



INTERNATIONAL SCHOOL
OF ECONOMICS KAZGUU

International School of Economics

Iskakova Kamila

Ondassynova Tomiris

Seidualiyev Dilmurat

Temirov Alisher

Evaluation of bank lending practices and credit management in Kazakhstan.

Thesis submitted for
the degree of Bachelor in
6B04104 Finance

Supervisor: Arman Yelesh

Nur-Sultan 2022

Abstract

Back in 1987, the banking system of Kazakhstan had two banks. Kazakhstan's banking system has been developing since independence and has achieved incredible results. Thus, Kazakhstan occupies a leading position in the field of financial technologies developed by banks that are part of the banking system. In this article we evaluate the banking system of Kazakhstan, namely the practice of bank lending and credit management. We tested hypotheses to evaluate the system of bank lending. To do this, we resorted to quantitative, qualitative and empirical methods. In this study, we found out the main reason for the differences in the lending system, the factors of the lending system that determine profitability and efficiency; which segment of lending brings the greatest profit; the relationship of banking indicators such as NPL with net profit, loan portfolio and return on assets, and finally, the relationship of the introduction of prudential standards by the National Bank for the entire banking system of Kazakhstan.

Table of contents

1. Introduction	5
1.1. Research questions	6
1.2. Significance of the study	6
1.3. Specific Objectives.....	6
1.4. Hypotheses.....	7
2. Literature review	7
2.1. Background.....	7
2.2. Regulation of the banking system of Kazakhstan.....	8
2.3. Regulation of the banking system of different countries.....	11
3. Statistics	12
3.1. Market share	12
3.2. Assets, credit portfolio and non-performing loans	13
4. Methods & Data	16
4.1. Loan rate and terms comparison.....	16
4.2. Correlation.....	17
4.3. Multiple Linear Regression Model.....	19
5. Methodology	20
6. Analysis, findings, and results	21
6.1. Hypothesis 1.....	21
6.2. Hypothesis 2.	25
6.3. Hypothesis 3.	26
6.4. Hypothesis 4.	28
6.5. Hypothesis 5.	30
7. Conclusion	31
Bibliography.....	33
Appendix	35

List of Abbreviations

STB – second-tier banks

NBRK – National Bank of the Republic of Kazakhstan

NPL – non-performing loans

ROE – return on equity

ROA – return on assets

AQR – Asset Quality Review

RSS - Residual Sum of Squares

RSE – Residual Standard Error

JSC – Join-Stock Company

TFV – Total Finance Value

TPV – Total Payments Value

GMV – Gross Merchandise Value

RTPV – Revenue Generating TPV

1. Introduction

Kazakhstan's banking industry has been growing successfully in many areas for many years, approaching the level of development of Eastern European banking systems, which have now formed part of the European and Global Banking systems. According to the Kazakhstani Monetary Policy, there is a two-level system, where the first level is regulatory institutions represented by the National Bank of the Republic of Kazakhstan and the Agency, and the second is commercial banks (second-tier banks).

In the beginning of 90th in Kazakhstan were more than 200 second-tier banks, and the main goal of National Bank was improvement current situation for that time. Kazakhstani banking system has been reformed and commercial banks have accepted international standards. Followed by that, STB required to meet international criteria in terms of capital adequacy, liquidity, asset quality, management level, accounting, and information introduction and transfer (Myrzakhmetova & Nurabaeva, 2016). All indicators depend on high-quality credit portfolio created by lending practices and affected by credit management of the bank.

The main indicators of lending practice effectiveness are profitability and quality of assets, which consist of liquid assets, securities, and different types of loans. A major element influencing bank profitability is non-performing loans (NPL), which have a strong pressure on the balance sheet of the bank and may exacerbate the problem with the loose lending environment (Klein, 2013).

With regards to the effective credit management, it is capacity to manage customer credit limits wisely and efficiently. Companies must have deeper knowledge into consumer financial strength, credit score history, and changing payment patterns to avoid exposure to bad debt, over-reserving, and bankruptcies (Moti et al., 2012).

Bank lending practices and credit management are crucial factors in the economy which affect financial stability and economic adjustment operations in the country (Allen & Wood, 2006).

Followed by this, our research is based on analyzing of STB data, building regression models to establish relationship between variables and their impact on profitability of the bank, and identifying the efficiency of the banking system in Kazakhstan.

1.1. Research questions

- 1) What are the reasons of different lending practices among commercial banks in Kazakhstan?
- 2) How retail lending, individual and corporate lending practices operates in Kazakhstani second-tier banks?
- 3) To what extent exists relationship between ROA, NPLs, liquidity, risk exposure and financial ratios, and how they affect profitability?
- 4) To what extent does commercial banks of Kazakhstan follow the principle of lending and policies (prudential standards)?

1.2. Significance of the study

The purpose of this study is to evaluate lending practices and credit management of the second-tier banks of Kazakhstan based on analysis of statements, comparison of banks' performance, to identify efficiency of Kazakhstani banking system at large.

1.3. Specific Objectives

- i. To assess the current banking system, policy, and credit management in Kazakhstan.
- ii. To determine a probable existence of the significant relationship between the bank loan, credit management and profitability.
- iii. To investigate and analyze how retail, individual, and corporate lending operates in Kazakhstan.
- iv. To examine the correlation between ROA, NPL, profitability and liquidity in commercial banks.
- v. To establish an extent of the accordance Kazakhstani STB end-period statements to the principles of lending and policies.

1.4. Hypotheses

H1: The main reason of difference in banking activity is own strategy of every STB, which is oriented on high-performance and profitability;

H2: The main reason for the differences in lending practices is the loan rate, as well as the scoring process that determines the criteria for borrowers.

H3: Different segments of lending practices allow to variate revenue, while retail sector is the biggest profit contributor.

H4: There is a negative correlation of NPL with profitability and capital adequacy.

H5: The adoption of Basel Standards by National Bank has led to rapid reduction in the number of commercial banks and increasing effectiveness of Kazakhstani banking system.

2. Literature review

2.1. Background

Providing lending for the borrowers is the crucial profitability generator for the commercial banks, which could engage in huge risk creditor and debtor (Alabi et al., 2019). As the most important income contributor bank lending is based on some principles, which influence loan policy and credit operation. Some of principles are profitability, purpose, safety, diversity, and liquidity. Purpose of the loan from the borrower side should be productive and rational to determine risk and effect of interest rate on the loan. Diversity helps to minimize the risk through the investing in different fields. Adedoyin and Sobodun (2009) had stated that “lending is undoubtedly the heart of banking business”.

With regards to the credit management of the banking sector, it has a cardinal difference from the past. In order to remain on aggressive terms dictated by the market, the banking sector has developed a large number of

strategies aimed at managing loans. A large amount of funds was lost due to the inefficiency and incompetence of the banking system, as well as many banks were liquidated and closed. The current banking system of Kazakhstan is a dynamically developing result of past mistakes and the introduction of innovative solutions in the field of financial technologies and credit management. (Akwu, 2013).

The majority of bank profits come from taking on credit worthiness. Banks collect savings and other forms of money, which they take into account when making loans and buying debt instruments, generating income that is above their capital and overhead expenses, resulting in profitability. The sector has the potential to detect, evaluate, analyze, control, regulate, and manage credit risk. Credit risk is crucial to meeting strategic goals and optimizing financial results in a satisfactory manner.

When economic growth slows or deflationary factors arise, banks that operate with riskier lending practices often see a rapid increase in credit repayment offenses, failures, reorganizations, bankruptcies, and losses. The hazards of careless or unsound financial intermediation procedures that resulted in a negative consequence could appear clear after the fact. Many article investigations into recent financial crises, on the other hand, have highlighted lending "red lights" and hazards that were present prior to the collapse but were either overlooked, disregarded, or ignored (Zamorski, 2017).

2.2. Regulation of the banking system of Kazakhstan.

Kazakhstan currently has a two-tier banking system. The National Bank is the state's central bank, and it represents the banking system's higher (first) level. The Law of the Republic of Kazakhstan on the National Bank of the Republic of Kazakhstan establishes the National Bank's tasks, principles of operation, legal position, and powers. Except for the Development Bank of Kazakhstan, which has a specific legal position specified by the Republic of Kazakhstan's legislative act, all other banks represent the lower (second) level of the banking system. Despite two-level system, there is an Agency for Regulation and Development of the Financial Market of the Republic of Kazakhstan, which contributes to the stability of the financial system and the development of financial markets, exercising control and supervision of state regulations, financial markets and financial

organizations, and others within their jurisdiction. Unfortunately, after crises 2007-2010 prudential regulations adopted by the NBRK and Agency were not compelling sufficient and did not have the correct security solidness of the keeping money framework. As the result, supervisory and regulatory authorities decided to enhance requirements for calculation and prudential standards.

Basel-I was easily implemented in Kazakhstani banking system, while the implementation of Basil-II was not applied. The reason was that this system (Basel II) is based on internal models of banks, and in 2007-2008 it did not suit to the banking system of Kazakhstan.

The first trial to implement Basel III was in 2013, but banks asked to postpone this procedure because the Kazakh regulator ahead on this issue the European countries and the United States. In 2015 it was a second trial of introducing the last Basil standard. Based on annual report (2015) of NBRK (National Bank of the Republic of Kazakhstan), average capital adequacy ratio was approximately 12.6%, which is even higher than Basel III prudential capital requirements (7%). Despite this fact, the wisest decision was to slowdown, because the Basel standards are rather applicable to developed economies, whereas Kazakhstan is still among the developing countries where the issue of economic diversification is acute. In Europe, the completion of the transition to Basel III is scheduled for 2019, and for Basel III, Kazakhstan has too much probability of tenge falling and the appearance of issues with national currency liquidity.

As the result, nowadays Kazakhstan keeping money framework is still as it were formally prepared to comply with worldwide necessities. Fair the presentation of unused prerequisites will diminish the productivity of managing an account operation, which antagonistically influence the execution of bank liquidity (Sadibekova & Sairambaeva, 2015).

