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SUSTAINABLE DEVELOPMENT OF MORTGAGE LENDING: ECONOMIC CHALLENGES AND PROSPECTS

This article examines the development of mortgage lending in Kazakhstan, focusing on its dynamics and its relationship with key macroeconomic indicators. Special attention is given to the role of government programs and the integration of ESG (Environmental, Social, and Governance) principles to promote sustainability in the sector. While ESG standards are widely adopted in international financial systems, this study analyzes Kazakhstan's unique economic and institutional context. Additionally, Uzbekistan is considered a country where certain effective financial and regulatory tools applied in Kazakhstan could potentially be adapted to local conditions.

The analysis compares selected mortgage lending indicators between Kazakhstan and Uzbekistan and employs correlation and regression modeling to evaluate how macroeconomic variables such as GDP, interest rates, and the share of overdue loans impact mortgage lending volumes. Drawing on data from The Global Economy (2023), the study explores how mortgage programs in developed countries affect the ratio of banking sector assets to GDP, providing a global benchmark.

A detailed analysis of mortgage trends from 2007 to 2023 reveals important patterns and correlations between macroeconomic factors and mortgage loan dynamics in both countries. Time series and correlation methods allowed the authors to establish statistically significant relationships, particularly in the case of Kazakhstan. As a result, a forecasting model was developed, incorporating GDP growth, lending interest rates, and the level of non-performing loans as independent variables.

The article also discusses the integration of ESG standards into Kazakhstan's mortgage finance system, highlighting their potential to foster green construction and sustainable housing development. These initiatives support broader sustainable development objectives and could be relevant for Uzbekistan as well. The authors argue that implementing green financial instruments such as green mortgages and funding programs for energy-efficient housing can reduce environmental harm and improve housing affordability in Kazakhstan, Uzbekistan, and other emerging economies.

Keywords: mortgage lending, sustainable development goals (SDGs), ESG standards, GDP, socio-economic development, Kazakhstan.

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Ипотекалық несиелендірудің тұрақты дамуы: экономикалық қиындықтар мен болашағы

Бұл мақалада Қазақстандағы ипотекалық несиелендірудің дамуы, оның серпіні және негізгі макроэкономикалық көрсеткіштермен байланысы қарастырылады. Сектордың тұрақты дамуын қамтамасыз етудегі мемлекеттік бағдарламалардың рөлі мен ESG (экологиялық, әлеуметтік және корпоративтік басқару) қағидаттарын енгізуге ерекше назар аударылған. ESG стандарттары халықаралық қаржы жүйелерінде кеңінен қолданылғанымен, бұл зерттеу Қазақстанның экономикалық және институционалдық ерекшеліктерін талдайды. Сонымен қатар, Өзбекстан – Қазақстанда қолданылған тиімді қаржылық және реттеуші құралдарды жергілікті жағдайға бейімдеуге болатын ел ретінде қарастырылады.

Талдау барысында Қазақстан мен Өзбекстан арасындағы ипотекалық несиелендірудің кейбір көрсеткіштері салыстырылып, ЖІӨ, пайыздық мөлшерлемелер және мерзімі өткен несиелердің үлесі сияқты макроэкономикалық айнымалылардың ипотека көлеміне әсері корреляциялық және регрессиялық модельдер арқылы бағаланады. The Global Economy (2023) деректеріне сүйене отырып, зерттеу дамыған елдердегі ипотекалық бағдарламалардың банк секторы активтерінің ЖІӨ-ге қатынасына қалай әсер ететінін қарастырады.

2007–2023 жылдар аралығындағы ипотекалық үрдістерді егжей-тегжейлі талдау Қазақстан мен Өзбекстандағы негізгі экономикалық көрсеткіштер мен ипотекалық несиелер арасындағы маңызды байланыстарды көрсетті. Уақыттық қатарлар мен корреляциялық әдістер Қазақстан жағдайында айтарлықтай статистикалық маңыздылықты айқындады. Нәтижесінде ЖІӨ өсімі, пайыздық мөлшерлемелер және проблемалық несиелер деңгейі сияқты айнымалыларды қамтитын болжамдық модель жасалды.

