performing loans. [13] examine the impact of non-performing loans on the bank lending behavior evidence from the Italian banking sector. Methodology is based on regression analysis. Data range for analysis is annually from (2007 to 2013). Conclusion of

the research showed that the credit crunch scope widely with the passage of time due to the 2007 crisis and also become visible change in the lending behavior of banks. [14] investigate A strategy for developing a market for non-performing loans in Italy. Methodology is based on the two steps (AQR) assert quality Review of the balance sheet assessment and the others an adverse stress test scenario are run in this paper. Outcomes of the result were significantly defined that the Italian bank balance sheet and carry new lending in the recovery was better if the disposition of loans issue solved on time.[15] investigate the non-performing loans in emerging economics of India. Variables which are under the determination include size, loan growth, operating expense ratio, GNP growth, ROA,CAR, ownership effects. Range of the data consists on annually from (2001-2014). Methodology based on the fixed effects and random effects panel regression analysis. Results of the research showed that non-performing assets is more in Indian banking system due sensitive zone include personal loans and real estate loans and also because of priority sector. [16] analysis the determinants of non-performing loans in emerging Europe. Area of the interest is Europe banking authority. Variables which under the consideration are real GDP, inflation, capitalized, ROA, ROE, Loan less, overhead, loan deposit, IRB, bank credit to the private sector as percent of GDP. Methodology consists on the fixed and random effect regression analysis model. Range of the data based on annually (2009-2011). Consequences of the research showed that the non-performing loans purely effected by domestic macroeconomic features which include periods of low growth and regression proved there is an opposite relation between GDP enhancement and non-performing loans on the other hand inflation also effect the non-performing loans unfavorable which capital adequacy liquidity, market concentration are the bank specific elements which are not prominently effect the level of non-performing loans but quality of the bank management system strongly influenced the level of NPL. [5] investigate the financial crisis and bank funding recent experience in the euro area. Variables which under the consideration are liquidity, capital, debt retention, bank funding. Methodologies which are used for the analysis is based regression, correlation analysis. Findings of the research showed that there is a strong relationship between financial crisis and bank funding. Through the session of financial crisis, the financial markets is in crucial condition provoke generally face unlimited tensions. [17] check the impact of the global financial

crisis on banking globalization. Area of the interest is European and OCED countries. Methodology based on the cross-sectional model for the regression analysis. Consequences of the research study showed that financial crisis less harmful globally. International banking system is general. But on the other hand, foreign banking system affected by the financial crisis. [18] investigate the impact of financial crisis on the stability banking sectors in the Czech Republic and Great Britain. Which are include in the consideration are interest spread, net interest margin, ratio of loans/deposit, after tax profit ROE,ROA, Ratio of bank capital/assets. Methodology is based on the correlation analysis. Consequence of the research showed that there are no changes in recent years in the CNB and stable in coming years may be. On the other hand UK has experienced changes in current years. Which were initiated by the financial crisis and UK was not stable during the financial crisis. All the indicators used in both countries showed the correlation relationship means if the one bank can change in this observed indicator this change will be shown on another observed indicator

Methodology: The source of data will use in this study to collect data are the World Bank IMF published financial statements of banks. Data range is from the period of (2001-2015) from UK banks websites Initially it was decided to cover all the banks which were privatized or effected by the non-performing loans and financial crisis which were occurred in 2007, but due to time constraint and inconvenience and difficulty to access all the banks then it was decided to take limited banks. Method for the sample is banks which were state-owned and later they were privatized and big banks which were listed in London stock exchange before crisis for the comparison of the performance of the banks. Data in percentage was taken of banks NPL as this thesis is limited to NPLs.

