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Kazakhstan's Banking Sector: Between Domestic Regulation and Macroeconomic Trends

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ABSTRACT

The banking sector plays a fundamental role in economic stability and development by facilitating financial intermediation, credit allocation, and liquidity management. In emerging economies such as Kazakhstan, the financial system is characterized by high market concentration, limited competition, and a weak connection between banking activity and macroeconomic growth, which can affect financial stability and economic development. The goal of current study is to analyze the impact of bank profitability, market concentration, and macroeconomic factors on the stability of Kazakhstan's banking sector. The research follows a four-stage methodology, including descriptive statistical analysis, data visualization using Raincloud Plots, multivariate and univariate statistical tests, and Q-Q plots. The analysis evaluates how income influences net profitability and taxation, how market concentration affects credit and deposit allocation, and how macroeconomic conditions interact with banking performance. Findings indicate that bank profitability has a significant impact on net profit and taxation, reinforcing the role of internal financial management in determining banking stability. Market concentration directly influences the allocation of loans and deposits, highlighting the dominant role of a few major banks in shaping financial flows. However, macroeconomic variables, including GDP and inflation, do not show a statistically significant direct effect on banking sector dynamics, suggesting that Kazakhstan's banking system operates largely independently of economic fluctuations. The results reflected the importance of monitoring market concentration, ensuring competitive financial conditions, and reconsidering regulatory mechanisms to enhance banking efficiency and economic integration.

KEYWORDS: Bank, Banking Sector, Bank Regulation, Economic Growth, Credit Allocation, Market Concentration, Financial Stability, Risk Management

SCSTI: 06.73.55

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1. INTRODUCTION

The banking system is central to redistributing financial resources, providing loans to businesses and individuals, liquidity management and financial stability. The efficiency of the banking sector contributes to sustainable economic growth, investment activity and financial inclusion. The main challenge remains structural problems, such as high capital concentration, profitability instability, or poor connection with macroeconomic indicators, which can lead to crises, reduced availability of credit, and a slowdown in economic development.

In current economics, countries have encountered problems in the banking sector. The shadow economy has become a central problem in the banking system, including financial institutions providing banking services without proper regulation and supervision. Due to this, crucial systemic risks arise. Moreover, financial institutions tend to circumvent established regulations, increasing the likelihood of economic crises. Different countries have different experiences. Nevertheless, shadow banking was a key factor in the 2007 subprime mortgage crisis in developed countries like the United States. The consequences affected and escalated into the global financial crisis. Another condition in developing countries is insufficient transparency and weak institutional structures. Vietnam is an acceptable illustration of that. Challenges such as low penetration of banking services, the predominance of cash payments, and insufficient transparency of loan portfolios limit the population's access to financial services and reduce lending effectiveness. In addition, in the context of global instability, such as the COVID-19 pandemic, the banking systems of many countries have experienced significant stress. The decline in economic activity, the growth of non-performing loans and the need for additional reserves have threatened the financial stability of banks, especially in economies with a transition structure. In this context, special attention should be paid to emerging economies such as Kazakhstan.

Before the COVID-19 pandemic burst and restrictions were imposed, Kazakhstan's banking sector demonstrated stable growth, supporting economic development. However, with the onset of the pandemic in 2020, Kazakhstan's economy faced serious challenges, including a 3% contraction in GDP, the first decline since the late 1990s (World Bank, 2020). The banking sector faced downfalls in the loan portfolio quality and increased reserves for problem loans to 3% in 2020. Banks maintaining capital demonstrated a positive return on assets at 2.5% in March 2021 (World Bank, 2021). Over the past five years, Kazakhstan's banking sector has undergone significant changes, demonstrating growth in overall profitability. However, despite the positive dynamics, challenges related to high capital concentration, limited diversification of financial instruments and dependence on consumer lending remain. As of the end of 2024, banking sector assets reached 59.2 trillion tenge, and lending to the economy increased by 17.9%, indicating the expansion of financial activity (Ratel, 2023; Halyk Finance, 2024). However, 43.6% of all loans are consumer loans, which may indicate the risks of financial instability during economic downturns. At the same time, the banking system remains highly concentrated, as a significant part of assets is concentrated in a few large banks, creating the possibility for limited competition and the availability of financial resources for small and medium-sized businesses (Government of Kazakhstan, 2024). In the context of such imbalances, studying the factors that determine the stability of the banking sector in Kazakhstan is of particular importance.

The research aims to determine the impact of bank profitability, capital concentration, and macroeconomic factors on the banking sector's stability and assess the degree of its integration into the country's economic development in Kazakhstan. The banking sector's profitability depends on internal and external factors. In developed and post-Soviet countries, the size of assets plays a key role, but its impact varies depending on the market structure. At the same

time, systemic risks arising in the banking sector require a new approach to regulation since traditional methods do not always prevent financial shocks. Therefore, it is important to understand to what extent internal operational factors, such as asset management and lending, and macroeconomic dynamics impact the financial stability of banks and determine the banking sector's profitability.

2. LITERATURE REVIEW

Banks play a central role in shaping economic conditions rather than simply adapting to them. Changing the structure of financial regulation and reforms in the banking system affects the availability of credit and the formation of the deposit base in developing economies. Banks create the money supply and actively participate in the economic cycle. The level of development of the financial sector directly affects the efficiency of resource redistribution in the economy. Aderibigbe (2004) noted that combining financial reforms with measures to maintain the banking system's stability is necessary. The banking system does not simply redistribute existing resources. Banks generate liquidity through lending, making it an important driver of economic growth. In other words, the quality of regulation and the structure of the banking system directly impact the financial system's stability (Bossone, 2001). Automation and digitalisation can improve the efficiency of operations and reduce costs. Davamanirajan et al. (2006) found that banks that actively implement digital technologies gain an advantage in the competitive environment and demonstrate higher profitability. Okorie and Uwaleke (2010) noted that reforms such as credit market liberalisation led to increased lending but were accompanied by increased financial risks and bank instability. As a result, the regulatory process is only concerned with stimulating growth. Therefore, it is necessary to consider the creation of crisis prevention mechanisms. Forcadell and Aracil (2017) expanded the concepts of banking efficiency. They noted that financial indicators and social impact are becoming increasingly relevant in the context of the global transformation of financial markets. Thus, banks that invest in sustainable development not only increase the level of trust from customers but also receive long-term economic benefits. However, it is worth noting that an important task remains the regulation of emerging or new forms of financial intermediation. Nersisyan and Dantas (2017) distinguished between the concepts of "real" and "fictitious" liquidity. They showed that the modern financial system functions as a hierarchy of financial obligations, where different institutions create liquidity at different levels.