Мақалада ESG стандарттарының Қазақстанның ипотекалық қаржы жүйесіне енгізілуі және олардың «жасыл» құрылыс пен тұрақты тұрғын үйді дамытуға қосқан үлесі де қарастырылады. Мұндай бастамалар тұрақты даму мақсаттарына сәйкес келеді және Өзбекстан үшін де өзекті. Авторлар «жасыл» ипотека және энергия үнемдейтін тұрғын үйлерге бағытталған қаржылық құралдарды енгізу экологиялық зиянды азайтып, тұрғын үйдің қолжетімділігін арттырады деп пайымдайды.

Түйін сөздер: ипотекалық несиелеу, тұрақты даму мақсаттары (ТДМ), ESG – стандарттар, ЖІӨ, елдің әлеуметтік-экономикалық дамуы, Қазақстан.

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Устойчивое развитие ипотечного кредитования: экономические вызовы и перспективы

Данная статья рассматривает развитие ипотечного кредитования в Казахстане, с акцентом на его динамику и взаимосвязь с ключевыми макроэкономическими показателями. Особое внимание уделено роли государственных программ и интеграции принципов ESG (экологических, социальных и управленческих) для обеспечения устойчивости в секторе. Несмотря на широкое распространение стандартов ESG в международной финансовой практике, исследование сосредоточено на специфике экономических и институциональных условий Казахстана. Наряду с этим, в качестве страны для возможной адаптации успешных казахстанских инструментов рассматривается Узбекистан.

Анализ включает сравнение отдельных показателей ипотечного кредитования в Казахстане и Узбекистане, а также применение корреляционно-регрессионного моделирования для оценки влияния таких макроэкономических переменных, как ВВП, процентные ставки и доля просроченной задолженности, на объемы ипотечного кредитования. На основе данных The Global Economy (2023) исследуется, как ипотечные программы в развитых странах влияют на соотношение активов банковского сектора к ВВП, что позволяет установить глобальный ориентир.

Детальный анализ ипотечных трендов за период 2007–2023 годов выявил важные закономерности и взаимосвязи между макроэкономическими факторами и динамикой ипотечного кредитования в обеих странах. Методы временных рядов и корреляционного анализа позволили установить статистически значимые зависимости, особенно в казахстанском контексте. В результате была разработана прогностическая модель, включающая рост ВВП, процентные ставки и уровень проблемных кредитов в качестве независимых переменных.

В статье также рассматривается процесс интеграции ESG-стандартов в систему ипотечного финансирования Казахстана, с акцентом на продвижение “зеленого” строительства и устойчивого жилищного развития. Эти инициативы соответствуют целям устойчивого развития и актуальны для Узбекистана. Авторы утверждают, что внедрение таких финансовых инструментов, как “зеленая” ипотека и программы финансирования энергоэффективного жилья, позволит сократить экологический ущерб и повысить доступность жилья в Казахстане, Узбекистане и других развивающихся странах.

Ключевые слова: ипотечное кредитование, цели устойчивого развития (ЦУР), ESG-стандарты, ВВП, социально-экономическое развитие страны, Казахстан.

Introduction

The mortgage lending market plays a crucial role in the socio-economic development of countries. It stimulates construction activity, affects employment, and serves as an essential financial instrument to improve housing conditions. Kazakhstan has actively integrated the Sustainable Development Goals (SDGs) into national policy, emphasizing access to affordable housing (SDG 11), economic growth (SDG 8), and support for green technologies (SDG 13). This article analyzes the dynamics of mortgage lending in Kazakhstan and, to a limited extent, Uzbekistan. It evaluates the influence of

macroeconomic indicators, state programs, and the implementation of sustainable financial instruments, especially green mortgages, on the housing finance system.

According to the report (CCA Kazakhstan, 2023), Kazakhstan is actively integrating the Sustainable Development Goals (SDGs) into its national strategy. In this context, mortgage lending plays an important role in achieving a number of SDGs:

- SDG 1 "Eradicate poverty", as mortgage lending contributes to poverty reduction by increasing housing affordability;
- SDG 8 "Decent Work and Economic Growth" as mortgage programs and projects affect GDP and stimulate the construction industry;
- SDG 11 "Sustainable Cities and Human Settlements", as mortgage lending is an important tool for creating affordable and sustainable housing for the country's population.