Before the crises of 2007 Kazakhstani banking system was considered as one of the best in CIS. In that time banking reform was carried out, a two-tier system was created, which was well adapted to the market economy,

legislative and methodological bases were created considering the experience of developed countries, the basic principles of control and regulation of the Basel Committee were introduced.

Table 1. Amount of the STB in Kazakhstan during the period of 30 years.

Year	1991	1996	2001	2006	2015	2021
Kazakhstan	72	101	48	39	35	22
foreign banks (non-residents)	-	3	3	19	16	14

The reasons for the declining tendency of second-tier banks for 30 years were revocation of licenses, mergers with other banks, conversion to a branch, voluntary liquidation, and other reasons. Reduction in the number of second-tier banks has a negative impact on the level of banking competition. In comparison with 1996, there is a growth of 5 times in the number of foreign banks in Kazakhstan. Such beneficial growth tendencies have a positive influence on the economic development of the country.

In 2021, several significant changes took put within the banking segment of Kazakhstan. The number of STB diminished from 26 to 22 (in comparison with 2020). 12 of them are with foreign capital, the share of which is only 17.1%. The reasons of market players' decrease were different. For example, after financial crises, difficult circumstances pushed ATF Bank to participate in the Program for improving the financial stability of the banking sector, where were given a loan at a rate below inflation, at 4% per annum and with maturity of 15 years by NBRK. Taken debt was paid only for half, while the bank identified a need for additional reserves based on the results of the AQR. 99,76% were acquired by Jusan bank. Another reason of bank liquidation is violation of prudential standards due to lack of liquidity as it happened to AsiaCredit Bank and Capital Bank Kazakhstan (Bassarova, 2022).

2.3. Regulation of the banking system of different countries

After the global crisis in 2008, implementation of Basel III was demonstration of successful “healing” and stabilizing of the banks for the Basel Committee, customers and regulators. Basel III was introduced in many countries around the world, what was challenging process for the majority of them. Basel III was introduced to improve the efficiency of banking and risk reduction. Last experience in implementation of Bank of International Settlements (BIS) by European Union allowed them to become more consistent and smoothly move from Basel II to Basel III. EU was trying to regulate situation, prevent “gold plating” and provide equal rights and rules, in order to remove chances for regulatory arbitrage (Chabanel, 2011). Thus, analyzing the Basel III conducted among European banks, some conclusions are drawn. Based on the report from the European Banking Authority on monitoring the results can be seen the impact of the Basel III on key risk indicators of banking activities. For example, starting from 2018 we can see the decline in market risk from 0.7 to 0.2 in 2020. However, the CVA indicators remain roughly at the same level (BASEL III MONITORING EXERCISE – RESULTS BASED ON DATA AS OF 31 DECEMBER 2020, 2021). The USA, who successfully skipped adoption of Basel II, decided to facilitate Basel III implementation process with the help of Dodd-Frank Act and accept situation as a fresh start on the basis of Basil I.

In comparison with the EU and US, which are the most developed and well-prepared countries, situation with the adoption of the last Basel Standard in the Russia, Africa, Eastern Europe, the Middle East and Asia Pacific less comprehensible. Some of the countries should introduce all three standards together, because of absence any of them before. Other countries were trying to move towards the Internal Rating Based (IRB), in order to change calculation approach of credit risk (Chabanel, 2011). There were also parallel implementation of the Basel Standards and other regulatory legacies in some countries, what was suppressing and difficult process. Such situation in the world allowed to STBs practice on handling with the mix of all three Basel Standards and continue their business taking into account geographical location and demands of the local regulators.

3. Statistics

3.1. Market share

Based on the market-share data for January 1st 2010, Kazkommertsbank is the main leader with a 21% market share. The second and third places are shared by Halykbank and BTA with a market share of 17% and 16%. This chart shows 33 banks in the group of others. The group of others make up the main part of the market at 23%. The data was taken as of the January 1st 2010 (Figure 1).

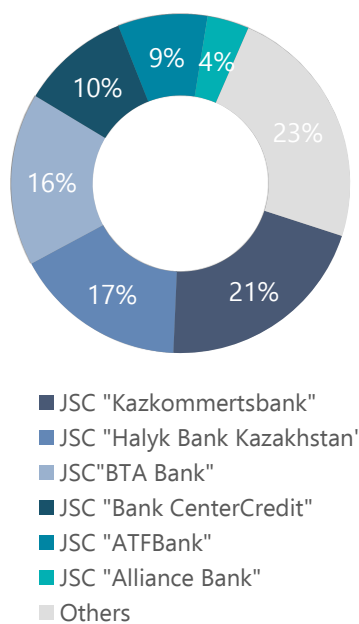


Figure 1. Market shares of STB in 2010.

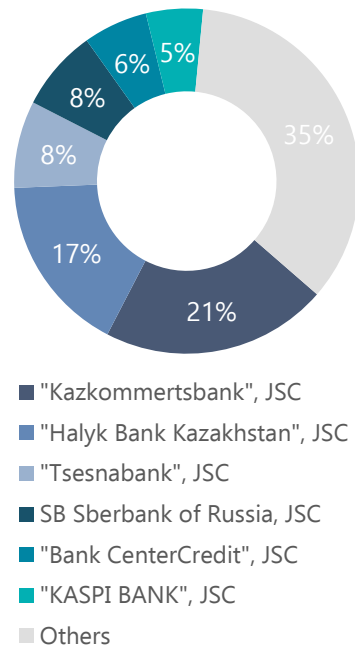


Figure 2. Market shares of STB in 2015.

In 2015, Kazkommertsbank is still the market leader with a share of 21%. In second place is HalykBank with a share of 17%. Moreover, these two banks are far ahead of the others. As Tsesnabank, which is on the third place, has a share of only 8%. (Figure 2)

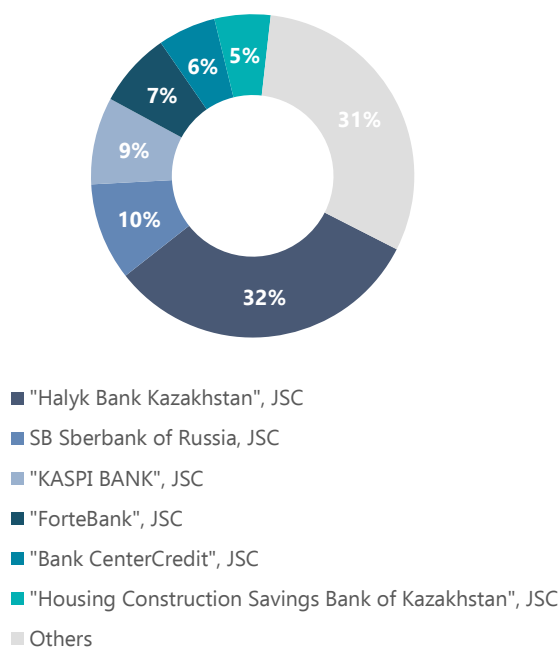


Figure 3. Market shares of STB in 2020.

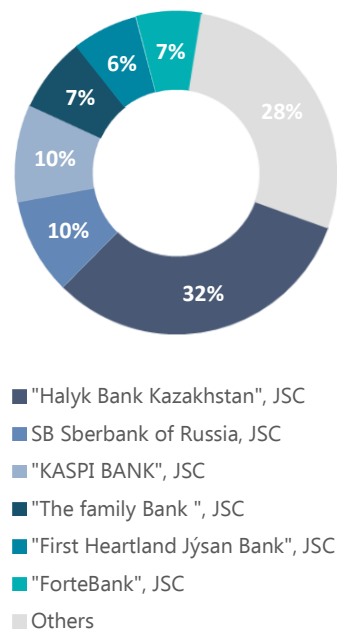


Figure 4. Market shares of STB in 2022.

For 5 years the market situation has changed. In 2020 the market leader is Halyk Bank with a share of 32%. This is most likely due to the fact that in 2018 Kazkomertsbank, a bank with a leading position, joined to Halykbank. This share is even higher than the total share of 20 banks. Halykbank is three times bigger than Sberbank which is in the second place with the share of 10%. (Figure 3)

By 2022 the situation remains approximately unchanged. Halykbank also remains the leader. Moreover, Sberbank and Kaspi remain the main leaders apart from Halykbank. (Figure 4)

3.2. Assets, credit portfolio and non-performing loans

Despite reduction in amount of market players among STB in the end of 2021 was reached historical maximum of assets and credit portfolio excided own best results performed 6 years ago.

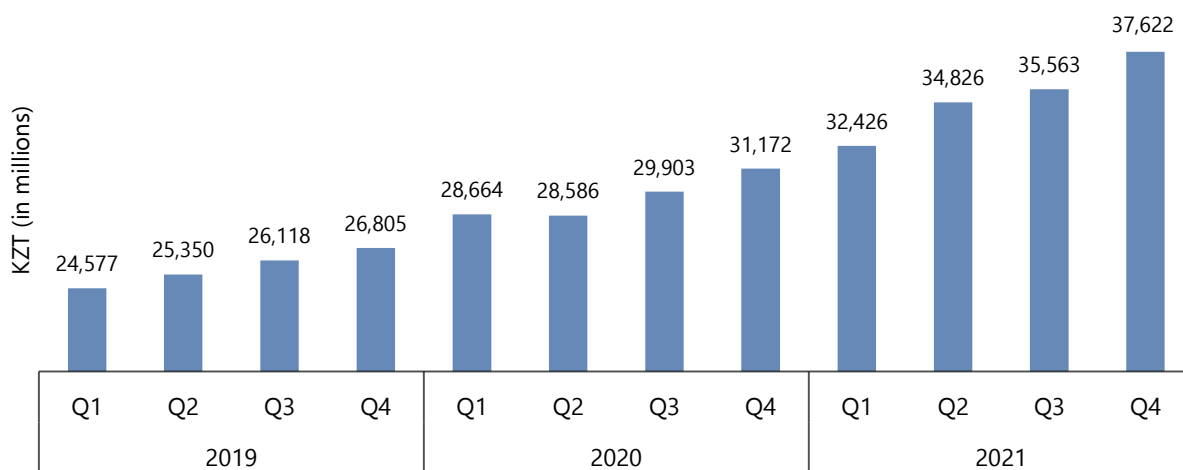


Figure 5. Annually and quarterly amount of total asset

According to the results of 2021, total assets of all STB were equal to 37,622 billion tenge, which is the highest indicator for the whole period of banking system existence. In comparison with the last year (2020) assets significantly increased for 20,7% and continued to keep constant growth rate for almost five quarters (Figure 5). In more detailed observation of assets' growth, it is visible that the most part of increase represented by five STB leaders such as Halyk Bank, Family Bank, Sberbank, Jusan Bank and Kaspi Bank. Almost 31% of total growth was reached by Halyk Bank, which enriched own assets for more than 11,600 billion tenge in the end of 2021. In addition to the five high performing banks, there are two more representers of the high-quality assets and credit portfolio condition such as Forte Bank and Bank Center Credit.