Modern research has shown that there is no single set of factors affecting bank profitability; their importance depends on the country's economic structure, the level of regulation, and global financial conditions. Menicucci and Paolucci (2016) emphasised in their work that bank size and capitalisation significantly impact profitability and that better-capitalized banks are more resilient to financial shocks. Larger banks have advantages in the form of economies of scale, but a high share of problem loans negatively affects profitability. If banks increase lending without properly assessing the quality of borrowers, this leads to increased risks of default. In such conditions, the growth of the loan portfolio does not mean an improvement in the financial position of banks but, on the contrary, can signal market overheating and the formation of a debt "bubble". Thus, the loan portfolio size and banks' income sources significantly impact their sustainability and profitability (Yüksel et al., 2018). Adelopo et al. (2018) divided the factors into bank-specific and macroeconomic ones. They found that the largest banks are less susceptible to crisis shocks due to more diversified sources of income and better access to capital. That is, bank size, cost management and liquidity significantly impact profitability, while capitalisation, credit risks and economic growth are more sensitive to macroeconomic conditions. Yao et al. (2018) divided the factors into positive and negative ones and introduced additional variables considering banks'

structural and operational characteristics. They include asset size, financial structure, labour productivity and market power as positive ones, and credit quality, operational efficiency and bank concentration as negative ones. Raza et al. (2019) focus on the balance between credit expansion and capitalisation and consider the impact of lending and capitalisation on different indicators of bank profitability. Therefore, lending positively affects profitability since an increase in the volume of loans issued brings interest income to the bank, increasing its overall profitability. Thus, banks with a high level of capital can issue loans with lower risks, contributing to the stability of interest income. At the same time, excess capital can reduce the efficiency of banking operations since the bank is forced to maintain reserve assets that do not always bring high income. General trends in the development of the banking sector show that effective management of capital, credit risks and sources of income plays a decisive role in ensuring the banking system's stability.

The concentration of the banking market and the degree of competition significantly impact financial stability. On the other hand, the relationship between competition and stability is ambiguous and depends on the market structure. Increased competition can destabilise the financial system by increasing the risk of bank failures, but with adequate regulation, it is possible to benefit from increased competition without compromising financial stability (Canoy et al., 2001). The limited liability of banks and the negative externalities of bank failures can encourage excessive risk-taking. Acharya (2009) found that traditional regulatory mechanisms such as capital adequacy and bank closure policies are ineffective in reducing systemic risk. In a competitive environment, banks can reduce lending rates, reducing the likelihood of borrower defaults, which can stabilise the banking system (Jiménez et al., 2013). Langfield & Pagano (2016) noted that the European financial structure is at risk due to excessive expansion of bank lending during asset growth and their deficit during falling prices. As a solution, the authors proposed an approach that includes reducing regulatory preferences for banks and supporting the development of securities markets.

Competition in the banking sector significantly changes the structure of banks' functioning. Leroy and Lucotte (2017) noted that weak competition increases the correlation of risky decisions between banks. Thus, individual banking risk increases, but at the same time, competition reduces systemic risk. In parallel, macroeconomic factors have a significant impact. Thus, Morina and Osmani (2019) found that both economic crises and changes in interest rates affect strongly the level of deposits, indicating a high sensitivity of the banking sector to macroeconomic conditions. However, Feghali et al. (2021) noted that increased access to payment and savings services positively impacts financial stability, but access to credit can weaken stability, mainly if credit growth occurs without considering borrowers' solvency.

Kazakhstani studies have analysed Kazakhstan's banking system's sustainability and examined different aspects of this process. The works assess the effectiveness of banking risk regulation, consider internal asset management strategies, analyse the impact of digitalisation on competition, and examine the structure of deposits and its impact on banking operations (Ybrayev,2022). Kazbekova et al. (2022) concluded that despite introducing new risk management mechanisms, the level of financial sustainability of banks in Kazakhstan remains vulnerable due to the persistently high share of problem loans. The Kazakh banking regulatory system is approaching international standards, but it remains less stringent in some respects, which may create additional risks in the face of economic shocks. Buzaubayeva et al. (2024) find that banks focused on consumer lending show higher short-term profitability but remain more vulnerable to macroeconomic shocks. Therefore, risk management and bank internal policies are more important for sustainability than macroeconomic conditions (Sarkambayeva & Sailaubekov, 2024). However, Kan et al. (2024) showed that

corporate deposits are banks' primary liquidity source, while retail deposits and securities transactions play a secondary role. Begimkulov and Kuti (2024) examine the impact of digitalisation on competition and bank profitability in Kazakhstan and Kyrgyzstan. The authors found that in Kyrgyzstan, digitalisation has led to increased competition among banks, an increase in their profitability, and an expansion of their customer base. However, in Kazakhstan, the impact of digital technologies was limited due to the high concentration of capital in the largest banks. Thus, technological innovations may not have the expected impact on financial systems with high monopolization.

Based on the literature review, it is possible to identify the leading indicators of the interaction of macroeconomic factors, bank concentration and financial stability for forming an effective banking system. The impact of macroeconomic factors on banking systems remains ambiguous. To test the impact of bank profitability, concentration and macroeconomic factors on the financial stability of the banking sector of Kazakhstan, the following hypotheses were formulated:

Hypothesis 1 (H_1): Bank profitability significantly impacts net income and tax burden, determining the financial stability of the banking sector.

Hypothesis 2 (H_2): Bank capital concentration affects the structure of deposits and lending, determining the level of market power and competitive conditions in the banking system.

Hypothesis 3 (H_3): Macroeconomic conditions, such as GDP, inflation and employment levels, affect the assets, loan portfolio and deposit base of banks.

These hypotheses allow us to empirically test the mechanisms of interaction between profitability, concentration and macroeconomic factors, which will provide a comprehensive understanding of the functioning of the banking sector in Kazakhstan.

3. METHODOLOGY

The methodological approach of the study is aimed at analyzing the factors affecting the stability of the banking sector in Kazakhstan. To achieve these goals, a step-by-step analysis is used, including statistical methods, data visualization and evaluation of their distribution. This approach makes it possible to determine the relationship between bank profits, capital concentration and macroeconomic conditions, as well as to identify the structural features of the banking system. The research methodology was based on the literature review and includes four main stages of the research.

Table 1 details the main stages of the analysis, methods, and relevant references to the works, confirming their choice.

