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Analyzing Non-Bank Household Financing in Kazakhstan

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Abstract

This research paper focuses on studying the sources of non-bank financing of households. In Kazakhstan, microfinance organizations (MFOs) account for more than 50% of non-bank household financing over the past 5 years. The study examines the main performance indicators of the MFO market, analyzes risks of the microlending market, including an increase in the population's debt burden, the growth in the number of microloans per person and the likelihood of bankruptcy of individuals. Additionally, the hypothesis of reduction in real cash income of the population as a trigger for an increase in the share of overdue debt 90+ days in the microloan portfolio of the population is considered.

Key Words: *microfinance, microlending risks, non-bank financing, microfinance organizations*

JEL classification: *G21, G23, O15, O16*

Preamble

The paper examines main indicators of the non-bank financing market, in particular microfinance organizations (hereinafter referred to as MFOs), and analyzes potential risks associated with this market. Such risks include an increase in the debt burden of the population, a growing number of microloans per person, and the likelihood of bankruptcy of individuals. The analysis examines the activities of MFOs from the perspective of assessing risk factors inherent both to the MFOs themselves and those transmitted through borrowers. The article examines the hypothesis that a decrease in real cash income of the population acts as a catalyst for an increase in the share of overdue debt on microloans to individuals. It is assumed that reduction in real income of the population may lead to an increase in its dependence on microloans. The relevance of research on household financing remains an important task, since financial sustainability, as well as the availability and ability to service debt are the main characteristics of consistent development of the society and poverty reduction.

The first section of the paper presents theoretical aspects of the non-bank financing market, its role in poverty reduction and expanding economic opportunities for households.

Section 2 provides a descriptive analysis and overview of the microfinance market in Kazakhstan, current trends and the main risks inherent in the activities of MFOs. The section also provides a quantitative model for measuring the influence of socio-economic variables on the share of overdue debt of individuals.

Key findings are reflected and systematized in the Conclusion section.

1. Main Theoretical Approaches to the Analysis

1.1 Characteristic of the Essence of Non-Bank Household Financing

Microfinance has been widely recognized as a tool for poverty reduction and economic empowerment in various countries (Imai, K. S., & Azam, M. S., 2012). The widespread use of such instruments is noticeable in a number of countries where the majority of the population does not have access to classical bank financing. By targeting financially excluded populations, microfinance seeks to bridge the gap between rich and poor, promoting inclusive economic growth.

The success of microfinance lies in its ability to address the special needs and challenges faced by low-income people. Traditional banks often require collateral or a stable source of income as a precondition for providing access to financial services. However, these requirements create significant barriers for those who do not have assets or regular sources of income. Microfinance institutions employ alternative lending methodologies that focus on assessing the character and potential of the borrower rather than relying solely on collateral. This approach allows them to provide credit to individuals who would otherwise be excluded from formal financial systems.

In addition, microfinance institutions often provide additional support

services such as financial literacy training, business development assistance, and mentoring programs. These services are aimed at enhancing the financial management skills and entrepreneurial abilities of borrowers, enabling them to make informed decisions and effectively use the financial resources provided.

However, there is another point of view. According to a Bloomberg survey of borrowers in Cambodia, Jordan, Sri Lanka and Mexico, as well as academics and advocacy groups, the microfinance industry is pushing credit products, including aggressive consumer lending, in pursuit of higher profits without regard for the people welfare and pursuing goals that do not meet the classic goal of microlending – helping the poor. For example, in Cambodia, an average size of the loan provided by the so-called microfinance organizations has shown a seven-fold growth over the recent decade and amounted to about US$4200 thus exceeding the country's average household income[1]. According to human rights groups and academicians who have studied the issue, there is a controversial practice of Cambodian borrowers, particularly women, being forced to sell their homes leading to homelessness, in order to repay loans. In Jordan, one of the few countries where people are still jailed for failing to pay debts, in 2019 police were looking for more than 23,000 women since each of them owed about US$1,400, according to the Justice Department officials. (Finch, Gavin, et al, 2022).[2]

In this regard, a natural question arises as to what should be the balance between the stability of non-bank financing and the fight against poverty.

1.2 Modern Concepts of Microfinance

Microfinance originated in the 1980s based on the results of research about the provision of subsidized loans to poor farmers by the government. Governments and international lenders took the view that the poorest in the society needed cheap credit and saw this as a way to stimulate agricultural production through lending to small landholders. In addition to providing subsidized agricultural loans, lenders created credit unions inspired by the Raiffeisen model developed in Germany in the second half of the 19th century. These cooperative financial institutions were primarily aimed at mobilizing savings in rural areas in an attempt to "teach poor farmers how to save money" (Roodman 2012). Microfinance also evolved from and has many similarities with earlier forms of government sponsorship, small business and farm credit (Adams and Von Pischke, 1992).

Microfinance refers to the provision of various financial services to individuals who cannot access traditional financial services due to their poverty and lack of collateral (Ledgerwood, 1999; Robinson, 2001). The main goal of microfinance is to empower low-income people through access to financial services that will enable them to become part of the economic space and take advantage of business opportunities. These opportunities may

[1] Based on the data collected by the Cambodia Microfinance Association

[2] https://www.bloomberg.com/graphics/2022-microfinance-banks-profit-off-developing-world/

include opening new businesses, expanding existing ones, or creating new businesses.

The concept of microfinance is based on the belief that providing financial services to the poor can help reduce poverty and promote economic development. By providing access to credit, microfinance institutions aim to enable people to invest in income-generating activities and improve their well-being.

Unfortunately, as is the case with many traditional financial institutions, MFOs face a dilemma between pursuing institutional sustainability and staying true to the anti-poverty mission. Morduch (2000) called this dilemma a “split” between the two main objectives of microfinance. This dilemma arises due to the trade-off nature of microfinance or microlending (Cull et al., 2007; Mersland and Strøm, 2008), where the pursuit of one goal may conflict with another goal.

In recent years, microfinance has expanded beyond traditional microlending to include a wider range of financial services. This expansion includes the introduction of innovative products such as mobile banking, digital financial services and instant loans online. Technology is being used to outreach more people in remote areas by providing convenient and affordable financial solutions.

Overall, microfinance plays a critical role in expanding financial inclusion, rights and opportunities of the least advantaged groups in the society. By providing access to financial services, it enables people to create sustainable livelihoods for themselves and their families.

Since the early 1990s, the number of academic papers discussing microfinance from different perspectives also increased. Enhanced data availability has been the main reason for the increase in the number of studies focusing on the microfinance sector (Brau and Woller, 2004).

A study by Imai, K. S., & Azam, M. S. (2012) examines whether loans from MFOs reduce poverty in Bangladesh. Analysis of the impact of general microfinance loans and advances for production purposes, food consumption, etc. conducted using a nationally representative panel of households with four rounds from 1997 to 2004. The authors assessed the overall impact of MFO loans on income and food consumption as positive. Alternative estimation methods also show a positive impact of MFO loans on food consumption growth, confirming the impact of microfinance on poverty reduction in Bangladesh.

Microfinance service providers need an understanding of a country’s financial system, which will enable them to identify areas where services or products for certain client groups are inadequate or lacking. It can also identify institutional gaps and potential for partnerships between different types of institutions to effectively reach the poor (Ledgerwood, Joanna, 1998).

The literature indicates that microfinance enables poor households to earn more income, thereby improving their immediate ability to access livelihoods and consequently increasing their socio-economic status (Solarin,

2020). Various existing theoretical works provide the basis for this study and explain how microfinance affects the socio-economic performance of households. For example, Stiglitz and Hoff (2000), in their conceptualization of modern economic development theory, point out that lack of access to financial services creates economic inequality in the world. The literature, following this theory, argues that participation in microfinance programs helps low-income households to take advantage of business opportunities and earn higher levels of income, which ultimately leads to improvements in their socio-economic performance and reduction in economic inequality (Abdullah et al, 2021).

Hermes et al (2011) examined whether there is a trade-off between greater outreach of microlending to the poor and the effectiveness of MFOs. However, they concluded that a wider coverage with microlending had no effect on increasing the effectiveness of MFOs in addressing the problem of poverty. However, as the authors note, the results do not necessarily mean that a stronger emphasis on greater coverage with microlending is detrimental to poverty reduction.

