

Does Excess Bank Liquidity Impact Non-Performing Loan? A Study on Bangladeshi Economy

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ABSTRACT

This study endeavored to find out the impact of excess bank liquidity on non-performing loan (NPL) by using both technical and empirical analysis. The paper found that explanatory variable (excess bank liquidity) has moderate influence on dependent variable (NPL), suggesting some other hypothetical and psychological aspects such as intention to fraud, immoral lending, lack of loan monitoring, capital injection and nepotism etc. which may affect the current economic and banking system in Bangladesh. The study conducts simple linear regression analysis where the beta coefficient of excess bank liquidity is -0.435 clearly indicates, the inverse movement of both the variables which supports the real banking system. Model equation supports an economical relation between excess bank liquidity and non-performing loan (NPL) because loan recovery is the meaning of reducing non-performing loan (NPL) amount and boosts up the bank liquidity of any bank again.

Keywords: Bank Liquidity, Bank Run, Inflation, Investment, OLS, Interest Rates, Loanable Funds.

1. INTRODUCTION

Bank liquidity is important to honor the immediate demand of depositors which has significance on the survival and sustainability of banks' existence. Thereby if the branches of banks do not meet current demand of depositors then news has spread out as liquidity crisis. Such news has been transmitted to the stakeholders more than the speed of air. People who are depositors in the banks which are suffering by insufficient liquid fund, will more worried about their deposited money. They become suddenly overreacting on this regard, creates panic to all over the banking system. Then most of the depositor rush to withdraw their deposited money which makes more critical situation for the banks to honor the huge amount of immediate withdrawal demand of depositors, followed by bank run. So unable to encounter the huge withdrawal demand from depositors by banks' liquid asset denoted as bank failure, result of bank panic and bank run.



Above chart reveals the process from bank panic to bank failure. So, enough bank liquidity is must to protect bank from failure and helps to survive in the long run.

On the other hand, a maxim mentions that "Excess of anything is very bad". Excess bank liquidity is not always good for any financial institutions. Realizing the maxim in a rational way, it is easy to infer that there is no excess if there have enough opportunities to invest the surplus liquid fund. Excess bank liquidity is the concept in an economy when financial institutions have cash surplus yet there have not enough opportunities for investment. Regarding this point, banks face

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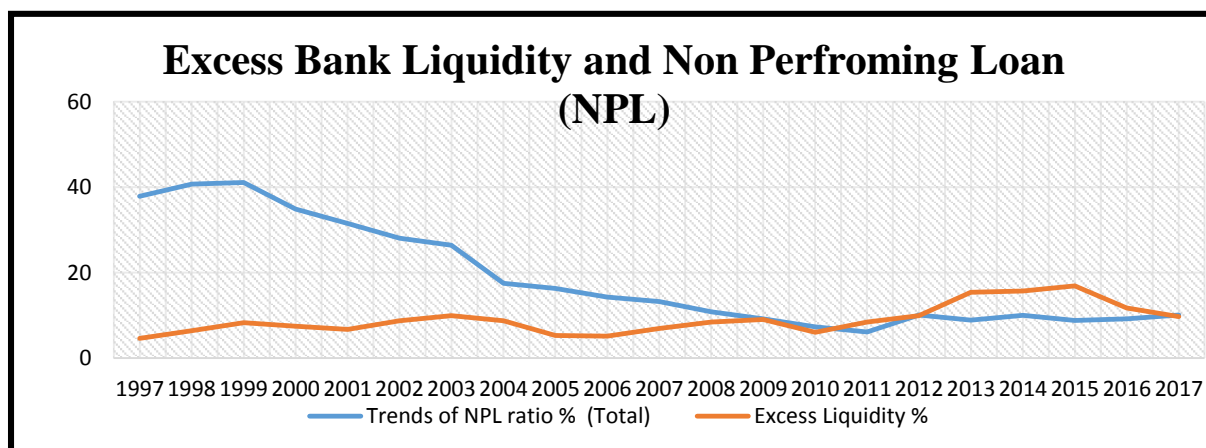
opportunity cost along with bearing the burden of paying interest for collecting fund from depositors. So, creating sustainable investment opportunity is the way out of suffering by excess bank liquidity problem.

Unlike developed countries banking sector is only the most emerging area in Bangladesh. Without proper, feasible, reliable and sustainable investment opportunities banks should not invest their surplus liquidity, fearing the huge credit risk and non-performing loan (NPL). However, they must consider interest expenditure against different types of deposit collection. Considering these issues, when banks have not enough feasible investment options for lending surplus liquid fund then it will accept vulnerable projects, charging higher interest rate to defend opportunity cost and meet other operating expenditures. However, most of the cases borrowers became default willingly by using political influence and affiliation, corollary is the gradual increase of non-performing loan (NPL) and lessening liquidity (cash) of banks. Rapid increasing of non-performing (NPL) over the years is like a disease from poison where defaulter follows the pioneer defaulters to know how to be a defaulter, creates moral hazard problem. Though everything is clarified although facing huge obstacles to get back loan amount hastily while Bangladesh Bank initiates different rescheduling steps to recover the bad loan and establish stability within the banking sectors. During 1997 to 2017, there had several scams taken place clearly an indication of endanger in banking sector of Bangladesh.