In addition, the achievement of SDG 7 "Affordable and Clean Energy" and SDG 13 "Climate Action" is particularly relevant. In this context, the development of green mortgages and the financing of energy efficient housing serve as important tools to promote sustainable development in any country.

Government regulation of the mortgage market determines the range of financing instruments available to market participants and aims to enhance housing affordability while ensuring stable demand (Yermilova, 2019). For example, as Kazakhstan strives for carbon neutrality by 2060, the integration of ESG standards into mortgage lending – particularly through the issuance of green bonds and support for energy-efficient construction – has become a key step toward sustainable development.

Literature review

The development of mortgage lending has been extensively studied in both developed and emerging economies. International experience shows that mortgage availability is closely tied to government policies, macroeconomic stability, and financial market maturity. According to reports by the International Monetary Fund (IMF, 2019) and the World Bank (WB, 2022), mortgage growth contributes significantly to GDP expansion, employment, and housing affordability.

Mortgage lending is considered a crucial component of the mortgage system, as it allows citizens to either acquire new housing or improve existing conditions by leveraging borrowed funds. In the view of F. Carozzi, numerous government initiatives across countries are designed to stimulate both supply and demand in mortgage lending. These include mortgage interest tax exemptions (e.g., USA, India, Sweden), state loan guarantees (USA, Netherlands), and subsidized loan programs (France, UK), all aimed at reducing the overall cost of housing acquisition (Carozzi, 2024).

According to B.J. Keys, the effectiveness of housing policy also depends on the financial behavior and literacy of households, as well as their willingness to make rational long-term financial decisions (Keys, 2016). The mortgage process involves the successful execution of real estate purchase transactions with credit mechanisms, requiring well-coordinated procedures and institutions (Averyanova, 2008).

In the context of project management, R. Müller emphasizes that different real estate projects require distinct success criteria depending on their type and industry context (Müller, 2016). According to A. Koblyakova, the distribution of mortgage contracts can vary significantly between regions due to differing policy environments and structural economic factors (Koblyakova, 2014). As stated by A.C. Goodman, homebuyers plan multi-year residency and housing decisions based on income expectations, regional prices, and preferences – especially when transaction costs are present (Goodman,1920).

In terms of sustainability and ESG integration, S. Liu argues that banks with high ESG performance are more cautious in selecting borrowers, closely monitor loan disbursement and usage, and demonstrate lower default rates (Liu, 2023). The author Q. Wang believes that banks with lower return on equity (ROE) tend to pursue ESG improvements to enhance their public image and demonstrate commitment to sustainability (Wang, 2023). According to the observation of Y. Shi, China's capital market provides a unique case for studying the economic impact of ESG-oriented investments on the banking sector (Shi, 2024). B. Rahat also notes the increasing importance of adhering to international ESG reporting standards to ensure financial transparency and long-term resilience (Rahat, 2023).

Finally, according to Bezemer, changes in the mortgage lending sector have substantial effects on business credit flows; however, the nature and magnitude of this impact largely depend on the institutional development and structure of the banking system in a given country (Bezemer, 2020).

Methodology

In the research process, along with the description of the study's geographical and economic context, the authors applied a range of methods for identifying key parameters, as well as statistical, mathematical, and analytical tools for processing, interpreting, and summarizing empirical data.

The subject of this study is mortgage lending in the Republic of Kazakhstan, examined through the lens of Sustainable Development Goals (SDGs) and ESG principles, with the goal of deriving applicable insights for the Republic of Uzbekistan.

The study is based on the hypothesis that there exists a statistically significant relationship between key macroeconomic indicators and the share of banking system assets relative to GDP. Specifically, it is assumed that household debt to financial institutions, total loan volumes, and banking assets have a direct positive correlation with mortgage lending, while overdue debt has an inverse relationship.

To support this assumption, the study also presents a comparative analysis of mortgage lending in developed economies (using data from Global Economy, 2023). This analysis illustrates that in many countries, growth in mortgage lending is associated with an increased share of banking sector assets in GDP.

For Kazakhstan, the authors utilized statistical methods and dynamic series analysis to assess the relationship between GDP, the volume of loans by second-tier banks, overdue debt, and banking sector assets. The data were sourced from the official website of the National Bank of the Republic of Kazakhstan.