In a study, Imai and Azam (2010) indicated that access to microfinance has a significant impact on household per capita income and microfinance services are critical for poverty reduction. Microloan products of Malaysian microfinance have played a vital role in supporting the welfare of poor people by improving household spending, creating new jobs, generating income as well as increasing household assets (Abdullah et al, 2021).

In this regard, the assumption arises that the current situation in the MFO market is a reflection of the level of development of both the financial system and the level of economic development of a country. The stratification of society and the large share of the population with low income create favorable conditions for the development of the microfinance market.

Microfinance provides access to financial services to those who typically do not have access to traditional banking services. Unlike microfinance organizations, lombards and credit partnerships have a narrower specialization and are focused on providing short-term loans secured by valuables. Research into the activities of these organizations can be useful in understanding their role in the financial system, their social significance, and their potential to change the lives of low-income communities.

1.3 The History of Microfinance in Kazakhstan

Microfinance appeared in the Republic of Kazakhstan in the late 90s of the last century in the form of individual microfinance programs. Microloans under these programs were provided through funds, microcredit organizations, and credit unions. As a rule, these organizations were non-profit[3]. In 1997, the Kazakhstan Community Loan Fund (KCLF) appeared in

[3] Author: Lina Kondratenko. Credit-fueled Lifestyle. Analytics | Caravan. https://www.caravan.kz/articles/zhizn-v-kredit-371427/

the town of Taldykorgan. It offers micro loans to local residents[4] on a group basis.

The development of the microfinance market required the elaboration of a legal framework for regulating the microlending market. On March 6, 2003, the Law of the Republic of Kazakhstan "On Microcredit Organizations" was adopted, defining the basic concepts and regulating activities in the microlending market.

In 2004, the first non-profit association of microfinance organizations was established – the Association of Microfinance Organizations of Kazakhstan (AMFOK), representing the interests of microfinance organizations throughout the country. The main goal of AMFOK is to develop the microfinance sector to ensure sustainable access of the population to financial services in order to reduce poverty and support the economic growth. There is a customer support service for MFOs within the AMFOK structure. With the assistance of the association, an institute of microfinance ombudsman was established to resolve disputes between microfinance organizations and borrowers.

In 2000-2010, microfinance organizations were growing rapidly. At the beginning of 2011, 1,780 microcredit organizations were registered, of which only 1,173 were active. In such conditions, it was necessary to improve the legislative framework in terms of clarifying the concept of microfinance activities, expanding microlending tools and access to them, optimizing the government regulation of microfinance organizations, control and supervision of their activities. In November 2012, the Law of the Republic of Kazakhstan "On Microfinance Organizations" was adopted, whereunder microfinance organizations entered the regulatory perimeter of the National Bank of the Republic of Kazakhstan.

As at the end of the third quarter of 2023, 237 microfinance organizations, 523 lombards and 209 credit partnerships (CPs) that had provided their reports to the National Bank of Kazakhstan have been operating in Kazakhstan.

2. An Insight into Non-Bank Financing in Kazakhstan: A Microfinance Market Case

2.1 Current Trends in the Microfinance Market

In Kazakhstan, sources of financing for households, in addition to banks, can be various non-bank financial organizations that are authorized, on the basis of a regulator's license, to engage in certain banking operations[5]. These include lombards, credit partnerships and microfinance organizations. As of the end of the 3rd quarter of 2023, with a share of 53% in assets and 50% in the total microloan portfolio, MFOs occupy a dominant position in this

[4] History. KMF Blog. https://kmf.kz/news/novosti/istoriya/

[5] The Law of the Republic of Kazakhstan dated November 26, 2012 No.56-V "On Microfinance Activities" (as amended at 03.03.2023)

market (Table 1).

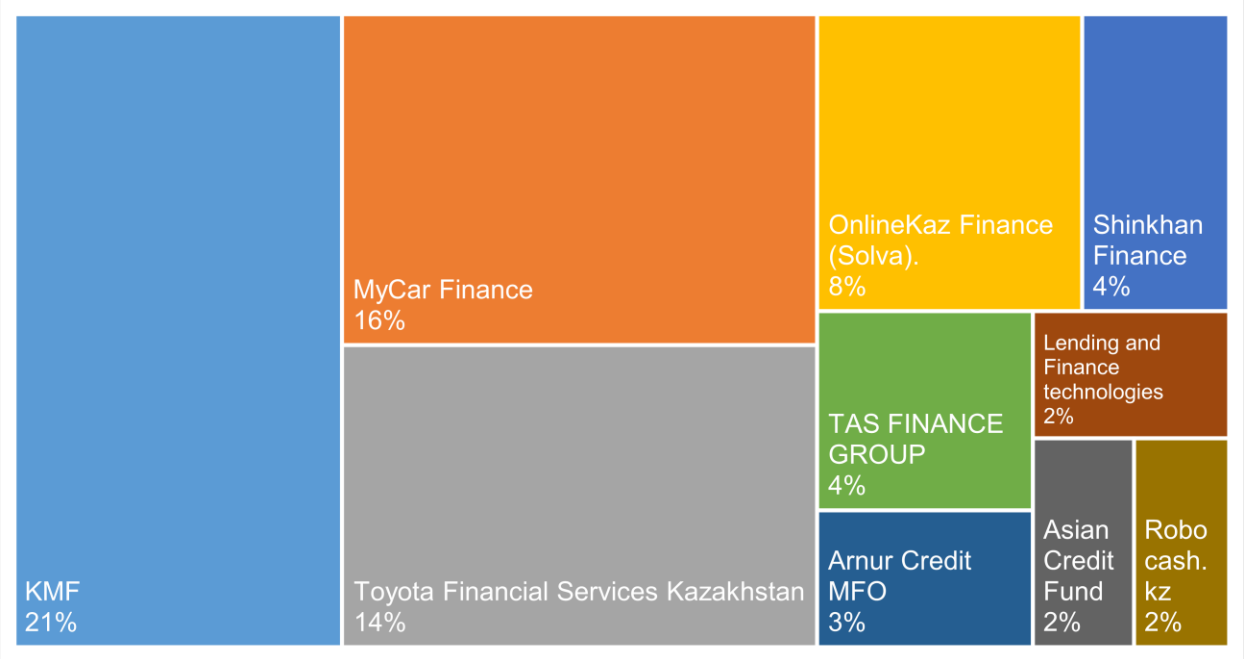
Table 1. Key Parameters of the Non-Bank Finance Market as of October 1, 2023, bln tenge[6]

	Assets	Share	Micro-loans*	Share	Liabilities	Share	OE	Share
Lombards	302.6	12%	205.1	9%	128,9	7%	173,6	21%
MFOs	1360.7	53%	1264.1	50%	956,8	56%	403,8	48%
CPs	896.5	35%	1034.3	41%	634,4	37%	262,1	31%
TOTAL	**2559.8**	**100%**	**2503.5**	**100%**	**1720.1**	**100%**	839,5	**100%**

*Note: * a sum of principal and accrued interest on micro loans.*

The MFO market is quite concentrated: 77% of the portfolio of microloans to individuals is concentrated in the 10 largest companies (Figure 1). High concentration of the MFO market can potentially lead to unhealthy competition and unreasonable increases in rates.

Figure 1. Distribution of the Microloan Portfolio among Top Ten MFOs, as of October 1, 2023[7]



The sources of borrowings of microfinance organizations are an important aspect of their activities. The sources of financing for MFOs include both external and internal lenders. MFOs may receive loans from other microfinance institutions or funds. This could be mutual funding between organizations that operate in the same country or region.

In addition, MFOs can raise funds through issuing bonds or attracting investments from private investors or social investment funds. This allows organizations to obtain long-term funding for their activities and development.