The availability of cash in the amount and at the time needed at a reasonable cost is called liquidity (Rose, 2005). Demand and supply of bank liquidity should be balanced, and it is the main task of the liquidity manager. Balancing liquidity helps banks to reduce maturity mismatch and quantity demanded for loan. Excess liquidity is the situation when demand for loans are much less than the funds accumulated from the depositors. Banking industry as well as whole economy feels a negative outcome from excess bank liquidity. The main cost of excess bank liquidity is opportunity cost because bank has to pay interest on deposits, not demanded by lenders, remains into the banks as idle money.

Non-performing loan (NPL) is the amount which is not yet paid to the lender though defined terms and conditions are indicated initially. Generally, default or close to default loans are defined as non-performing loan (NPL). A loan is non-performing when payments of interest and principal are past due by 90 days or more (Bangladesh Bank, field survey report: 2017). Following double line graph tries to identify the impact of excess bank liquidity on trends of non-performing loan (NPL) to total outstanding loans ratio.

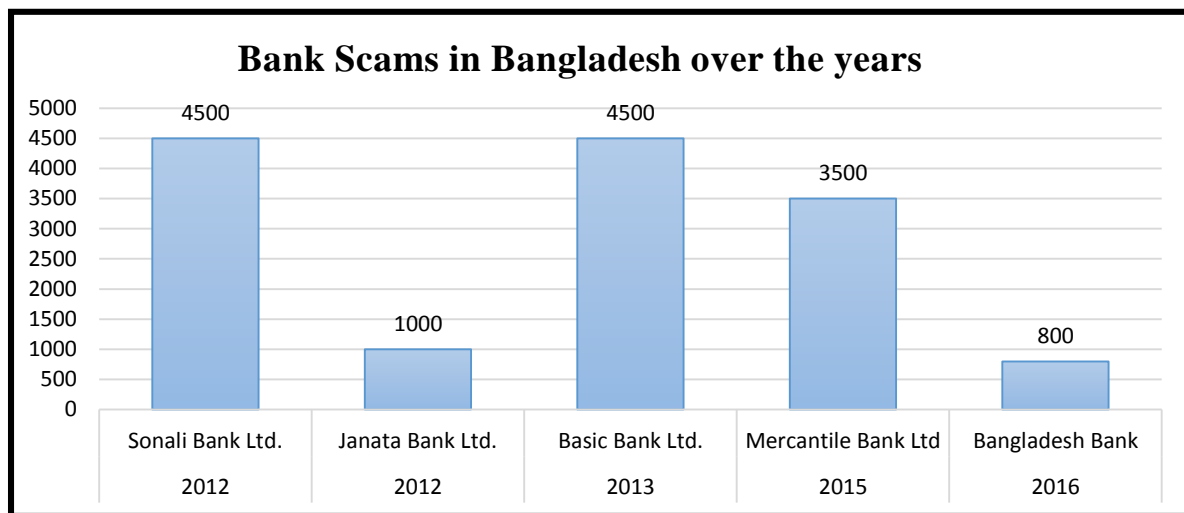
Graph 1 Excess Bank Liquidity (%) and Trends of NPL ratio (%)



Source: Bangladesh Bank, Banking performance indicators (Table-iii)

The graph compares the rate of non-performing loan (NPL) and excess bank liquidity in Bangladesh during 1997 to 2017. It can be clearly seen that initially during 1997 to 2000 the gap between excess bank liquidity and non-performing loan (NPL) was huge, after that point both the line graph becoming closer and reduced in between gaps but few fluctuations have been seen. The year when percentage of non-performing loan (NPL) exceeds the excess bank liquidity ratio means that the banks may be in liquidity crisis. Before 2009, both the line graphs-maintained gap, indicated banks were unable to compensate the bad debts by their excess liquid funds. In 2009 and mid of the 2011 the two lines intersect each other means excess bank liquidity compensate equally the non-performing loans (NPLs). After that during 2012 to 2016, both the line maintained slight gap but at last again interconnect with each other in the year 2017 where non-performing loan (NPL) amount was backed by excess bank liquidity tried to avoid liquidity crisis and executed law with proper action.

Graph 2 Bank Scams in Bangladesh over the years.



Source: Dhaka Tribune, August 05, 2018.

