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The Impact of M&A on the Financial Performance of Banks in Kazakhstan

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Abstract

Nowadays, M&A activity has become an increasingly prominent strategic tool for growth and competitiveness within the banking sector in Kazakhstan, driven by evolving regulations and market conditions. The current study investigates the impact of M&A on the financial performance of selected banks in Kazakhstan from 2013 to 2023. A quantitative, non-experimental methodology was used to utilize historical M&A transactions data in the banking industry in Kazakhstan within recent 10 years and accounting data of selected 9 banks. 3 years preceding and following M&A transaction completion year were analyzed for each bank by conducting a financial ratio analysis and a paired sample t-test. It was hypothesized that there is either significant or no significant difference between pre-M&A and post-M&A profitability, liquidity and leverage ratios of the banking sector and banks on an individual basis. The findings revealed that M&A had a slight positive impact on liquidity ratios and no impact on profitability and leverage ratios of the overall banking sector in the selected post-M&A period. The results showed that M&A had a minor influence on banks' financial indicators on an individual basis within 3 years after M&A date. This study contributes to the extension of knowledge about M&A activities in emerging markets by offering an analysis in the case of Kazakhstan's banking sector. The scope of this study was limited in terms of the availability of financial data published by banks and information in LSEG Workspace, which impacted the selected time frame for analysis. The research was conducted only for the banking sector in Kazakhstan.

Keywords: Mergers and acquisitions (M&A), banking sector, financial ratio analysis, paired sample t-test.

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1 Introduction

1.1 What is M&A

In the new global economy, Mergers and Acquisitions (M&A) have become a key strategy for developing companies to improve the efficiency of operations and increase competitiveness in domestic and international markets (Basha, 2016). This corporate strategy began in the US and European markets and is being used in many fields. Existing research recognizes the five waves in M&A history that started in the 1890s and lasted until the 2000s. During the first three waves, banks played an assisting role in M&A practices, by providing resources for other companies. Starting from the fourth wave, from 1989 year, M&A has been initiated between banks, increasing the potential for faster growth (Malik et al., 2014).

Banks represent a central role in the economic and financial systems of the country and face increasing competition in the local and international markets. Nowadays, there is a growing tendency for M&A in the banking industry in Kazakhstan due to changing regulations and customer needs for banking services, profitability opportunities that can improve the financial, strategic, and operational processes of the banks.

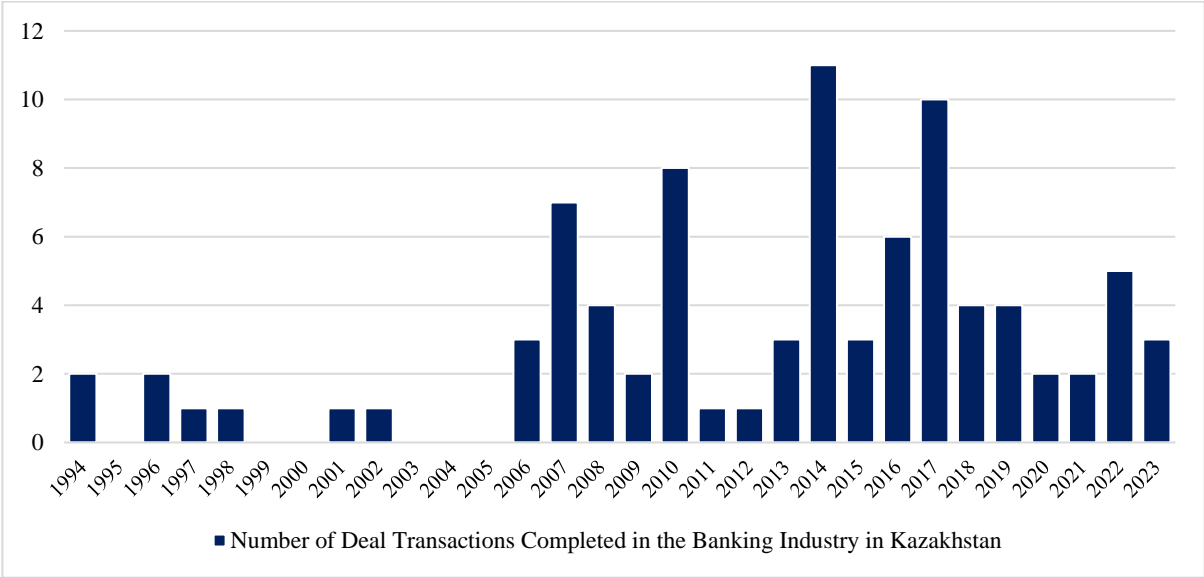
During the acquisition process banks usually aim to purchase the right of control over the assets as a way of boosting the market share or restoring the solvency of distressed banks. The second option is more common for Kazakhstani banks that is typically implemented with the financial support of the government.

The first deal transactions after gaining independence in the Republic of Kazakhstan occurred in 1994. The first major merger in Kazakhstan occurred in 1997 between TuranBank and Alem Bank Kazakhstan (Svyatov & Doldina, 2019). According to the latest statistics, there were 87 completed deal transactions in the banking sector in Kazakhstan, which include both minor and major size deals (LSEG Workspace, 2024). Figure 1 below demonstrates the number of completed deal transactions in the banking sector in Kazakhstan from 1994 to 2023. There was an increasing trend in the number of deals

in 2007, 2010, 2014, 2017 and 2022 because of various nationalization programs, foreign investors’ interest in Kazakhstani banks and purchase of stakes, and Russian sanctions. Global economic recession, national currency and economic fluctuations, and worldwide pandemic slowed the country’s economy and activities on the M&A market in 2008-2009, 2011-2012, 2015, and 2019-2020.

Figure 1

Number of Deal Transactions Completed in the Banking Industry in Kazakhstan during 1994-2023



Note. The data was retrieved from the LSEG Workspace, 2024.

1.2 Motives for M&A in the Banking Industry

The reasons behind M&A procedures among banks can be driven by specific motives and influenced by industry trends. According to Seth (1990), there is a value-maximizing hypothesis that explains the motives of M&A as a firm's desire to achieve strategic objectives, increase their market share, enhance efficiency, and manage risks, as well as gain benefit from the synergy and economies of scale.

Strategic Rationales and Efficiency Gain

Adhikari et al. (2023) determined two crucial drivers of M&A activity which are strategic rationales and efficiency gain. Strategic rationale refers to structural changes in the merged entities that improve the profitability of the firm and allow them to gain competitive advantages. Whereas efficiency gain is achieved mostly during post-merger integration and occurs when merged banks pool resources and as a result, eliminate redundancies in operations and administrative functions.

Synergy and Economies of Scale

According to Masud (2015), for businesses one of the major motives for engaging in M&A is to obtain mutual benefits. Specifically, it occurs when M&A procedures get synergy, a process in which two entities merge into one company and their overall value becomes significantly higher than the sum of their individual values (Zuhri et al., 2020). As stated by Adhikari et al. (2023), after M&A transaction both entities' shareholders gain profit and increase their overall wealth. Based on Synergy Theory, synergy encompasses 3 main impacts that raise shareholders' wealth, that are operational, financial, and managerial synergies. Lowering the combined bank's operating expenses is the primary driver of operating synergy. It is achieved through a joint effort from economies of scale and economies of scope and market power. Economies of scale, a key contributor to synergy empower banks to significant cost savings and efficiency gain due to increased firm size and retrenching in product development, R&D, administrative cost, marketing, and operating expenses (Adhikari et al., 2023). Furthermore, when operational processes of merged banks pooled together to develop fresh offerings by cutting laboring expenses and implementing cutting-edge innovation to provide them competitive advantages in the market the economy of scope is reached. Smirnova (2014) has evaluated the impact of economies of scope as more valuable than that of economies of scale. It was stated that larger-sized banks tend to acquire less efficient smaller banks with more diversified income sources, therefore, the

market power gained through such an acquired firm results in revenue growth and contributes to their economies of scope.

Beyond the factors mentioned above, there are other motives that influence banks' M&A decisions. Abbas et al. (2014) stated that M&A can be a tool for banks to increase their market share, as well as expand into new markets both domestically and internationally. Moreover, M&A allows banks to diversify their product portfolios and income streams, while mitigating risks associated with economic downturns or sector-specific vulnerabilities. Hence, merged banks have an opportunity to achieve a more stable and predictable revenue stream by offering a wider range of products or services (Zuhri et al., 2020). In addition, merging with profitable entities can significantly lower the tax burden for the combined banks (Adhikari et al., 2023).