[6] Based on the data from MFOs provided to the NBK's statistics department and published in the official Internet resource

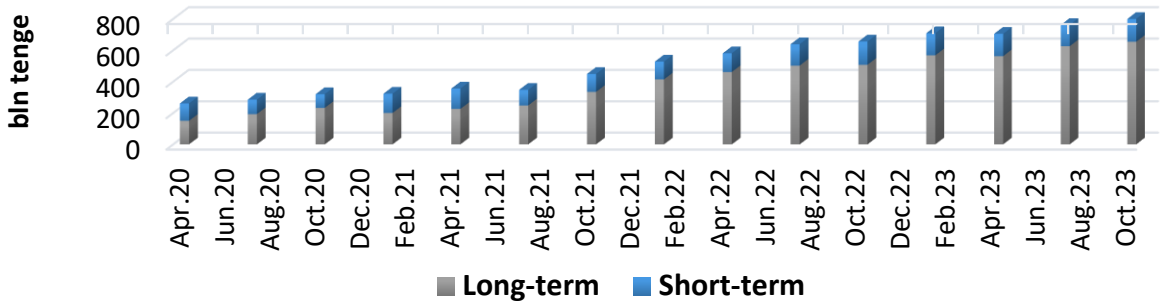
[7] Based on the data from MFOs provided to the NBK's statistics department and published in the official Internet resource

The diversity of these sources allows microfinance organizations to obtain the necessary funds to provide financial services to their clients and develop their activities.

As of the end of the 3rd quarter of 2023, 14 MFOs issued listed bonds on the Kazakhstan Stock Exchange (KASE). Three issuers are presented in the category “bonds of the main site” (6 positions), 2 issuers – in the category of “commercial bonds of the alternative site” (3 positions), 12 issuers in the category “bonds of the alternative site” (20 positions), 2 issuers are presented in the category “bonds of the private placement site"(2 positions)[98].

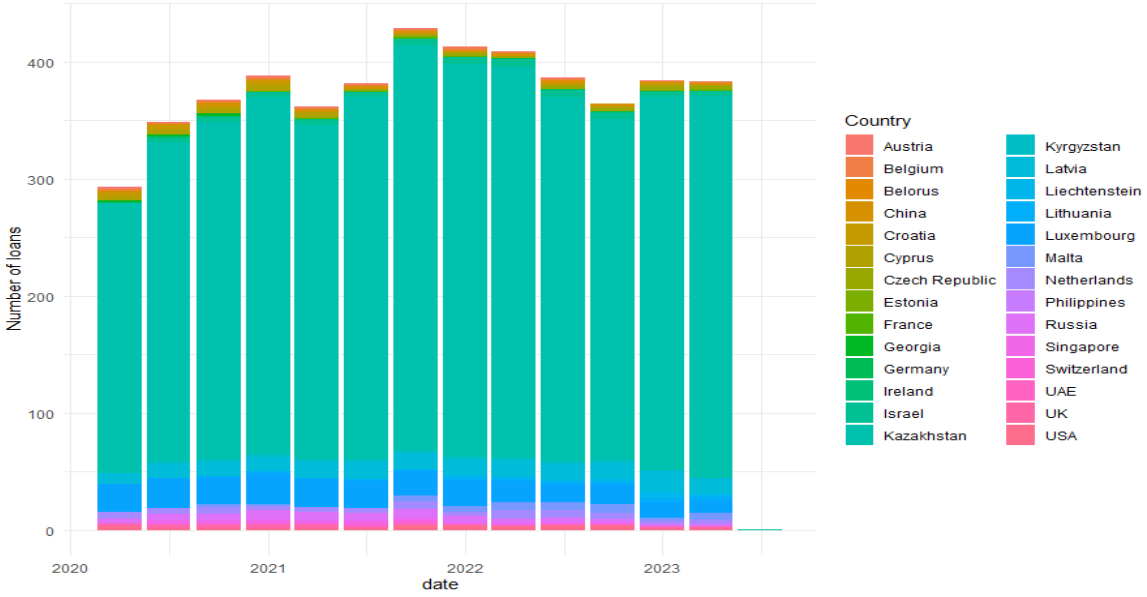
Within the structure of MFO borrowings, the distribution between long-term and short-term debt as of October 1, 2023 was 79.9% and 20.1%, respectively (Figure 2).

Figure 2. Structure of MFO Borrowings by Maturity, End-of-Quarter Balance



The internal debt of MFOs accounts for the largest portion among borrowings (Figure 3). Among foreign borrowings, Luxembourg ranks first, followed by Latvia and others in terms of the number of loans (Appendix 1).

Figure 3. Geography of MFO Borrowings, Number of Contracts.



2.2 Assessing Risks of the Microfinance Market

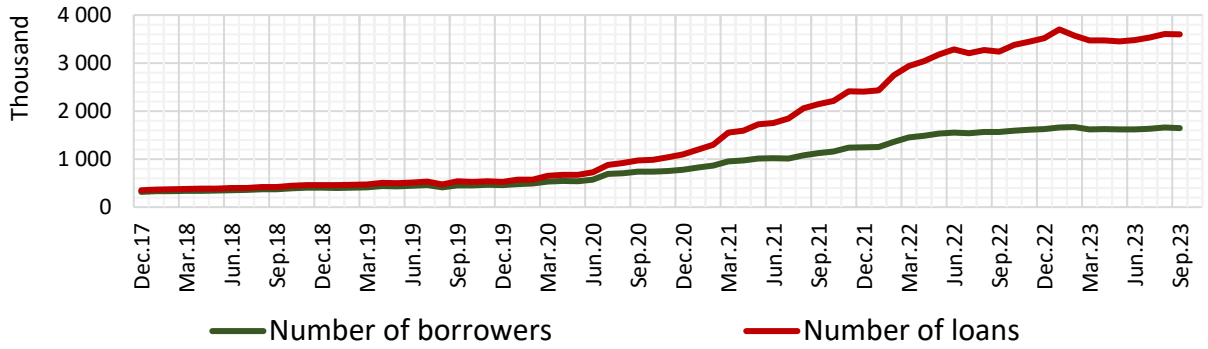
The volume of microlending is growing at a rapid pace, along with the bank’s portfolio of unsecured consumer loans.

[8] List of Instruments of the Kazakhstan Stock Exchange, https://kase.kz/ru/tickers/

The popularity and high demand for microfinance in Kazakhstan is due to an increase in the number of people, who, for a number of reasons, do not have access to bank lending (the presence of a “bad” credit history, the presence of outstanding bank debt, a reduction in real income, lack of a stable income, the need for small amounts “before payday”, etc.). Microlending is an alternative to a bank loan and allows one to quickly and easily receive funds without serious solvency checks. This advantage ultimately turns into serious risks both for the population, whose debt burden is increasing, and for the MFOs themselves. The high cost of microloans and the likely emergence of dependence on microlending (when a borrower takes out a “new” microloan to repay an “old” one) provokes a further increase in debt and debt burden of the population.

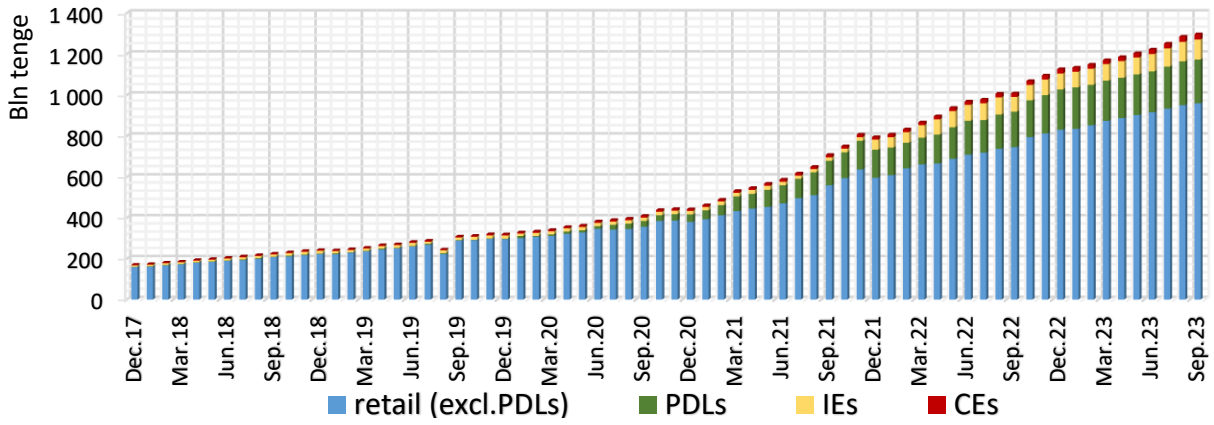
Currently, there is a problem that is associated with an increase in the number of loans per borrower. The number of MFO clients over 5.5 years increased from 0.3 million to 1.6 million, while the number of loans in the first half of 2023 exceeded the number of borrowers by 2.2 times (Figure 4).