The graph shows amount of money seized from different banks in Bangladesh, known as bank scams in different years. As an overall trend in 2012 both Sonali Bank Ltd. and Janata Bank Ltd. scams constitute around Tk. 6,000 crore which created liquidity crisis in the overall banking sector and reduce public confidence on money market. If we observe bank scams in different years, then Govt. banks are the more vulnerable to be fraud by different ways. Following this consequence another government bank namely Basic Bank Ltd. faced corruption around Tk. 4500 crore in the year 2013. During 2012 to 2016, banking sectors in Bangladesh suffered by different scandals, which really hinder the growth of Bangladeshi economy. Bangladesh Bank, the regulatory body of banking industry in Bangladesh did not get rescue from international hacker, stolen around Tk. 800 crores, transferred to the Philippine banking system in 2016.

1.1 Objective of the Study

To pinpoint the impact of excess bank liquidity on non-performing loan (NPL), considering the banking scams in Bangladesh. Based on main objective, the study also tries to discover the cyclical relation between of excess bank liquidity and non-performing loan (NPL) also.

2. LITERATURE REVIEW

2.1. Bank Liquidity

The availability of cash in the amount and at the time needed at a reasonable cost is called liquidity (Rose, 2015). Excess bank liquidity in the banking sector of Bangladesh, has been increasing over the last few years, mainly due to a noticeably low level of demand for credits by the private sector. Other reasons behind the slow growth of credit are the rigid attitude in giving loans due to several scams occurred as well as mismatch between credit and deposit amount and maturity, (Unnayan Onneshan, 2014).

Excess liquidity was being signed by different indicators, (Chen, 2008) such as growth of money supply exceeds the sum of real gross domestic product (GDP) and consumer price index (CPI), ratios of money supply or credit to nominal GDP, M2 to nominal GDP ratios of countries, increasing difference between deposits and loans, relatively low Interbank lending rates, surging asset prices. To control the excess liquidity problem government should concern about some semi administrative tool 'window guidance' along with the traditional use of monetary policy.

According to Eljelly (2004) found that there is a tradeoff between liquidity and profitability, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies in Saudi Arabia. Correlation and regression results of this study also supports significant negative relation between the firm's profitability and its surplus liquidity level.

One of the best excess liquidity indicators is money growth over nominal gross domestic product (GDP) growth (Baks and Kramer, 1999; Ruffer and Stracca, 2006). According to this measure, china suffered a big excess bank liquidity problem only for supplying more money in the economy by People's Bank of China to maintain stability in consumer price index (CPI) and economic growth which influence to rise housing prices than consumption good prices, leads to greater inflationary bias indicated by higher money growth rate, and more excess liquidity.

Considering Botswana banking system, excess bank liquidity is a continual problem. Akinboade and Zachariah (1997) examined the short-term strategies to combat excess liquidity. They insight that current deposits are positively correlated with excess bank liquidity. To reduce the excess liquidity bank may introduce more demand deposits while there are limited opportunities for investment within the economy. If banks are not finding suitable local source for investment, they can make foreign investment and building up foreign assets.

Ganga and Ganga (2000) emphasized both the relaxation of structural regulation as well as strengthening of prudential regulations. They pinpoint to reduce the Existing excess liquidity in the banking system, financial liberalization is must which would lead to high rates of inflation, dollarization, deterioration of the balance of payment and exchange rate depreciation, reduced by managing domestic currency supply and level of interest rate. Furthermore, Warsh (2007) claimed that excess liquidity in the USA is driven by three important factors: financial innovation, strong economic performance and other countries' excess saving.

Another thing is that when the excess bank liquidity injects in the economy means people have more money in hand to spend. So, the consequence is high inflation but instable productivity. It also weakens the value of domestic currency comparing to international currencies. Ponte and Murta, (2013), studied with using correlation and regression, found significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio. This relationship is more evident in firms with high current ratios and longer cash conversion cycles. Excess reserves may hold for a low short-term interest rate or call rate and defense against banks' fragile financial health. The nearly zero call rate substantially increased the demand for reserves and the high bad loans ratio also contributed to the observed increase in reserve holdings. According to Ogawa (2006), infers raising the call rate to its level prior to the zero-interest-rate

policy and by decreasing the bad loans ratio by 50% excess reserve holdings may be reduced by two-thirds.

To reduce excess bank liquidity financial liberalization and financial stability are effective measure which have been offset by an increase in the number of violent political incidents arising from conflict between radical Islamic groups and the Egyptian state (Fielding and Shortland, 2005).

According to Neto (2003) the greater the amount of funds invested in current assets, the lower the profitability, by the same time the less risky is the working capital strategy. Again, it is shown that excess bank liquidity affects the effectiveness of monetary policy. Along with the economic development, the persistency of excess bank liquidity often creates problems for the central bank and for the economy also. It can reduce the effectiveness of monetary policy transmission mechanism, especially in affecting demand side to reach the targeted inflation (Bathaluddin, Adhi and A.W., 2012).