TABLE 2. Indicators

Category	Variable	Role in analysis	Description
Profitability	1_IncR	Independent Variable	Income (remuneration)
Profitability	1_NetR	Dependent Variable	Net income (remuneration)
Profitability	1_NetA	Dependent Variable	Net income after taxation
Profitability	1_Tax	Dependent Variable	Tax expenses
Concentration	2_Top5A	Independent Variable	Share of the top 5 banks (assets)
Concentration	2_Top5L	Dependent Variable	Share of the top 5 banks (loans)
Concentration	2_Top5D	Dependent Variable	Share of the top 5 banks (deposits)
Economy	3_GDP	Independent Variable	GDP (billion tenge)
Economy	3_ActGDP	Dependent Variable	Assets / GDP
Economy	3_LoanGDP	Dependent Variable	Loans / GDP
Economy	3_DepGDP	Dependent Variable	Deposits / GDP

Note: compiled by authors

Based on the literature review, key indicators reflecting the performance of the banking sector were selected, based on previous studies. Profitability indicators (1_IncR, 1_NetR, 1_NetA, 1_Tax) were included in the study based on the works of Menicucci & Paolucci (2016), Acharya (2009), which showed that profitability is one of the key factors in the stability of the banking system. Studies of European banks have confirmed that banks with high profitability are more resilient to economic shocks and can accumulate capital reserves, minimizing credit risks. In addition, in the context of developing economies, the tax burden analysis (1_Tax) is important since taxation can pressure banks' financial performance and ability to lend to the real sector (Acharya, 2009).

The capital concentration indicators (2_Top5A, 2_Top5L, 2_Top5D) were selected based on the studies of Allen & Gale (2004) and Boyd & De Nicoló (2005), which analye how market concentration affects the stability of the banking sector. On the one hand, high concentration can reduce the likelihood of systemic banking crises since large banks have better financial stability and liquidity (Allen & Gale, 2004). However, other studies show that excessive concentration can limit competition, increase interest rates on loans and reduce the availability of financial resources for small and medium-sized businesses (Boyd & De Nicoló, 2005). Thus, the analysis of these indicators allows us to identify the balance between the stability of the banking system and the level of competition.

Macroeconomic indicators (3_GDP, 3_ActGDP, 3_LoanGDP, 3_DepGDP) were included in the analysis based on the works of Mare (2015), Jiménez et al. (2013), which show that the banking system is closely related to the dynamics of GDP and economic cycles. Research confirms that GDP growth is usually accompanied by an increase in lending and an improvement in the financial stability of banks (Mare, 2015). However, suppose the volume of loans issued grows faster than GDP. In that case, this may indicate the risks of economic overheating and a possible deterioration in the quality of the loan portfolio, which is confirmed by the analysis of banking crises in different countries (Jiménez et al., 2013).

Thus, the choice of study indicators is based on scientific works confirming their importance for analyzing banking stability

4. FINDINGS AND DISCUSSIONS

The analysis of Kazakhstan's banking sector requires a comprehensive approach that takes into account both internal financial indicators and external macroeconomic conditions. In conditions of high concentration of capital, limited competition, and unstable connection with macroeconomic growth, it is necessary to identify the key factors affecting the banking system's stability. This study is aimed at identifying the relationship between bank profitability, capital concentration and macroeconomic conditions, which will allow assessing the degree of integration of the banking sector into the economic development of the country. The methodology used includes statistical analysis, data visualization, and an assessment of the normality of the distribution, which provides an integrated approach to studying the stability of the banking system.

To properly select indicators, descriptive analysis was conducted. The results are shown in Table 3.

TABLE 3. Descriptive analysis results

Variable	Valid	Mis-sing	Median	Mean	Std. Deviation	Min.	Max.	Percentile		
								25th	50th	75th
1_IncR	11	0	2010.10	2343.909	1153.558	1161.70	5182.90	1713.65	2010.10	2435.00
1_ExpR	11	0	1071.90	1185.664	592.081	574.70	2684.50	851.10	1071.90	1226.75
1_NetR	11	0	952.60	1158.264	569.865	587.00	2498.40	838.55	952.60	1269.05
1_IncN	11	0	26804.60	33457.58	28835.693	2644.30	106006.7	19393.7	26804.6	35784.9
1_ExpN	11	0	27635.90	33795.93	28819.109	2954.90	106345.5	19705.1	27635.9	36139.9
1_NetN	11	0	-310.60	-338.345	220.400	-831.30	-53.00	-452.80	-310.60	-185.55
1_NetB	11	0	718.90	819.809	674.128	121.30	2292.40	279.25	1128.65	279.25

1_Tax	11	0	116.20	135.118	74.824	39.90	283.80	79.45	175.30	79.450
1_Net A	11	0	603.30	684.836	604.951	12.60	2008.60	223.65	954.20	223.65
2_Top 5A%	11	0	62.60	61.045	4.612	53.80	66.30	57.15	64.75	57.15
2_Top 5L%	11	0	62.70	64.436	6.521	54.40	74.40	61.05	68.40	61.05
2_Top 5D%	11	0	65.50	62.936	6.028	52.20	70.80	59.50	66.60	59.50
3_GDP %	11	0	58242.90	62454.82	25145.931	34291.0	113824.5	42831.0	72371.5	42831.0
3_Act GDP%	11	0	45.10	42.904	15.148	0.44	57.90	42.95	49.45	42.95
3_Loa nGDP %	11	0	25.20	25.363	10.147	0.39	37.20	22.75	31.80	22.75
3_Dep GDP%	11	0	30.00	29.035	10.301	0.280	39.500	29.15	34.30	29.15

Note: compiled by authors

An analysis of the descriptive statistics for profitability reveals key trends and variations in the data. The mean profitability value (1_IncR = 2343.91) exceeds the median (2010.1), indicating a possible distribution asymmetry towards higher values. A similar situation is observed for net profit after tax (1_NetA: Mean = 684.84, Median = 603.3). Net profit excluding fees (1_NetN) has a negative mean (-338.35), indicating possible losses in this category. The high standard deviation of profitability (SD = 1153.56) and net profit (SD = 604.95) confirms a significant spread of values, which may be due to differences in profitability among the properties. Of particular note is the 1_NetN category, where the standard deviation (SD = 220.4) also confirms instability. The range of values varies from 1161.7 to 5182.9 for 1_IncR and from 12.6 to 2008.6 for 1_NetA, indicating significant differentiation in profitability and income. Tax payments (1_Tax) fluctuate from 39.9 to 283.8, indicating a heterogeneous tax burden.

As part of further analysis, it is proposed to use the 1_IncR indicator as an independent variable in Raincloud Plots and consider 1_NetR (net income), 1_NetA (net income after tax), and 1_Tax (taxes) as dependent variables. This choice will allow us to visualise the distribution of net income depending on the level of profitability and identify possible patterns in the tax burden. This analysis identifies key differences and assesses profitability's impact on financial indicators.