Figure 4. Key MFO Market Performance Indicators for 2018-2023 [9]



As at October 1, 2023, the volume of MFO portfolio equaled 1.3 trln tenge[10,] where the retail portfolio (including PDLs) amounted to 1.17 trln tenge. The share of individuals in the MFO portfolio accounted for 90% (the share of PDLs – 16.3%), individual entrepreneurs – 8% and that of corporate entities – less than 2%) (Figure 5).

Figure 5. MFO Loan Portfolio by Type of Borrowers



[9] MFO Portfolio = Retail loans under standard terms and conditions + PDLs + Loans to corporate entities + Loans to individual entrepreneurs

[10] The data from the State Credit Bureau, responsibility for the quality of provided data rests with MFOs.

Microloans Provided to Corporate Entities and Individual Entrepreneurs

As at October 1, 2023, the share of microloans provided to corporate entities in total microloan portfolio accounted for about 2% (26 bln tenge) and the share of microloans to individual entrepreneurs (IEs) – 7.5% (98 bln tenge).

Based on the results of the 3 quarters of 2023, there is an increase in overdue debt 90+ days for both the microloan portfolio of corporate entities and the portfolio of individual entrepreneurs. The volume of corporate NPL90+ [11] at October 1, 2023 equaled 2.2 bln tenge or 8.6% of microloans provided to corporate entities. The share of corporate NPL90+ has increased by 0.5 percentage points since the beginning of the year (8.1% as of 01/01/2023). The balance of the individual entrepreneur's overdue debt 90+ days as of 10/01/2023 reached 6.1 bln tenge, which accounts for 6.2% of the microloan portfolio of individual entrepreneurs (3.3% as of 01/01/2023).

At the same time, taking into account the current share of the microloan portfolio of corporate entities and individual entrepreneurs (9% in total), as well as the insignificance of the share of corporate NPL90+ and those of individual entrepreneurs (0.6%) in the total microloan portfolio, microloans of corporate entities and individual entrepreneurs do not represent a source of significant credit risks for MFOs.

Microloans Provided to Individuals

The main risks lie in the portfolio of microloans to individuals, which show an active growth in lending volumes, an increase in both the number of borrowers and the number of microloans per borrower, as well as an increase in the number of overdue loans.

The total amount of debt of individuals on microloans as of 10/01/2023 amounts to 1.17 trln tenge or 90.5% of the total microloan portfolio. During the period from January 2018 to September 2023, the amount of debt of individuals on microloans increased by more than 7 times.

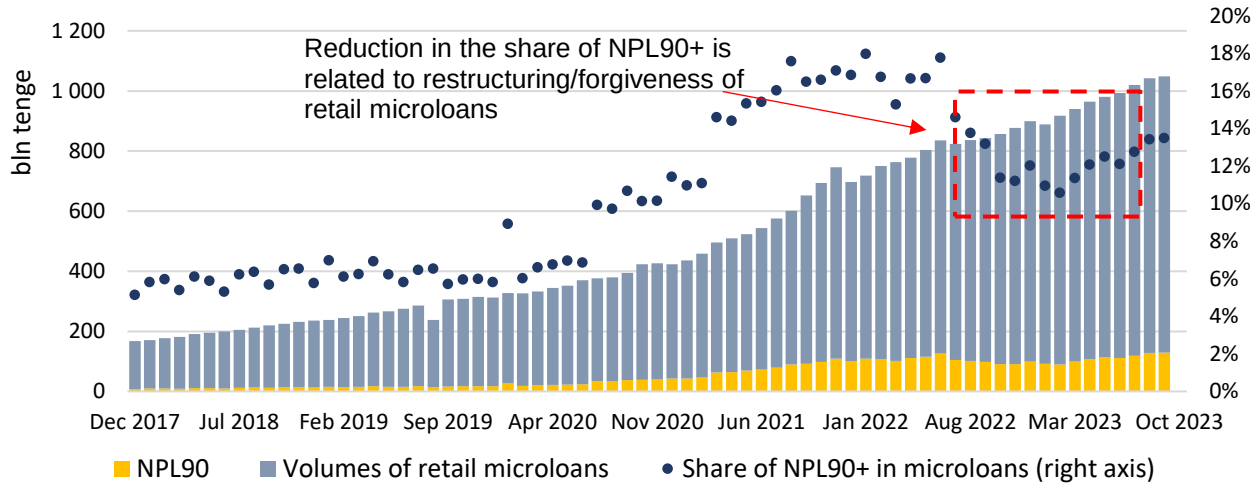
The volume of non-performing microloans (NPL90+) as of 10/01/2023 amounted to 129.5 bln tenge or 11%. This number would have been higher if MFOs, in agreement with the Agency of the Republic of Kazakhstan for Regulation and Development of the Financial Market (hereinafter referred to as the AFR), had not made an effort to restructure the troubled debt in 2022, which also included debt forgiveness for individual borrowers[12].

Restructuring smoothes out the accumulating risks associated with deterioration of the quality of the microloan portfolio, but at the same time distorts the assessment of the credit risks of microlending. With this approach, the restructured debt is reported as standard, however, with some probability, the instability in financial condition of borrowers can lead to new

[11] The data from the State Credit Bureau, responsibility for the quality of provided data rests with MFOs.
[12] The Response from the Agency of the Republic of Kazakhstan for Regulation and Development of the Financial Market to the Deputy Inquiry No.DZ-277 dated October 5, 2022 https://www.parlam.kz/en/mazhilis/question-details/19000

delinquencies and to strengthening of the borrower's reliance on microloans.

Figure 6. Dynamics of Overdue Debt 90+ Days and the Share in the Retail Microloan Porfolio



However, the dynamics show a gradual increase in both the volume of non-performing loans and their share in the microloan portfolio.

At present, individuals have been provided an opportunity[13] to receive microloans of two types.

The first type is microloans in an amount not exceeding 20,000 MCI, with an established maximum effective annual interest rate (EAIR) of 56%, which includes the interest and other payments related to origination and servicing of a microloan.

The second type is microloans issued in accordance with paragraph 3-1 of Article 4 of the Law on Microfinance Activities in an amount not exceeding 50 MCI for a period of up to 45 calendar days, the so-called "payday loans" (hereinafter – PDLs). For PDLs[14], the maximum nominal interest rate is set at less than 1% per day but not more than 20% of the total amount of the originated microloan with a size of more than 30 times the MCI and not more than 15% of the total amount of the originated microloan with a size of up to 30 MCI.

Microloans Excluding PDLs

As of October 1, 2023, the volume of microloans (excluding PDLs) equaled 959.9 bln tenge. Since the beginning of 2018, the retail microloan portfolio has shown a 6-fold increase. During this period, the average size of a microloan, the number of microloans per borrower and, as a result, the debt burden increased.

As of October 1, 2023, an average microloan size amounted to about 1.2 million tenge, having increased by 2.3 times from 510 thousand tenge at the beginning of 2018.

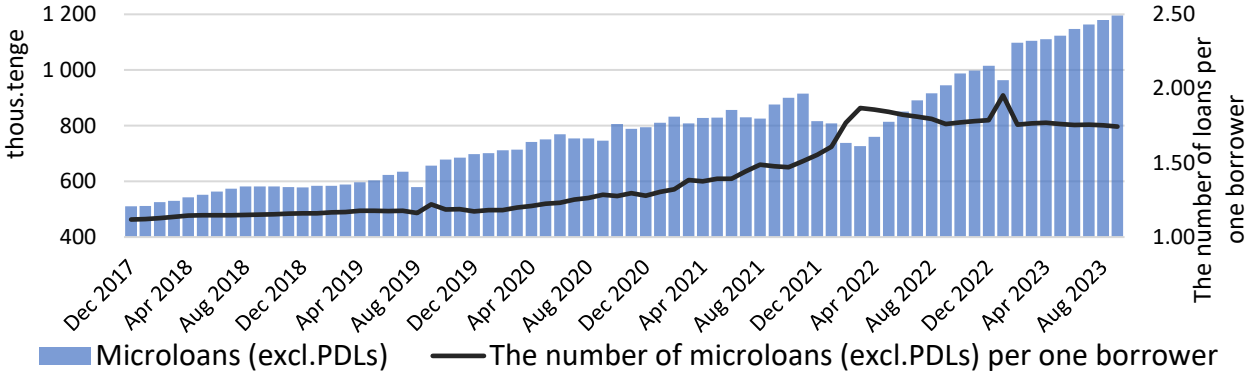
Based on the results of the 3rd quarter of this year, there were about

[13] The Law of the Republic of Kazakhstan "On Microfinance Activities"

[14] Resolution of the Board of the National Bank of the Republic of Kazakhstan dated November 26, 2019 No.209.