2.2 Non-Performing Loan

Karim, Chan and Hassan (2010) investigated the relationship between non-performing loans (NPLs) and bank efficiency in Malaysia and Singapore. To achieve the objective, cost efficiency was estimated using the stochastic cost frontier approach assuming normal-gamma efficiency distribution model proposed by Greene (1990), regression results clearly indicate that higher non-performing loan reduces cost efficiency. Likewise, lower cost efficiency increases non-performing loans (NPLs) In addition, the results also support the hypothesis of bad management proposed by Berger and Young (1997) which suggested that poor management in the banking institutions results in bad quality loans, escalates the level of non-performing loans.

Generally non-performing loans (NPLs) means loan that is in default or close to being default (Bangladesh Bank: 2017). According to IMF definition "A loan is non-performing when payments of interest and principal are past due by 90 days or more, or at least 90 days of interest payments have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue".

Akter and Roy (2017) conducted study to analyze the impact of non-performing loan (NPL) on profitability. Their paper attempts to find out the time series scenario of non-performing loans (NPLs), its growth, provisions and relation with banks profitability by using some ratios and a linear regression model of econometric technique. The empirical results represent that non-performing loan (NPL) as percentage of total loans on listed banks in Dhaka Stock Exchange (DSE) is very high and they hold more than 50 % of total non-performing loans (NPLs) of the listed 30 banks in Dhaka Stock Exchange (DSE) for year 2008 to 2013.

Gradual increase in non-performing loan (NPL) in the banking system is a great threat for economy of Bangladesh because huge people continue their job in this sector. Moreover, youth generation is setting up their aim to be banker. In a broader sense banking sector collapse means creating big problem for our economy as well as for society. Rising non-performing loan (NPL) amount has a severe impact in the long run as it decreases the profitability and capital adequacy ratio of the banks, decrease in loanable funds, enhance the insolvency of banks leading to bank failure (Bangladesh Bank, 2017).

Industrial advancement had been facing great barrier in Bangladesh since mid-80s due to flawed industrial exchange rate and tariff policies front rank persistent industrial loan default problems (Hoque, 2003). It was mentioned that public policies guided by the government were full of inconsistencies which created huge bottlenecks against successful operation of industrial firms and timely repayment of loans.

Different developed or underdeveloped countries had experienced non-performing loan (NPLs) over the decades. According to (Rottke and Gentgen, 2008) German banking sector has been facing high real estate loan default rates resulting in the accumulation of a high volume of troubled real estate debt in the banks' balance sheets. German banks took proactive initiatives to solve the problem. They gave importance both the integrative approach (loan workout in own workout departments) and disintegrative approach (outsource the workout to a third-party servicer or even sell their bad loan exposure to an external investor).

In Southeast Asia, sound banking system is more important because most of the financing is from banking sector and huge people work in this sector. Asian financial crisis in 1997, where regulatory authorities tried most to discover the effective reform of their banking system. To reduce the non-performing loan (NPL) ratios in Thailand and Malaysia, improvements in macroeconomic conditions and facilities for purchasing loans were effective initiatives (Inoguchi, 2016).

To controlling non-performing loans (NPL), bank lending activities is a major concern for both international and local regulators ((Boudriga, Boulila Taktak and Jellouli, 2009). Their paper also suggested enhancing the legal system, strengthening institutions and increasing transparency and democracy, rather than focusing only on regulatory and supervisory issues were more practical solution than theoretical.

2.3 Relationship between Liquidity and NPL

Having enough liquidity is positive sign for banks but excess liquidity can create different problems as it drags down the profitability of banks and stipulate to increase bad assets. Excess liquidity impact banks' profitability in a negative fashion (Begum, 2007) while the banks lend their excess liquid funds attaching flexible terms and condition to avoid the opportunity cost of the funds. But the reality is different that most of the cases loans had been defaulted by the borrower treated as non-performing loan (NPL). So, the banks were not realizing the interest income even they have lost their principal amount too.

Prudential liquidity management helps the bank to decide its liquidity requisite and confirms its ability to meet up the depositors' demand or its financial obligations, thereby maximizing its value (Olagunju, David and Samuel, 2011). A Non-performing loan (NPL) is a loan that is in default or close to being in default. Muniappan (2002) argued that a bank with high level of non-performing loan (NPLs) is forced to incur carrying costs on non-income yielding assets that not only strike at profitability but also at the capital adequacy of a bank, in consequence, the bank faces difficulties in augmenting capital resources. Adhikary (2014) focused on nonperforming loans (NPL) in the Banking Sector of Bangladesh and pinpoints the presence of an alarming amount of non-performing loan (NPLs) both in the Nationalized Commercial Banks (NCBs) and in the Development Financial Institutions (DFIs), along with maintenance of inadequate loan loss provisions, diminishes the overall credit quality of Bangladesh.