Based on these criteria, 1_IncR (income) was selected as the independent variable for visual analysis in Raincloud Plots, and 1_NetR (net income), 1_NetA (net income after tax), and 1_Tax (taxes) were selected as the dependent variables. This choice allows us to assess the impact of profitability on the final financial indicators and identify possible patterns in the distribution of profit and tax burden.

In Figure 1, the results of Hypothesis 1 are presented.

The analysis of the distribution of net income (1_NetR) shows a significant variation in values, with the bulk of the data concentrated below 1,500. The distribution over the years is not uniform, which may indicate the influence of temporary factors on the level of net income. Values above 2000 are less common, which may indicate the presence of emissions associated with high incomes of individual banks.

The distribution of net income after taxes (1_NetA) shows a similar pattern to 1_NetR, however, in some cases, net income decreases significantly more after taxes. This may indicate a differentiated tax burden, which disproportionately reduces the income of individual banks. The analysis of tax expenditures (1_Tax) shows that the tax burden increases with increasing income, but its distribution remains uneven.

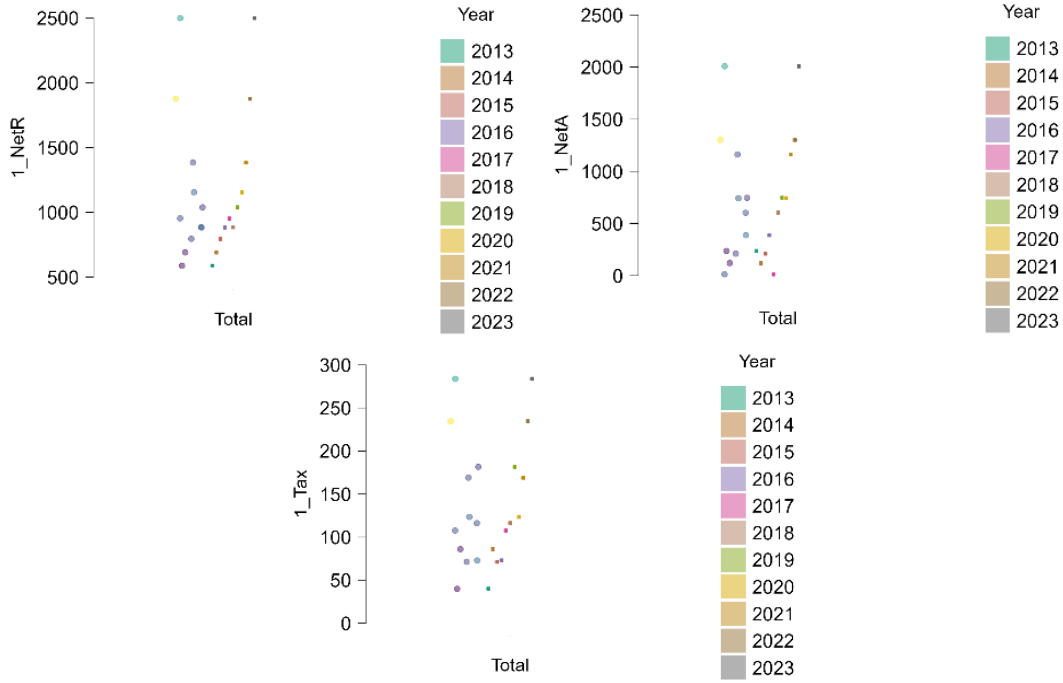

FIGURE 1. Hypothesis 1

Note: compiled by authors

Most of the values do not exceed 200, but some observations exceed 250, which may be due to differences in tax conditions in different years. Visual analysis confirms the existence of a positive relationship between profitability (1_IncR) and net income (1_NetR, 1_NetA) and tax expenses (1_Tax), which indicates an increase in net profit and tax burden with increasing income. However, significant dispersion of data and the presence of outliers may indicate the influence of additional factors, such as tax incentives or macroeconomic changes.

Figure 2 shows the results confirming the second hypothesis.

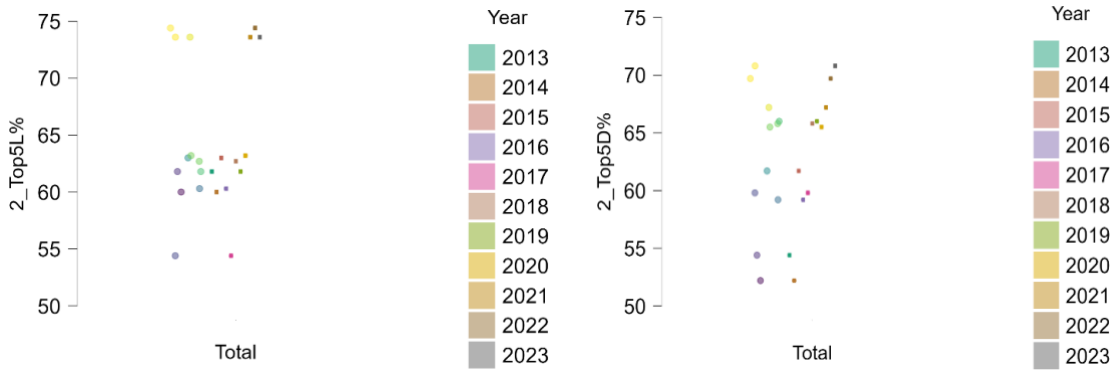

FIGURE 2. Hypothesis 2

Note: compiled by authors

An analysis of the Raincloud Plots results shows that the distribution of loans among the largest banks (2_Top5L%) varies between 55-70%. However, in some years, values exceeding 70% are observed. This indicates a high concentration of loan portfolios in a small number of large banks. The distribution of deposits (2_Top5D%) shows a similar trend but with a more even distribution.

The values of 2_Top5D% follow the same trends, but with a lower variance, which may indicate a more stable deposit structure compared to loans.

The results obtained confirm a stable positive relationship between the concentration of assets (2_Top5A%) and the share of the largest banks in lending (2_Top5L%) and deposits (2_Top5D%). This means that a small number of the largest banks control a significant part of the credit and deposit markets. However, in some years, emissions have been observed, which may be due to external economic factors, banking reforms, or crisis phenomena.

Figure 3 shows the results confirming the third hypothesis.