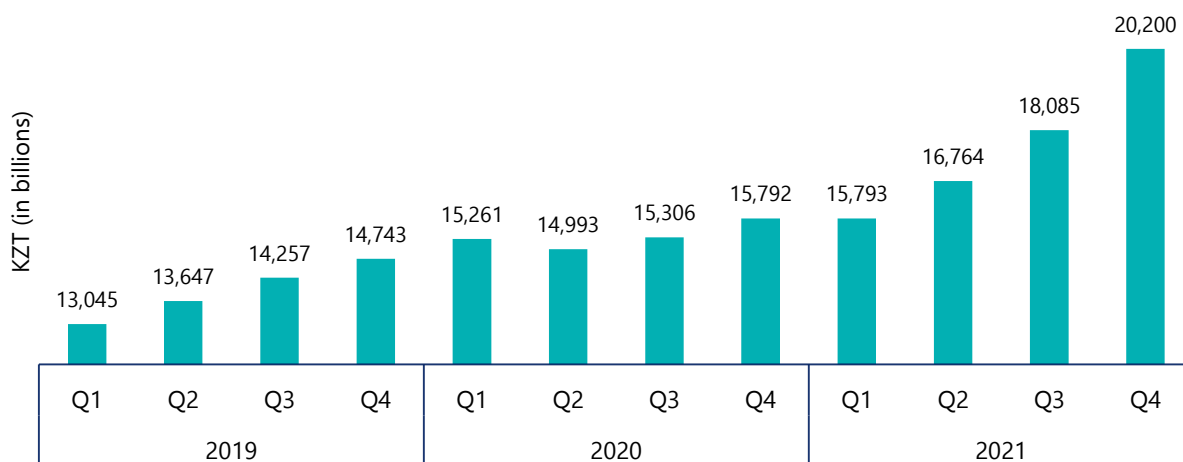


Figure 6. Credit portfolio of STB.

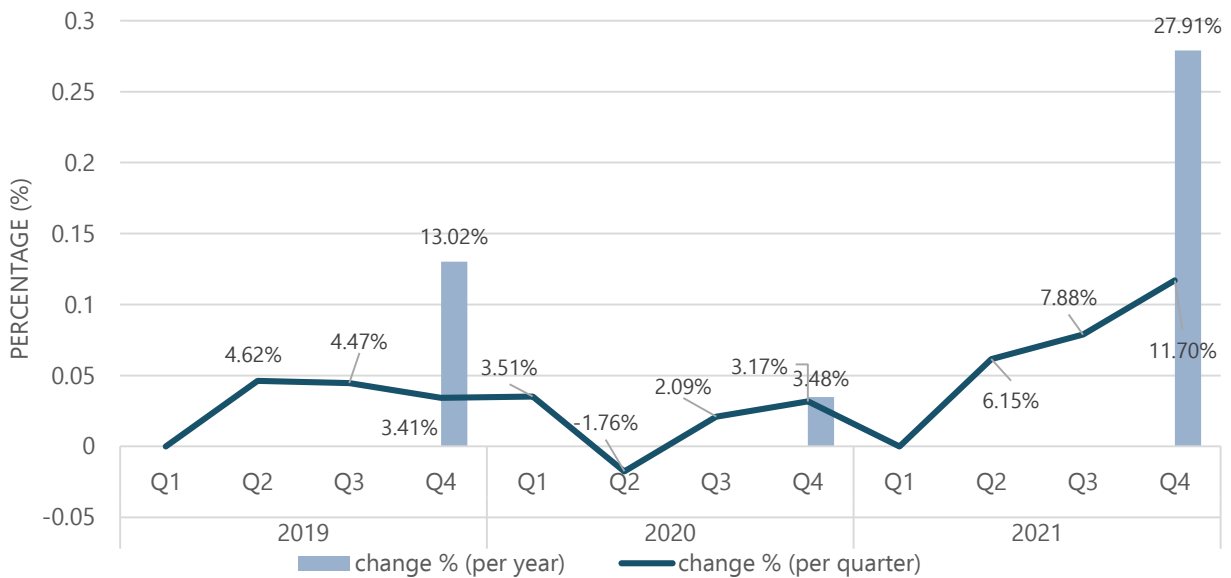


Figure 7. Change of credit portfolio annually and quarterly

With regards to the volume of the loan portfolio, in the end of 2019, 2020 and 2021 it significantly increased by 13.02%, 3.48% and 27.9% respectively (Figure 6). The strongest growth occurred at the end of 2021 in amount of 4.4 trillion tenge from the total credit portfolio of 20.2 trillion tenge (Figure 7). In the fourth quarter, the volume of the portfolio increased by 2.1 trillion tenge. Of these, about 1.25 trillion tenge fell on December 2021. This was the maximum monthly increase in the indicator for at least the last 6 years.

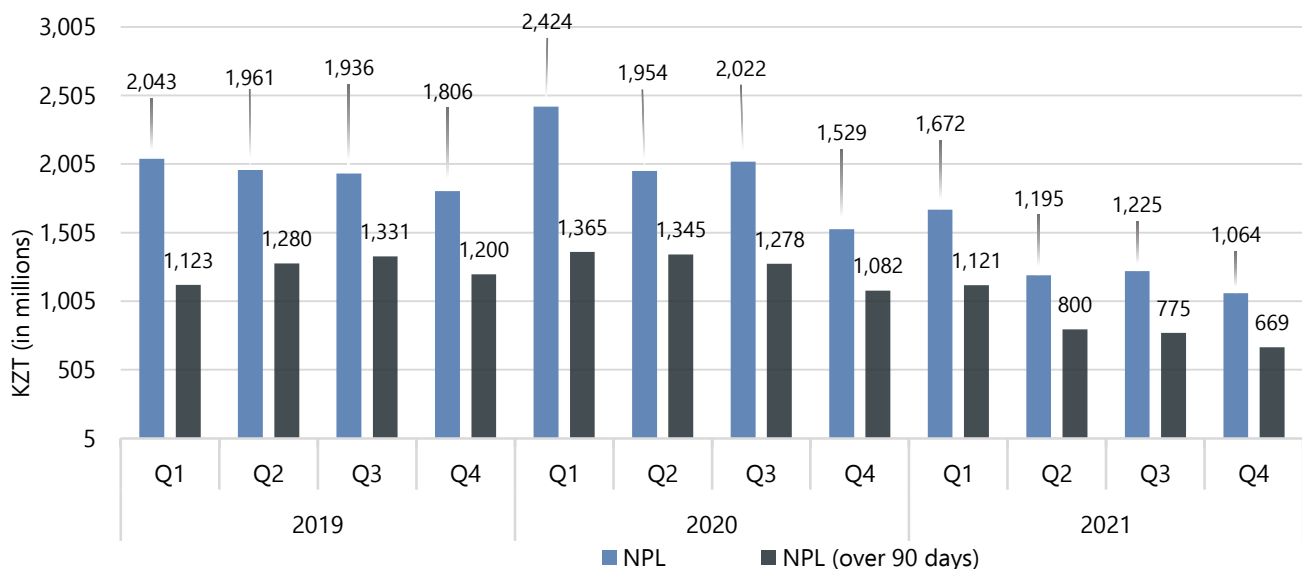


Figure 8. Amount of total NPL, including NPL over 90 days, by quarters and years

In 2021, there is a significant decrease in loans with overdue payments. As of January 1, 2022, their size amounted to 1 trillion 063.8 billion tenge, which is 464.9 billion tenge, or 30.4%, less than a year earlier (Figure 8). The current figure is the lowest since at least 2016.

The decrease in the volume of arrears against the background of the growth of the loan portfolio has led to the fact that the quality is at a multi-year (if not historical) maximum. According to the National Bank of the Republic of Kazakhstan, as of January 1, 2022, the share of overdue loans is 5.3% against 9.7% a year earlier. The decrease in the share was noted during 9 of the 12 months of the year. The strongest was in June: from 9.8% to 7.13%.

4. Methods & Data

4.1. Loan rate and terms comparison

To assess lending practices, there was deciding to compare the terms of bank loans. The sample consists of 6 banks such as Halyk, Eurasian, Forte, Jusan, BCC and Family bank that offer an identical product: a cash loan to an individual without collateral. Calculations of the banks were made through the use of online calculators and by using the PV Annuity formula and the effective annual rate:

$$PV = PMT \times \frac{1 - \left(\frac{1}{(1+r)^n}\right)}{r},$$

and converted formula to figure out cash flows:

$$CF = \frac{PV \times r}{1 - \left(\frac{1}{(1+r)^n}\right)},$$

where PV – present value of an annuity stream, PMT – tenge amount of each annuity payment, CF – cash flows of annuity stream, r – interest rate, n – number of periods in which payments will be made. As principle was taken 1,000,000 tenge and as period were taken 12 months.

4.2. Correlation

According to the hypotheses of this research, there is a need to identify the main reasons for the differences in lending practices, establish relationship between ROA, NPL, profitability and other indicators.

In order to accept or reject these hypotheses, there were applied sampling procedure by selecting 7 leading second-tier banks from 2017 to the first quarter of 2022. The first reason of the narrow scope is insufficiency in data of other commercial banks, which creates obstacles in determining correlation and building regression model. The second reason is in market share size of these banks. Observing of the whole commercial banks industry estimated that Halyk, Kaspi, Sberbank, Forte, Jusan, BCC (Bank Center Credit) and Family bank represent more than 70% from whole STB segment in the last years.