1.3 Problem Statement and Objectives

To date, a limited number of research have been conducted on the topic of impact of M&A practices in the banking sector in Kazakhstan. The purpose of the research is to evaluate M&A impact on the financial indicators of selected banks in Kazakhstan between 2013 and 2023. For each bank 3 pre-M&A and 3 post-M&A years will be analyzed using financial ratios and accounting data. The potential audience of the study are banking industry researchers and people, who may be interested in the topic of M&A practices in the banking industry in Kazakhstan.

Objectives of the research:

- To analyze the financial performance of selected banks 3 years preceding and following M&A transaction date;
- To evaluate the impact of M&A on the financial performance of selected banks between 2013 and 2023.

The remaining part of the paper proceeds as follows: literature review, research methodology, data analysis and findings, conclusion.

2 Literature review

2.1 M&A and It's Main Types

Definition of M&A

The term Mergers and Acquisitions (M&A) encompasses a wide range of financial deals related to the consolidation of companies (Rompotis, 2015). It plays a crucial role in the global landscape, serving as a strategic tool for entities to achieve business growth, gain increased profitability, expand operations, and enhance their competitive edge in the market (Masud, 2015). According to Mashkour (2021), M&A are two forms of business combination, in which a firm gaining control over assets of the company is denoted as acquiring company or a “bidder”, whereas a company which is being acquired is called target company. As it was mentioned by Adhikari et al. (2023), “merger” and “acquisition” are interrelated and interchangeable terms, however, there are some distinctions between these two concepts. Merger is the process in which two or more companies are consolidated as one to establish a new business entity (Masud, 2015). According to previous literature provided by Smirnova (2014), the broad definition of merger is when companies of approximately the same size unite by pooling their resources. Moreover, during the merger, all parties equally share all potential risks as well as future profits of the newly formed entity. Adhikari et al. (2023) stated that a merger enhances the competitiveness and strength of companies by combining skills and expertise, thereby building a strong market presence in the business environment.

An acquisition, on the other hand, can be defined as the act of gaining control over another entity, frequently by purchasing all or majority shares of the company (Mashkour, 2021). According to Smirnova (2014), acquisition involves the purchase of a controlling stake in the target company, which consequently results in its complete takeover. This contradicts the concept of “mergers”, which refers to the combination of two companies into a new entity (Kumar, 2009). Furthermore, Malik et.al (2014), recognizes the similarity of goals between M&A, yet distinguishes them by the power dynamics involved. As indicated in his studies, acquisitions are usually described by the fact that a larger and

financially stronger firm acquires a weaker one. Rompotis (2015), emphasized the legal implications of the acquisitions. It was defined that in the matter of full acquisition, the target company no longer exists as a separate legal entity, as it is being absorbed by the acquiring company. Additionally, in terms of publicly traded companies, only the shares of the acquiring company remain on the stock exchange.

Types of M&A

M&A transactions can be classified in 3 types: horizontal, vertical, and conglomerate. A "horizontal merger" can be defined as the consolidation of two or more entities operating in the same field for the purpose of boosting their market share or expanding their operations geographically (Rompotis, 2015). As mentioned by Adhikari et al. (2023), it includes mergers between banks with approximately similar financial products or services, customer bases, and technology. Therefore, horizontal mergers endeavor to achieve synergy by eliminating competition, enhancing the bank's revenue, as well as ensuring a strong market presence. In contrast, "vertical mergers" take place in cases when a company merges with another entity that is involved in a different stage in its supply chain to achieve efficiency in production (Adhikari et al., 2023). Kumar (2009) mentioned that it encompasses backward integration, in which the acquiring company takes control over its suppliers, or forward integration which refers to gaining control of its distribution channels. Whereas when two or more companies operating in unrelated industries are engaged in M&A procedures, it is considered to be a "conglomerate merger" (Kumar, 2009). According to Rompotis (2015), the main motive behind such mergers can be characterized as increasing their market capitalization, diversification, and risk reduction.

2.2 Approaches to Measure M&A Performance

Existing literature indicates that there are four common approaches to measure the performance of companies in a post-M&A period. First, accounting return method or operating performance analysis uses accounting data to compare a specified period before and after M&A date and analyze overall performance of acquiring company. The expanded version of this analysis also includes share-price

analysis, which is based on the idea of reflecting the value of future benefits in an acquiring firm's share price during potential transaction. The company's operating cash flow is computed and adjusted to industry and company-specific information. Second, the event study approach calculates the normal return of the issuer company by constructing a regression equation in relation to market changes, and then, it computes the cumulative abnormal return of the company just before the event. Third, the residual income approach analyzes fundamental values of acquirer firm before and after acquisition transaction by computing actual and expected dividends per share, book value per share and cost of equity. After that, the changes between two values are compared. Fourth, Data Envelopment Analysis (DEA) is a linear programming instrument that gauges the efficiency of decision-making units (Malik et al., 2014).

2.3 Past Research Analysis

A considerable amount of literature on the analysis of firms' performance after M&A has been published. These studies explored the topic both by different industries and by a single sector for a particular period. Based on the analysis of financial ratios in the post-M&A period, some studies showed no improvement, while others disclosed mixed or positive effects with slight deterioration.

Muhammad et al. (2019) analyzed the performance of financial institutions in Pakistan from 2004 to 2015 before and after M&A using descriptive statistics. The study revealed that liquidity, investment and profitability ratios positively improved and were significantly impacted by M&A, showing a greater pool of funds and resources. Only solvency ratios declined in a post-M&A period due to increased debt burden than in pre-M&A time.

Basha (2016) measured the performance of ICICI Bank in India after M&A using financial ratios and descriptive statistics. 10-year accounting data was collected and analyzed. The study demonstrated overall positive improvements in investment, management efficiency, debt coverage and solvency indicators, and suggested that profitability of the bank improved due to higher non-interest income and lower operating expenses.

Al-Sharkas et al. (2008) conducted profit and cost efficiency analysis of US banks' mergers applying the frontier approach and DEA, in which 1,552 mergers were analyzed in a period from 1985 to 1999. Researchers concluded that there was an improvement in profit and cost efficiency for both small and large bank mergers and that merged banks' performance was greater than non-merged US banks' performance because of cost minimization and technology availability effects.

Some of the studies conducted on the analysis of the post-M&A period acknowledge mixed outcomes. Adhikari et al. (2023) investigated the performance of Nepalese banks during 2013-2020 by analyzing financial indicators and making dependent sample t-test. The researchers concluded that liquidity and leverage indicators improved, whereas profitability and shareholder's wealth ratios demonstrated slight deterioration.

According to Masud (2014), the banks' financial indicators decrease in the first year after M&A deal and improves steadily in the long run. She analyzed three Pakistani banks by ROA, ROE and EPS indicators and dependent sample t-test. Performance of two banks' ROA and ROE demonstrated growth, while for another bank it increased in the first two years, slightly declined and again improved, indicating mixed results. The same mixed trend was found in the EPS ratio analysis.

Based on the analysis of selected companies in Iraq in the period of 2008-2013, Mashkour (2021) described positive and significant changes in earning per share ratio, while changes in net profit margin, return on assets and return on equity showed no improvement.

Several studies discovered negative impact or lack of improvement results in bank performance following M&A procedures. Abbas et al. (2014) analyzed accounting data of ten banks using ratio analysis. Their studies have shown overall negative improvement in profitability, efficiency, leverage and liquidity ratios of most of the banks after M&A. Although, 2 banks could demonstrate positive profitability and efficiency performance, their liquidity and leverage results have deteriorated.

These findings were similar to the Shah and Khan (2017), that have examined acquirer banks in Pakistan. As it was stated by the authors, after several banks were engaged in M&A, it resulted in a

decline in ratios such as profitability, liquidity, and capital adequacy ratios, suggesting adverse influence on the financial operations of the acquiring banks.

Whereas research conducted by Fatima & Shehzad (2014), has declared that regardless of satisfactory results achieved in the banks' profitability, liquidity, and assets after the merger deal, the merger still could not enhance the banks' financial performance as it did not contribute to any significant progress of the banks involved.

2.4 Research on M&A in the Banking Sector in Kazakhstan

In recent decades, the banking sector in Kazakhstan has experienced a dynamic development shaped by M&A activities. This has played a significant role in consolidating the industry, attracting foreign investment, and stimulating economic growth (Deister & Toxanbayev, 2018). Therefore, understanding existing findings and trends is crucial for assessing the banking sector's stability, competitiveness, and future trajectory.

Previous studies have revealed two main waves of M&A activity in Kazakhstan's banking industry which took place between the mid-1990s and late 2000s (Smirnova, 2014). The key drivers of those waves are revealed to be factors such as the country's transition to a market economy, government stabilization efforts, and foreign investors' interest in expanding their operations in the CIS market through Kazakhstan (Deister & Toxanbayev, 2018).