Louzis, Vouldis and Metaxas, (2012) utilized dynamic panel data methods to examine the determinants of non-performing loans (NPLs) in the Greek banking sector, separately for each loan category (consumer loans, business loans and mortgages). The study is motivated by the hypothesis that both macroeconomic and bank-specific variables influence loan quality and these effects vary between different loan categories. The results show that differences in the quantitative impact of macroeconomic factors among loan categories are elucidated, besides that non-performing mortgages being the least responsive to changes in the macroeconomic conditions. Likewise, excess bank liquidity in the banking system is not very uncommon phenomena. Excess liquidity is the situation when deposits grow rapidly but slow demand for credit. Extremely caution in lending may be a reason for awkward liquidity surplus. To reduce

excess liquidity pressure, Governor of the reserve compelled to exhort banks to flexible their operations and provide legitimate loan to the vital sectors ((political weekly, 1982).

Increasing non-performing loan (NPL) amount in the economy is responsible for liquidity crisis when there has the existence of moral hazard problem. According to (Umar and Sun, 2016) total liquidity creation by Chinese banks has followed downward trend and non-performing loan (NPLs) ratio has started to increase during 2005 to 2012. They did their research by using data from 197 listed and unlisted Chinese banks during 2005 to 2014.

3. METHODOLOGY OF RESEARCH STUDY

This study is mainly explanatory and quantitative research, conducted to notify the impact of excess bank liquidity on nonperforming loans (NPLs). Only two variables are determined to carry out the research namely excess bank liquidity and non-performing loan (NPL) treated as independent variable and dependent variable respectively. This research tries to get any alike interpretation by conducting both technical and regression analysis.

This study is primarily based on information extracted from secondary sources. The main source of data is to be collected from the annual report of the central bank of Bangladesh to carry out the research. Data of excess bank liquidity and nonperforming loan is amassed during 1997 to 2018 in this research paper. Generally, Bangladesh bank provides a regular basis financial report where they mostly emphasize both variables. Additionally, various newspapers, journals, magazines, books and conference papers are also used for data collection. In this study ordinary least squares (OLS) simple linear regression is used to demonstrate the impact of excess bank liquidity on non-performing loan (NPL). Simple linear regression is led with the help of SPSS version 20 and presented through tables and descriptive discussions.

4. RESULTS AND DISCUSSIONS

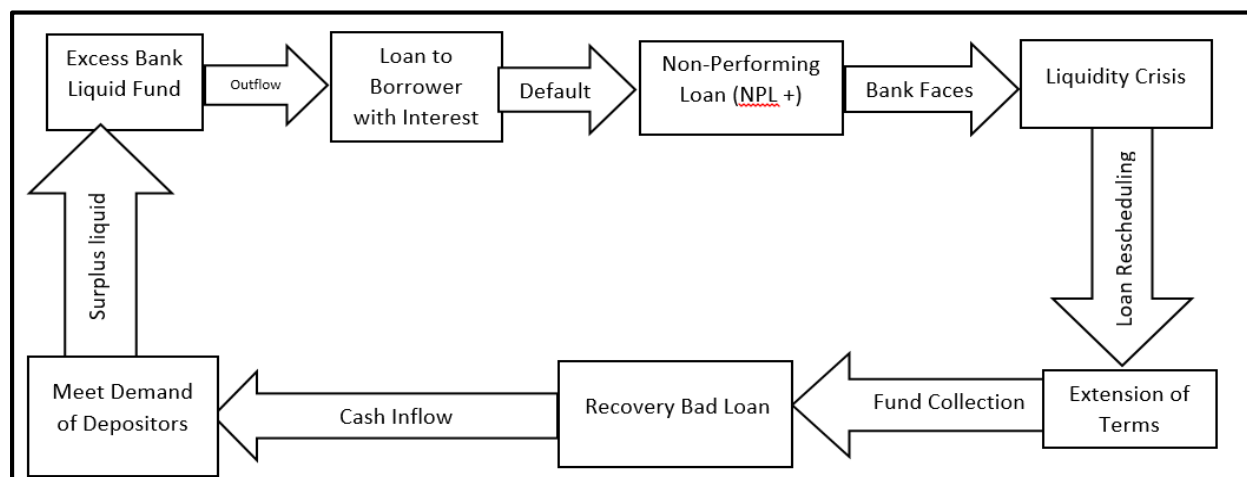
The main purpose of this research is to identify the impact of excess bank liquidity on non-performing loan. To achieve this purpose data is to be collected during 2007 to 2017 for both mentioned variables. To conduct this empirical analysis linear regression is to be done.

$$Y = \alpha + \beta x + e$$

$$Y = 32.532 + (-0.435)X + 0.730$$

Here Y represents non-performing loan, X represents excess bank liquidity and e represents standard error. The model clearly complies with the actual economic scenario in the money market. If there has no impact of excess bank liquidity on non-performing loan (NPL) then Tk. 32.532 crore would remain as non-performing loan (NPL) from the total outstanding loan in the banking sector of Bangladesh, may be explained by other influential variables such as loopholes of regulations, political influence, absence of law exercising, bribery, lack of integrity etc. The beta coefficient of excess bank liquidity is -0.435, clearly embodies that if one unit increase in excess bank liquidity will reduce 0.435 unit of non-performing loan (NPL). This model complies the real economic scenario in banking sector of Bangladesh because if collection of non-performing loan (NPL) is adding with existing liquid fund of a bank, enhance the bank liquidity. On the other hand, if the borrower unable to pay the borrowed amount as per the repayment schedule, debase the internal liquidity of any bank and creates liquidity crisis.