1.7 microloans on average per a borrower. The number of borrowers in this segment as of October 1, 2023 equaled 460 thousand people.

Figure 7. Dynamics of Growth in the Number of Loans per One Borrower and an Average Microloan Size



The growing debt burden worsens the payment discipline of borrowers, which is reflected in an increase in overdue debt. As of October 1, 2023, the volume of NPL90+ (excluding PDLs) went up to 81 bln tenge (as of January 1, 2023, the volume of NPL90+ was 62.6 bln tenge).

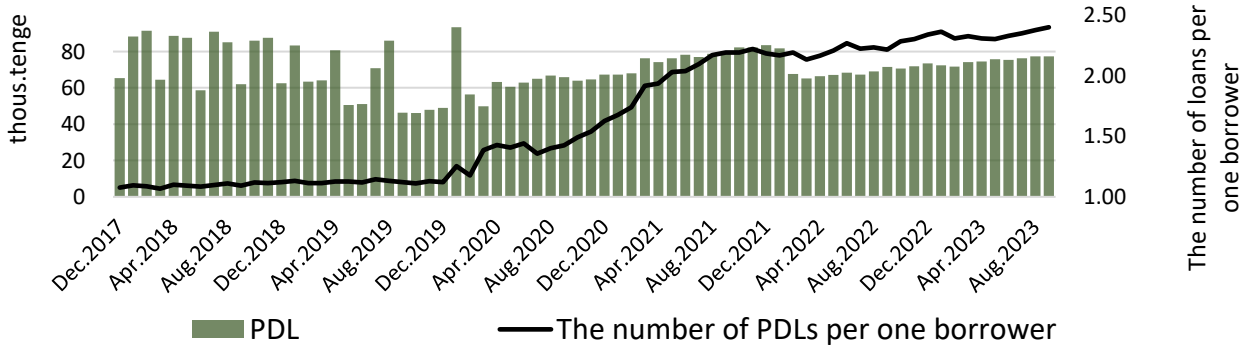
At the same time, credit risks are more concentrated in the PDL segment.

Pay Day Loans

The volume of the total PDL portfolio since the beginning of 2018 has increased from 0.9 bln tenge to 213.4 bln tenge. The share of PDLs in the MFO portfolio at the beginning of 2018 was 0.6%, and as of October 1, 2023, it increased to 16.5%. The average size of such loans ranges between 70-75 thousand tenge. At the same time, the average number of PDLs per borrower increased to 2.3 microloans per borrower, and the number of borrowers reached about 1,150 thousand individuals.

Despite the fact that PDLs are small in size, the debt burden for borrowers is significant, especially considering that such loans are mainly in demand among people with low or unstable income.

Figure 8. Dynamics of the Number of PDLs per One Borrower

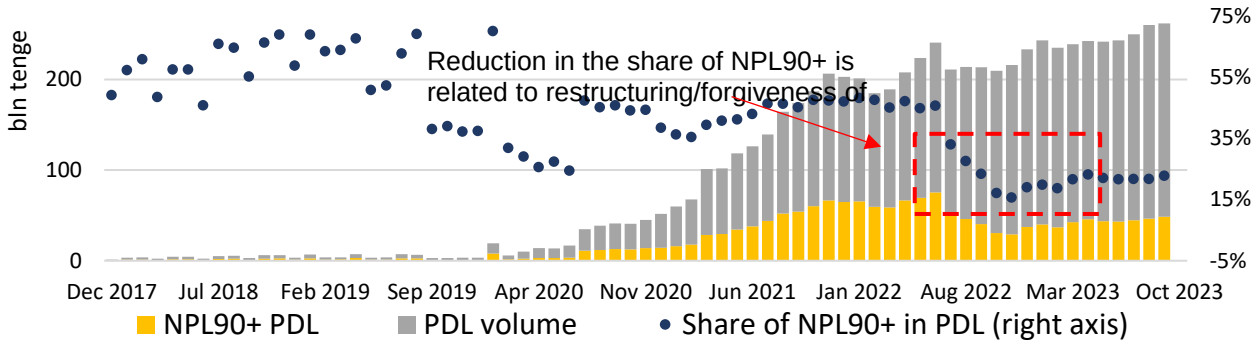


In this segment of microlending, the share of NPL90+ is high. Until mid-2022, the NPL90+ level in PDLs exceeded 40%. By the end of 2022, the share of NPL90+ in the PDL portfolio fell to 16%, which is a record decline for the period under review since 2018. Reduction in the share of NPL90+ in

the PDL segment in the second half of 2022 also resulted from a number of measures taken by the AFR to reduce the debt burden of the population and household debt in the segment of microlending.

The reduction in the share of borrowers with NPL90+ in 2019 and 2020 was not driven by an objective improvement in the portfolio, but by the support measures taken (debt forgiveness for large families and credit holidays during Covid-19).

Figure 9. Dynamics of Non-Performing Microloans in the PDL Segment

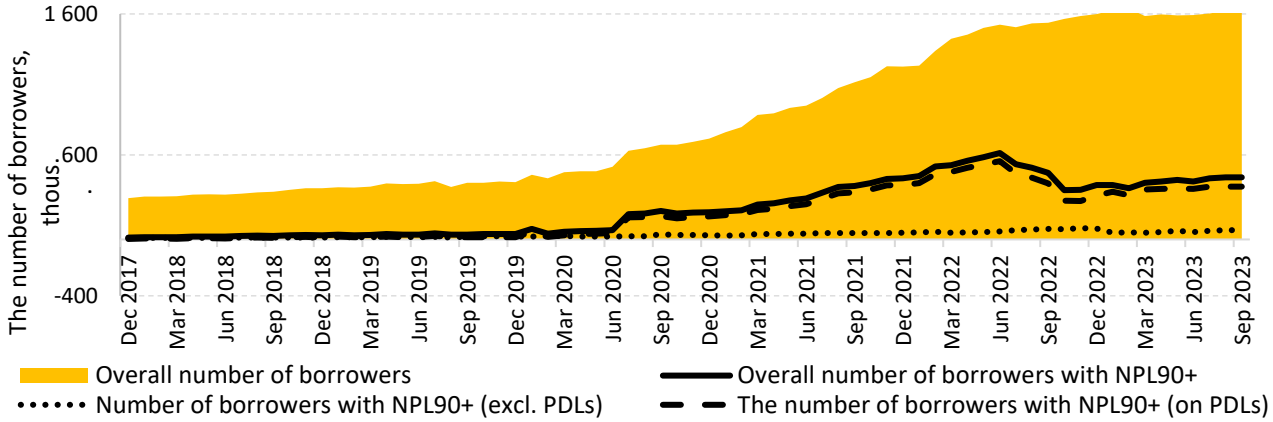


Nevertheless, in 2023 the amount of overdue debt on PDLs was gradually increasing. The share of NPL90+ in PDLs as of October 1, 2023 reached 22.7%.

The carried out restructuring only masks the problem of quality of the microloan portfolio, transferring it to a latent state, when the assessment of credit risks associated with a microloan is distorted and presented overly optimistically.

Based on a comparison of the dynamics in the total number of borrowers and the number of borrowers who had delinquencies over 90 days (Figure 10), it is clear that in the second half of 2022, the number of borrowers who repay microloans for more than 90 days decreased significantly, but the portfolio and the number of borrowers kept growing. This is related to the fact that a restructured debt is reported as standard, i.e. in total, the debt of individuals did not change, but only the date of going overdue was changed.