Sample: For the research and sample which banks taken are HSBC (hongkong and shanghai banking corporation limited) and LLOYD's, Barclays, Royal Bank of Scotland, Standard Chartered, Bank Of Muscat, VTB PJSC, Bank Of America Corporation, TurkiyeGarantiBankasi, TBC Bank JSC, Sberbank Bank Of Russia, Bank Pekao SA, Bankco Bilbao VizcayaAgentasia SA, Turkiye is Bankasi, JP Morgan bank.

Overall population base on the forty three banks and we have chooses fifteen banks out these forty three banks. Time constrained and non-availability of data is

the main cause of chosen short samples. Can't take all privatized and banks which were affected due to the financial crisis because they listed in stock exchange recently and their data is not sufficient enough to study the hypothesis.

Research Questions: The research work seeks to find answers of the following questions:

- Pre-and post-financial crisis impact significantly different or not on banks performance?
- Non-performing loans impact on banks performance?
- Which variables help to reduce the ratio of non-performing loans and financial crisis?
- Financial crisis has positive or negative impact on the performance of the banks?
- Do the non-performing loans stop the growth of banks?

Hypothesis: To test the hypothesis, we will take the percentage of the pre-andpost-financial crisis of fifteen banks. Test and compare both pre-andpost-financial crisis and discover whether the condition has improved or is it null?

Hypothesis Model: Hoa: ROE over the period (2001-2015) not significantly different.

H1a: ROE over the period (2001-2015) significantly different.

Hob: ROA over the period (2001-2015) not significantly different.

H1b: ROA over the period (2001-2015) significantly different.

Hoc: Financial crisis have no positive impact on ROE and ROA of banks before and after crisis.

H1c: Financial crisis have positive impact on ROE and ROA of banks before and after crisis.

Economic Model: This study will be utilized regression analysis to analyze the impact of financial crisis and non-performing loans on the performance of banks in UK. This economic model carrying equation having specification as under.

$$ROE=A+B1 \text{ (NON-PERFORMING LOAN)} +B2 \text{ (FINANCIAL CRICES)}$$

$$ROA=A+B1 \text{ (NON-PERFORMING LOAN)} +B2 \text{ (FINANCIAL CRICES)}$$

B1 to b2 are the co-efficient of variations for the model n is non-performing loans and f is financial crisis. These are the variables if the financial crisis and non-performing loans increase then the ROE of the banks will be decrease this will prove in analysis chapter like this for the ROA of the banks. Furtherdetail of the variables used in equation is as under:

Variables: The study includes the 1st variable (non-performing loans) (financial crisis) Measured by calculating two other variables (Return on Assets, Return on Equity).

Data Analysis: This chapter includes the results of different test which used on selected variables include panel data declaration assumptions of OLS linearity test hauseman test HetrocidasticityBreusch pagan test Jarquebera test multi-colinearity test serial correlation Persaran test robust test on ROA and ROE NPL and Financial crisis.

RESULTS AND DISCUSSION

Table 1 shows the pool regression model, fixed effect model and random effect model. To compare the fixed effect model and random effect model hauseman test is applied. It defines that which model is appropriate. The Chi2 value is 0.9042 which is greater than the 5%. So, we are unable to reject the null hypothesis and accept the alternate hypothesis. The random effect model is appropriate. The R-square value of the model is 0.0191% which represents that .0191% of dependent variable ROA

(return on assets) is explained by the independent variables which are FC (financial crisis) and NPL(non-performing loans). The F-statistics value of model is .9042 which is greater than the value .01% which means the model is not significant at 0.01%. The value of constant α is .1390111 which represent that if the there is no financial crisis and non-performing loans then the Return on assets will be equal to .139011 the value of significance of constant α is .191 which is significant at 0.1%.The coefficient of financial crisis is .0052639 which is insignificant at 0.1and negatively related. It defines that if the return on assets decreases then the banks financial crisis affected ratio increases. The coefficient of non-performing loans is -.3374337, which means if the NPL changes with 1 unit then the Return on assets will change by -.3374337 units, which is insignificance at 0.1% and negative related to return on assets. It means the banks have no enough internal generated funds.