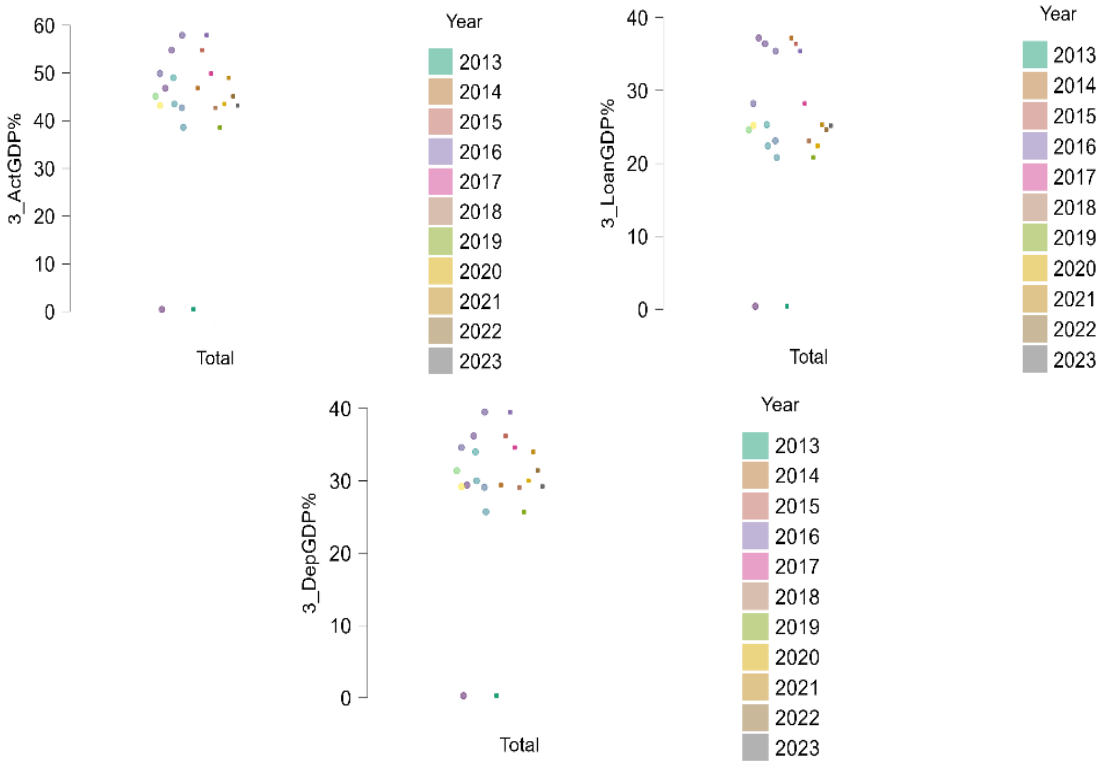

FIGURE 3. Hypothesis 3

Note: compiled by authors

An analysis of the ratio of banking assets to GDP (3_ActGDP%) shows that most of the values are concentrated in the range of 40-55%, but extremely low indicators (about 5-10%) are found, which may indicate periods of economic instability affecting the banking system. The dynamics over the years demonstrate the relative stability of the share of assets of the largest banks in GDP, but in some years, there have been deviations.

The credit-to-GDP ratio (3_LoanGDP%) reflects a similar picture, ranging from 20-35%, but with individual emissions below 10%, which may indicate crisis phenomena, for example, a reduction in lending in certain years. The distribution of deposits to GDP

(3_DepGDP%) is also concentrated in the range of 20-35%, while emissions similar to 3_LoanGDP% are observed, which confirms the presence of sharp fluctuations in deposits during certain periods associated with economic shocks.

Thus, the data indicate a significant relationship between the dynamics of GDP and banking indicators, which is reflected in the similar nature of changes in assets, loans, and deposits. The identified abnormal emissions may be related to periods of instability or structural changes in the economy. In conditions of economic growth, banks increase lending, while during periods of recession, they reduce their activity.

Table 4 shows the results of a multidimensional analysis confirming the identified relationships

TABLE 4. Multivariate tests

Dependent variable	Test	value	F	df1	df2	p
1_IncR	Pillai's Trace	0.989	202	3	7	<.001
	Wilks' Lambda	0.0114	202	3	7	<.001
	Hotelling's Trace	86.7	202	3	7	<.001
	Roy's Largest Root	86.7	202	3	7	<.001
2_Top5A%	Pillai's Trace	0.971	135	2	8	<.001
	Wilks' Lambda	0.0287	135	2	8	<.001
	Hotelling's Trace	33.8	135	2	8	<.001
	Roy's Largest Root	33.8	135	2	8	<.001
3_GDP%	Pillai's Trace	0.316	1.08	3	7	0.419
	Wilks' Lambda	0.684	1.08	3	7	0.419
	Hotelling's Trace	0.462	1.08	3	7	0.419
	Roy's Largest Root	0.462	1.08	3	7	0.419

Note: compiled by authors

The results of the multivariate analysis demonstrate a significant impact of profitability (1_IncR) and concentration of banking assets (2_Top5A%) on financial indicators, which is confirmed by high values of Pillai's Trace, Wilks' Lambda, Hotelling's Trace and Roy's Largest Root with $p < 0.001$. This indicates a stable dependence of net income and tax burden on the structure of the banking sector.

At the same time, the impact of the macroeconomic factor (3_GDP%) turned out to be statistically insignificant ($p = 0.419$), which indicates that the GDP level does not have a direct impact on banking indicators in this model. This may be because internal mechanisms regulate the banking sector and do not always synchronously reflect macroeconomic changes.

The results of the multivariate analysis showed that bank profitability has a significant impact on net income (1_NetR, 1_NetA) and tax burden (1_Tax), which is confirmed by high values of F-statistics ($F = 50.0–593.8$, $p < 0.001$), confirming the relationship between profitability and financial stability of banks (Hypothesis 1 is confirmed). Analysis of capital concentration of the largest banks (2_Top5A%) revealed a significant impact on the distribution of deposits (2_Top5D%, $F = 163.7$, $p < 0.001$) and loans (2_Top5L%, $F = 16.4$, $p = 0.003$), which confirms the role of market concentration in the redistribution of financial resources (Hypothesis 2 is confirmed).

In Table 5, the results for univariate tests are presented.

However, macroeconomic factors (3_GDP%) did not have a statistically significant impact on banking indicators (3_ActGDP%, 3_LoanGDP%, 3_DepGDP%) since $p > 0.05$, which may indicate a weak direct dependence on the banking system of Kazakhstan on economic growth or the presence of a time lag in their relationship (Hypothesis 3 is not confirmed).