To forecast the development of mortgage lending in Kazakhstan, a correlation and regression analysis was conducted. The relationship between variables is expressed through the following linear regression model:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

where:

Y – Mortgage loan volume (dependent variable)

X_1 – GDP

X_2 – Total HLB credits at the end of the period

X_3 – Overdue debt

X_4 – Assets of banks

ε – Error term

β_0 – Intercept; β_1, β_2, β_3, β_4 – Regression coefficients

Using this model, and considering current trends in GDP, credit expansion, and overdue debt, the study projects the volume of mortgage lending in Kazakhstan for the period 2024–2026. The forecast results are presented in Table 6.

To evaluate the model's adequacy and explanatory power, the coefficient of determination (R^2) was applied. The model with the best statistical fit was selected as the basis for further policy recommendations.

Results and discussion

Mortgage lending is one of the activities of second-tier banks. Projects in mortgage lending are mainly of a long-term nature. In this case, the main rule in project management is, on the one hand, the correct and timely execution of all parts of the project, on the other hand, to stay within the budget and be completed on time or before the deadline (Omar, 2014).

Table 1 shows the countries that have a substantial amount of mortgage loans. The largest countries with a high ratio of bank assets to GDP include South Korea (181.7%), Switzerland (172.5%), Australia (148.2%), Sweden (145.8%), and Canada (141.3%). At the same time, the volume of mortgage loans in local currency amounts to 672,110 billion in South Korea, 81,440 billion in Chile, 18,016 billion in Russia, 5,436 billion in Kazakhstan, and 58.2 trillion in Uzbekistan. However, Uzbekistan's ratio of bank assets to GDP remains low at 35%, indicating a limited capacity of the financial sector to support long-term mortgage growth compared to more developed markets.

The countries with the highest level of problem loans are Greece 8.2%, Russia – 5.5%, Hungary – 3.8%. However, net interest margin was obtained in: Argentina – 10.4%, Turkey – 3.3%, Kazakhstan – 5.5%, Uzbekistan – 6.7%.

The countries with the highest total debt of the population to banks and other financial institutions as a percentage of GDP are as follows: Switzerland – 127.7%, Australia – 110.3% and Canada – 101.4%.

Table 1 – Mortgage lending indicators by country

Countries	Volume, mortgage loans billion, local currency	Problem loans, 2022	Net interest margin, 2021	Total household debt to banks and other financial institutions as a percentage of GDP	Ratio of bank assets to GDP, 2021.
Argentina	274.0	3.1	10.4	3.5	24.2
Australia	2,152.0	0.7	1.7	110.3	148.2
Austria	159.0	2.0	1.1	43.8	104.1
Belgium	230.0	1.8	1.1	58.3	83.0
Canada	1,708.0	0.3	1.6	101.4	141.3
Chile	81,440.0	1.7	2.9	46.2	90.4
Czech Republic	1,757.0	1.5	1.9	30.6	70.8
Finland	106.0	1.4	0.8	63.6	105.1
France	1,287.0	2.1	0.5	61.6	131.1
Germany	1,578.0	1.2	1.0	50.8	95.9
Greece	27.0	8.2	2.1	41.3	73.1
Hungary	5,101.0	3.8	2.1	16.6	57.7
Italy	425.0	2.8	1.1	37.3	115.5
Kazakhstan	5,436.0	3.4	5.5	0.0	30.0
Luxembourg	41.0	1.6	0.9	68.2	103.7
Netherlands	566.0	1.6	1.1	94.9	104.6
Norway	2,869.0	0.3	1.8	87.5	133.8
Poland	447.0	2.4	2.3	23.4	65.8
Portugal	99.0	3.6	1.3	54.5	114.7
Russia	18,016.0	5.5	0.5	22.2	65.6
South Korea	672,110.0	0.2	1.6	92.0	181.7
Spain	490.0	3.1	0.9	46.0	119.7
Sweden	4,124.0	0.3	1.1	83.9	145.8
Switzerland	856.0	0.7	0.8	127.7	172.5
Turkey	401.0	2.0	3.3	10.5	88.8
UK	1,454.0	1.0	1.8	78.8	136.0
USA	2,575.0	0.7	2.8	72.1	74.2
Uzbekistan	58.2	1.4	6.7	14.0	35.0
Note – compiled by the authors based on the source (Forbes Media LLC, 2024)					

Since 2015, Uzbekistan has seen steady growth in the ratio of bank assets to GDP, which correlates with similar dynamics in Kazakhstan since mid-2016. By 2023, this indicator in Uzbekistan reached 54.7%. At the same time, Kazakhstan has seen a downward trend in this indicator, despite a temporary increase to 46.2% in 2022. This indicates that while Kazakhstan is experiencing a moderate decline in financial depth, Uzbekistan is seeing a gradual strengthening. The growth of banking assets relative to GDP reflects the expansion of the financial sector's capacity to provide long-term lending.