In attempt to find relationship between two quantities (and more) in different aspects the following variables were taken:

- *T_NPL – total non-performing loans of the 7 banks*
- *T_NI – total net income of the 7 banks*
- *TA – total assets of the 7 banks*
- *TL – total loans of the 7 banks*
- *ROA – return on assets (average)*
- *AV_LIQ - Current liquidity ratio (average)*
- *AV_CA - Capital adequacy (average)*
- *AV_RE - Maximum risk exposure for a single borrower, for any other borrowers (average)*
- *AV_LCR – liquidity coverage ratio (average)*
- *AV_SFR – net stable funding ratio (average)*
- *INF_R – inflation rate (by month, from 2017 to March 2022)*
- *GDP – gross domestic products (by month, from 2017 to March 2022)*

The list of variables above figured to be valuable for understanding correlation and building regression model. As a measure of analysis bank performance there was taken ROA and other eleven variables due to their high significance in the banking.

Based on the data of 7 banks there were calculated mean, median, maximum, minimum and standard deviation of the range of variables:

Table 2. Descriptive statistic.

Variables	Mean	Median	Maximum	Minimum	St. Dev
TA	19157.991	18264.450	29684.200	12753.280	5044.998
TL	10642.052	10193.030	16838.230	7344.330	2468.193
T_NI	13900.963	13026.490	35432.160	1310.650	8894.149
T_NPL	1200.426	1257.800	1637.230	817.800	233.307
ROA	0.731	0.692	2.012	0.080	0.446
AV_LIQ	3.014	2.540	5.262	1.447	1.119
INF_R	0.068	0.070	0.120	0.048	0.013
GDP	0.035	0.047	0.117	-0.117	0.043
AV_CA	0.211	0.210	0.250	0.150	0.017
AV_LCR	2.859	2.774	4.337	1.889	0.620
AV_SFR	1.570	1.600	1.716	1.299	0.097
AV_RE	0.145	0.143	0.189	0.122	0.013

The dataset above allows to estimate relationship between ROA and other variables to identify effect of the inflation rate, GDP, and other significant indicators such as liquidity, capital adequacy, risk exposure etc. on the bank's performance via correlation formula:

$$r_{xy} = \frac{\sum_{i=1}^n (x_i - \bar{x})(y_i - \bar{y})}{(n-1)s_x s_y},$$

where r_{xy} – correlation between two variables, \bar{x} and \bar{y} are sample means of X and Y, s_x and s_y uncorrected sample standard deviations of X and Y, n – number of observations.

4.3. Multiple Linear Regression Model

“The multiple linear regression model is the most commonly applied statistical technique for relating a set of two or more variables” (Jobson, 1991).

Building of multivariate regression analysis model is developed from the given formula:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon,$$

where y – dependent variable, X_i – independent variable, β_i – parameter, ε – error.

Based on the descriptive statistics above, the first step to do is provide analysis for each quantitative variable via examining of skewness coefficient, kurtosis coefficient and histogram. To complete first step, there is a need to download data table in R-studio space. Next step is preparing scatter diagram and interpreting of the results. Using the correlation between variables, which were calculated before, there is a necessity to identify at least one useful result for making prediction via hypothesis test. Following by that, it should be done forward selection to figure out best performer. This approach is measured by Residual Sum of Squares (RSS) and R-adjusted (R^2). R^2 is going to be calculated to measure the extent of variance between variables by the following formula:

$$R^2 = \text{Corr}(y, \hat{y})^2$$

The last step is analyzing the results of regression and summarize them to get a conclusion with the matrix scatterplot.

5. Methodology

The data resources were collected from the official website of the National Bank of the Republic of Kazakhstan, First Credit Bureau, and commercial banks. Analysis was provided from several perspectives: regulatory, business process, and statistics. Approximately 22 commercial banks were used to evaluate the lending practices through analyzing financial statements, comparing strategies, and building statistical models.

A mixed method was used to investigate these research objects. This method includes a quantitative method and a qualitative method, which is likely to lead to more accurate research results. However, most of our results come from the quantitative method.

The quantitative methods include the analysis of financial indicators and statements of all second-tier banks in Kazakhstan, statistical study of bank development and bankruptcy, determination of financial ratios and their significance, and correlation, in order to establish the existence of the relationship between the main financial indicators (NPL, liquidity, financial ratios, and risk indicators). For example, we found a correlation between the general indicators of the NPL coefficient and net profit. Indicators with high correlation can show the interconnection of financial instruments and help to manage them to achieve certain results. All calculations were done in Excel with formulas and graphs. Also, we used Word for structuring tables and R-studio for creating regression models and visualization.

In the case of the qualitative method, some data were borrowed from recent scientific papers that have direct or indirect relevance to our topic. The main sources were google scholar, scholarly journals, online libraries, and scholarly websites of private universities around the world. Also, calls were made with the lending department of banks, to determine the basic conditions for obtaining cash loans to individuals. Such conditions include age, citizenship, salary, interest deductions and the offered interest rates. Online interviews were also conducted with bank employees to analyze the service of banks. All data obtained were recorded in writing.

6. Analysis, findings, and results

6.1. Hypothesis 1.

The main reason of difference in banking activity is own strategy of every STB, which is oriented on high-performance and profitability.

In order to test the hypothesis provided above, there were observed three high performance banks according to the statistic of the year 2022. There was compared own strategy of each bank considering the mission of the bank, strategy concept, performance for the previous year, key strategy objectives for the coming 2 years, key business areas and financial statements from the official web-sites.

Kaspi bank

Mission: “To improve people’s lives by developing innovative products and services”.

History of Kaspi. Kaspi, as the largest IT bank, began its journey in 2012 with the creation of payment of bills for various services and an electronic wallet, thereby creating the foundation for a further ecosystem. In 2013, Kaspi began to increase the number of terminals for using these services, created in 2012 - payment of bills and replenishment of electronic wallets. In 2014, marketplace, the Kaspi Bonus system, and online consumer lending appeared. The following year, in 2015, a Kaspi Gold debit card and a delivery service at the Marketplace appeared. In 2017, the Kaspi application was developed, which included P2P and phone number transfers, which also combined all parts of a huge ecosystem. Then a huge number of innovations were created, such as the introduction of QR systems, smart ATMs, POS terminals and the Face ID system.

The ecosystem consists of:

- 1) Payments**
- 2) Marketplace**

3) FinTech

Table 3. Kaspi's revenue streams

Payments, YOY	Marketplace, YOY	Fintech, YOY
RTPV – 60%	GMV – 50%	TFV – 21%
Revenue – 59%	Revenue – 40%	Revenue – 43%
Net Income – 73%	Net Income – 39%	Net Income – 39%

Source: Kaspi Bank Investor Relations

Table 4. Kaspi's income statement by revenue streams for 1Q 2022 (in millions KZT)

	Payments	Marketplace	Fintech
Revenue	63 587	32 673	170 483
Cost of Revenue	6 537	3 596	64 644
Net Revenue	57 050	29 077	105 839

Source: Kaspi Bank Investor Relations

According to their history of creating a technological ecosystem, can be seen the result of a clear work done over ten years with a clear vision of what the final product should be from the very beginning. According to Kaspi bank strategy, it can be understood that their strategy is to create necessary, convenient, and technological products. They are the pioneers of the modern banking industry in Kazakhstan. By creating an ecosystem, without which it is difficult to imagine modern banking, Kaspi has attracted many loyal customers who trust this bank. As practice shows, in the case of a large financial ecosystem that unites payment systems, smart ATMs, an application with many functions, such as ticket purchase, online banking, etc., customers prefer to save time and resources and use only one bank, which complies to the criteria above. For example, it is observed that Kaspi does not have the best conditions for lending and deposits, while other banks on the market offer more favorable conditions. But since customers use the entire ecosystem, they voluntarily attract loans and invest in deposits under not the best conditions. Therefore, it can be concluded that Kaspi, having an own strategy aimed at creating

technological innovations in the field of financial technologies, which is ultimately focused on high-performance and profitability, brings results.

Halyk bank

Mission: “To create a territory of reliability, comfort and trust for our customers and partners”.

The strategy of Halyk Bank is aimed mainly at meeting the needs of its customers. Halyk Bank, as part of its main mission to meet the needs of customers, also develops IT solutions for its customers, without which it is impossible to imagine the modern banking industry. Halyk is no longer focused on innovation, but on creating a comfortable, reliable bank. Thus, according to the strategy of Halyk Bank, the Bank provides a wide range of services and affects all important aspects of the consumer.

Table 5. Amount of Halyk Bank clients.

Clients (mln)	2020	2021
Retail clients	8.4	9
HomeBank clients	6.2	8

Source: Halyk Bank Investor Relations

Table 6. Retail credit and non-credit products

	4Q 2020	3Q 2021	4Q 2021
Number of digital loans issued	104 000	256 000	398 000
Number of online deposits	17 000	32 000	42 000

Source: Halyk Bank Investor Relations

According to the strategic goal of customer focus, the Bank confidently follows this goal and according to dynamically developing products and increasing number of customers, it can be concluded that all the services developed by the bank are aimed at meeting the needs of customers, which is part of their own strategy aimed at high-performance and profitability.

Forte bank

Vision: “Become the most popular ecosystem of services in Kazakhstan, transforming into a technology company and creating a new team formation”.

Mission: “Forte is a reliable partner in your financial daily life”.

Forte bank’s products:

- ForteMobile App
- ForteMarket
- ForteForex
- ForteKassa
- ForteBusiness
- ForteFood
- ForteID
- ForteKey
- ForteTravelQaz
- ForteLogistics
- ForteSpace
- ForteE-com

Table 7. Amount of Forte Bank mobile users.

Mobile users/Years	2018	2019	2020
Legal entities	24 184	32 902	44 665
Individuals	423 600	707 900	979 200

Source: IR(forte.kz)

As it can be seen in the company's vision, the Bank aims to become the most popular ecosystem of services in Kazakhstan aimed at digitalization of the Bank. The bank began digitalization relatively recently of other banks in 2020. And by their huge number of products created relatively recently, it can be observed that Bank has an aggressive market entry strategy that reflects the company's vision. The positive dynamics of Forte Bank users tells us that the Bank's strategy of aggressive market capture, which is aimed at profitability and high-performance, has worked.