Figure 10. Dynamics in the Number of Borrowers Who Went Overdue 90+ Days and the Overall Number of MFO Borrowers



At the same time, most likely, the instability of borrowers' financial condition will lead to new delinquencies and would make the borrower's

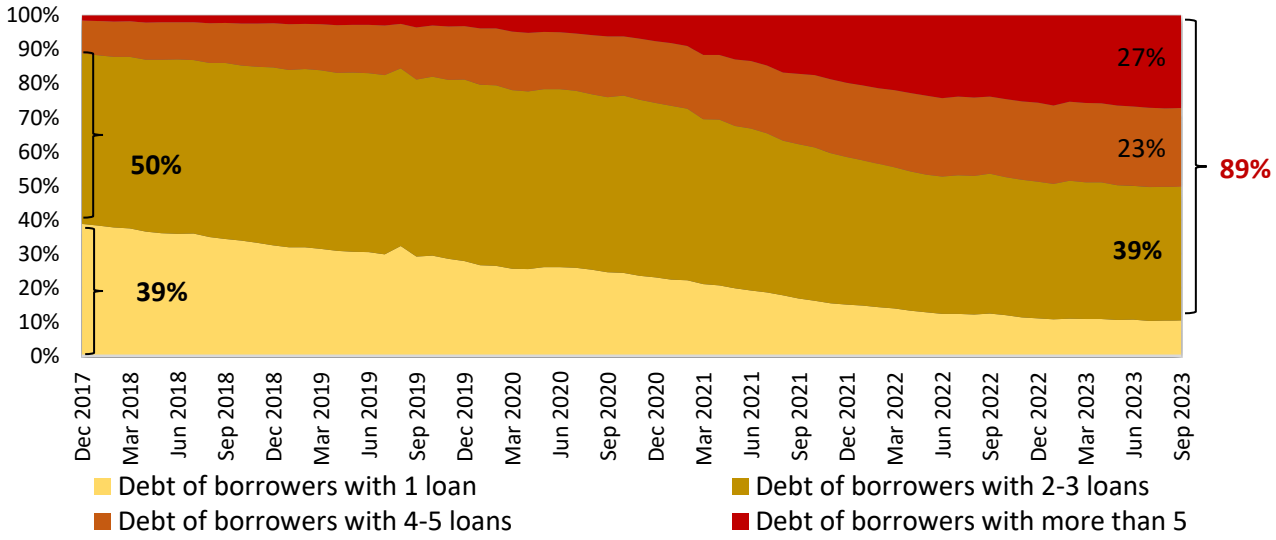
reliance on microloans heavier. In 2023, overdue debt on all retail microloans (including PDLs) as well the number of borrowers who have gone overdue increased.

The Problem of a Growing Number of Borrowers with More than One Microloan

The number of borrowers with more than 1 microloan is growing. Based on the results of the 3rd quarter of 2023, 89% of the microloan portfolio falls on the liabilities of borrowers with 2 or more microloans (Figure 11).

The share of debt of borrowers with more than five loans is growing: 27% of the principal debt on microloans falls on this category of borrowers. An increase in the number of loans leads to problems with debt servicing, the growth in delinquencies, and even greater reliance on microloans, when a subsequent microloan is taken out to cover payments on the previous one.

Figure 11. Decomposition of the Retail Microloan Portfolio Depending on the Number of Loans Provided



Given the persisting growth dynamics in the number of existing microloans per borrower, an increase in the amount of a microloan and low real income of the population[15], there is a high probability of a further increase in overdue debt, including the recurrence of restructured microloans becoming overdue. Financial instability of borrowers will lead to a further increase in their reliance on microloans.

Forgiveness and restructuring of people's debts without increasing their well-being do not improve the portfolio, but only provoke further growth in lending to the population, fueling and stimulating dependent sentiments.

The problem associated with the increase in the number of loans per borrower cannot be solved only by measures that limit the cost or amount of a microloan. As one of the options for reducing the debt burden, one can consider imposing a limit on the number of microloans per borrower, in

[15] According to the most recent data from the BNS ASPR RK, the real income index in Kazakhstan in October 2023 was 93.9% (in April – 96.6%, in March – 99.7%, in May – 97.4%), https://taldau.stat.gov.kz/ru/NewIndex/GetIndex/704449?keyword=

particular, a ban on originating new microloans until the borrower has fully repaid previous ones, especially overdue loans. Thus, a number of legislative amendments were proposed aimed at reducing the debt burden of the population in Kazakhstan, including the imposition of a ban on originating new microloans to a borrower if he/she has a 90+ days overdue debt on current loans/microloans. This measure is one of the steps to curb the further growth of the household debt; after analyzing the first results obtained from the imposition of this measure it would be possible to evaluate the effectiveness and propose options for its optimization.

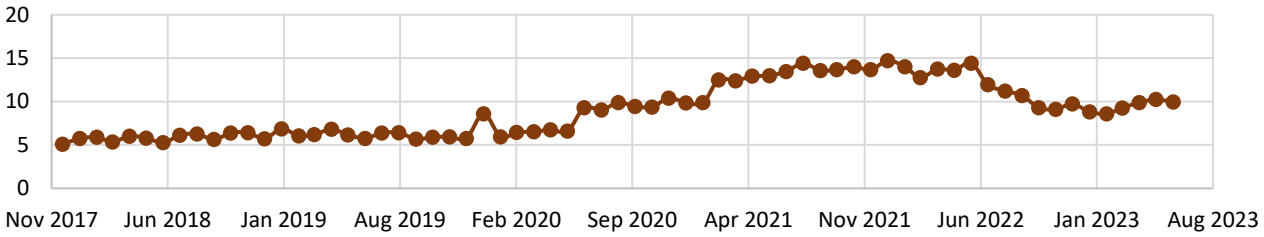
2.3 The Econometric Model of the Effect of the Degree of Impact by real Impact on the Share of Overdue Debt in the Microloan Portfolio

As part of the study, the task was to analyze how much basic socio-economic indicators and government support measures affect the share of overdue debt in the MFO portfolio (NPL90+).

To determine the impact of key socio-economic variables on the NPL90+ share, various econometric models were built and studied using the monthly data from December 2017 to June 2023.

The share of NPL90+ was used as a dependent variable in the model, with the dynamics shown in Figure 12.

Figure 12. Share of NPL90+ in the Overall Balance of the MFO Retail Portfolio



The index of real money income, whose dynamics are presented in Figure 13, and the growth rate of social budget spending were used as explanatory variables (Figure 14).

Figure 13. Real Money Income Index

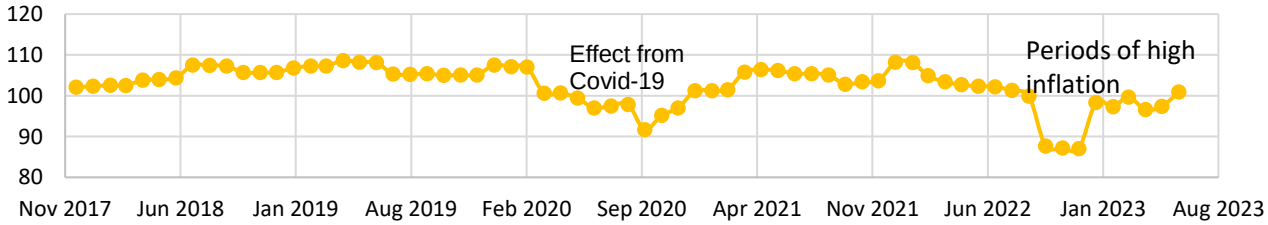
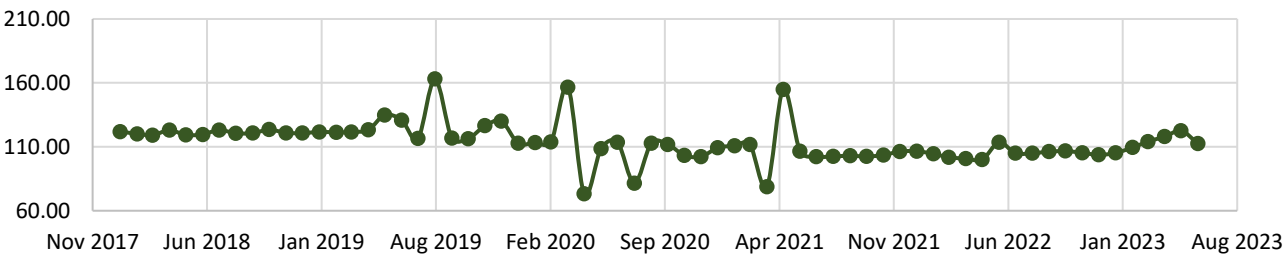


Figure 14. Dynamics of the Social Budget Spending Index



For analysis purposes, 12 OLS models were constructed using the variables shown in Table 2. These models served to identify the most significant macro variables that can be used as explanatory variables for the dependent variable – the share of NPL90+ (Appendix 2) for further analysis.