In particular, the strengthening of financial depth creates favorable conditions for the expansion of mortgage lending. As assets and liquidity increase, banks gain greater capacity to issue long-term mortgage loans, especially when refinancing mechanisms such as UzMRC are available. Thus, the ratio of bank assets to GDP acts not only as a macroeconomic indicator but also as an institutional factor determining the scalability and sustainability

of the mortgage sector's development, especially in emerging economies.

The trend of problem loans in Kazakhstan decreased from 9.31% to 3.36%. In Uzbekistan, on the contrary, the trend goes up from a minimum of 0.74% in 2016 to 5.31% in 2021.

Figure 1 shows the graphs of loan portfolio volumes in Kazakhstan and Uzbekistan.

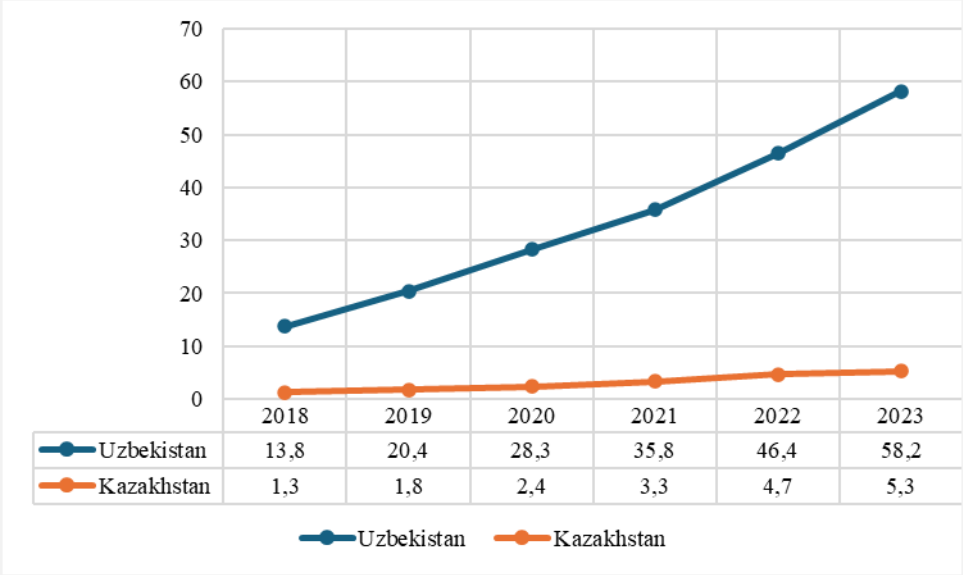

Figure 1 – Mortgage loans in Uzbekistan and Kazakhstan (last 5 years: 2018-2023)
Note – compiled by the authors based on the source (Global Economy, 2023)

Based on the analysis of Figure 1, the total mortgage loan portfolio in 2023 reached 5.3 trillion KZT in Kazakhstan and 58.2 trillion UZS in Uzbekistan. The mortgage loan trend in Uzbekistan shows a sharp upward trajectory, whereas in Kazakhstan, it exhibits a moderate upward trend. At the current exchange rate, the mortgage loan portfolio amounts to USD 4.494 billion in Uzbekistan and USD 10.06 billion in Kazakhstan. Despite the positive growth dynamics of the mortgage portfolio in Uzbekistan, certain institutional and market characteristics continue to influence the pace and coverage of mortgage lending. For example, interest rates on a number of programs remain higher than in comparable economies, which affects housing affordability for certain population groups. The terms of loans also limit flexibility for borrowers. In addition, mortgage coverage in rural areas is lower than in cities, due to infrastructure and social differences. Given the growing scale of the market, issues such as the development of the secondary mortgage segment, improving the financial literacy of the population, and further digitization of mortgage procedures are becoming particularly relevant. Consistent development in these areas can contribute to sustainable growth and increased housing affordability in the country.