Based on the review of the strategies of high-level banks, it can be concluded that it is the strategy that determines the main banking activity, which is aimed at high-performance and profitability. Kaspi's case shows that the Bank is focused on creating innovations, Halyk is more focused on creating a comfortable and reliable product, and Forte has aggressive plans to capture the market by creating a variety of banking products.

6.2.Hypothesis 2.

The main reason for the differences in lending practices is the loan rate, as well as the scoring process that determines the criteria for borrowers.

In the Table 8 there are provided the conditions of each bank for a loan to individuals without collateral, respectively, differences in lending practices. The first line shows the annual effective rate in monthly terms, which affects the formation of the loan.

Table 8. Six STBs' loan terms comparison (scoring conditions).

	Halyk Bank	Kaspi Bank	Forte Bank	Eurasian Bank	Bank Center Credit	Jysan Bank
EAR	27.4%	54.60%	23.99%	22.9%	29.40%	26.8%
EAR monthly	2.04%	3.70%	1.8%	1.73%	2.20%	2%
Monthly PMT	94 802	104 724	94 555	93 017	95 563	94 559.6
Total PMTs	1 137 624	1 256 688	1 134 660	1 116 204	1 146 761	1 134 715
Overpayment	137 624	256 688	134 660	116 204	146 761	134 715
Pension contributions	6 months	-	6 months	6 months		
Min amount	20 000	20 000	100 000	20 000	-	30 000
Max amount	7 000 000	1 000 000	7 000 000	7 000 000	7 000 000	6 000 000
Min period		3 months	6 months	-	6 months	
Max period	60 months	48 months	60 months	72 months depend on loan	60 months	36 months
Fine	0,50%	0,50%	0,50%			
Collateral	no need	no need	no need	no need	no need	no need minimum wage
Salary		specify wages				wage
Age	-	-	-	18-65	21-68	18-70
Resident	RK	RK	RK	RK	RK	RK
Fine for early payment	no	no	no	no	no	no

The largest rate, overpayment and monthly payment as it can be seen, has Kaspi Bank. (Appendix 1.1) This is because Kaspi has the least demanding characteristics of the borrower (scoring process), and the greater the risks, the greater the repayment.

The BCC bank does not have the ability to open a debit card, respectively, to issue a loan online without interconnection with the banking website. In the rating, this bank ranks the penultimate place in benefit with a monthly payment of 95,563, the effective annual rate from the official BCC website was taken as the basis for calculating the PV Annuity loan. Then there was the Halyk Bank (Appendix 1.2), surprisingly, with a monthly payment of 94,802.

The next ones are Jusan (Appendix 1.3) and Forte Bank (Appendix 1.4) with almost identical monthly payments and rates. It can be also noticed that in the options of the Forte Bank loan, you can choose the type of payment in equal shares, which reduces the total overpayment on the loan. The application of the Eurasian Bank does not allow you to open a debit card online, which subsequently means that its impossible apply for a loan online. Therefore, when calculating this loan, their effective annual rate from the official website was also taken as a basis. The values may vary. And if we proceed from a conservative approach and exclude the Eurasian Bank from the sample, since its monthly payment was not calculated using an official online calculator, Forte and Jusan have the most favorable conditions for online loans to consumers.

There are some differences in lending practices between second-tier banks. In the aspect of issuing loans, the differences in lending practices are, as it could be seen, mainly in the annual effective rate, and the scoring process that determines it. Thus, the hypothesis about the conclusion of a credit difference in the loan rate and the scoring process was confirmed.

6.3. Hypothesis 3.

Different segments of lending practices allow to variate revenue, while retail sector is the biggest profit contributor.

In order to determine the volume of retail lending in the banking sector it is necessary to analyze the structure and quality of the loan portfolio. Thanks to the created table you can see the volume of loans by different segments from 2018 to 2022. Loans in the loan portfolio are divided into several segments, such as corporate loans, retail loans, loans to small and medium-sized businesses (this only applies to companies registered in Kazakhstan), and others.

Table 9. Loan portfolio by main segments.

Bank loans (principal)	01.01.2022	01.01.2021	01.01.2020	01.01.2019	01.01.2018
Corporate loans	18%	24%	28%	29%	31%
Retail loans	50%	45%	43%	36%	31%
Loans to small and medium-sized enterprises	27%	27%	27%	33%	34%
Others	5%	4%	2%	2%	3%

According to this table, we can conclude that in the last 4 years the bulk of the loan portfolio of the banks is retail loans. Only in 2018, the main type of loans were loans to small and medium-sized businesses. It accounted for 34% of the total portfolio, while retail loans accounted for 31%.

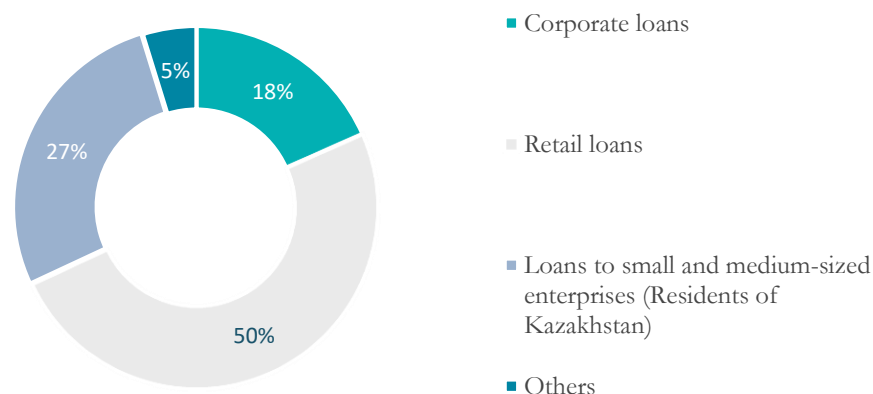


Figure 9. Volumes of different types of loans in the loan portfolio

Today, retail loans dominate the loan portfolio and make up 50% of the total portfolio. Volumes of all types of loans at the beginning of 2022, can be seen in the pie chart above (Figure 9). And since the main resource that creates revenues is the loans issued by banks, the indication that the main share of the loan portfolio falls on retail loans confirms the hypothesis that retail loans create the main share of income.

6.4.Hypothesis 4.

There is a negative correlation of NPL with profitability and capital adequacy.

According to the hypothesis above, the interval of correlation between NPL and profitability should be equal to $[-1;0)$ without considering zero. Such assumption was based on the logic of opposite effect of NPL and income on each other. If NPL is growing, then people do not repay their debt and less interest come to the bank's account, and income do not have any growth.

To prove given logic, there was a necessity to build multiple regression model. Firstly, there were created histograms and scatter plots (built with each independent variable) for analyzing mass of relative compactness (Appendix 2.1 and Appendix 2.2 respectively), and matrix of scatter plots to identify existence of relationship between variables and possibility of appearance of multicollinearity (Appendix 2.4).

There were tested three model with the different amount of independent variables. The second and third models are more precise and accurate, because every variable was logarithmic further (see in Appendix 1.7). Interpretation of the multiple regression examined through the F-statistics (p-value), which is $< 2.2e-16$ and considered as highly significant. Such p-value means that there is at least one significantly related value to the outcome. Selection of valuable variables was based on the results of t-statistic, which shows the extent of association between variable and outcome. From the set of eleven variables there were taken only seven of them, which are the most significant for the regression model and four of them not. Further, there was provided accuracy assessment of the model by identifying RRS and adjusted R-squared. Based on the last model (third) with the seven variables, adjusted R-squared equal to 0.9959, which is very close to 1 and shows high accuracy of the created model. In addition, the

standard error of the model equal to 0.04664, which also means high accuracy of the multiple regression model. Tables of descriptive statistic's results containing confidence, standard error, t-statistic, and other outcomes are provided in the Appendix 2.3. As the result, the matrix scatter plot of multiple linear regression shows that there is a need to reject our null hypothesis and state alternative one: "There is no significant relationship between NPL and profitability, and mostly negative correlation with capital adequacy". Despite the main variables mentioned in hypothesis above, there could be made a conclusion that other indicators such as liquidity, inflation rate, GDP, capital adequacy, LCR and SFR have more significant relationship with NPL (positive and negative). From the matrix in appendix, it could be also noticed that among all variables the most significant relationship with the profitability (ROA) is represented by SFR.

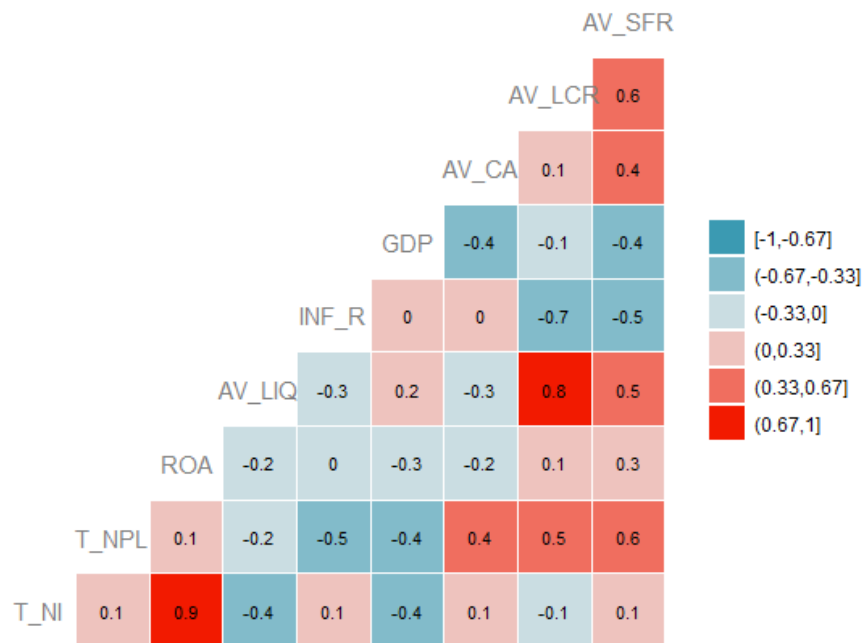


Figure 10. Correlation between financial indicators

With regards to the NPL, it is one of the most important indicator of credit portfolio. According to the Figure 10 provided above, bank performance could be represented by ROA, which has negative but not so strong correlation with the liquidity, GDP, and capital adequacy. As it is visible on the correlation table, LCR and SFR are the most performing variables, which have stronger relationship with other indicators. The reason of this

relationship could be explained by referring LCR and SFR to the Basel III representatives (introduced in 2018), which allow to banks follow recommendations and keeping standards of the world best practice with the aim of high performance in the future.