Moreover, Smirnova (2014) has identified the key reasons for M&A transactions in the banking industry of Kazakhstan, which encompasses a range of internal and external factors. Internal motives incorporate revenue growth, market expansion, and capital raising. Whereas economic conditions, technological advancement, and legal and political environment are referred to as external motives. Additionally, Kurmanalina et al. (2017), stated that one of the incentives of M&A deals for bank

mergers in Kazakhstan is the entry of foreign financial institutions into the Kazakh market, achieving a competitive advantage and regulatory pressure.

Furthermore, M&A tends to have a miscellaneous effect on Kazakhstan banks, including both positive and negative results. As it was described by Smirnova (2014), by restructuring weak institutions and encouraging the integration of expertise, the first wave of consolidation in the 1990s aimed to revitalize the banking system. Consequently, these procedures enhanced the overall efficiency and competitiveness within the sector. Also, the author emphasized the second wave, impelled by government interventions and foreign investors' interest in the Kazakhstani market in late 2000, that led to an influx of new capital and international practices. Consequently, banks in Kazakhstan gained the opportunity for future growth and strengthened the stability of the financial sector (Smirnova, 2014). Another positive aspect of M&A that was indicated by Kurmanalina et al. (2017) is facilitating market expansion for banks, and hence, empowering them to reach new segments and widen their service offerings. On the other hand, despite the benefits of the M&A deals in Kazakhstan's banking sector, negative factors such as financial strain and integration issues were identified in the previous studies (Smirnova, 2014; Deister & Toxanbayev, 2018).

However, a crucial gap can be observed throughout existing literature, namely an analysis of the long-run financial performance of the merging entities. While previous studies provide insights into initial motives and potential obstacles associated with M&A activities in Kazakhstan's banking sector, a deeper examination is needed to assess the long-term impact of M&A transactions in terms of financial performances of banks. Based on the analysis of the literature review the following hypotheses have been developed:

- H0a: There is no significant difference between pre-M&A and post-M&A profitability, liquidity and leverage ratios of the overall banking industry.

- H1a: There is a significant difference between pre-M&A and post-M&A profitability, liquidity and leverage ratios of the overall banking industry.
- H0b: There is no significant difference between pre-M&A and post-M&A profitability, liquidity and leverage ratios of banks on an individual basis.
- H1b: There is a significant difference between pre-M&A and post-M&A profitability, liquidity and leverage ratios of banks on an individual basis.

3 Research Methodology

3.1 Research Design

Various researchers have measured the influence of M&A on financial performance of firms in a variety of ways. Analyzing the accounting data of a company has been employed widely by many authors to demonstrate the changes that happen in a company's performance and operations (Adhikari et al., 2023; Basha, 2016; Muhammad et al., 2019; Shah & Khan, 2017). A similar method is used in our study.

A quantitative non-experimental methodology is utilized in the research. Our research method is divided into two parts: ratio analysis and paired sample t-test (dependent samples t-test). First, ratio analysis is conducted by assessing selected financial ratios such as profitability, liquidity, and leverage ratios. By analyzing the related studies from the literature review, the list of the most widely used and relevant ratios was selected (Abbas et al., 2014; Adhikari et al., 2023; Basha, 2016; Muhammad et al., 2019; Shah & Khan, 2017). This list is presented in Table 1 with a description of the calculation method.

Table 1

Financial ratios and their measurement

Variables	Ratios	Measurement
Profitability	Return on Equity (ROE)	Net profit after tax/Total Equity
	Return on Assets (ROA)	Net profit after tax/Total Assets
	Net Interest Margin (NIM)	Interest earned-interest expense/Total Assets
	Spread Ratio	Net interest income/Total interest earned
	Interest Expense to Interest Income Ratio (IEII)	Interest Expense/Interest Income
	Earnings Per Share (EPS)	Net profit after tax/No. of ordinary shares
Liquidity	Cash & Cash Equivalent to Total Assets (CETA)	Cash & Cash Equivalent/Total Assets
	Investment to Total Assets Ratio (ITA)	Investment/Total Assets
	Total Liabilities to Total Assets Ratio (TLTA)	Total Liabilities/Total Assets
Leverage	Debt to Equity Ratio (DE)	Total Debt/Total Equity
	Capital Adequacy Ratio (CAR)	Total Equity/Total Assets
	Total Deposit to Total Equity Ratio (TDTE)	Total Deposit/Total Equity
	Total Loans to Total Deposit Ratio (TLOTD)	Total Loans/Total Deposit

Note. Adapted from similar literature: Abbas et al., 2014; Adhikari et al., 2023; Basha, 2016; Muhammad et al., 2019; Shah and Khan, 2017.

The selected financial ratios are measured for the pre-M&A and post-M&A periods of a company. The pre-M&A period is the three years before the M&A completion date, and the post-M&A period is the three years after the M&A completion date. The year when M&A was completed is not included in the analysis, and the financial ratio is not calculated for that year to eliminate the short-term effect of the transaction. Overall, six variables are calculated for one type of ratio, which is three pre-M&A and three post-M&A variables. Then, the average ratio for both periods is measured by finding the average value

for the pre-M&A and post-M&A periods. These values for two periods are compared to whether it has been increased or deteriorated in the post-M&A period and by how much.

Second, a paired sample t-test is conducted to check the significance of the difference between averages of two variables that were before and after M&A. It is calculated using the Data analysis function in the Excel program. This technique shows whether the difference between variables likely occurred because of a sampling error or not. The variables are tested at a 5% significance level, and if the calculated p-value is lower than 5%, it is assumed that there is a significant difference between variables, which signifies that there is enough evidence to reject a null hypothesis. The hypotheses of the study are tested by paired sample t-test and analyzed in the Data Analysis section. As discussed in the Literature Review section, the same procedures such as analysis of financial indicators and dependent sample t-test were adopted in several studies (Abbas et al., 2014; Adhikari et al., 2023; Basha, 2016; Mashkour, 2021; Masud, 2015; Muhammad et al., 2019; Shah & Khan, 2017).

3.2 Data Collection

To conduct an analysis the two types of data were needed: information about the M&A transactions in the banking industry in Kazakhstan and financial data of the selected banks. First of all, the information about M&A transactions from the LSEG Workspace of LSEG Data & Analytics has been imported and analyzed to determine the number of transactions that occurred in the banking industry of Kazakhstan. The primary sample selection was predicated on the involvement of banks in M&A, or in other words, deal transactions, in Kazakhstan during the last 10 years. These 10 years have been chosen for two reasons. Firstly, there is limited information about the accounting data of some banks and transactions before 2010 due to technological constraints. Secondly, it is assumed that the longer horizon of analysis is likely to influence the sample and distort the results by other factors such as the economic environment of the country (Marques-Ibanez & Altunbas, 2004). Therefore, the M&A transactions for the last 10 years have been gathered, and the 3 years before and after M&A have been chosen for analysis.

To narrow down the sample size, the criteria below have been applied to the sample:

- 1) M&A was completed during 2013-2023 (10-year period);
- 2) The M&A deal was successfully closed/completed;
- 3) Target company's Mid industry description is Banks and Acquiror company's Macro industry description is Financial;
- 4) Acquired stake was more than 50%;
- 5) No repurchase transactions were covered in the analysis.

Then the availability of financial information of banks has been checked. Due to the lack of financial statements of the companies and issues with a timeframe, which were involved in M&A during 2022-2023, we excluded these transactions and companies. Similarly, Jusan Bank did not publish financial statements for 2023 at the time of data analysis, and it was decided to include in calculations two years preceding and following M&A to comply with dependent samples t-test requirements for this bank. Additionally, taking into account the fact that Kazkom was acquired by Halyk Bank in 2018 and stopped operating in 2018, there was published financial data only for 6 months of 2018. Because of the unavailability of financial data for the whole of the 2018 year for Kazkom, it was decided to include 2 years before and after M&A transactions in data analysis.

Overall, after the selection 13 deal transactions and 9 banks have been recorded for the analysis. Table 2 demonstrates the overall information about the selected transactions, Acquirer and Target banks' names, corresponding date of completion of a deal, deal type, the period that was analyzed and sources of data. The main sources of financial statements and annual reports of the companies were their official websites and the Kazakhstan Stock Exchange (KASE).