Table 2 presents the key indicators of the banking sector and GDP for Kazakhstan. The data for the Republic of Kazakhstan were obtained from the National Bank of Kazakhstan website.

Table 2 shows that the average annual GDP growth rate from 2007 to 2023 was 15%. During this period, GDP increased from 12.8 trillion tenge to 119.3 trillion tenge, i.e. 8.8 times.

According to Sustainable Development Goal 8, Kazakhstan "maintains economic growth per capita in line with national conditions, in particular, striving for a GDP growth rate of at least 7% per annum". In 2023, this indicator will reach 15%.

Mortgage originations have averaged an annual growth rate of 15% over this period. However, in some years, annual growth was negative: – 5% in 2008, – 1% in 2010, and – 1% in 2015, respectively. Since 2007, the volume of mortgage loans has increased from KZT 0.7 trillion to KZT 5.3 trillion in 2023, representing a 7.5-fold growth.

Table 2 – Indicators for the Republic of Kazakhstan (billion KZT)

Years	Y	X_1	X_2	X_3	X_4
	GDP	**Total loans from HLBs at the end of the period**	**Overdue debt**	**Bank assets**	**Total value of mortgage loans at the end of the period**
2007	12,849.8	8,868.3	92	11,684.6	682.5
2008	16,052.9	9,244.5	249	11,889.6	650.6
2009	17,007.6	9,638.9	1,005	11,557.3	690.2
2010	21,815.5	9,065.9	1,209	12,031.5	685.0
2011	28,243.1	10,472.8	1,663	12,817.9	734.2
2012	31,015.2	11,657.9	1,903	13,880.0	806.0
2013	35,999.0	13,348.2	2,265	15,461.7	863.8
2014	39,675.8	12,105.7	1,493	18,239.0	912.0
2015	40,884.1	12,674.2	920	23,780.3	900.8
2016	46,971.2	12,708.3	963	25,556.8	982.2
2017	54,378.9	13,590.5	1,001	24,157.9	1,096.5
2018	61,819.5	13,762.7	876	25,244.0	1,303.3
2019	69,532.6	14,743.0	937	26,785.9	1,767.2
2020	70,714.1	15,792.1	928	31,171.7	2,373.2
2021	83,951.6	20,200.4	579	37,622.0	3,307.4
2022	103,765.5	24,254.7	681	44,562.3	4,711.8
2023	119,251.2	29,853.7	681	51,439.9	5,297.3

Note – compiled by the authors based on the source (Statistical Bulletin of the National Bank of the Republic of Kazakhstan, 2024)

The volume of second-tier banks' loans has an average growth rate of 8%. Assets of banks also have an average annual growth of 15%. The share of assets of the banking sector of Kazakhstan to GDP is 43.14%.

Given that there is a correlation between GDP, assets of the banking sector and the volume of mortgage loans, it can be expressed that the development of the country is carried out mainly at the expense of public funds. As a result, the only state operator was the financial institution JSC "Otbasy Bank", which implements state programs on housing construction, providing mortgage lending to the population. In JSC "Otbasy Bank" the price of mortgage loans varies from 2% to 9%, while in other second-tier banks the interest rate varies from 7% to 23%.

Table 3 shows the calculation of mortgage loans in JSC "Otbasy Bank" on annuity method of repayment.

Table 3 – Calculation of mortgage loans in JSC "Otbasy Bank" (billion KZT)

	Program	Term, month	Loan amount	Payout %	Total amount	Overpayment ratio
Otbasy bank	Housing loan	300	100	50.19	150.19	1.501
	Nurly zher	300	15	11.3	26.31	1.753
	Bakytty otbasy	240	15	3.21	18.21	1.214
	Green Mortgage	300	35	79.49	114.49	3.271
	Nauryz	228	36	39.26	75.26	2.090
	Digital mortgages	240	100	108.3	208.3	2.082
	Otau	228	36	39.26	75.26	2.090
	Asyl Meken	132	10	3.02	13.02	1.302

Note – compiled by the authors based on the source (Kazakhstan Bureau of National Statistics, 2024)

According to Table 3, when considering the bank's housing programs, the overpayment ratio ranges from 21% to 227%. After all, the terms of the mortgage are influenced by the term, amount and interest rate. The higher the cost of the loan and its term, the higher this indicator. The highest overpayment on the program "green mortgage" 227%, with a loan of 35 million tenge for 25 years (300 months) interest payments are 79.49 million KZT.