TABLE 5. Univariate Tests

Dependent variable	Predictors	Sum of Sq.	df	Mean Sq.	F	p
1_IncR	1_Tax	47449	1	47449	50.0	<.001
	1_NetA	3.09e+6	1	3.09e+6	48.7	<.001
	1_NetR	3.20e+6	1	3.20e+6	593.8	<.001
	1_Tax	8538	9	949		
	1_NetA	570768	9	63419		
	1_NetR	48489	9	5388		
2_Top5A%	2_Top5D%	344.4	1	344.45	163.7	<.001
	2_Top5L%	274.4	1	274.38	16.4	0.003
	2_Top5D%	18.9	9	2.10		
	2_Top5L%	150.9	9	16.76		
3_GDP%	3_ActGDP%	62.50	1	62.50	0.2520	0.628
	3_LoanGDP%	1.71	1	1.71	0.0150	0.905
	3_DepGDP%	42.80	1	42.80	0.3782	0.554
Residuals	3_ActGDP%	2232.20	9	248.02		
	3_LoanGDP%	1027.99	9	114.22		
	3_DepGDP%	1018.34	9	113.15		

Note: compiled by authors

In general, the analysis shows that the banking system of Kazakhstan depends to a greater extent on internal financial factors, such as profitability and capital concentration, than on macroeconomic conditions, which emphasizes the need to regulate the capital structure and profitability management mechanisms to ensure the sustainability of the financial sector.

In Table 6, the results of the assumptions check are presented.

TABLE 6. Shapiro-Wilk multivariate normality test

Model	W	p
1_IncR	0.856	0.052
2_Top5A%	0.842	0.034
3_GDP%	0.573	<.001

Note: compiled by authors

Testing the assumptions using the Shapiro-Wilk test showed that the profitability variable (1_IncR) is close to a normal distribution ($W = 0.856$, $p = 0.052$), while asset concentration (2_Top5A%) has minor deviations ($W = 0.842$, $p = 0.034$). A significant deviation from normality is observed for the macroeconomic indicator (3_GDP%, $W = 0.573$, $p < 0.001$), which indicates the possible influence of structural factors or high GDP variability across years. These results confirm that banking indicators depend more on the internal mechanisms of the sector. At the same time, the influence of macroeconomic factors may be more complex and require taking into account time lags or other analytical methods. The first hypothesis about the impact of profitability (1_IncR) on the tax burden and net income is confirmed, which indicates a strong dependence on banks' financial indicators on their profitability. The results of the multivariate analysis (MANCOVA) show that profitability has a significant impact on tax expenses (1_Tax), net income (1_NetA) and net income before tax (1_NetR), which is confirmed by high values of Pillai's Trace, Wilks' Lambda and Hotelling's Trace with $p < 0.001$. In other words, the banking sector in Kazakhstan primarily focuses on internal profitability and profitability indicators. Therefore, the results reflect that macroeconomic factors are less dependent. It is important to note that profitability growth is accompanied by increased net profit and tax

burden. Moreover, this explains the increase in lending and managing of assets. Thus, during economic downturns, individual banks continue demonstrating stable indicators, maintaining their financial stability due to internal management mechanisms.

The second hypothesis about the impact of the concentration of bank assets (2_Top5A%) on lending and deposit processes is also confirmed. The data show that the largest banks have a significant impact on the share of deposits (2_Top5D%) and the volume of lending (2_Top5L%), which is reflected in high F-criterion values (163.7 and 16.4, $p < 0.001$ and $p = 0.003$, respectively). We conclude that there is a high concentration of capital, with a small number of banks controlling the bulk of credit and deposit flows in Kazakhstan's banking system. The influence of macroeconomic factors on this process was less significant. This may explain why changes in the banking sector do not always reflect the overall macroeconomic trend during periods of economic instability since key players can regulate their activity regardless of changes in GDP. The third hypothesis about the impact of GDP (3_GDP%) on banking indicators is not confirmed since the analysis did not reveal a statistically significant relationship between the GDP level and such indicators as assets (3_ActGDP%), loans (3_LoanGDP%) and deposits (3_DepGDP%), which is confirmed by high p-values ($p = 0.628$, $p = 0.905$, $p = 0.554$). This means that the banking system of Kazakhstan does not demonstrate the expected linear effect of dependence on macroeconomic conditions. This result can be explained by several reasons: the possible presence of a lagged effect, in which changes in GDP begin to affect the banking system only after several years, or the fact that banks adjust their policies based on internal strategies and not macroeconomic conditions. Another explanation may be that the impact of GDP on banking indicators is manifested indirectly but through other factors, such as inflation, interest rates or government policy in financial regulation. This confirms that Kazakhstan's banking system is more dependent on internal governance mechanisms than macroeconomic changes, which requires further study using more complex econometric models.

In Figure 4, the Q-Q plot results are presented.

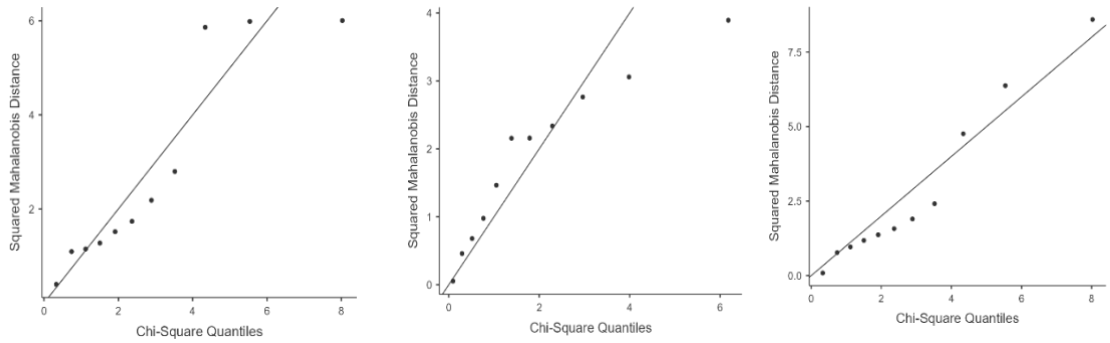

FIGURE 4. Q-Q Plot Assessing Multivariate Normality H1, H 2 and H3

Note: compiled by authors

The quantile-quantile plot for the first hypothesis, which assesses the impact of profitability (1_IncR) on net income and tax burden, shows that the data distribution generally corresponds to the theoretical chi-square distribution, as the points are located along the diagonal line. This means that in Kazakhstan, when banks increase their profitability (for example, by increasing interest rates on loans or the volume of operations), they naturally increase their net profit and tax payments. A statistically