Table 2

List of Banks involved in M&A during 2013-2023

No.	Acquirer/Bidder Banks	Acquired/Merged/Target Banks	Effective Date	Deal Type	Pre-M&A period	Post-M&A period
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1	Halyk Bank of Kazakhstan JSC	Kazkommertsbank JSC	05.07.2017	Acquisition	2015-2017	2019-2021
		Kazkommertsbank JSC	27.07.2018	Merger		
2	Kazkommertsbank JSC	BTA Bank JSC	04.07.2014	Acquisition	2012-2014	2016-2018
		BTA Bank JSC	30.06.2015	Merger		
3	ForteBank JSC	Temirbank JSC and Alliance Bank JSC	01.01.2015	Merger	2012-2014	2016-2018
4	Eurasian Bank JSC	BankPozitiv Kazakhstan JSC	01.01.2016	Acquisition	2013-2015	2017-2019
5	First Heartland Jusan Bank JSC	Tsesnabank JSC	06.02.2019	Acquisition	2016-2018	2021-2023
		ATFBank JSC	30.12.2020-03.09.2021	Acquisition		
6	Altyn Bank JSC	Halyk Bank of Kazakhstan JSC	28.11.2014	Acquisition	2011-2013	2015-2017
		China Citic Bank Corporation Limited and China Shuangwei Investment Co., Ltd.	24.04.2018	Acquisition	2015-2017	2019-2021
7	Freedom Finance JSC	Bank Kassa Nova JSC	21.12.2020	Acquisition	2017-2019	2021-2023
8	Home Credit Bank JSC	Home Credit and Finance Bank JSC of Russia	29.01.2013	Acquisition	2010-2012	2014-2016
9	Alfa Bank JSC	KazInvest Bank JSC	19.05.2017	Acquisition	2014-2016	2018-2020

Note. Source: LSEG Workspace, 2024.

4 Data Analysis and Findings

To assess the influence of M&A on the banks' financial performances 13 ratios from Table 1 were calculated and analyzed. Then, a paired sample t-test was employed to check the significance of a difference between average values before and after M&A. The results of the calculation are presented in tables in this way: average pre-M&A and post-M&A values, the change between these two values and p-value of ratios of 3 years preceding and following M&A.

Table 3 demonstrates that the 4 banks had a positive change and 5 banks had a negative change in Return on Equity (ROE). The P-value shows no significant change in pre-post periods of ROE since the p-value is higher than 5%. Although Halyk Bank, Jusan Bank, Altyn Bank and Freedom Finance improved their utilization of shareholders' equity and could effectively generate more profit, this performance is not statistically significant. The decrease in ROE of Kazkommertsbank (Kazkom), ForteBank, Eurasian Bank, Home Credit Bank and Alfa Bank can be interpreted by several factors. The performance of Kazkom dropped in 2017 due to high provisions and impairment for loan losses, which resulted in a low average post-M&A value. The decline in value of ForteBank can be explained by the average pre-M&A ratio that was greatly affected by a sudden increase in net profit due to debt restructuring procedures in 2014 and positive ratio interpretation of negative net profit and negative shareholders equity in 2013 due to provision and impairment for loan losses. Similarly, Eurasian Bank showed fluctuations in net profit each year owing to the large impairment losses on debt financial assets, which led to diminishing ROA. Both Home Credit Bank's and Alfa Bank's performances deteriorated due to impairment losses on loans and high expenses from transactions with financial derivatives. The largest percentage growth of 48% was by Jusan Bank, while the largest decline in value of 808% was by Kazkom. The overall ROE for all banks has declined by 65%. Similar results were indicated in the studies by Abbas et al. (2014), Mashkour (2021) and Shah and Khan (2017).

Table 3

M&A impact on profitability ratios: ROE and ROA

Banks	Return on Equity (ROE)				Return on Assets (ROA)			
	Pre-M&A (%)	Post-M&A (%)	Change	P-value	Pre-M&A (%)	Post-M&A (%)	Change	P-value
Halyk Bank JSC	0.194	0.262	0.068	0.127	0.023	0.036	0.013	0.053
Kazkommertsbank JSC	0.099	-0.701	-0.800	0.439	0.013	-0.053	-0.066	0.385
ForteBank JSC	0.765	0.104	-0.661	0.187	0.004	0.013	0.010	0.934

Eurasian Bank JSC	0.148	0.035	-0.113	0.280	0.013	0.003	-0.011	0.316
Jusan Bank JSC	0.099	0.147	0.048	0.831	0.009	0.026	0.017	0.599
Altyn Bank JSC	0.199	0.232	0.033	0.267	0.024	0.027	0.002	0.441
Freedom Finance JSC	0.204	0.217	0.013	0.957	0.056	0.026	-0.030	0.541
Home Credit Bank JSC	0.424	0.342	-0.083	0.381	0.136	0.089	-0.047	0.185
Alfa Bank JSC	0.240	0.189	-0.051	0.697	0.035	0.027	-0.008	0.691
Overall banks	0.264	0.092	-0.172	0.150	0.035	0.022	-0.013	0.204

Note. * shows significant value at 0.05 level

Furthermore, it can be seen from Table 3 that the ROA for 4 banks improved and for 5 banks deteriorated. The dependent samples t-test did not show any statistically significant difference among ratios. A steady performance growth for Halyk Bank, ForteBank, Jusan Bank and Altyn Bank indicates the efficient use of assets in generating profit. However, some banks faced a decline in business operations. The net profit decrease because of high provisions for loan losses led to a sharp decline in the post-M&A ratio for Kazkom. Eurasian Bank had a steady growth in total assets but fluctuating net profit because of impairment losses on debt financial instruments, which caused low ROE after M&A. The pre-M&A ROE for Freedom Finance has been highly affected by the large net profit in 2017 as a result of the gain on a sale of financial instruments, which was a one-time transaction. Home Credit Bank experienced a steady increase in total assets after 2010 and a decline in net profit in 2014-2015 due to impairment losses on loans. The decreased post-M&A ROE of Alfa Bank can be explained by unusual transactions of income from operations with financial instruments and income from fines and penalties, which increased net profit and ROE for 2015. The average ROE for all banks has also declined by 38%, which is not statistically significant. These results are consistent with the findings by

Abbas et al. (2014), Adkihari et al. (2023) and Shah and Khan (2017). Overall, it can be seen that results for ROE and ROA are mixed and the difference is insignificant.

Table 4 illustrates that only the NIM of Kazkom, Eurasian Bank and Home Credit Bank has deteriorated. For Kazkom it can be explained by the lower interest earned on loans for clients that decreased the ratio after M&A, while Eurasian Bank and Home Credit Bank faced fluctuating operational costs after M&A, which caused a slight decrease in NIM. Only for Kazkom, the difference in pre-post values is statistically significant. The remaining 6 banks showed a stable increase in both net interest and total assets, which resulted in a positive post-M&A NIM. It indicates that banks increased the proportion of income from interest on loans, deposits and dividends in relation to total assets. Similarly, the overall average NIM has grown by 5,9%. Adkihari et al. (2023) and Shah and Khan (2017) presented similar findings.

Table 4

M&A impact on profitability ratios: Net Interest Margin and Spread Ratio

Banks	Net Interest Margin (NIM)				Spread Ratio			
	Pre-M&A (%)	Post-M&A (%)	Change	P-value	Pre-M&A (%)	Post-M&A (%)	Change	P-value
Halyk Bank JSC	0.031	0.041	0.010	0.051	0.533	0.563	0.030	0.482
Kazkommertsbank JSC	0.046	0.033	-0.012	0.029*	0.528	0.370	-0.158	0.250
ForteBank JSC	0.018	0.032	0.014	0.135	0.195	0.390	0.195	0.046*
Eurasian Bank JSC	0.052	0.046	-0.006	0.658	0.511	0.430	-0.081	0.342
Jusan Bank JSC	0.039	0.040	0.001	0.859	0.389	0.495	0.106	0.412
Altyn Bank JSC	0.028	0.034	0.005	0.305	0.540	0.483	-0.057	0.115
Freedom Finance JSC	0.021	0.065	0.044	0.073	-2.239	0.252	2.491	0.014*

Home Credit Bank JSC	0.235	0.207	-0.027	0.437	0.893	0.747	-0.147	0.011*
Alfa Bank JSC	0.055	0.058	0.002	0.845	0.610	0.664	0.055	0.017*
Overall banks	0.058	0.062	0.003	0.617	0.218	0.488	0.270	0.363

Note. * shows significant value at 0.05 level

Additionally, Table 4 presents the overall positive change after M&A for Spread Ratio. Halyk Bank, Jusan Bank and Alfa Bank have steadily grown their interest income, and for Alfa Bank, this change is statistically significant at 0.05 level. ForteBank presented an improvement in interest income as it started to receive profit from investment securities in 2017, and its difference between pre-post Spread Ratios is statistically significant. Freedom Finance presented an increase in Spread Ratio, however, its pre-M&A value was negative due to high expenses on repo securities in these years. The decline in the Spread Ratio of Kazkom, Eurasian Bank, Altyn Bank and Home Credit Bank occurred due to a faster percentage increase in the interest expenses than in interest income, which negatively affected the ratio in three years after M&A date.