Chart-1 Cycle of excess bank liquid fund and non-performing loan (NPL)



Source: Author's own study.

4.1 Coefficient of Correlation (r)

Here coefficient of correlation is (43.5%), indicates there is below moderate correlation in between the excess bank liquidity and non-performing loans (NPL). That means increasing of bank liquid funds tends to accept more loan request with little scrutiny and investigations. Aftermath disbursed loan will not be paid by borrower within stipulated time frame, enhance non-performing loan in the economy.

4.2 Coefficient of Determination (r²)

The statistical model produces coefficient of determination $r^2 = 18.9\%$ which represents 18.9% increase of bank liquid fund will tend to debase 18.9% percentage of nonperforming loan (NPL) from the economy. That means most of the data are not lie on regression line. If most of the data are lie on regression line, then more variation in non-performing loan would be explained by the explanatory variable.

4.3 Hypothesis Test

Here, $H_0: \beta_1 = 0$; (no linear relationship between X and Y)

$H_1: \beta_1 \neq 0$; (linear relationship between X and Y)

Here level of significance is 5%. Degrees of freedom for the Numerator and denominator are respectively 1 and 19. As the F-calculated, value is 4.433, which is greater than the F-table value. So, we can reject the null hypothesis. That means there is linear relationship between dependent and independent variables and the model is significant. Also, the significance value is 4.9% which is below than 5%, so the null hypothesis is rejected but closed to accepted, clearly indicates that excess bank liquidity along cannot explain the reason of huge amount of non-performing loan (NPL). Some other strong variables have strong influence for increasing non-performing loan (NPL).

4.4 Adjusted R²

The adjusted R² is very low in this study around 14.6%. As per the definition, adjusted R² reduces the problem of R². Because R² generally increases as more variables are added in the regression model while adjusted R² increases adding with more relevant and useful variables. If R² is

increasing with adding more explanatory variables in a regression model simultaneously adjusted R^2 decreases that means adding new variables are not useful to fit the regression model. So only excess bank liquidity cannot be the ultimate explanatory variable to explain the variation in non-performing loans (NPLs). Low adjusted R^2 indicates that there have some other important and relevant variables are ignored for identifying the reasons of increasing non-performing loans (NPLs) over the years in Bangladesh.

4.5 Collinearity Statistics

Here variance inflation factor is below than 5%, explains that there is no collinearity problem. Theoretically it is also true that using less independent variable in a model tends to free from collinearity problem.

5. KEY FINDINGS AND DISCUSSION OF THIS STUDY

The study tries to reflect the impact of excess bank liquidity on non-performing loan through trend analysis and empirical analysis. Trend analysis is expressed by line graph which defines that a very little simultaneous relation exists in between excess bank liquidity and non-performing loans (NPLs) during 1997-2017. But econometric analysis narrates more specific about the relationship between two variables. The econometric study complies with real economy theory and existing scenario in our country. Dissolving the excess bank liquid fund in to the non-performing loan ((NPLs) is result of a chain effect. If people have more money to save, then they try to deposit their fund in to the bank at certain percentage of interest rate. The depositors' money is the liability for banks, trying to invest to the investors in excess of deposit interest rate to create positive spread. But this mechanism supports great economic theory that is demand and supply of loanable fund. If there has least demand from the borrower side, then paying deposit interest to the depositors is great cost for bank without any return thus reduce the profitability. To reduce the opportunity cost or loss and continue the banking operation, bank wants to disburse loan higher than the deposit collection rate without proper documentations and investigations. In this case bank does not gain profit. They just create a deed of borrowing and lending. The actual outcome of the banks is disbursing loan converted in to non-performing loan only for lacking proper scrutiny. So ultimately bank faces loss or negative profitability.

So, investment opportunity creation would be the greatest option to reconcile this problem. Again, loan recovery enhances the bank liquidity because at this stage non-performing loan (NPL) turns in to performing loan and cash is added with existing liquidity into the bank. The study explains that relationship between excess bank liquidity and non-performing loan is negatively related that supports the real economic scenario. Very low significant impact of excess bank liquidity on non-performing loan (NPL) is identified in this study. Because not only excess bank liquidity but also lots of other factors have impact on non-performing loan (NPL). So multiple regression will give more standard result. Again F-test supports the real economic system that means there is linear relationship between excess bank liquidity and non-performing loan (NPL) and a negative sign defines, increase in excess bank liquidity decrease the non-performing loan (NPL) treated as bad loan recovery.

