



An Empirical Study on Liquidity Dynamics in Union Bank of India Before and After the Merger: Insights on Navigating Change

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1: Abstract

Indian banks play a key role in the country's money system. They boost the economy's ability to grow and do well. But Indian banks have faced big problems over time. These include going broke being weak, and dealing with shaky markets. The CAMELS system rates how strong a bank is. It looks at six things: how much money the bank has, what it owns how it's run, what it earns how much cash it can access, and how market changes affect it. Having enough quick cash is super important for banks. If they run low, people might rush to pull out all their money at once. This research digs into Union Bank of India's cash flow before and after it joined forces with another bank. It looks at how the bank can pay its bills during both times. The study uses special math to figure this out. A big deal for banks - those with lots of everyday accounts - is how much money sits in these accounts compared to all the cash they hold. We call this the CASA ratio. It shows what chunk of a bank's money is in checking and savings accounts. The study checks things out from 2018 to 2023. What did it find? The bank got way better at handling its money after the merger.

Keywords: *Liquidity, Mergers and Acquisitions, Union Bank of India, CAMELS Model.*

2: Introduction

2.1: Mergers in the Indian Industry

Companies unite to create a single entity in a merger. This fusion forms a new company or blends with an existing one. Mergers integrate businesses, shareholder stakes, assets, and debts. One company can also swallow another without fair ownership for the acquired firm's investors. India's Institute of Chartered Accountants treats "mergers" and "amalgamation" as synonyms in Accounting Standards (AS-14). Mergers come in two flavors: absorption-based and consolidation-based (Gandhi et al. 2018). Mergers fuse multiple businesses into one often swapping securities. One company emerges on top. Shareholders of merging firms pool their resources under a single banner. A brand-new company born from a merger? That's amalgamation. Absorption happens when one firm survives while others vanish into thin air.



India's government kicked off economic reforms in 1991. These changes sped up mergers and acquisitions in the country's industries. The reforms pushed businesses toward globalization and a free market. They shook up the Indian economy causing big shifts. Companies started to care more about "size and competence." Indian firms saw they had to grow and get better at what they do to beat the competition (Mantravadi & Reddy 2008). This led many top companies to change how they work. They got rid of side projects and doubled down on their main business. Mergers and acquisitions turned out to be one of the best ways to make these changes happen.

The Indian government brought in many economic changes in 1991. This caused more companies to join forces or buy each other out. These changes aimed to open up the economy and connect it to the world. This shook up India's economy big time. Companies now want to be "big and good at what they do." Indian firms know they need to grow in their main markets to keep up. So top companies have changed how they work. They've sold off parts that aren't central to what they do. Instead, they focus on their main business (Varikunta & Lashitha, 2024). Joining with other companies or buying them has become a key part of long-term business plans. It's also a good way to change how a company works. These days, you see companies merging or being bought in lots of different fields. A merger happens when two companies become one.

2.2: Merger of Banking sector in India

The Indian government brought in many economic changes in 1991. This caused more companies to join forces or buy each other out. These changes aimed to open up the economy and connect it to the world. This shook up India's economy big time. Companies now want to be "big and good at what they do." Indian firms know they need to grow in their main markets to keep up. So top companies have changed how they work. They've sold off parts that aren't central to what they do. Instead, they focus on their main business (Varikunta & Lashitha, 2024). Joining with other companies or buying them has become a key part of long-term business plans. It's also a good way to change how a company works. These days, you see companies merging or being bought in lots of different fields. A merger happens when two companies become one.

The General Bank of India and the Bank of Hindustan began Indian banking in the late 18th century. The British East India Company later established the Banks of Bengal, Bombay, and Madras, which merged in 1921 to form the Imperial Bank of India, now known as the State Bank of India. Between 1906 and 1911, several other banks, including Bank of India, Bank of Baroda, Canara Bank, Corporation Bank, Indian Bank, and Central Bank of India, were founded and continue to operate today. Since 1991, Indian banking has seen two phases: pre- and post-liberalization (Goyal, 2011). The pre-liberalization era began in 1969 when the government nationalized 14 major commercial banks, followed by six more in 1980, aiming to control credit distribution. In 1993, Punjab National Bank merged with New Bank of India, reducing the number of nationalized banks from 20 to 19.