Table 5 demonstrates a decline in the IEII ratio for all banks except Kazkom, which can be explained by the steady growth of interest expense in the post-M&A period. ForteBank, Home Credit Bank and Alfa Bank showed a higher increase in interest income than in interest expense, which gave an overall effect of deterioration in the IEII ratio and a statistically significant result. Similarly, Freedom Finance had an overall decline in the IEII but due to low interest income in the pre-M&A period, the change between values seems to be considerable and is statistically significant. A similar tendency is observed in the statistically insignificant changes of Halyk Bank, Eurasian Bank, Jusan Bank and Altyn Bank. Overall average IEII for all banks deteriorated by 40.8%.

Table 5

M&A impact on profitability ratios: Interest Expense to Income Ratio (IEII) and Earnings Per Share (EPS)

Banks	Interest Expense to Interest Income Ratio (IEII)				Earnings Per Share (EPS)			
	Pre-M&A	Post-	Change	P-value	Pre-M&A	Post-M&A	Change	P-value
	(%)	M&A (%)			(%)	(%)		
Halyk Bank JSC	0.467	0.437	-0.030	0.482	12.680	32.797	20.117	0.008*
Kazkommert sbank JSC	0.472	0.630	0.158	0.250	42.285	-125.375	-167.660	0.368
ForteBank JSC	0.805	0.610	-0.195	0.046*	-2,057.567	0.220	2,057.787	0.427
Eurasian Bank JSC	0.489	0.574	0.085	0.313	0.586	0.159	-0.427	0.286
Jusan Bank JSC	0.611	0.505	-0.106	0.412	374.965	481.540	106.575	0.900
Altyn Bank JSC	-0.444	-0.460	-0.016	0.658	123.625	221.081	97.456	0.009*
Freedom Finance JSC	3.239	0.748	-2.491	0.014*	1.363	1.953	0.590	0.770
Home Credit Bank JSC	0.107	0.253	0.147	0.011*	-	325.245	325.245	0.063
Alfa Bank JSC	0.390	0.336	-0.055	0.017*	0.019	0.029	0.010	0.531
Overall banks	0.682	0.404	-0.278	0.349	-166.894	104.183	271.077	0.268

Note. * shows significant value at 0.05 level

As shown in Table 5, EPS has decreased for Kazkom and Eurasian Bank, due to the negative net profit that resulted from high impairment losses on loans and financial assets. ForteBank demonstrated a high negative pre-M&A ratio due to negative net profit in 2013, which resulted in a considerable

difference between pre-post values. Halyk Bank, Altyn Bank, Freedom Finance and Alfa Bank had increased EPS after M&A because of the stable profit growth and unchanged number of shares outstanding. Only for Altyn Bank the change was statistically significant. Jusan Bank had a similar situation except in 2017 year when the bank experienced a negative profit. Home Credit Bank did not have any shares outstanding in three years before M&A, thus, EPS is calculated only in the post-M&A period. The total increase in average EPS for all banks is not statistically significant. Similar outcomes are presented in the findings of Adkihari et al. (2023) and Mashkour (2021).

Table 6 demonstrates the Cash & Cash Equivalent to Total Assets (CETA) ratios among nine banks and it reveals several noteworthy findings. Firstly, it is observed that a majority of the banks witnessed positive changes post M&A, with 5 out of 9 banks representing an increase in CETA ratios, namely Forte Bank, Eurasian Bank, Jusan Bank, Freedom Finance, suggesting their improved liquidity and asset management capabilities. Whereas the remaining 4 banks displayed a decrease in their CETA ratios. The findings of the dependent samples t-test shows that while the overall change in CETA ratios among all banks was not statistically significant (with the value of $p=0.458$), only Altyn Bank showed a statistically significant difference in P-value at 0.05 level ($p=0.038$), as it experienced deterioration in figures in three years following M&A date. The reasons for negative CETA ratio changes can be explained by various factors such as potential challenges in asset allocation or liquidity management. Likewise, for Halyk Bank, Kazkommertsbank, Hone Credit Bank, and Alfa Bank, the deterioration could be due to increased loan disbursement or changes in cash management strategies during the post-M&A time. Overall, the CETA indicator for all banks has decreased by 21%. This result is similar to a previous study by Abbas et al. (2014) and Shah and Khan (2017), who figured out a deterioration of the banks' CETA ratios in the period after M&A.

Table 6

M&A impact on liquidity ratios: Cash & Cash Equivalent to Total Assets (CETA) and Investment to Total Assets Ratio (ITA)

Banks	Cash & Cash Equivalent to Total Assets (CETA)				Investment to Total Assets Ratio (ITA)			
	Pre-M&A (%)	Post- M&A (%)	Change	P-value	Pre-M&A (%)	Post- M&A (%)	Change	P-value
Halyk Bank	0.232	0.129	-0.103	0.128	0.210	0.305	0.096	0.292
JSC								
Kazkommertsba nk JSC	0.060	0.034	-0.025	0.382	0.154	0.306	0.153	0.441
ForteBank JSC	0.053	0.146	0.093	0.085	0.221	0.272	0.051	0.490
Eurasian Bank JSC	0.122	0.165	0.043	0.420	0.039	0.147	0.108	0.210
Jusan Bank JSC	0.044	0.082	0.038	0.196	0.073	0.284	0.211	0.079
Altyn Bank JSC	0.511	0.183	-0.327	0.038*	0.163	0.354	0.191	0.077
Freedom Finance JSC	0.098	0.134	0.036	0.568	0.769	0.680	-0.089	0.155
Home Credit Bank JSC	0.118	0.086	-0.032	0.591	0.001	0.001	0.000	0.938
Alfa Bank JSC	0.154	0.142	-0.012	0.853	0.227	0.248	0.021	0.847
Overall banks	0.155	0.122	-0.032	0.458	0.206	0.289	0.082	0.034*

Note. * shows significant value at 0.05 level

Moreover, Table 6 explores the impact of M&A activities on banks' investment activity as assessed by the Investment to Total Assets Ratio (ITA). The overall change in ITA across all banks is statistically significant, as its P-value equals 0.034. However, based on the result of the paired sample t-test, no bank achieved statistical significance in the ITA ratio. It can be seen that 7 out of 9 banks (Halyk Bank, Kazkommertsbank, ForteBank, Eurasian Bank, Jusan Bank, and Altyn Bank) improved their ITA ratios, which can be justified by an increase in investment activities. Based on the result, Jusan Banks had the most substantial growth (0.211), indicating an intensive investment strategy in

2017 and 2019, which are one-year pre- and post-merger periods. In contrast, Freedom Finance had a negative change in ITA (-0.089) due to the deterioration of investment in productive assets, as well as Home Credit Bank, which had a minimal change in ITA (approximately 0.0001). overall, the ITA ratios for all banks. The overall change in ITA across all banks is statistically significant, as its P-value equals 0.034. The overall average ITA for all banks has grown by 40%. While the results contradict the study of Adkihari et al. (2023), it is similar to those of Abbas et al. (2014) and Shah and Khan (2017), who discovered improved ITA following M&A.

Table 7 exemplifies that Halyk Bank, Forte Bank, Eurasian Bank, and Jusan Bank exhibited a decline in TLTA ratios during post-M&A, indicating that liquidity position of sample has been improved. Moreover, dependent samples t-test showed that performances of Halyk Bank and Jusan Bank were statistically significant, with the P-values equaling 0.005 and 0.047, respectively. Whereas the remaining banks' performances did not show any statistical significance. At the same time, Kazkommertsbank, Altyn Bank, Freedom Finance, Home Credit Bank, and Alfa Bank reported a rise in their TLTA ratios, which occurred due to possible increased lending activities. The overall change in TLTA ratios has grown by 2% in three years following M&A, that is not statistically significant. The mentioned outcomes are supported by the prior researches of Abbas et al. (2014), while contradicting the findings of Adkihari et al. (2023).