6.5.Hypothesis 5.

The adoption of Basel Standards by National Bank has led to rapid reduction in the number of commercial banks and increasing effectiveness of Kazakhstani banking system.

In 2017, 31 banks in the territory of the Republic of Kazakhstan officially had permission for banking activities. At the beginning of 2022, the number of banks decreased to 22 banks. The banks that stopped their activities are Kazkommertsbank JSC, ATFBank JSC, Qazaq Banki JSC, Bank "Astana" JSC, AsiaCredit Bank JSC, Capital Bank Kazakhstan JSC, Eximbank Kazakhstan JSC, Tengri Bank JSC, Bank ExpoCredit JSC.

The reasons for the closure of banks were very different. Certain banks were merged or absorbed by other banks. For example, in 2018 Kazkommertsbank JSC was merged with Halyk Bank of Kazakhstan JSC, and ATFBank JSC was merged with First Heartland Jusan Bank JSC, etc. However, in five years six banks stopped their activity completely. Two banks that became bankrupt, are Qazaq Banki JSC and Eximbank Kazakhstan JSC.

Also, one of the important factors was the fact that in 2018 Basel III was introduced, which led to a tightening of prudential standards and for this reason, some banks were not able to comply with the new prudential standards. Among such banks are Bank "Astana" JSC, "Capital Bank Kazakhstan" JSC, "Tengri Bank" JSC, "AsiaCredit Bank" JSC. Since these banks systematically, i.e. three or more times within 12 months, violated the prudential standards, the National Bank was forced to revoke their license for banking activities. These violations can be seen in the published files of the National Bank, where you can monitor the status of compliance with prudential standards of all banks of the second level. The reports recorded that, for example, JSC Bank "Astana" from 1.05.2018 to 1.09.2018 did not comply with prudential standards.

7. Conclusion

The purpose of this thesis was to assess the lending system and banking activities in Kazakhstan. Initially, making a generalized analysis, certain assumptions and hypotheses related to banking activities were revealed.

Banking is an important part of the economy as it is a tool that supports the financial world of the population. Inefficient operation of banks and their bankruptcy, especially of large banks, can lead to a crisis for the whole country. Thus, the government itself, represented by the National Bank, has the responsibility to maintain the efficiency of lending and banking performance. Thus, this work is aimed at studying the whole system in order to identify all possible risks of having a negative impact on the banks of the second level.

The initial idea was that each second-tier bank has different strategies and objectives. And just these strategies directly affect the efficiency and profitability of the bank. As it turned out the strategies of banks are quite different and all of them are at different stages of development. For example, Kaspi is focused on FinTech and trying to provide the best technology and is always in search of new innovations for maximum client convenience, while Halyk is more focused on credit quality and service.

Talking about the market, many banks aim at retail businesses, which is logical in general. Over the last 4 years, this segment has been accounting for the biggest part of volumes and brings more profit compared to other sectors. Currently retail loans make 50% of the total loan portfolio of all second tier banks.

As it was revealed that for increasing the client base the bank should improve the crediting conditions and scoring process. This will contribute to the growth of loans and thereby increase the profitability of the bank. At the moment the best credit conditions are provided by Forte Bank, but the scoring process is much easier and more accessible for Kaspi.

The National Bank directly affects the activity of banks as it is a regulator. Depending on the situation it takes certain measures. Thus, the National Bank defined the prudential norms to regulate the system and keep it in a

stable state. Standards include the maintenance of financial indicators at certain levels. These indicators include liquidity, authorized capital, the level of non-performing loans and so on.

The original logic was that non-performing loans have a negative correlation with profitability, the higher NPL the less ROA. To test the correlation clearly, it was necessary to use monthly financials for 5 years. By constructing a correlation and multiple regression model through R-studio, it was found that in fact, non-performing loans have no fairly negative correlation and there is no any significant interaction with profitability indicators.

Prudential regulations are tightening over time. For example, since the Basel standards were introduced in 2018, prudential regulations have been tightened. Such measures reduce the risks of a banking crisis. However, not all banks can follow the new standards, for this reason, banks begin to lose their license. Thus, since 2018, four banks such as Bank "Astana", "Capital Bank Kazakhstan", "Tengri Bank", "AsiaCredit Bank" had their licenses revoked due to non-compliance with prudential norms.

The points which identified from this research, indicate that compliance with prudential standards does improve the capacity of banks, but the banks themselves should not forget that their profitability also depends on the individual strategy of the bank and the way they attract customers.

Bibliography

- Allen, W. A., & Wood, G. (2006). Defining and achieving financial stability. *Journal of Financial Stability*, 2(2), 152–172.
- Myrzakhmetova, A. M., & Nurabaeva, G. (2016). Analysis of the banking system of Kazakhstan in terms of the present crisis. *KazNU Bulletin. International Relations and International Law Series*, 2(74), 347.
- Klein, N. (2013). Non-performing loans in CESEE: Determinants and impact on macroeconomic performance. *International Monetary Fund*, 13–72.
- Moti, H. O., Masinde, J. S., Mugenda, N. G., & Sindani, M. N. (2012). Effectiveness of Credit Management System on Loan Performance: Empirical Evidence from Micro Finance Sector in Kenya. *International Journal of Business, Humanities and Technology*, 2(6), 99–108.
- Sadibekova, A., & Sairambaeva, Z. (2015). BASEL III IMPLEMENTATION: PROBLEMS AND CHALLENGES FOR KAZAKHSTAN BANKING SYSTEM. *Eurasian Union of Scientists*, 4(13), 114–115.
- Bassarova, O. (2022, January 24). *Due to what the banking industry grew in 2021*. Kursiv Media Kazakhstan. <https://kz.kursiv.media/2021-12-28/za-schet-chego-roslo-bankovskaya-otrasl-v-2021-godu/>
- First Credit Bureau. (2022, February). *Banking Sector: Results for 2021*. FCBAanalytics.
- Jobson, J. D. (1991). Multiple Linear Regression. Springer Texts in Statistics, 219–398. https://doi.org/10.1007/978-1-4612-0955-3_4
- Alabi, O. O., Akindoyin, S. J., & Taiwo, B. M. (2019, February). *EVALUATION OF BANK LENDING PRACTICE AND CREDIT MANAGEMENT IN NIGERIA*. <https://sureprojects.blogspot.com>
- Adedoyin and Sobodun 1996, „Commercial Banks Lending Activities in Nigeria“, Nigerian Financial Review, vol. 9, no. 3, pp. 36 – 37
- BASEL III MONITORING EXERCISE – RESULTS BASED ON DATA AS OF 31 DECEMBER 2020*. (2021, November). European Banking Authority.

Akwu, O. F. (2013, August). *AN ANALYSIS OF CREDIT MANAGEMENT IN THE BANKING INDUSTRY*. DEPARTMENT OF BANKING AND FINANCE, FACULTY OF MANAGEMENT AND SOCIAL SCIENCES, CARITAS UNIVERSITY AMORJI-NIKE, ENUGU, ENUGU STATE.

Zamorski, M. J. (2017). Bank Lending Practices that Can Lead to Future Loan Portfolio Problems. *SEACEN Financial Stability Journal*, 8, 55–61. <https://www.seacen.org/publications/RePEc/702003-100424-PDF.pdf>

Chabanel, P. E. (2011). Implementing Basel III: Challenges, Options & Opportunities. *Enterprise Risk Solutions*, 1–11.

Appendix

Appendix 1.1

Кредит Наличными

ОДОБРЕНИЕ ОНЛАЙН ЗА 1 МИНУТУ

Сумма кредита
1 000 000

Срок кредита

12 мес. 24 мес. 36 мес. 48 мес.

Ежемесячный Платеж
104 297 ₸

Дата первого платежа: 16 июня
Переплата по кредиту: 251 573 ₸

Рассчитать переплату при досрочном погашении

Получить Кредит Наличными

Appendix 1.3

наличными онлайн

От 30 000 ₸ до 6 000 000 ₸

Одобрение онлайн за минуту

сумма кредита
1 000 000 ₸

Срок кредита
12 месяцев

Ежемесячный платеж
94 559.60 ₸

Ожидаемая переплата по кредиту 134 709 ₸

Оформить кредит

Вопросы и ответы

Appendix 1.2

Онлайн кредит

Введите сумму и срок кредита

Введите сумму кредита
1 000 000 ₸

От 20 000 ₸ до 7 000 000 ₸

Срок

3 мес. 6 мес. 9 мес. 12 мес.

24 мес. 36 мес. 48 мес. 60 мес.