The Indian banking industry underwent major changes after Narasimha Rao's government initiated the liberalization policy in 1991. Licenses were granted to private banks such as Axis Bank (formerly UTI Bank), ICICI Bank, HDFC Bank, and Global Trust Bank (later merged with Oriental Bank of Commerce), boosting the growth of Indian banking. As India's economy expanded, government, private, and foreign banks all contributed significantly. Today, the Indian banking industry is considered one of the best and most efficient globally. The consolidation of Indian banks was a significant move. Banking is crucial not only for Indians and India's economy but also for the global economy (Kumar, 2023). It greatly influences India's economy by encouraging saving and accelerating capital growth through the investment of public surplus funds into profitable ventures.

2.3: Merger of Union bank of India

Seth Sitaram Poddar started Union Bank of India on November 11, 1919, in Bombay (now Mumbai). Gandhi opened the bank's main office. When India got free in 1947, the bank had four branches in business areas: three in Mumbai and one in Saurashtra. The Indian government took over the bank in 1969, by then it had grown to 240 branches. In 1975, Union Bank bought Belgaum Bank, a private bank from 1930 that had joined with Shri Jadeya Shankarling Bank (Bijapur, started May 10, 1948) in 1964. It got Miraj State Bank in 1985, which began in 1929 and had 26 branches. Union Bank took over Sikkim Bank and its eight branches in 1999. Based in Mumbai, Union Bank of India is a public bank that helps over 153 million people and makes Rs. 19,84,842 crore in total money. After merging with Corporation Bank and Andhra Bank on April 1, 2020, Union Bank of India (UBI) now operates over 8,700 branches, making it one of India's largest public sector banks by branch count. It has international branches in Hong Kong, Dubai, Antwerp, and Sydney, and representative offices in Beijing, Abu Dhabi, and Shanghai. UBI (UK), its fully owned subsidiary, operates in the UK. With a workforce of over 76,700, UBI serves more than 153 million customers through 8,500+ domestic branches, 10,000+ ATMs, and 18,000+ Business Correspondent Points.

Union Bank of India is a key player in India's banking sector and has undergone significant changes to enhance efficiency and reach. The 2020 merger with Corporation Bank and Andhra Bank aimed to strengthen public banks by sharing resources and expertise. This was necessary as both Andhra Bank and Corporation Bank faced financial difficulties due to non-performing loans. The merger aimed to create a stronger bank with better risk management and a larger capital base, achieving cost savings through operational integration, improved supplier negotiations, and more efficient customer service. The expanded branch network also allowed the combined bank to serve a broader client base with a wider range of products and services.



2.4: CAMELS Model

(Rao & Rao, 2022) Before 1998 Indian banks got their ratings based on how solvent they were compared to their different fund parts. In 1996, a group led by Sri Padmanabham started working on changing how banks were rated, watched, and checked. The group noticed the old way of rating didn't work well enough. Even if a bank had money, the old system missed important money stuff like having enough capital how well the bank worked, and if it had enough cash on hand. The group also said the old way didn't look at if the bank was making money or if the bosses were doing a good job. So, they said to get rid of the old system and bring in a new one called the "CAMEL Model," which America was already using.

2.4.1: Component of Adequacy in Capital

A bank's capital is its most crucial component. Every bank ought to have enough capital on hand to cover any unforeseen losses as well as risks. A sufficient amount of capital will increase depositor trust and confidence. It establishes the framework for allocating more capital.

2.4.2: Component of Asset Quality

A key part checks how much of a bank's total loans are bad assets. Loans make up the main assets for banks. Banks and growth need each other if loans get paid back and make good money. Banks make money from loans other stuff they own, and things not on their main books. But lending money can be risky. So this part looks at what kinds of things the bank owns how good they are, if the bank lends to good borrowers, and how loans could go bad. It shows what percent of all loans might cause trouble.