Table 7

M&A impact on liquidity ratios: Total Liabilities to Total Assets Ratio (TLTA)

Banks	Total Liabilities to Total Assets Ratio (TLTA)			
	Pre-M&A (%)	Post-M&A (%)	Change	P-value
Halyk Bank JSC	0.884	0.862	-0.022	0.005*
Kazkommertsbank JSC	0.879	0.923	0.044	0.286
ForteBank JSC	0.990	0.867	-0.123	0.341
Eurasian Bank JSC	0.913	0.908	-0.005	0.364
Jusan Bank JSC	0.887	0.829	-0.058	0.047*

Altyn Bank JSC	0.878	0.885	0.007	0.474
Freedom Finance JSC	0.621	0.868	0.247	0.127
Home Credit Bank JSC	0.677	0.738	0.061	0.112
Alfa Bank JSC	0.855	0.856	0.001	0.979
Overall banks	0.842	0.859	0.017	0.632

Note. * shows significant value at 0.05 level

Table 8 demonstrates that the 3 banks, namely Halyk Bank, Forte Bank, and Jusan Banks DE ratios raised in three years after M&A, which can be explained by the decrease in debt and liabilities, increased equity, and a possible ability of banks to satisfy its long-term obligations. Notably, the Halyk Bank's performance was statistically significant, as its P-value was equal to 0.042. This can be explained by a steady decrease in the DE ratio from 104.29% in 2017 to 32.32% in 2021, which is the 3-year pre-merger period. Whereas, Kazkommertsbank, Eurasian Bank, Altyn Bank, Freedom Finance, Home Credit Bank, and Alfa Bank witnessed positive growth in their DE ratio, indicating poor financial performance, especially in Freedom Finance's change (2.094) as it led to increased leverage and raise concerns about potential deterioration in its capital structure. However, the overall difference in DE ratios decreased by 15 percent, which is not statistically significant. A comparable result was achieved by Adkihari et al. (2023).

Table 8

M&A impact on leverage ratios: Debt to Equity Ratio (DE) and Capital Adequacy Ratio (CAR)

Banks	Debt to Equity Ratio (DE)				Capital Adequacy Ratio (CAR)			
	Pre-M&A (%)	Post-M&A (%)	Change	P-value	Pre-M&A (%)	Post-M&A (%)	Change	P-value
Halyk Bank JSC	1.016	0.503	-0.514	0.042	0.116	0.138	0.022	0.005*
Kazkommerts bank JSC	2.332	2.686	0.354	0.836	0.121	0.077	-0.044	0.286

ForteBank JSC	6.006	1.164	-4.842	0.563	0.010	0.133	0.123	0.341
Eurasian Bank JSC	0.021	0.040	0.019	0.451	0.087	0.092	0.005	0.364
Jusan Bank JSC	1.104	1.013	-0.092	0.637	0.113	0.171	0.058	0.047*
Altyn Bank JSC	0.239	0.974	0.734	0.040*	0.122	0.115	-0.007	0.474
Freedom Finance JSC	1.795	3.889	2.094	0.234	0.379	0.132	-0.247	0.127
Home Credit Bank JSC	0.217	0.476	0.260	0.333	0.323	0.262	-0.061	0.112
Alfa Bank JSC	0.370	0.438	0.068	0.821	0.145	0.144	-0.001	0.979
Overall banks	1.456	1.242	-0.213	0.743	0.158	0.141	-0.017	0.632

Note. * shows significant value at 0.05 level

Additionally, Table 8 illustrates that the CAR for 4 banks improved and for 5 banks deteriorated. The dependent samples t-test showed a statistically significant difference between Halyk Bank and Jusan Bank, as their P-values stood at 0.005 and 0.047, respectively. This suggests a potential strengthening of their capital buffers during the post-M&A period by factors such as profit retention or equity issuance. Conversely, Kazkommertsbank, Freedom Finance, Home Credit, Altyn Bank, and Alfa Bank displayed decreases in CAR ratio, indicating the possibility of acquiring assets with high-risk profiles or prioritizing dividends payments to shareholders post-merger, therefore lowering capital adequacy ratios. The overall deterioration in CAR across banks is not statistically significant (P-value=0.632) and it decreased by 11%.

Table 9 shows that Halyk Bank, Forte Bank, Jusan Bank, Altyn Bank, and Alfa Bank's TDTE ratios deteriorated, hence, it indicates the improved performance after M&A. However, among these

banks, only Alfa Bank's change in TDTE ratio demonstrated statistically significant results. Moreover, the paired sample t-test revealed that Halyk Bank's decrease is statistically significant as its P-value equals 0.004, and it suggests a possible diversification of its funding sources after M&A activity. In contrast, Freedom Finance and Home Credit Bank substantially increased their TDTE ratios, which can be explained by a greater reliance on deposits during post-merger due to significant loan expansion or limited access to alternative finding sources. Whereas Eurasian Bank and Kazkommertsbank displayed minimal changes in TDTE ratios (0.088 and 0.055, respectively). The TDTE ratio of sample banks' performance decreased by 14% in three years following M&A, which was not statistically significant.

Table 9

M&A impact on leverage ratios: Total Deposit to Total Equity Ratio (TDTE) and Total Loans to Total Deposit Ratio (TLOTD)

Banks	Total Deposit to Total Equity Ratio (TDTE)				Total Loans to Total Deposit Ratio (TLOTD)			
	Pre-M&A (%)	Post-M&A (%)	Change	P-value	Pre-M&A (%)	Post-M&A (%)	Change	P-value
Halyk Bank JSC	6.293	5.465	-0.828	0.004*	0.590	0.582	-0.007	0.922
Kazkommertsbank JSC	0.684	0.738	0.055	0.720	1.021	0.742	-0.280	0.569
ForteBank JSC	9.896	5.355	-4.541	0.712	1.050	0.651	-0.399	0.006*
Eurasian Bank JSC	5.035	5.123	0.088	0.344	0.714	0.572	-0.142	0.190
Jusan Bank JSC	6.611	3.445	-3.166	0.198	1.112	0.507	-0.605	0.054
Altyn Bank JSC	6.973	6.654	-0.319	0.654	0.337	0.565	0.227	0.062
Freedom Finance JSC	0.289	2.759	2.470	0.098	-	0.475	0.475	0.133
Home Credit Bank JSC	1.064	1.578	0.514	0.068	2.420	2.137	-0.283	0.344
Alfa Bank JSC	5.354	5.312	-0.042	0.971	0.639	0.647	0.009	0.886

Overall banks	4.689	4.048	-0.641	0.379	0.876	0.764	-0.112	0.340
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Note. * shows significant value at 0.05 level

Furthermore, Table 9 shows that all banks except Altyn Bank, Freedom Finance, and Alfa Bank experienced deterioration in TLOTD, indicating a reduction in the loan-to-deposit ratio. The overall decrease in TLOTD across all banks is not statistically significant (P-value=0.340), nevertheless, Forte Bank's performance is the only statistically significant as its P-value stood at 0.006. This leads to improved leverage and can be explained by the possibility of investing in non-loan assets or increased deposits. At the same time, the growth in the TLOTD ratio of Altyn Bank, Freedom, and Home Credit Bank raises concerns about potential leverage risks due to loan expansion of deposit outflows. Whereas for sample there is no statistically significant overall change in TLOTD, it still showed a decrease of 13%. Hence, the TLOTD ratio deterioration indicates weaker financial condition during the post-merger rather than pre-merger period. The same results were achieved by Sufian's (2004) study, but also contradict the outcomes of Muhammad et al. (2019) and Adkihari et al. (2023) which reported TLOTD ratios increment after M&A.

Hypotheses results

Table 10 summarizes the overall average ratios of all banks preceding and following M&A date with a corresponding P-value and hypothesis result. Hypotheses H0a and H1a stated that there is a significant difference between pre-M&A and post-M&A profitability, liquidity and leverage ratios of the overall banking industry or not. It can be seen from Table 10 that only the change in ITA is statistically significant at 0.05, and a null hypothesis H0a is rejected. It signifies that there is sufficient evidence to support alternative hypothesis H1a for the ITA ratio. Based on the results of the other 12 ratios that are not statistically significant, we fail to reject null hypothesis H0a, and there is not enough evidence to support alternative hypothesis H1a. Therefore, it can be assumed that M&A does not have any impact on the profitability and leverage on a company's performance in the banking sector during

three years after M&A, whereas there is a slight positive impact of M&A on liquidity on a company's performance.