5.1 Economic Implications of This Research Study

Banking scam is a regular phenomenon in our country. In 2016, Bangladesh Bank, the central bank of Bangladesh scam also affected by this issue. It is clearly notified that each scam has a significant negative impact on economy creates income inequality and changing life style of corrupted persons. Because of corruption, inequality in wealth has clearly seen that money concentrated within few persons pocket, consequence would be higher inflation. Loan purpose diversification is the main reason to commit frauds in the banking sector of Bangladesh. Generally

corrupted persons pass black money to foreign banks by using different fake account. On the other hand, the corrupted money once circulated in regular economy for purchasing commodities and services, leads towards the increment of the products price. Because of passing all the illegal money to the abroad that's why it is treated as effortless wealth creation, not used for investment purposes, will not proliferate the supply of the product or added with gross domestic product (GDP). Generally corrupted money creates more demand in the market without production which will forms the inflationary pressure in the economy. A valuable view is clear now that because of loan diversification and corruption in the banking sector, increasing the non-performing loan (NPL) amount over the years in Bangladesh, cannot create scope for desired employment by enhancing new investments and industries. On the other hand, people are reluctant to invest in stock market because of its inefficiency over the decades.

When bank has huge liquid funds to invest then they have interest to accept loan application from different people without proper scrutiny for reducing severe pressure to pay interest on depositor's savings. In this regard bank did not concern about proper security or collateral for accepting application from the borrowers rather they wanted to augment their positive spread by giving loan to the risky sectors at higher lending rate.

Lack of investment creates unemployment over the years simultaneously bank has excess liquidity to accept loan requests. Bank must have to pay certain rate of interest to the depositors against deposit collection, but deposited amount should be invested to prime investors for generating profit. Simply bank profit defined as loan interest rate minus deposit rate, called positive spread. If the bank has not suitable opportunities to invest liquid funds, the spread will sharply reduce may have chance to turn in to negative. In this consequence bank accept the loan application from potential borrowers as well as bad borrowers, assigning higher lending rate expecting to augment the positive spread of banks. But later repayment from bad borrower will unusual that come effect as non-performing loan (NPL). Behavioral or intention to exercise authoritative power to get illegal benefit is another reason for being willingly defaulter, proliferating non-performing loan (NPL) gradually.

6. CONCLUSION

Banking sector is probably the emerging sector in Bangladesh. Most of the projects, both of public and private sectors, are funded by this sector. But to draw the efficiency of this sector deposit collection and loan disbursement are the two major issues, creates the positive spread, treated as profit. But interruption in getting payment from disbursed loan, increases the default chance of the borrower consequence would be reducing spread and deteriorating efficiency and finally the loan would be treated as non-performing loan (NPL). As The purpose of this report is to identify the impact of excess liquidity on non-performing loan. However, non-performing loan is depending on not only excess bank liquidity but also numerous factors like interest rate, inflation rate and GDP growth, political stability and foreign motives also. That's why statistical model is not fit at expected level and the value of adjusted R^2 . Here linear regression and trend analysis has been conducted. Both the analysis supports the actual cycle in between excess bank liquidity and non-performing loan (NPL). Also, econometric model specifies the moderate relation between excess bank liquidity and non-performing loan (NPL) which supports the real economic model that disbursement cash for loan will reduce excess bank liquidity contrarily collection of the loan amount will increase the liquid fund of the banks and reduce the non-performing loan (NPL) or bad loan.