Table 2. Information on Variables

Factors Incorporated into the Model	
MFO_ost	Principal balance at the date on the retail MFO
MFO_NPL90	NPL90+ balance at the date on the retail MFO portfolio
Dolya_NPL90	Share of NPL90+ in the retail MFO portfolio
real_wage_index	Real money income index
Budjet_social	Budget spending on social welfare and social security converted into index[16]
unemp	The share of registered unemployed people within the work force
prod_corzina	Cost of the food basket
KEI	Short-term economic indicator
Length of the time series used	December, 2017 – June, 2023
Frequency of the time series	Monthly data

The following variables were identified as factors for further modeling of the NPL90+ share: real wage index and social budget spending index. The results generally show the presence of relationships between the variables.

The obtained RMSE values from 0.2 to 0.5 taking into account the empirical rule, show that two OLS models have relatively accurate predictive ability: a model where NPL90+ acts as a dependent variable, and a model with a dependent variable in the form of the balance of the MFO retail loan portfolio (MFO_ost).

Table 3. Information on the Most Significant Variables

Factor Incorporated into the Model	Shorthand Notation	Data Preparation Method
Share of NPL90+ in the retail microloan portfolio	Dolya_NPL	-
Real money income index	Real_income_Index	-
Social budget spending index	Budjet_social_Index	the value is inflation-adjusted and converted into index
A dummy variable that takes into account the effect of debt forgiveness/restructuring periods (2019 and 2022)	Dummy(MFO)	-

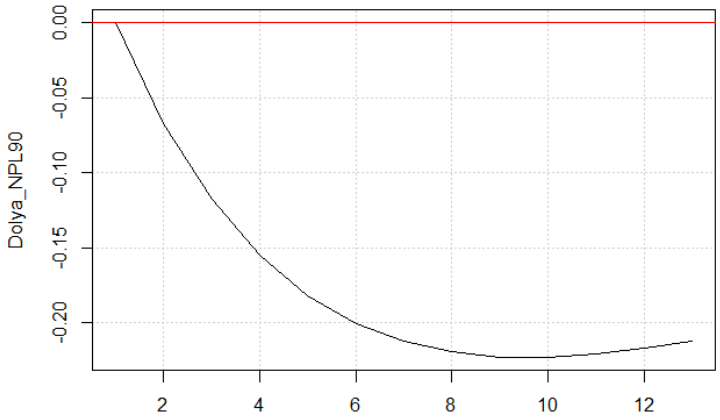
[16] In accordance with the Budget Code of the Republic of Kazakhstan, expenditures of the national and local budgets on pension payments to individuals entitled to pensions, government social benefits, targeted social assistance and other social payments from the budget

Due to the short duration of data series, the most optimal approach for analysis is the approach of vector autoregressive models (VAR), used to describe the short-term dynamics of the effects of changes in significant socio-economic factors that, in our opinion, are sensitive for MFO borrowers.

2 VAR models were built using the NPL90+ share as a dependent variable, and the index of real money income and the constructed index of social budget spending as explanatory variables. Additionally, a dummy variable was added to both models, reflecting the periods of forgiveness and write-off of debt of individuals (in 2019 and in 2022).

In the first example (VAR Model 1), an 1 pp increase in the index of real money income, all other things being equal, leads to a decrease in the share of NPL90+ in the microloan portfolio of individuals by approximately 0.2 pp after 9 months, but after 12 months the effect attenuates.

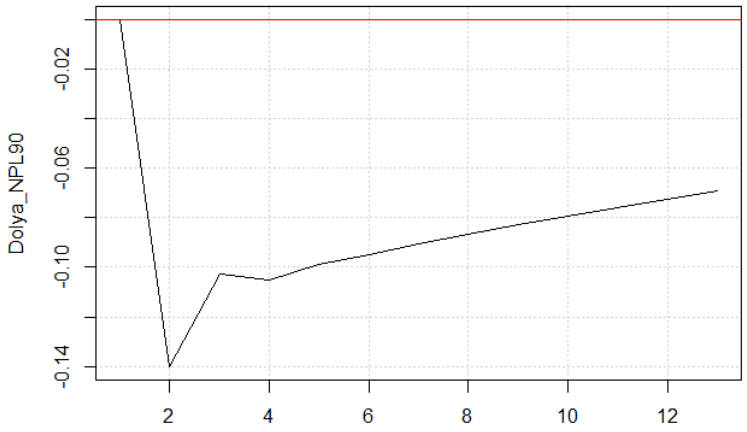
Figure 13. VAR Model 1, Impulse Response of the Share of NPL90+ to a 1 pp Positive Change in the Real Money Income Index



Dolya_NPL = a1(Real_income_Index) + a2*Dummy(MFO) + εt*

In the second example (VAR Model 2), a 1 pp increase in the index of budget social spending, other things being equal, leads to a 0.14 pp reduction in the share of NPL90+ in the retail microloan portfolio after 2 months; the effect attenuates after three months.

Figure 14. VAR Model 2, Impulse Response of the Share of NPL90+ to a 1 pp Positive Change in the Social Budget Spending Index



Dolya_NPL = a1 (Budjet_social_Index) + a2*Dummy(MFO) + εt*

The modeling results show that real income of the population and social budget spending have an impact on the dynamics of the share of NPL90+ in the MFO portfolio. However, an increase in real income has a more pronounced and lasting effect on reducing overdue debt. Thus, improving the well-being of the population is a significant factor that increases the ability of households to service their obligations and reduces the volume of loans with overdue payments. The government support for socially vulnerable segments of the population has an insignificant effect on reducing the share of troubled microloans, while government social expenditures only weakly smooth out the share of troubled debt in the short term. The effect of such measures manifests itself quickly, but over time, this influence weakens.

Conclusion

High rates of lending to the population indicate the importance of microlending as a source of borrowed funds. Microlending as an alternative to a bank loan allows one to quickly and easily receive funds without serious solvency checks. Bad credit histories, coupled with low requirements for assessing the solvency of borrowers by microfinance organizations, can significantly fuel interest in this type of lending. The benefits of microlending ultimately turn into risks both for the population, whose debt burden is increasing, and for the microfinance organizations themselves. The high cost of microloans and the likely emergence of reliance on microloan (when a borrower takes out a “new” microloan to repay an “old” one) stimulate further growth of debt and household debt burden.

Credit amnesties, debt forgiveness and restructuring do not qualitatively improve the portfolio, but heat up the market, provoking an even greater increase in lending to the population, stimulating dependency sentiment. An increase in the number of borrowers with multiple loans may indicate that new loans are used to pay off old ones, further unwinding the debt spiral.

Given the persisting growth dynamics in the number of active microloans per borrower this year, an increase in debt per microloan and low real income of the population, there is a high probability of a further increase in overdue debt, including a recurrence of restructured microloans becoming overdue. The instability of the financial situation of borrowers is likely to lead to new delinquencies and to make the borrower’s reliance on microloans greater.

The situation that has arisen may lead to an increase in the number of people who are unable to improve their financial condition, and, accordingly, the number of bankrupt individuals.

The number of MFO clients over the past 5.5 years has grown to 1.6 million people, with a simultaneous increase in the number of loans per borrower. The problem associated with the growth in the number of loans per borrower cannot be solved only by measures limiting the cost of

microloan. In this case, it is possible to consider the imposition of a limit on the number of microloans per borrower, in particular a ban on issuing new microloans until the borrower has fully repaid previous ones, especially overdue ones. In addition, a clearly structured mechanism for settling overdue debts is needed, which will provide people with the opportunity to service overdue debts effectively, as well as a productive and fully designed framework for bankruptcy of individuals.