Table 10

M&A impact on profitability, liquidity and leverage of overall banking sector

Ratios	Pre-M&A	Post-M&A	P-value	Hypothesis relation	Results
Profitability					
Return on Equity (ROE)	0.264	0.092	0.150	S	NS
Return on Assets (ROA)	0.035	0.022	0.204	S	NS
Net Interest Margin (NIM)	0.058	0.062	0.617	S	NS
Spread Ratio	0.218	0.488	0.198	S	NS
Interest Expense to Interest Income Ratio (IEII)	0.682	0.404	0.260	S	NS
Earnings Per Share (EPS)	-166,893,607	104,183,303	0.268	S	NS
Liquidity					
Cash & Cash Equivalent to Total Assets (CETA)	0.155	0.122	0.458	S	NS
Investment to Total Assets Ratio (ITA)	0.206	0.289	0.034	S	S
Total Liabilities to Total Assets Ratio (TLTA)	0.842	0.859	0.632	S	NS
Leverage					
Debt to Equity Ratio (DE)	1.456	1.242	0.743	S	NS
Capital Adequacy Ratio (CAR)	0.158	0.141	0.632	S	NS
Total Deposit to Total Equity Ratio (TDTE)	4.689	4.048	0.379	S	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.876	0.764	0.340	S	NS

To test the hypotheses of the research regarding banks' performance on an individual basis we constructed separate tables in appendices for each bank. As shown in Appendix 1, only the difference in 5 financial ratios out of 13 is statistically significant at 0.05 for Halyk Bank, and for these ratios, there is enough evidence to support alternative hypothesis H1b. Appendix 2 presents that only 1 financial ratio NIM out of 13 is statistically significant, and alternative hypothesis H1b is accepted at 0.05 significance level for this ratio for Kazkom. Appendix 3 shows that alternative hypothesis H1b is accepted for 3 financial ratios Spread Ratio, IEII and TLOTD for ForteBank at 0.05 significance level, and for the other 10 financial ratios null hypothesis H0b is accepted. Appendix 4 demonstrates that 13 financial ratios of Eurasian Bank are statistically insignificant, and there is enough evidence to support null hypothesis H0b. Appendix 5 indicates that only 2 financial ratios TLTA and CAR of Jusan Bank are statistically significant, and there is enough evidence to support the alternative hypothesis H1b. Appendix 6 presents that for Altyn Bank only 3 financial ratios out of 13 are statistically significant at 0.05, thus alternative hypothesis H1b can be accepted for those ratios. Appendix 7 reveals that for Freedom Finance 2 financial ratios are statistically significant, which are Spread Ratio and IIEI, and hence, for them the alternative hypothesis H1b is applicable. Appendix 8 demonstrates that 11 financial ratios of Home Credit Bank are statistically insignificant, leading to the acceptance of the H0b null hypothesis for those ratios. Consequently, the remaining ratios such as Spread Ratio and IIEI, which are statistically significant at 0.05 level prove alternative hypothesis H1b. Appendix 9 shows that only 2 financial ratios are statistically significant at 0.05 for Alfa Bank, therefore these ratios support alternative hypothesis H1b.

The summary of changes in ratios of all banks is presented in Table 11 below. In total 62 ratios have increased and 55 ratios have decreased, from which only changes in corresponding 8 and 12 ratios are statistically significant. The results of Halyk Bank showed that M&A had an impact only on 5 ratios, whereas M&A had no impact on the performance of Eurasian Bank in three years after M&A date. Additionally, for Kazkom, ForteBank, Jusan Bank, Altyn Bank, Freedom Finance, Home Credit

Bank, and Alfa Bank M&A had a minor impact in three years following M&A date. It can be noted that, on average, M&A had a minor impact on the financial performance of selected banks on an individual basis in the post-M&A period.

Table 11

Summary of changes in banks' financial indicators on an individual basis

Banks	Change in ratios	S	NS	Total number of ratios	S: Name of ratios
1. Halyk Bank	Increase	2	5	7	EPS, CAR
	Decrease	3	3	6	TLTA, DE, TDTE
2. Kazkommertsbank	Increase	0	5	5	
	Decrease	1	7	8	NIM
3. ForteBank	Increase	1	6	7	Spread ratio
	Decrease	2	4	6	IEII, TLOTD
4. Eurasian Bank	Increase	0	6	6	
	Decrease	0	7	7	
5. Jusan Bank	Increase	0	8	8	
	Decrease	2	3	5	TLTA, CAR
6. Altyn Bank	Increase	2	5	7	EPS, DE
	Decrease	1	5	6	CETA
7. Freedom Finance	Increase	1	8	9	Spread ratio
	Decrease	1	3	4	IEII
8. Home Credit Bank	Increase	1	5	6	IEII
	Decrease	1	6	7	Spread ratio
9. Alfa Bank	Increase	1	6	7	Spread ratio
	Decrease	1	5	6	IEII
Total number of ratios	Increase	8 (40%)	54 (56%)	62 (53%)	
	Decrease	12 (60%)	43 (44%)	55 (47%)	

5 Conclusion

The present study was designed to determine the impact of M&A on the financial performance of selected banks in Kazakhstan from 2013 to 2023. 3 pre-M&A and 3 post-M&A years were analyzed for each bank by conducting a financial ratio analysis and a paired sample t-test. The data for analysis was collected from LSEG Workspace, the official websites of banks and KASE.

The analysis has shown that M&A had a significant impact only on 1 ratio out of 13 ratios of the overall banking sector, which was an improvement in the Investments to Total Assets Ratio. The findings suggest that M&A had a slight positive impact on liquidity ratios and no impact on profitability and leverage ratios of the overall banking sector in the selected post-M&A period.

Considering the performance of banks on an individual basis, the results have revealed that M&A had an impact on a total of 20 ratios out of 117 ratios of all banks (13 ratios of each of 9 banks), from which an increase in 8 ratios and a decline in 12 ratios were significant. The results of Halyk Bank showed that M&A had an impact only on 5 ratios, whereas M&A had no impact on the performance of Eurasian Bank in three years following M&A. Additionally, for Kazkom, ForteBank, Jusan Bank, Altyn Bank, Freedom Finance, Home Credit Bank, and Alfa Bank M&A had a minor impact in three years after M&A. Therefore, it can be concluded that, on average, M&A had a minor impact on the financial performance of selected banks on an individual basis during the post-M&A period.

Taken together, the findings of our study suggest that there is a slight positive impact of M&A on liquidity ratios of the overall banking sector and no impact on profitability and leverage ratios in the post-M&A period. Moreover, the data indicated that M&A had a minor impact on the financial performance of banks on an individual basis during the post-M&A period.

The scope of this research was limited in terms of the availability of financial data published by banks and information in LSEG Workspace, which impacted the selected time frame for analysis. The research was conducted only for the banking sector in Kazakhstan. To better understand the

implications of these results or to extend the analysis, future studies could address longer timeframes, using several databases for data collection and integrating different methods for analysis.

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Appendices

Appendix 1

Results for Halyk Bank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.228	0.045	2.532	2	0.127	NS	NS
Return on Assets (ROA)	0.029	0.008	4.190	2	0.053	NS	NS
Net Interest Margin (NIM)	0.036	0.006	4.250	2	0.051	NS	NS
Spread Ratio	0.548	0.038	0.857	2	0.482	NS	NS
Interest Expense to Interest Income Ratio (IEII)	0.452	0.038	0.857	2	0.482	NS	NS
Earnings Per Share (EPS)	22,738,333	11,770,926	10.920	2	0.008	NS	S
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.181	0.077	2.523	2	0.128	NS	NS
Investment to Total Assets Ratio (ITA)	0.258	0.083	1.417	2	0.292	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.873	0.014	14.260	2	0.005	NS	S
Leverage							
Debt to Equity Ratio (DE)	0.759	0.311	4.741	2	0.042	NS	S
Capital Adequacy Ratio (CAR)	0.127	0.014	14.260	2	0.005	NS	S
Total Deposit to Total Equity Ratio (TDTE)	5.879	0.635	16.777	2	0.004	NS	S
Total Loans to Total Deposit Ratio (TLOTD)	0.586	0.057	0.110	2	0.922	NS	NS

Appendix 2

Results for Kazkommertsbank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	-0.301	0.868	1.212	1	0.439	NS	NS
Return on Assets (ROA)	-0.020	0.052	1.446	1	0.385	NS	NS
Net Interest Margin (NIM)	0.040	0.013	22.093	1	0.029	NS	S
Spread Ratio	0.449	0.117	2.419	1	0.250	NS	NS
Interest Expense to Interest Income Ratio (IEII)	0.551	0.117	2.419	1	0.250	NS	NS
Earnings Per Share (EPS)	-41,545,000	135,674,371	1.531	1	0.368	NS	NS
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.047	0.017	1.462	1	0.382	NS	NS
Investment to Total Assets Ratio (ITA)	0.230	0.193	1.205	1	0.441	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.901	0.031	2.077	1	0.286	NS	NS
Leverage							
Debt to Equity Ratio (DE)	2.509	0.902	0.263	1	0.836	NS	NS
Capital Adequacy Ratio (CAR)	0.099	0.031	2.077	1	0.286	NS	NS
Total Deposit to Total Equity Ratio (TDTE)	0.711	0.072	0.470	1	0.720	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.882	0.379	0.805	1	0.569	NS	NS