2.4.3: Component of Management Efficiency

Profit numbers at most banks depend on how well managers make decisions. Leaders are key in any company. They choose ways to lower risks before problems happen. This shows how bosses handle issues the bank faces. The bank's overall results reveal how good the managers are at their jobs. Their skill affects everything even if it's hard to measure.

2.4.4: Component of Earnings Efficiency

This is a crucial element that connects the three key elements of a bank: sustainability, growth in both current and future earnings, and profitability.

2.4.5: Component of Liquidity

The ability of the banks to satisfy depositor obligations as and when they arise is reflected in liquidity. A healthy level of liquidity guarantees the bank's stability and security.

EXAMPLE: CASA Ratio



2.4.5.1: Sensitivity

Sensitivity to market risks is the financial institution's "S" in CAMELS. It is regarded as a measurement field that is dynamic and complex. When assessing a bank's sensitivity to market risk, exposure to foreign exchange, derivatives, stocks, and commodities is also taken into consideration.¹

3: Literature Review

(Koley, 2024) This study explores how mergers and acquisitions affect Punjab National Bank's (PNB) performance. The main job of the research is to analyze PNB's financial info before and after it buys or joins with other banks. It would look at things like how risky the bank is how much money it makes, and how well it works. In the end, PNB has gotten better overall since it started buying and joining with other banks. It's doing better with having enough money good assets making profits, and running things well. But it hasn't improved in how it can get cash or how sensitive it is to market changes.

(Varikunta & Lashitha, 2024) This research looks at how specific banks did money-wise before and after they bought other banks or joined with them. The study uses money math to check how well the banks made profit, kept cash on hand paid debts, and ran before and after joining up. In the end, the study says the banks got better at handling money and making customers happy after they combined.

(Sasikala & Sudha, 2024) The merger's effect on SBI's asset quality is the focus of the paper. They define asset quality as how well the bank recovers loans it gives out. Banks want fewer non-performing assets (NPAs) - loans unlikely to be paid back. The merger led to a clear decrease in NPAs. This means SBI's asset quality got better after merging. They explain that the total NPAs went down falling to 3.52% from 4.9%. Because of this, they set aside less money for bad loans - it dropped from Rs. 2,699 crores to Rs. 2011 crore.

(Kumar, 2023) The research looks at how mergers affect public sector banks in India. It focuses on their competitiveness, stability, and efficiency. The study explores links between "high-powered money" and six other factors. These include the capital-to-risk weighted asset ratio, credit-deposit ratio, investment-deposit ratio, return on investments, and total assets to total income ratio. The researchers used data from 2009 to 2021 from the Reserve Bank of India. Results show that after mergers high-powered money went up while the closing balance of non-performing assets went down. The study also found a positive connection between high-powered money and the weighted capital-to-risk ratio.

(Gupta et al., 2023) This research explores the impact of mergers and acquisitions (M&A) on the financial health of Indian real estate and construction companies. The study compares financial ratios before and after mergers using paired t-tests analyzing data from 2011 to 2020. Results suggest M&A boosts profitability and liquidity ratios for acquired firms. Leverage ratios show little change. Efficiency ratios reveal a big jump in fixed-asset turnover, but slight improvements in total asset and current asset turnover. The study backs the

¹ Source:-<https://testbook.com/banking-awareness/camels-rating-system-in-banking>



synergy idea in Indian construction and real estate M&A. This theory claims that pooling resources from merging companies leads to better performance post-M&A.

(Jha & Premanand, 2023) The paper evaluates how the Bank of Baroda and Dena Bank merger affects the combined bank's financial performance. To gauge the merger's success, the author checks out things like profits, stock prices, and how well the bank operates. The merger seems to have boosted profits. The net profit margin went up a bit, from 1.15% to 1.17% after they joined forces. The expense ratio dropped from 66.21% to 59.13%, which points to the bank running more . They figure this out by dividing the money earned from interest by the money spent on interest. The report states that when Bank of Baroda and Dena Bank came together, it created a bank that's doing better and working more .