significant result shows that such a relationship exists and is not a coincidence. For example, if a bank increases interest rates on loans, its profitability (1_IncR) grows, which leads to an increase in net profit (1_NetR and 1_NetA), but also to an increase in tax payments (1_Tax). This confirms that Kazakhstani banks first focus on maximising their profit, and the tax burden is a consequence of this process. In the second hypothesis, which analyses the effect of concentration (2_Top5A%) on the share of deposits and loans, the Q-Q plot shows minor deviations from the diagonal line, especially in the upper part, which may indicate the presence of outliers. However, the overall distribution remains close to normal, which allows us to consider the analysis reliable. The results confirming the significant effect of bank concentration on the distribution of deposit and loan flows remain valid, despite possible minor deviations in the data distribution. This means that a small group of the largest banks determines how financial resources are distributed in the economy. For example, if the five largest banks increase lending, this may increase the availability of borrowed capital for businesses and the population. If these banks tighten lending conditions or reduce deposit volumes, this may slow economic growth, since businesses and individuals have fewer options for financing. In Kazakhstan, the banking sector is highly concentrated, and the analysis results confirm that the policies of these largest players determine the dynamics of the entire financial system. For example, if leading banks increase their reserves instead of actively lending, this may lead to stagnation of the economy, even if other macroeconomic factors

The quantile-quantile plot for the third hypothesis, assessing the impact of macroeconomic factors (3_GDP%) on bank indicators, shows the most significant deviation from the diagonal, indicating that the data distribution is significantly different from normal. This is consistent with the statistical analysis results, which show that the impact of GDP on bank indicators is not statistically significant. This may mean that GDP affects the banking system indirectly but through complex mechanisms that are not immediately apparent. For example, if the economy grows, businesses expand and take out more loans, but this process takes time - perhaps several years. As a result, banks may not show an increase in assets and loan issuance, but this effect will become apparent in two or three years. Another example is when, during an economic crisis, the government may introduce anti-crisis measures, such as state support for banks or loan subsidy programs. In this case, even with a decline in GDP, banks can maintain a stable level of lending through these programs. Such a mechanism will not be visible when analyzing data for only one year but may appear when considering long-term trends.

This suggests that even if the economy of Kazakhstan is growing, this does not automatically mean that the banking sector is growing. Banks can increase or decrease lending depending on their internal strategies, not the overall economic situation. For example, in conditions of high economic growth, banks can remain cautious and not increase lending if they believe that the risks of loan defaults remain high. On the other hand, during periods of crisis, banks can receive support from the state or the National Bank, which allows them to continue lending even when GDP declines. This explains why the banking system of Kazakhstan does not demonstrate a clear correlation with economic growth - large banks make decisions based on their strategies, not only on overall macroeconomic conditions.

5. CONCLUSIONS

Internal factors determine the financial stability of Kazakhstan's banking sector, while macroeconomic indicators insignificantly impact banking indicators. The dispersion analysis confirmed that the growth of bank profitability leads to an increase in net profit and tax burden, which means that banks are focused on maximising their profitability rather than supporting economic growth through expanding business lending.

High capital concentration in the largest banks significantly impacts the lending structure and deposit distribution. A change in the deposit structure and loan portfolio has a considerable impact on the share of the largest banks, which is explained by the financial sector's dependence on the decisions of a limited number of participants. Therefore, if several of the largest banks adopt a conservative lending strategy, access to financing may decrease sharply, especially for small and medium-sized businesses. The analysis also showed the absence of a significant relationship between macroeconomic indicators and the banking system, which suggests that Kazakhstani banks do not respond proportionally to changes in GDP.

Thus, the results show that Kazakhstan has a strict system of regulation of the banking sector, which reduces the dependence of banks on economic cycles but, at the same time, limits their ability to support the economy during periods of growth or crisis. That is, the banking system operates in a closed mode, focusing more on its profitability than on the dynamics of the economy. Banks do not respond to GDP growth as expected, which may indicate insufficient involvement of the banking sector in financing the real sector of the economy. Thus, the problem lies in the limited integration of the banking system into economic growth, which reduces its role as an engine of development. If the regulatory policy does not actively stimulate banks to finance businesses, this may slow down investment and modernisation of key industries.

For businesses, access to credit resources is sensitive to changes in investment activity and entrepreneurship, which is especially crucial for small- and medium-sized enterprises.

For the population, the priority development of consumer lending may increase the debt burden among citizens, increasing the risks of financial instability for households. For the economy as a whole - the banking system does not act as an active driver of economic growth, which may slow down the modernisation of key industries since the real sector does not receive enough funding.

An active policy is needed to stimulate competition in the banking sector and mechanisms to ensure more balanced lending, including support for the corporate segment. The concentration of capital in a small number of banks increases systemic risks and limits the effectiveness of redistributing financial resources - implications for banks. Hence, internal management strategies determine profitability. Attention to consumer loans and business financing is necessary to improve sustainability, diversify income sources, and develop a balanced credit policy.

The banking system of Kazakhstan does not actively participate in the development of the economy, which may lead to the fact that even under favorable macroeconomic conditions, the development of the real sector will be constrained by the lack of available financing. To unleash the country's economic potential, it is necessary to review the mechanisms of banking regulation and encourage banks to participate more actively in investment processes.

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REFERENCES

Abdibekov, S. U., Kulbay, B. S., Gridneva, Y. E., Kaliakparova, G. S., Ashimbayev, T. A., & Perneyeva, G. A. (2023). The Relationship between the Share of Renewable Energy in Total Energy Consumption and Economic Growth: Kazakhstan and Turkiye Comparision. *International Journal of Energy Economics and Policy*, *13*(5), 24–30. https://doi.org/10.32479/ijeep.14567

Acharya, V. V. (2009). A theory of systemic risk and design of prudential bank regulation. *Journal of financial stability*, *5*(3), 224-255. https://doi.org/10.1016/j.jfs.2009.02.001

Adelopo, I., Lloydking, R., & Tauringana, V. (2018). Determinants of bank profitability before, during, and after the financial crisis. *International Journal of Managerial Finance*, *14*(4), 378-398. https://doi.org/10.1108/IJMF-07-2017-0148

Aderibigbe, J. O. (2004). An overview of the Nigerian financial system. *Bullion*, *28*(1), 2. Retrieved January 15, 2025 from https://dc.cbn.gov.ng/bullion/vol28/iss1/2

Begimkulov, E., & Kuti, M. (2024). Analyzing the Effects of Bank Digitalization on Bank Competition and Profitability in Central Asia: Insights from Kyrgyzstan and Kazakhstan. *Eurasian Journal of Business and Economics*, *17*(34), 43-63. https://doi.org/10.17015/ejbe.2024.034.03

Bossone, B. (2001). Circuit theory of banking and finance. *Journal of Banking & Finance*, *25*(5), 857-890. https://doi.org/10.1016/S0378-4266(00)00100-X