At the time when this paper was in progress, the AFR, together with the NBK, had elaborated a number of legislative amendments, including the imposition of a ban on origination of new microloans to a borrower if he/she has debt on current loans/microloans 90+ days overdue, with the exception of loans intended for restructuring of the existing debt. This measure is one of the steps to curb the further growth of the household debt; after analyzing the first results obtained from the imposition of such measure it would be possible to evaluate the effectiveness and propose options for its optimization.

It is also noteworthy that, according to the results of regression analysis, the increase in real money income of the population has a significant impact on the share of NPL90+ in the portfolio. Accordingly, the solution to the problem of debt burden of people and their ability to service debts in a timely manner is seen in improving the general well-being of the population, increasing the quality of their life and generally depends on the sustainable high-quality long-term growth of the country's economy.

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Appendix 1

Table 1. Results of OLS Models

Model type 1	OLS Dolya	OLS NPL90	OLS Ostatok
(Intercept)	-1.935	-55.625	-31.407
	(0.410)	(7.509)	(3.993)
real_wage_index	0.002	0.011	-0.003
	(0.001)	(0.012)	(0.006)
log(KEI)	0.042	1.273	0.885
	(0.016)	(0.288)	(0.153)
unemp	0.008	0.293	0.177
	(0.009)	(0.168)	(0.089)
log(Budjet_social)	0.061	2.278	1.558
	(0.022)	(0.396)	(0.211)
Num.Obs.	67	67	67
R2	0.494	0.807	0.880
R2 Adj.	0.461	0.795	0.872
AIC	-310.5	1485.0	1730.7
BIC	-297.3	1498.2	1743.9
Log.Lik.	161.252	-33.514	8.802
F	15.106	64.843	113.459
RMSE	0.02	0.40	0.21

Model type 2	OLS Dolya	OLS NPL90	OLS Ostatok
(Intercept)	-2.164	-63.845	-36.384
	(0.319)	(5.944)	(3.183)
real_wage_index	0.001	0.004	-0.006
	(0.001)	(0.012)	(0.006)
log(KEI)	0.044	1.377	0.947
	(0.015)	(0.286)	(0.153)
log(Budjet_social)	0.072	2.679	1.800
	(0.018)	(0.328)	(0.176)
Num.Obs.	67	67	67
R2	0.487	0.798	0.872
R2 Adj.	0.463	0.788	0.866
AIC	-311.6	1486.2	1732.8
BIC	-300.6	1497.2	1743.8
Log.Lik.	160.823	-35.123	6.731
F	19.940	82.749	143.245
RMSE	0.02	0.41	0.22

Model type 3	OLS Dolya	OLS NPL90	OLS Ostatok
(Intercept)	-2.011	-59.085	-33.109
	(0.332)	(6.800)	(3.947)
real_wage_index	0.001	-0.005	-0.013
	(0.001)	(0.013)	(0.008)
log(Budjet_social)	0.102	3.584	2.424

Model type 3	OLS Dolya	OLS NPL90	OLS Ostatok
	(0.015)	(0.312)	(0.181)
Num.Obs.	67	67	67
R2	0.419	0.723	0.795
R2 Adj.	0.401	0.715	0.788
AIC	-305.3	1505.2	1762.6
BIC	-296.5	1514.0	1771.4
Log.Lik.	156.639	-45.604	-9.156
F	23.059	83.618	123.763
RMSE	0.02	0.48	0.28

Model type 4	OLS Dolya	OLS NPL90	OLS Ostatok
(Intercept)	-1.250	-29.942	-13.598
	(0.255)	(6.056)	(3.692)
real_wage_index	0.001	-0.020	-0.023
	(0.001)	(0.016)	(0.010)
log(KEI)	0.081	2.718	1.849
	(0.014)	(0.334)	(0.203)
Num.Obs.	67	67	67
R2	0.350	0.583	0.659
R2 Adj.	0.330	0.570	0.648
AIC	-297.8	1532.6	1796.5
BIC	-288.9	1541.4	1805.4
Log.Lik.	152.884	-59.311	-26.143
F	17.220	44.795	61.809
RMSE	0.02	0.59	0.36

Model type 5	OLS Dolya	OLS NPL90	OLS Ostatok
(Intercept)	-1.483	-43.359	-22.832
	(0.298)	(4.373)	(1.838)
real_wage_index	0.002	0.031	0.011
	(0.001)	(0.009)	(0.004)
log(Budjet_social)	-0.004	0.440	0.369
	(0.024)	(0.352)	(0.148)
log(prod_corzina)	0.143	4.271	2.791
	(0.027)	(0.404)	(0.170)
Num.Obs.	67	67	67
R2	0.594	0.900	0.961
R2 Adj.	0.575	0.896	0.959
AIC	-327.3	1438.7	1652.9
BIC	-316.3	1449.7	1663.9
Log.Lik.	168.665	-11.379	46.686
F	30.737	189.763	520.348
RMSE	0.02	0.29	0.12

Appendix 2

The test for the presence of serial correlation in the residual for both models, also called the Portmanteau test, shows that the p-value of the test is above 5%, which means that we cannot reject the null hypothesis of no serial correlations.

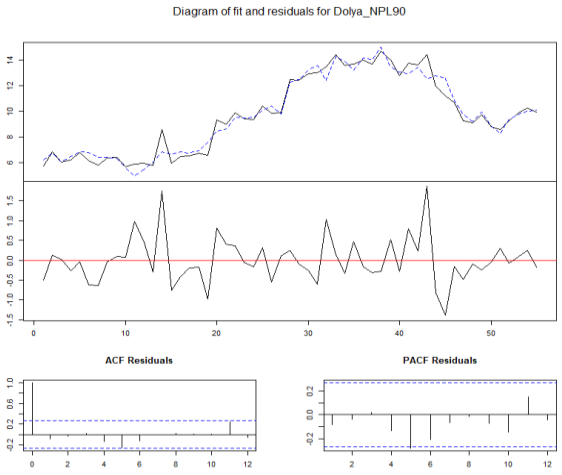
The Jarque Bera test, to test whether the residuals are normally distributed, shows that the p-value is greater than 0.05, which means that the residuals tend to follow a normal distribution.

Values of the optimal number of lags for the model p=1. This is confirmed by all of the selected criteria,

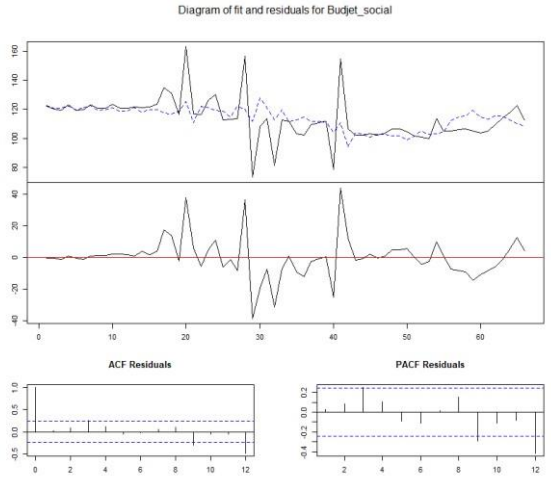
AIC(n) HQ(n) SC(n) FPE(n) 1 1 1 1

Diagrams of Residues

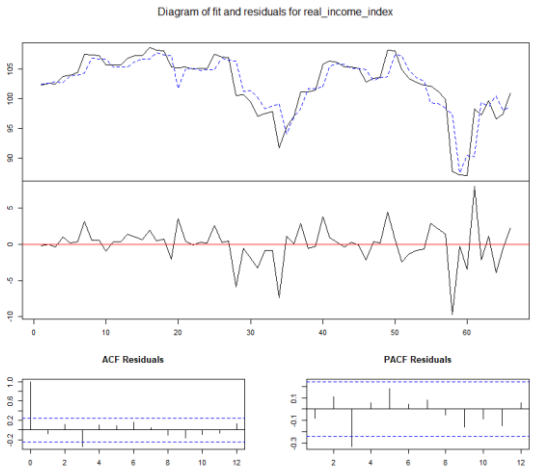
Residues in the model are stable, which is an evidence of a good explanatory force of the model.



** Shares of NPL90+ in the retail MFP portfolio*



**Of social budget spending*



**Of real income index*