The Government of Kazakhstan is actively implementing ESG principles and the Sustainable Development Goals (SDGs), one of the key aspects of which are globally recognized green buildings. These environmentally friendly buildings play a crucial role in significantly minimizing environmental impact. They can reduce energy consumption by 30-40%, water consumption by 20-30% and carbon dioxide emissions by up to 35% compared to conventional buildings. The key mechanism for stimulating the development of green buildings in Kazakhstan is to ensure stable demand for such housing (Otbasy Bank, 2024).

Uzbekistan has a distinctive institutional model for supporting the mortgage sector. The Uzbekistan Mortgage Refinancing Company (UzMRC), established in 2019, functions as a wholesale entity providing long-term liquidity to commercial banks. At the same time, UzMRC is also involved in the implementation of ESG principles, in particular by supporting energy-efficient housing construction programs and green mortgage mechanisms. As shown in Table 4, refinancing volumes under UzMRC programs have grown significantly in recent years, reflecting the growth of the institutional capacity of Uzbekistan's mortgage market. This demonstrates an alternative approach, in which government support for sustainable development is provided primarily through financial infrastructure and wholesale mechanisms, rather than through the direct implementation of retail programs, as in the Otbasy Bank model.

To ensure institutional comparison and justify the inclusion of Uzbekistan in the study, Table 4 presents data on the activities of the Uzbekistan Mortgage Refinancing Company (UzMRC).

Table 4 – Mortgage refinancing volumes through UzMRC in Uzbekistan for the period 2022-2024 (billion USD)

	2022	**2023**	**2024**
Uzbekistan Mortgage Refinancing Company (UzMRC)	0,015	0,138	0,126
Note – compiled by the authors based on the source (National Bank of Uzbekistan, 2024)			

Results

Using the data in Table 2, we conducted a correlation analysis and established a relationship between the indicators, which is presented in Table 5.

Correlation analysis allowed to establish that the growth rate of Kazakhstan's economy depends on the volume of second-tier bank loans by 95.89%, the balance of issued mortgage loans – by 93.47%, and, accordingly, the size of the banking sector – by 98.22%.

Meanwhile, the volume of mortgage loans is correlated with GDP by 93.47%, with total loans of second-tier banks by 97.49%, and with banking sector assets by 94.57%. In addition, there is an inverse correlation with arrears, which is 31.47%.

The accuracy of the process description by the model, as evidenced by the R-square value of 0.9575, confirms the high level of approximation accuracy (the model describes the process well).

Table 5 – Correlation between indicators (billion KZT)

	GDP	Total loans from HLBs at the end of the period	Total value of mortgage loans at the end of the period	Overdue debt	Bank assets
GDP (billion KZT)	1				
Total loans from HLBs at the end of the period (billion KZT)	0.958902	1			
Total value of mortgage loans at the end of the period (in billion tenge)	0.934759	0.974994	1		
Overdue debt (billion KZT)	-0.210854	-0.19985	-0.3147997	1	
Bank assets (billion KZT)	0.982272	0.962569	0.9457709	-0.31742	1
Note – compiled by the authors					

To forecast the development of lending for consumer purposes, we use equation (1) obtained as a result of correlation and regression analysis, as shown below:

$$y = –1336.077 + 0,011x1 + \\ + 0.277x2 – 0,446x3 – 0.046x4, \quad (1)$$

where:

x1 – GDP;

x2 – Total HLB credits at the end of the period;

x3 – Overdue debt;

x4 – Assets of banks.

Using the obtained equation (1), based on the available trends in the level of GDP development and the volume of assets and loans by second-tier banks, overdue debt, we calculate the forecast of mortgage lending development for the period 2024-2026. Table 6 shows the forecast of the volume of mortgage loans development.