Table 2 shows the pool regression model, fixed effect model and random effect model. To compare the fixed effect model and random effect model hauseman test is applied. It defines that which model is appropriate. The Chi2 value is 0.5005 which is greater than the 5%. So, we are unable to reject the null hypothesis and accept the alternate hypothesis. The random effect model is appropriate.The R-square value of the model is 0.0180% which represents that .0180% of dependent variable ROE (return on equity) is explained by the independent variables which are FC (financial crisis) and NPL (non-performing loans). The F-statistics value of model is .5005 which is greater than the value .01% which means the model is not significant at 0.01%.The value of constant α

Table 1: ROA Pre-financial crisis.

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Random-effects GLS regression	Number of obs	=	105
Group variable: Bankcode	Number of groups	=	15
R-sq: within = 0.0004	Obs per group: min =		7
between = 0.0604	avg =		7.0
overall = 0.0191	max =		7
	Wald chi2(2)	=	0.20
corr(u_i, X) = 0 (assumed)	Prob > chi2	=	0.9042

ROA	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
FC	.0052639	.0275514	0.19	0.848	-.0487358 .0592636
NPL	-.3374337	.8136673	-0.41	0.678	-1.932192 1.257325
_cons	.1390111	.1062565	1.31	0.191	-.0692477 .3472699
sigma_u	.35641331				
sigma_e	.32214404				
rho	.55037465	(fraction of variance due to u_i)			

which represents that .0590% of dependent variable ROA (return on assets) is explained by the independent variables which are FC (financial crisis) and NPL (non-performing loans). The F-statistics value of model is .6402 which is greater than the value .01% which means the model is not significant at 0.01%. The value of constant α is .0157877 which represent that if the there is no financial crisis and non-performing loans then the Return on assets will be equal to .0157877 the value of significance of constant α is .193 which is significant at 0.1%. The coefficient of financial crisis is 1.32e-08 which is insignificant at 0.1 and negatively related. It defines that as the return on assets decreases the banks more depends on the long-term financing. The coefficient of non-performing loans is .1188579, which means if the NPL changes with 1 unit then the Return on assets will change by .1188579 units, which is insignificance at 0.1% and negative related to return on assets. It means the banks have no enough internal generated funds.

Table 4 shows the pool regression model, fixed effect model and random effect model. To compare the fixed effect model and random effect model hausman test is applied. It defines that which model is appropriate. The Chi2 value is 0.0121 which is less than the 5%. So, we are unable to accept the null hypothesis and accept the alternate hypothesis. The random effect model is appropriate. The R-square value of the model is 0.0231% which represents that .0231% of dependent variable ROE (return on equity) is explained by the independent variables which are FC (financial crisis) and NPL (non-performing loans). The F-statistics value of model is .0121 which is greater than the value .01% which means the model is not significant at 0.01%. The value of constant α is .8570752 which represent that if the there is no financial crisis and non-performing loans then the Return on assets will be equal to .8570752 the value of significance of constant α is .273 which is insignificant at 0.1%. The coefficient of financial crisis is 1.15e-06 which is insignificant at 0.1 and negatively related. It defines that if the return on equity decreases the banks more depends on the long term financing. The coefficient of non-performing loans is -14.17079, which means if the NPL changes with 1 unit then the Return on assets will change by -14.17079 units, which is insignificance at 0.1% and negative related to return on equity.