Кредит со страховкой

Ежемесячный платеж
94 802 ₸

Страховая премия: 40 000 ₸

Внимание! При оформлении кредита не

Главная Счета Переводы Платежи Меню

Appendix 1.4

Заявка на кредит

Введите сумму на руки и срок кредита

1 000 000 12 мес

от 100 000 до 7 000 000 ₸ от 6 до 60 мес

Получаю зарплату по карте ForteBank

Тип платежа

Равными долями Аннуитет

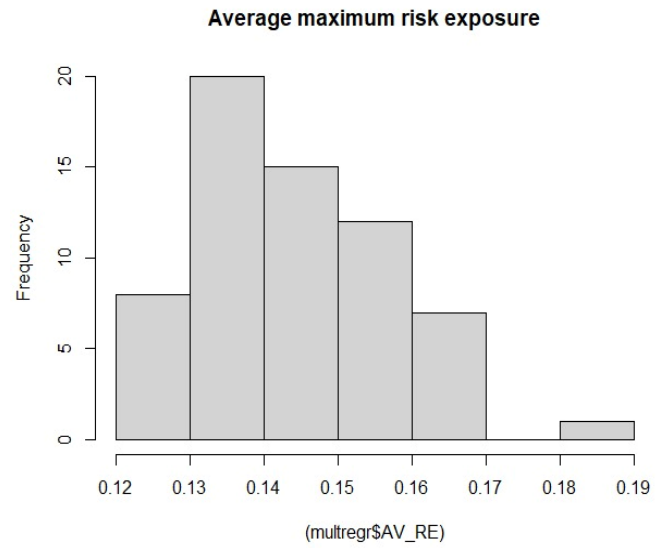
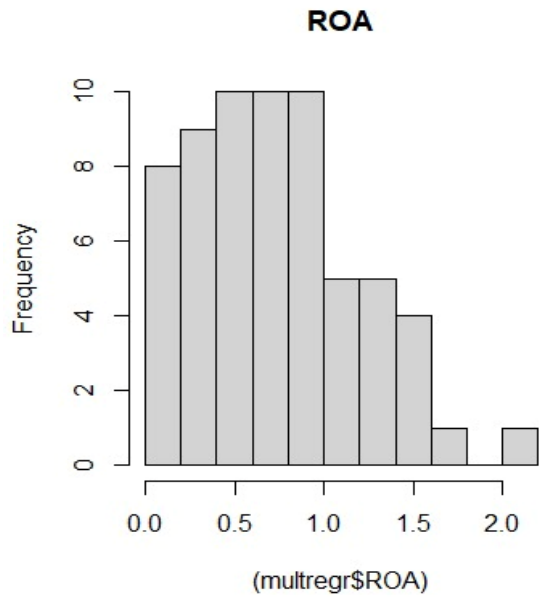
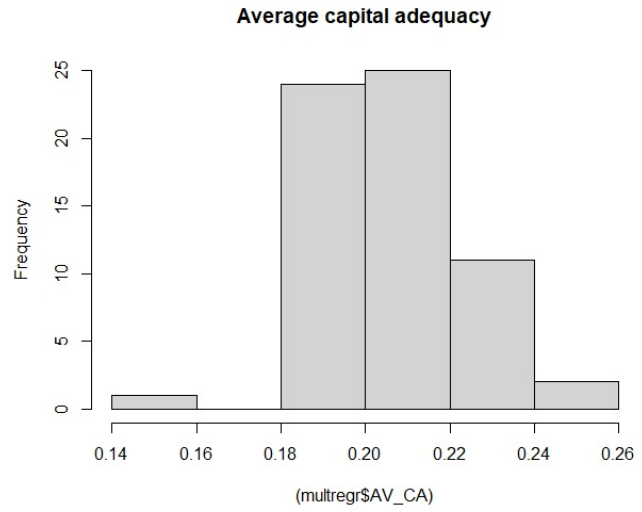
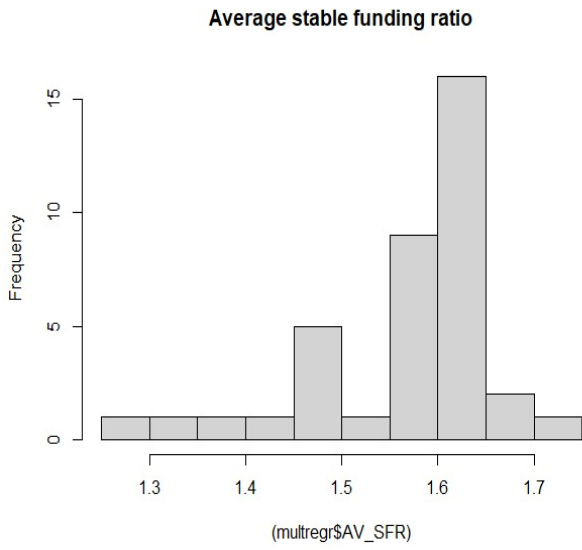
Аннуитет – это метод погашения кредита, при котором размер ежемесячного платежа не меняется из месяца в месяц.

Ежемесячный платеж	Переплата	Ставка вознаграждения
94 554,76 ₸	134 657,09 ₸	23.99 %