Appendix 3

Results for ForteBank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.434	0.531	1.973	2	0.187	NS	NS
Return on Assets (ROA)	0.009	0.116	0.094	2	0.934	NS	NS
Net Interest Margin (NIM)	0.025	0.009	2.441	2	0.135	NS	NS
Spread Ratio	0.292	0.118	4.475	2	0.046	NS	S
Interest Expense to Interest Income Ratio (IEII)	0.708	0.118	4.475	2	0.046	NS	S
Earnings Per Share (EPS)	- 1,028,673,333	2,544,091,113	0.988	2	0.427	NS	NS
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.100	0.057	3.206	2	0.085	NS	NS
Investment to Total Assets Ratio (ITA)	0.246	0.058	0.838	2	0.490	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.928	0.124	1.238	2	0.341	NS	NS
Leverage							
Debt to Equity Ratio (DE)	3.585	8.057	0.687	2	0.563	NS	NS
Capital Adequacy Ratio (CAR)	0.072	0.124	1.238	2	0.341	NS	NS
Total Deposit to Total Equity Ratio (TDTE)	7.625	11.745	0.425	2	0.712	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.850	0.229	12.993	2	0.006	NS	S

Appendix 4

Results for Eurasian Bank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.092	0.095	1.469	2	0.280	NS	NS
Return on Assets (ROA)	0.008	0.009	1.327	2	0.316	NS	NS
Net Interest Margin (NIM)	0.049	0.010	0.516	2	0.658	NS	NS
Spread Ratio	0.470	0.068	1.235	2	0.342	NS	NS
Interest Expense to Interest Income Ratio (IEII)	0.532	0.068	1.338	2	0.313	NS	NS
Earnings Per Share (EPS)	372,648	365,561	1.444	2	0.286	NS	NS
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.144	0.042	1.007	2	0.420	NS	NS
Investment to Total Assets Ratio (ITA)	0.093	0.105	1.820	2	0.210	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.910	0.009	1.164	2	0.364	NS	NS
Leverage							
Debt to Equity Ratio (DE)	0.030	0.027	0.929	2	0.451	NS	NS
Capital Adequacy Ratio (CAR)	0.090	0.009	1.164	2	0.364	NS	NS
Total Deposit to Total Equity Ratio (TDTE)	5.079	3.974	1.229	2	0.344	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.643	0.507	1.952	2	0.190	NS	NS

Appendix 5

Results for Jusan Bank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.123	0.116	0.272	1	0.831	NS	NS
Return on Assets (ROA)	0.017	0.015	0.728	1	0.599	NS	NS
Net Interest Margin (NIM)	0.039	0.007	0.225	1	0.859	NS	NS
Spread Ratio	0.442	0.073	1.321	1	0.412	NS	NS
Interest Expense to Interest Income Ratio (IEII)	0.558	0.073	1.321	1	0.412	NS	NS
Earnings Per Share (EPS)	428,252,500	377,511,124	0.159	1	0.900	NS	NS
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.063	0.023	3.151	1	0.196	NS	NS
Investment to Total Assets Ratio (ITA)	0.179	0.116	8.042	1	0.079	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.858	0.045	13.442	1	0.047	NS	S
Leverage							
Debt to Equity Ratio (DE)	1.059	0.158	0.641	1	0.637	NS	NS
Capital Adequacy Ratio (CAR)	0.142	0.045	13.442	1	0.047	NS	S
Total Deposit to Total Equity Ratio (TDTE)	5.028	3.300	3.118	1	0.198	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.809	0.318	11.744	1	0.054	NS	NS

Appendix 6

Results for Altyn Bank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.216	0.028	1.526	2	0.267	NS	NS
Return on Assets (ROA)	0.025	0.003	0.953	2	0.441	NS	NS
Net Interest Margin (NIM)	0.031	0.006	1.367	2	0.305	NS	NS
Spread Ratio	0.512	0.045	2.687	2	0.115	NS	NS
Interest Expense to Interest Income Ratio (IEII)	-0.452	0.051	0.515	2	0.658	NS	NS
Earnings Per Share (EPS)	172,353,167	56,892,486	10.677	2	0.009	NS	S
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.347	0.199	5.017	2	0.038	NS	S
Investment to Total Assets Ratio (ITA)	0.258	0.134	3.392	2	0.077	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.882	0.012	0.874	2	0.474	NS	NS
Leverage							
Debt to Equity Ratio (DE)	0.607	0.437	4.857	2	0.040	NS	S
Capital Adequacy Ratio (CAR)	0.118	0.012	0.874	2	0.474	NS	NS
Total Deposit to Total Equity Ratio (TDTE)	6.813	0.747	0.522	2	0.654	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.451	0.134	3.838	2	0.062	NS	NS

Appendix 7

Results for Freedom Finance JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.211	0.195	0.061	2	0.957	NS	NS
Return on Assets (ROA)	0.041	0.050	0.731	2	0.541	NS	NS
Net Interest Margin (NIM)	0.043	0.029	3.505	2	0.073	NS	NS
Spread Ratio	-0.993	1.405	8.224	2	0.014	NS	S
Interest Expense to Interest Income Ratio (IEII)	1.993	1.405	8.224	2	0.014	NS	S
Earnings Per Share (EPS)	1,658,333	1,889,057	0.335	2	0.770	NS	NS
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.116	0.048	0.676	2	0.568	NS	NS
Investment to Total Assets Ratio (ITA)	0.725	0.120	2.234	2	0.155	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.745	0.156	2.529	2	0.127	NS	NS
Leverage							
Debt to Equity Ratio (DE)	2.842	1.548	1.685	2	0.234	NS	NS
Capital Adequacy Ratio (CAR)	0.255	0.156	2.529	2	0.127	NS	NS
Total Deposit to Total Equity Ratio (TDTE)	1.524	1.663	2.955	2	0.098	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.238	0.335	2.463	2	0.133	NS	NS

Appendix 8

Results for Home Credit Bank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.383	0.095	1.113	2	0.381	NS	NS
Return on Assets (ROA)	0.113	0.033	1.988	2	0.185	NS	NS
Net Interest Margin (NIM)	0.221	0.049	0.963	2	0.437	NS	NS
Spread Ratio	0.820	0.093	9.249	2	0.011	NS	S
Interest Expense to Interest Income Ratio (IEII)	0.180	0.093	9.249	2	0.011	NS	S
Earnings Per Share (EPS)	162,622,667	201,317,157	3.800	2	0.063	NS	NS
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.102	0.044	0.633	2	0.591	NS	NS
Investment to Total Assets Ratio (ITA)	0.001	0.001	0.088	2	0.938	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.707	0.043	2.733	2	0.112	NS	NS
Leverage							
Debt to Equity Ratio (DE)	0.346	0.261	1.267	2	0.333	NS	NS
Capital Adequacy Ratio (CAR)	0.293	0.043	2.733	2	0.112	NS	NS
Total Deposit to Total Equity Ratio (TDTE)	1.321	0.409	3.642	2	0.068	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	2.278	0.380	1.230	2	0.344	NS	NS

Appendix 9

Results for Alfa Bank JSC

Ratios	Average	Standard Deviation	t-stat	df	P-value	Hypothesis relation	Result
Profitability							
Return on Equity (ROE)	0.214	0.116	0.449	2	0.697	NS	NS
Return on Assets (ROA)	0.031	0.018	0.460	2	0.691	NS	NS
Net Interest Margin (NIM)	0.056	0.008	0.222	2	0.845	NS	NS
Spread Ratio	0.637	0.040	7.625	2	0.017	NS	S
Interest Expense to Interest Income Ratio (IEII)	0.363	0.040	7.625	2	0.017	NS	S
Earnings Per Share (EPS)	24,320	14,853	0.751	2	0.531	NS	S
Liquidity							
Cash & Cash Equivalent to Total Assets (CETA)	0.148	0.047	0.209	2	0.853	NS	NS
Investment to Total Assets Ratio (ITA)	0.238	0.133	0.220	2	0.847	NS	NS
Total Liabilities to Total Assets Ratio (TLTA)	0.855	0.020	0.030	2	0.979	NS	NS
Leverage							
Debt to Equity Ratio (DE)	0.404	0.229	0.258	2	0.821	NS	NS
Capital Adequacy Ratio (CAR)	0.145	0.020	0.030	2	0.979	NS	NS
Total Deposit to Total Equity Ratio (TDTE)	5.333	0.982	0.041	2	0.971	NS	NS
Total Loans to Total Deposit Ratio (TLOTD)	0.643	0.108	0.162	2	0.886	NS	NS