Buzaubayeva, P. Orazbayeva, A., Alina, G. Baimagambetova, Z. & Kenges, G. (2024). Enhancing financial performance and risk management in Kazakhstan's banking sector. *Banks and Bank Systems*, *19*(1), 157-169. http://dx.doi.org/10.21511/bbs.19(1).2024.14

Canoy, M. F. M., van Dijk, M. F., Lemmen, J. J., De Mooij, R. A., & Weigand, J. (2001). Competition and stability in banking. *CPB Document*, 15. http://dx.doi.org/10.2139/ssrn.296479

Davamanirajan, P., Kauffman, R. J., Kriebel, C. H., & Mukhopadhyay, T. (2006). Systems design, process performance, and economic outcomes in international banking. *Journal of Management Information Systems*, *23*(2), 65-90. https://doi.org/10.2753/MIS0742-1222230204

Feghali, K., Mora, N., & Nassif, P. (2021). Financial inclusion, bank market structure, and financial stability: International evidence. *The Quarterly Review of Economics and Finance*, *80*, 236-257. https://doi.org/10.1016/j.qref.2021.01.007

Forcadell, F. J., & Aracil, E. (2017). Sustainable banking in Latin American developing countries: Leading to (mutual) prosperity. *Business Ethics: A European Review*, *26*(4), 382-395. https://doi.org/10.1111/beer.12161

Government of Kazakhstan. (2024). Key indicators of the banking sector of the Republic of Kazakhstan Retrieved January 15, 2025 from https://www.gov.kz/uploads/2024/12/31/f001f097b3bd5bdcae2e76a7d80dc424_original.696457.pdf (In Russ.)

Halyk Finance. (2024). Kazakhstan Banking Sector Review. Retrieved January 15, 2025 from https://halykfinance.kz/download/files/analytics/banks_nov2024.pdf

Jiménez, G., Lopez, J. A., & Saurina, J. (2013). How does competition affect bank risk-taking? *Journal of Financial stability*, *9*(2), 185-195. https://doi.org/10.1016/j.jfs.2013.02.004

Kan, L., Malgarayeva, Z., Lesbayeva, G., Tulaganov, A., & Arzikulova, R. (2024). The Role of Deposits and Securities in Shaping Banking Operations and Mutual Funds in Kazakhstan. *Eurasian Journal of Economic and Business Studies*, *68*(4), 89-100. https://doi.org/10.47703/ejebs.v68i4.453

Kazbekova, K. M., Zhanibekova, G. K., Myrzakhanova, D. J., & Myrzhykbayeva, A. B. (2022). Risk management and financial stability of banks. *Bulletin of the Karaganda University Economy series*, *107*(3), 56-66. https://doi.org/10.17015/ejbe.2024.034.03

Langfield, S., & Pagano, M. (2016). Bank bias in Europe: effects on systemic risk and growth. *Economic Policy*, *31*(85), 51-106. https://doi.org/10.1093/EPOLIC%2FEIV019

Leroy, A., & Lucotte, Y. (2017). Is there a competition-stability trade-off in European banking? *Journal of International Financial Markets, Institutions and Money*, *46*, 199-215. https://doi.org/10.1016/j.intfin.2016.08.009

Mare, D. S. (2015). Contribution of macroeconomic factors to the prediction of small bank failures. *Journal of International Financial Markets, Institutions and Money*, *39*, 25-39. https://doi.org/10.1016/j.intfin.2015.05.005

Menicucci, E., & Paolucci, G. (2016). The determinants of bank profitability: empirical evidence from European banking sector. *Journal of financial reporting and Accounting*, *14*(1), 86-115. https://doi.org/10.1108/JFRA-05-2015-0060

Morina, F., & Osmani, R. (2019). The impact of macroeconomic factors on the level of deposits in the banking sector, an empirical analysis in the Western Balkan countries. *Journal of Accounting, Finance and Auditing Studies*, *5*(3), 16-29. https://doi.org/10.32602/jafas.2019.28

Nersisyan, Y., & Dantas, F. (2017). Rethinking liquidity creation: Banks, shadow banks and the elasticity of finance. *Journal of Post Keynesian Economics*, *40*(3), 279-299. https://doi.org/10.1080/01603477.2017.1356686

Okorie, G., & Uwaleke, U. J. (2010). An overview of financial sector reforms and intermediation in Nigeria. *Bullion*, *34*(2), 3. Retrieved January 15, 2025 from https://dc.cbn.gov.ng/bullion/ vol34/iss2/3

Sarkambayeva, S., & Sailaubekov, N. (2024). Macroeconomic Analysis and General Economic Equilibrium of Kazakhstan. *ECONOMIC Series of the Bulletin of the LN Gumilyov ENU*, *3*, 9-20. https://doi.org/10.32523/2789-4320-2024-3-9-20

Ratel. (2023). How trillion-dollar bank profits are hurting Kazakhstan's economy. Retrieved January 15, 2025 from https://www.ratel.kz

Raza, H., Saeed, A., & Hena, S. (2019). Determinants of profitability in banking sector: An evidence from Pakistan. *European Scientific Journal*, *15*(7), 35-48. http://dx.doi.org/10.19044/esj.2019.v15n7p35

World Bank. (2020). The COVID-19 shock to Kazakhstan's economy: Largest in two decades – World Bank report. Retrieved January 15, 2025 from https://www.vsemirnyjbank.org/ru/news/press-release/2020/07/22/the-covid-19-shock-to-kazakhstans-economy-largest-in-two-decades-world-bank-report](https://www.vsemirnyjbank.org/ru/news/press-release/2020/07/22/the-covid-19

World Bank. (2021). Turning the tide on the COVID-19 crisis. Retrieved January 15, 2025 from https://documents1.worldbank.org/curated/en/890971624952007527/pdf/Turning-the-Tide-on-the-COVID-19-Crisis.pdf

Yao, H., Haris, M., & Tariq, G. (2018). Profitability determinants of financial institutions: evidence from banks in Pakistan. *International Journal of Financial Studies*, *6*(2), 53. https://doi.org/10.3390/ijfs6020053

Yüksel, S., Mukhtarov, S., Mammadov, E., & Özsarı, M. (2018). Determinants of profitability in the banking sector: an analysis of post-soviet countries. *Economies*, *6*(3), 41. https://doi.org/10.3390/economies6030041

Ybrayev, Z. (2022). Financial stability aspects of monetary policy transmission in developing countries: empirical evidence from Kazakhstan. *International Journal of Development Issues*, *21*(2), 195-217. https://doi.org/10.1108/IJDI-06-2021-0128

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