Table 6 – Forecast of mortgage lending development for the period 2024-2026 (billion KZT)

Year	GDP	Total loans from HLBs at the end of the period	Overdue debt	Bank assets	Amount of mortgage loans at the end of the period
2024	137 047,9	33 070,7	687,4	59 378,8	5 933,0
2025	152 775,6	36 634,4	694,3	59 972,6	6 645,0
2026	170 308,1	40 582,2	701,2	60 572,3	7 442,4
Note – compiled by the authors					

According to Table 6, the volume of mortgage loans is projected at 7.4 trillion KZT in 2026, which is 18.2% of the HLB's loan balances in 2026, the value of which is 40.6 trillion KZT. Assets of the BVU are planned in the amount of KZT 60.6 trillion, which is 35.6% of GDP.

The implementation of mortgage lending in the Republic of Kazakhstan allowed to actively engage in the realization of the 11th Sustainable Development Goal (SDG) "Ensure openness, safety, resilience and environmental sustainability of cities and human settlements", to provide universal access to adequate, safe and affordable housing and basic services and to improve slums by 2030. The implementation of ESG principles through mortgage lending is also seen as the introduction of new environmental products such as Green Mortgages. The country also implements various preferential housing programs that take into account interests and provide benefits to socially vulnerable segments of the population. The operator of such state housing programs is JSC "Otbasy Bank". Over the past twenty years JSC "Otbasy Bank" has become a reliable ally for many residents of Kazakhstan in solving their housing problems (Kazakhstan Bureau of National Statistics, 2024).

Mortgage loans are necessary to solve housing problems and for the population with significant incomes.

At the same time, in Kazakhstan, government intervention in the mortgage market often contributes not to increase, but to decrease the availability of mortgages for the middle class (Soz Media, 2024). At the same time, in Kazakhstan mortgages allow the population with low incomes to get their own housing. Thus, many government programs allow to obtain loans that have a small overpayment and are aimed at the purchase of apartments and houses in rural areas.

There is a strong opinion about "the negative impact of political power on access to credit" (Halyk Research, 2024). However, first of all, the improvement of housing conditions of the population is influenced by the economic situation in the country, where the solvency of borrowers is the main condition for obtaining mortgage loans. Other conditions for financing mortgages by second-tier banks are the ability of the population to spread the costs over a long period of time. At the same time, the government's dominant presence in the housing credit market allows for a constant increase in the cost of housing.

Conclusion

Mortgage lending remains one of the most effective tools for improving housing affordability and stimulating economic development. The example of Kazakhstan shows that with strong institutional support, including tools such as green mortgages and digital solutions, significant progress can be made in achieving the Sustainable Development Goals (SDGs). Correlation and regression analysis confirmed the existence of stable links between mortgage lending volumes and macroeconomic indicators such as GDP, bank assets, and the volume of overdue debt. Although ESG standards were not the central focus of the analysis, the integration of green finance principles into housing programs demonstrates the potential for aligning financial products with sustainable development goals.

The strategic importance of mortgage lending in Kazakhstan lies in its multisectoral effect: it contributes to the development of the financial, construction, environmental, and labor markets (SDG 8); improves access to decent housing (SDG 11); promotes the growth of the middle class through targeted government programs; and stimulates the development of ESG products, such as "green mortgages" and the "Asyl Meken" program. The introduction of digital mortgage products as part of the Digital Kazakhstan initiative further contributes to the expansion of financial inclusion and the modernization of the sector.

Uzbekistan has an excellent institutional model based on the activities of the Uzbekistan Mortgage Refinancing Company (UzMRC). Although UzMRC is not a retail operator, it plays a key role in refinancing long-term mortgage loans and also participates in supporting ESG initiatives related to sustainable housing construction. As the study shows, UzMRC's refinancing volumes have increased significantly in recent years, indicating the growing institutional potential of the country's mortgage sector.

As the housing finance system in Uzbekistan continues to develop, Kazakhstan's experience can serve as a valuable benchmark. Elements such as the implementation of targeted programs, the introduction of "green mortgages", and the integration of ESG standards can be adapted to support Uzbekistan's goals in the area of housing affordability and sustainability. Thus, the comparative analysis confirms that different institutional approaches can lead to significant results, provided that they are aligned with overall development goals and take into account the specific characteristics of a particular country.

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