REFERENCES

- Akinboade, O., & Zachariah, F. (2019). Excess liquidity in the Botswana banking system and short-term strategies for controlling it. *Giordano Dell-Amore Foundation*, (1/2), 126. Retrieved from <http://www.jstor.org/stable/23026383>
- Akter, R., & Roy, J. (2017). The Impacts of Non-Performing Loan on Profitability: An Empirical Study on Banking Sector of Dhaka Stock Exchange. *International Journal of Economics and Finance*, 9(3), 126.
- Ben Saada, M. (2018). The impact of control quality on the non-performing loans of Tunisian listed banks. *Managerial Auditing Journal*, 33(1), 6,7.
- Bindseil, U., Weller, B., & Wuertz, F. (2003). Central Bank and Commercial Banksâ€™ Liquidity Management â€“ What is the Relationship? *Banca Monte Dei Paschi Di Siena Spa*, 32(1-2003), 46. Retrieved from <https://scihub.tw/https://onlinelibrary.wiley.com/doi/abs/10.1046/j.0391-5026.2003.00102.x>
- Boudriga, A., Boulila Taktak, N., & Jellouli, S. (2009). Banking supervision and nonperforming loans: a cross-country analysis. *Journal of Financial Economic Policy*, 1(4), 294-298. doi: 10.1108/17576380911050043
- Earley, J. (1981). What caused worldwide inflation: Excess liquidity, excessive credit, or both? *Weltwirtschaftliches Archiv*, 117(2), 231,234.
- Ganga, G., & Ganga, G. (2000). Credit, excess liquidity and monetary policy issues in Guyana. *Sir Arthur Lewis Institute of Social and Economic Studies, University of The Westindies*, 49(2/3, Special Monetary Studies Issue), 210-215. Retrieved from <http://www.jstor.org/stable/27865200>
- Global economy, world economy | TheGlobalEconomy.com. (2007). Retrieved from <https://www.theglobaleconomy.com/>
- Guo, S., & Li, C. (2011). Excess Liquidity, Housing Price Booms and Policy Challenges in China. *China & World Economy*, 19(6), 79-80.
- Gurley, J. (1953). Excess liquidity and european monetary reforms, 1944-1952. *American Economic Association*, 43(No. 1 (Mar.1953), 81. Retrieved from <http://www.jstor.org/stable/1810291>
- Hamdi, H., Hakimi, A., & Zaghdoudi, K. (2017). Diversification, bank performance and risk: have Tunisian banks adopted the new business model? *Financial Innovation*, 3(1).
- Inoguchi, M. (2016). Nonperforming Loans and Purchase of Loans by Public Asset Management Companies in Malaysia and Thailand. *Pacific Economic Review*, 21(5), 623-24, 631.
- Kent, R. (1981). An Analysis of Countercyclical Policies of the FHLBB. *The Journal of Finance*, 36(1), 61.
- Khemraj, T. (2009). What does excess bank liquidity say about the loan market in Less Developed Countries? *Oxford Economic Papers*, 62(1), 90,104.
- Lee, S. (2002). Financial Restructuring in Korea and Japan: Resolution of Non-Performing Loans and Reorganization of Financial Institutions. *Journal of East Asian Studies*, 2(2), 152-155.
- Liu, X., & Wray, L. (2010). Excessive Liquidity and Bank Lending in China. *International Journal of Political Economy*, 39(3), 57-58.
- Louzis, D., Vouldis, A., & Metaxas, V. (2012). 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.
- Shih, V. (2004). Dealing with Non-Performing Loans: Political Constraints and Financial Policies in China. *The China Quarterly*, 180, 922-944.
- Singgih, M., Syairudin, B., & Suhariyanto, T. (2014). Designing Citizen Business Loan Model to Reduce Non-Performing Loan: An Agent-based Modeling and Simulation Approach in Regional Development. *Asia Pacific Management and Business Application*, 2(3), 149-150.
- Umar, M., & Sun, G. (2016). Non-performing loans (NPLs), liquidity creation, and moral hazard: Case of Chinese banks. *China Finance and Economic Review*, 4(1).

Ziaul Hoque, M. (2003). Flawed public policies and industrial loan defaults: the case of Bangladesh. *Managerial Finance*, 29(2/3), 98-121.

Zaini Abd Karim, M., Chan, S., & Hassan, S. (2010). Bank Efficiency and Non-Performing Loans: Evidence from Malaysia and Singapore. *Prague Economic Papers*, 19(2), 128-129.

APPENDIX

Table 1

ANOVA^a

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|--------------|----------------|----|-------------|-------|-------------------|
| 1 Regression | 555.081 | 1 | 555.081 | 4.433 | .049 ^b |
| Residual | 2379.344 | 19 | 125.229 | | |
| Total | 2934.426 | 20 | | | |

a. Dependent Variable: Non-performing Loan (%)

b. Predictors: (Constant), Excess Bank Liquidity (%)

Table m2

Coefficients^a

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | 95.0% Confidence Interval for B | | Correlations | | | Collinearity Statistics | | |
|-------|------------|-----------------------------|------------|---------------------------|--------|------|---------------------------------|-------------|--------------|---------|-------|-------------------------|-------|--|
| | | B | Std. Error | Beta | | | Lower Bound | Upper Bound | Zero-order | Partial | Part | Tolerance | VIF | |
| 1 | (Constant) | 32.532 | 7.016 | | 4.637 | .000 | 17.849 | 47.216 | | | | | | |
| | Excess | -1.537 | .730 | -.435 | -2.105 | .049 | -3.065 | -.009 | -.435 | -.435 | -.435 | 1.000 | 1.000 | |

a. Dependent Variable: Non

Table 3

Model Summary^b

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|-------------------|----------|-----|-----|---------------|---------------|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .435 ^a | .189 | .146 | 11.19056 | .189 | 4.433 | 1 | 19 | .049 | .206 |

a. Predictors: (Constant), Excess

b. Dependent Variable: Non