CONCLUSIONS

In the trend of integration in the world, the economy, in general and banking system, in particular is facing

opportunities and challenge. Banks are the part of financial institutions that have the intermediary role between the borrower and lender. Banks accepts the deposits from the customers and channels this through lending behavior, either through direct loans or investment in capital market. During last few years the banking system of the UK failure increase due to financial crises and increases in the non-performing loans of the banks. Insolvency of the banks due to non-performing loans accrued and it is also harmful for overall economy of the country. Regulatory framework and supervisory adopted by different countries including UK for the better performance of the bank and also clarified the non-performing loans into their approach which include doubtful, substandard and loans. The purpose of this study was to see the impact of financial crises and non-performing of loans of bank in UK. Work of this project was based on secondary data and quantitative research approach appeared to answer the research question and to achieve the overall research objective. Data collected through the financial statement and balance sheets, London stock exchange website, World Bank website, research journals and journals published by banking industry of the UK or the state bank of UK. The data gathered on annually basis from 2001 to 2015 and analyzed through the software package STATA.

The study participants includes all the banks which are listed in London stock exchange and overall banks in the UK including all public private state owned bank that exist 2015/2016 fiscal year Financial crises influences overall banking performance, but some banks were effected badly which shows their profit in negative, due to this ROE and ROA ratio also effected and become in negative percentage which is the reason of low efficiency of banks profitability, banks including Royal bank of Scotland, Lloyds, TBC, VTB etc. RBS and Lloyds become privatized in 2015 due to consistently bad performance of the banks. Like all over world UK banking industry also badly effected due to 2007 to 2008 financial crises, non-performing loans also red signal for every country banking industry. Similarly it is also like as for UK banking industry and like other countries UK banking system cannot escape from them. In 2001 the non-performing loans ratio of the UK industry is 2.5% every year, it become high and 10 % in 2010 and in 2011 it become high level 4% and now in 2015 ratio of non-performing loan is 1.6% which become low with the passage of time. Non-performing loans affect the banking ROE and ROA that may lead to fewer profits for the UK banks because due to non-performing loans banks have difficulty collecting

interest and principle on their credits. The benefits of financial leverage decrease because of non-performing loans. Return on equity reduced when the banks enhance the debt burden at the high risk premium. Bank borrowing effects due to non-performing loans because in the NPL situation banks change the interest then ROE become lower. Findings shows that NPL have negative and significant effect on the ratio on equity due to this negative impact performance of banking industry also influenced. On the other hand return on assets and non-performing loans also showed negative relationship between them. Finally it is concluded that non-performing loans are harmful for the performance of banking industry in UK.

Financial crisis affects the banks performance for that we take fifteen banks for pre and post financial crisis from the forty three banks. For the analysis of pre and post financial crisis affect take two variables as dependent ROE (return on equity) and ROA (return on equity) for the performance and profitability analysis for the banks. Our overall results show that the financial crisis and non-performing loans has negative but insignificant impact on return on assets and return on equity because of mismanagement of credit risk use the wrong strategy for the non-performing loans and also mismanaged the stability of the financial position of banks during the crisis situation.

Recommendations: Based on the finding of the research the following recommendations were given:

- In order to come out of the crises, there needs to increase the customer demand followed by increase in output.
- Government in advance economies took away the debt burden away from the market on to themselves. Similarly it should do by UK government with different methods given below.
- Using scheme like TARP that bought the distressed the securities from banks, (like US)
- Allowing exemptions to government guarantees in the risk retention frame work.
- Stress testing and risk calculation should be imminent tool for the banking system to fight against financial crises and un certainty.
- Accounting rules for the treatment of balance sheet vehicles which hide extensive risk and potential losses before the crises. It will ensure that accounting rules do not increase financial crises
- Greater emphasis on good equity form of capital by the regulatory form of capital.

- Banking firms should design the liquidity regulation to reduce longer term asset liability maturity mismatch.
- Bankers should educate their customers regarding the consequences face by the customers in case of defaulting or not return their borrower amount.
- Banks should do UN biased appraisals and take information of different types their own date. The appraisal should be recoverably slow will be recover fastly.
- The bankers can collect the information from the customers both formal and informal ways. If it is not satisfied or proved defaulter in any loan than not sanction the bank loan.
- Business ethics are very necessary for every business, banks should also follow it.
- Rules and policies relating to the granting loans should be framing in documents.

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