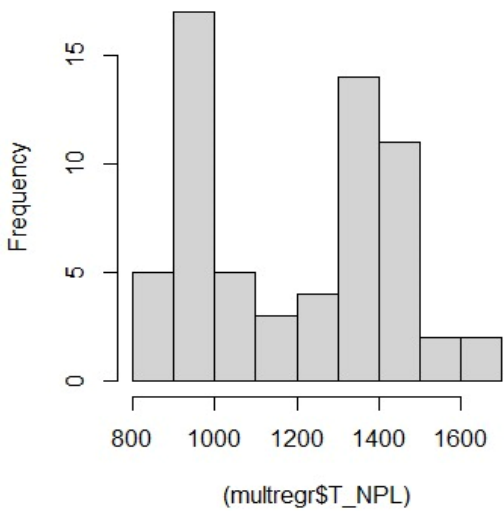
Предварительный расчет

Продолжить

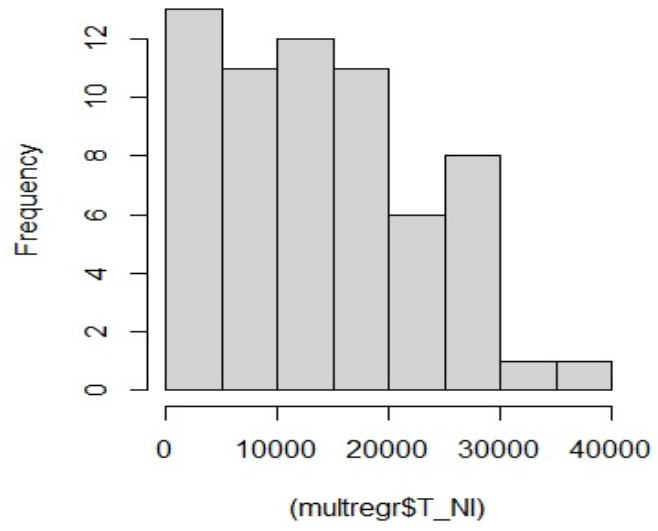
Appendix 2.1



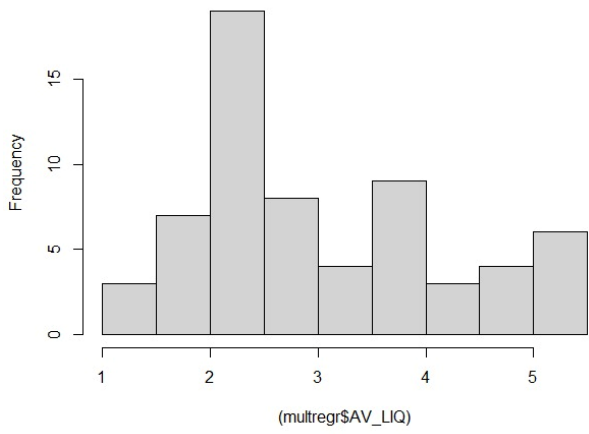
NPL



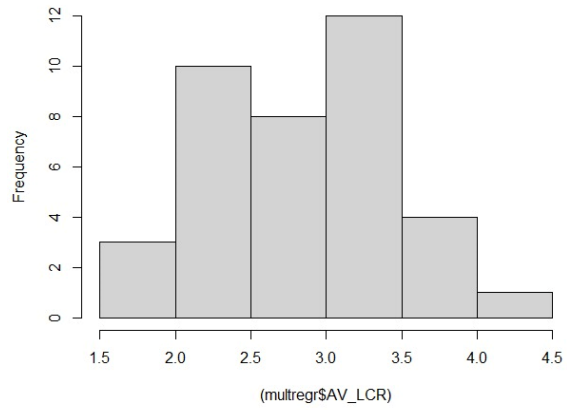
Net income



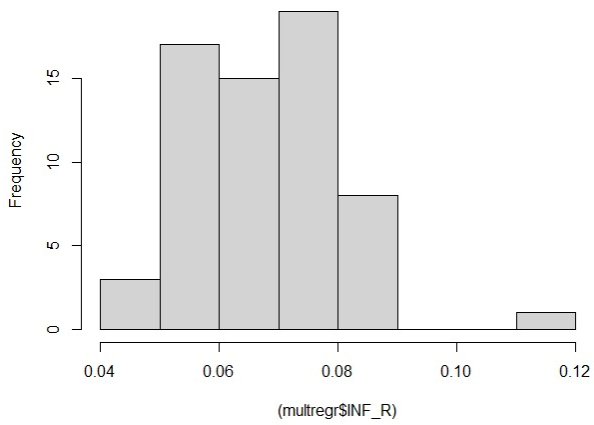
Average liquidity



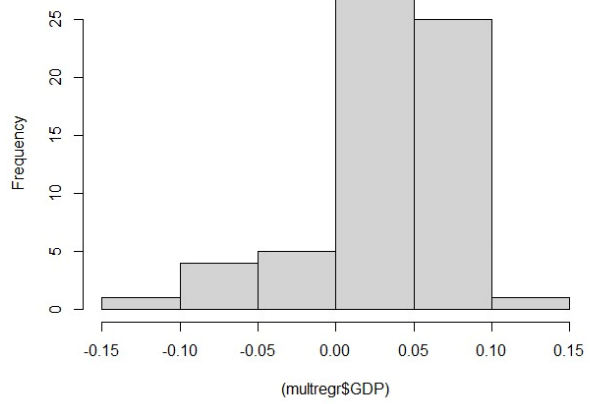
Average liquidity coverage ratio



Inflation rate

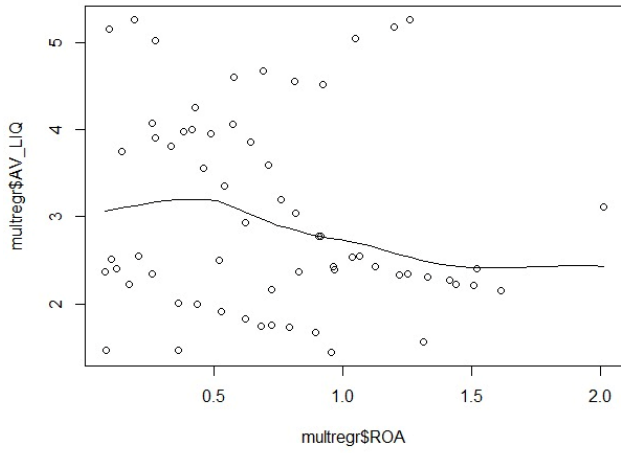


GDP

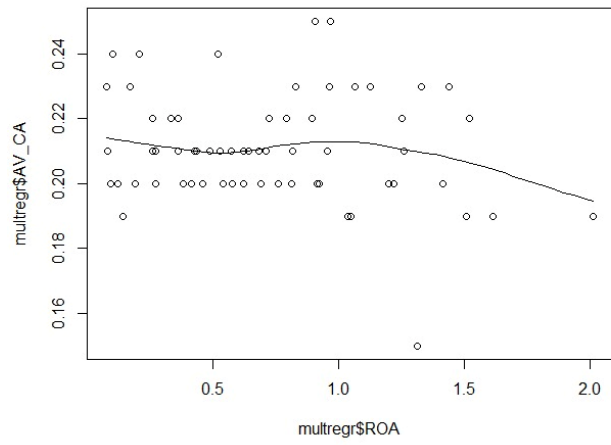


Appendix 2.2

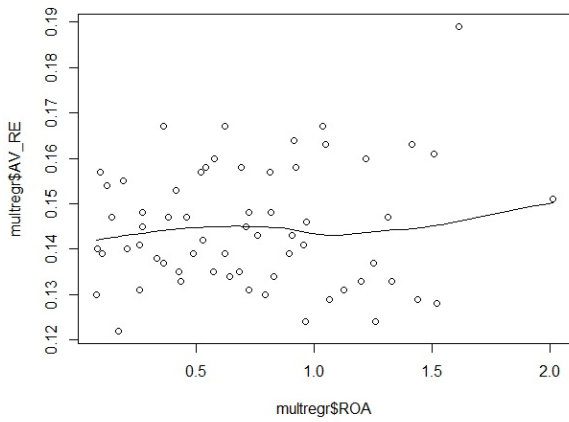
ROA ~ Average liquidity



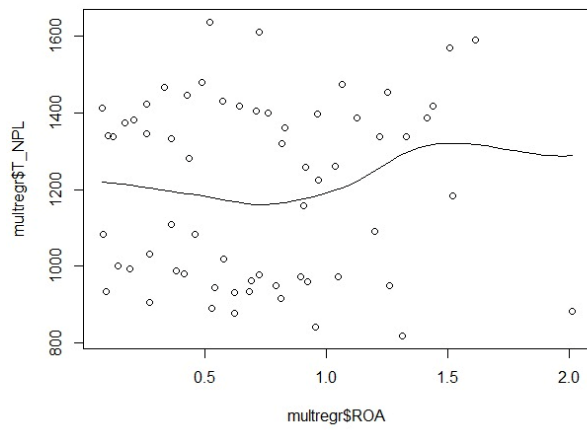
ROA ~ Average capital adequacy



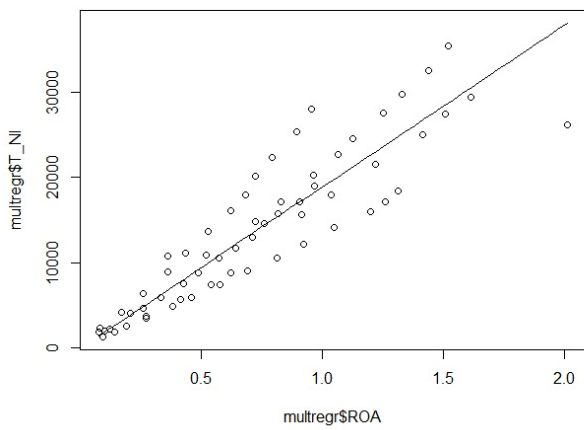
ROA ~ Average maximum risk exposure



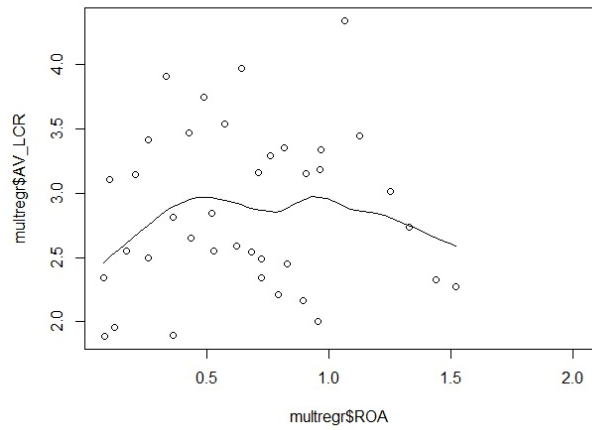
ROA ~ NPL



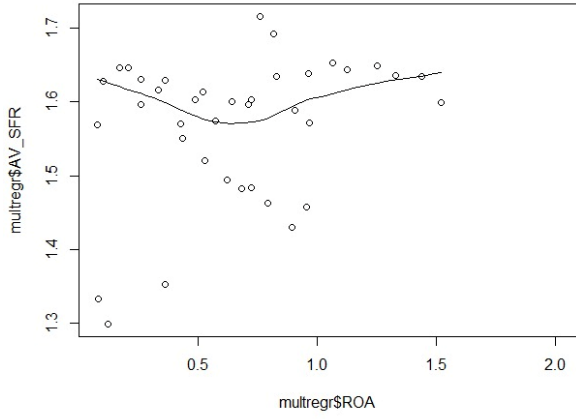
ROA ~ Net income



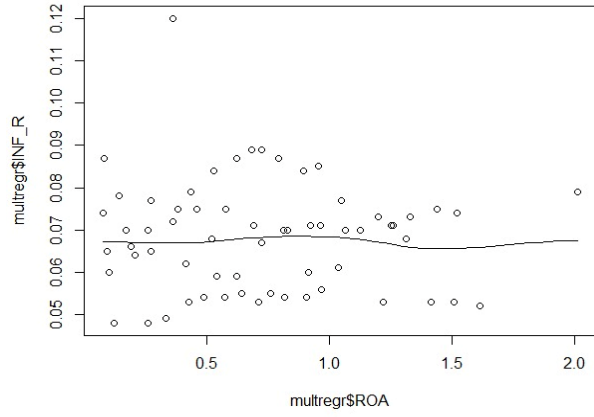
ROA ~ Average liquidity coverage ratio



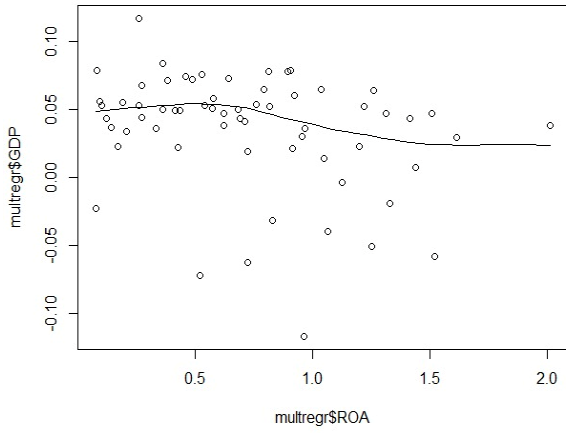
ROA ~ Average stable funding ratio



ROA ~ Inflation rate



ROA ~ GDP



Appendix 2.3. Multiple Regression results.

Model summary						
Model	R-square	Adjusted R-square	RSE	Degree of freedom	F-statistic	p-value
1	0.8851	0.875	0.1578	57	87.81 on 5 and 57 DF	< 2.2e-16
2	0.9706	0.9675	0.1406	47	310.8 on 5 and 47 DF	< 2.2e-16
3	0.9973	0.9959	0.0457	20	947.6 on 7 and 20 DF	< 2.2e-16

Coefficients							
Model		Estimate	St. Error	t-value	Pr(> t)	Confidential	
						2.5%	97.5%
1	(Intercept)	2.90E-01	3.24E-01	0.894	0.374878	-3.59E-01	9.38E-01
	T_NI	5.15E-05	2.68E-06	19.242	< 2e-16	4.61E-05	5.68E-05
	T_NPL	-1.80E-04	1.25E-04	-1.441	0.155	-4.29E-04	6.99E-05
	AV_LIQ	8.42E-02	2.30E-02	3.654	0.001	3.81E-02	1.30E-01
	INF_R	-4.65E+00	2.09E+00	-2.226	0.030	-8.83E+00	-4.66E-01
	GDP	1.47E-01	5.68E-01	0.259	0.797	-9.91E-01	1.28E+00
2	(Intercept)	-7.500	0.825	-9.093	6.29E-12	-9.160	-5.841
	T_NI	0.996	0.027	37.294	< 2e-16	0.942	1.049
	T_NPL	-0.582	0.140	-4.161	0.000134	-0.863	-0.300
	AV_LIQ	0.479	0.061	7.812	4.87E-10	0.356	0.603
	INF_R	-0.462	0.144	-3.22	0.002327	-0.751	-0.173
	GDP	-0.023	0.041	-0.573	0.569177	-0.106	0.059
3	(Intercept)	-12.131	0.872	-13.913	9.56E-12	-13.949	-10.312
	T_NI	0.991	0.016	60.76	< 2e-16	0.957	1.025
	T_NPL	0.111	0.113	0.979	0.339	-0.126	0.348
	AV_LIQ	0.112	0.097	1.157	0.261	-0.090	0.314
	INF_R	-0.442	0.085	-5.229	4.07E-05	-0.618	-0.266
	GDP	-0.021	0.018	-1.186	0.25	-0.058	0.016
	AV_LCR	0.195	0.118	1.651	0.114	-0.051	0.442
	AV_SFR	-0.322	0.241	-1.335	0.197	-0.826	0.181

Appendix 2.4