(Verma et al., 2023) This study explores how well mergers and acquisitions (M&A) boost synergy in developing countries' banking sectors. It looks at M&A deals in Indian banks from 2014 to 2022. The researchers check three key things: market performance, money performance, and overall efficiency. They use different methods like ratio analysis, event studies, tables, and Wilcoxon signed-rank tests. The study shows M&A in banking makes market and money performance way better. But it doesn't find big improvements in how well banks work, their cash flow, or their profits. Given these results, the researchers say M&A alone doesn't guarantee synergy gains. They stress the need for good integration plans. This research gives useful info for policy makers central banks, and banks to think about when looking at M&A activities.

(Mehta & Gupta, 2022) Bank of Baroda's (BOB) performance before and during its merger with Dena Bank gets a look in their article "Pre-merger and post-merger performance analysis of Bank of Baroda-A camel analysis." They use the CAMEL framework to check how BOB did. The study checks these numbers to see BOB's money health before and after joining up. The writers crunch the numbers using paired sample stats. The big takeaway? BOB didn't do better or worse after teaming up with Dena Bank. The paired t-test backs this up showing no quick changes in how BOB performed right after the merger.

(Gandhi et al.,2018) Bank mergers and acquisitions in India are the focus of this article. It explores why banks merge and how these changes impact customers. The government pushed for mergers to make banks stronger after demonetization. Banks thought mergers would make them more productive and keep clients happier. Public sector banks saw a big drop in how much income they make compared to what they spend on things like buildings and equipment. Their profits also went down a lot. When private sector banks bought other banks, it hurt their ability to pay bills and made their overall financial situation worse. Public sector banks' income changed a lot because of buying other banks.

4: Objective

The main objective of the study is to understand the pre- and post-merger liquidity position of the Union Bank of India, which underwent M&A deals on April 1, 2020.



5: Hypothesis

1. There is no significant difference between CASA Ratio and **Change in Percentages of CASA** of Pre and Post Merger Period of Union Bank of India.
2. There is no significant difference between Current Ratio and Change in Percentages of Current Ratio of Pre and Post Merger Period of Union Bank of India.
3. There is no significant difference between Deposit Ratio and Change in Percentages of Deposit Ratio of Pre and Post Merger Period of Union Bank of India.

6. Methodology

This empirical study aims to understand the liquidity position of Union Bank of India before and after its merger with another bank. A comparative analysis was conducted for both pre- and post-merger periods. The research hypothesis on the merger's impact on UBI's liquidity was tested using the F test. Data analysis was performed in MS Excel to reach a logical conclusion.

6.1: Data Collection

Data on the liquidity ratio of the pre-period of 3 years and the post-period of 3 years of the merger for Union Bank of India has been extracted from the money control website. The present paper is entirely based on secondary data. The annual reports of Union Bank of India have been used throughout the study to calculate various ratios of liquidity.

7: Liquidity Ratio

7.1 CASA Ratio

Since CASA accounts are widely used, knowing what proportion of all bank deposits are held in one is a crucial indicator of the bank's liquidity. The percentage of a bank's total deposits that are in both current and savings accounts is shown by the CASA ratio. The acronym for current and savings account ratio is CASA ratio. The percentage of deposits in current and savings accounts to total deposits is known as a bank's CASA ratio. Because banks often do not pay interest on deposits made into current accounts and only pay relatively low interest rates of 3–4% on savings accounts, a greater CASA ratio is indicative of a cheaper cost of funding. If these funds account for a sizable portion of a bank's deposits, it indicates that the bank is obtaining these funds at a relatively reduced cost. It is commonly known that a larger net interest margin is correlated with a higher CASA ratio. It is one of the indicators used in India to evaluate a bank's profitability.

Formula of CASA Ratio: - $\frac{\text{Total Current Account and Savings Account}}{\text{Total Deposit}}$



Discussion:

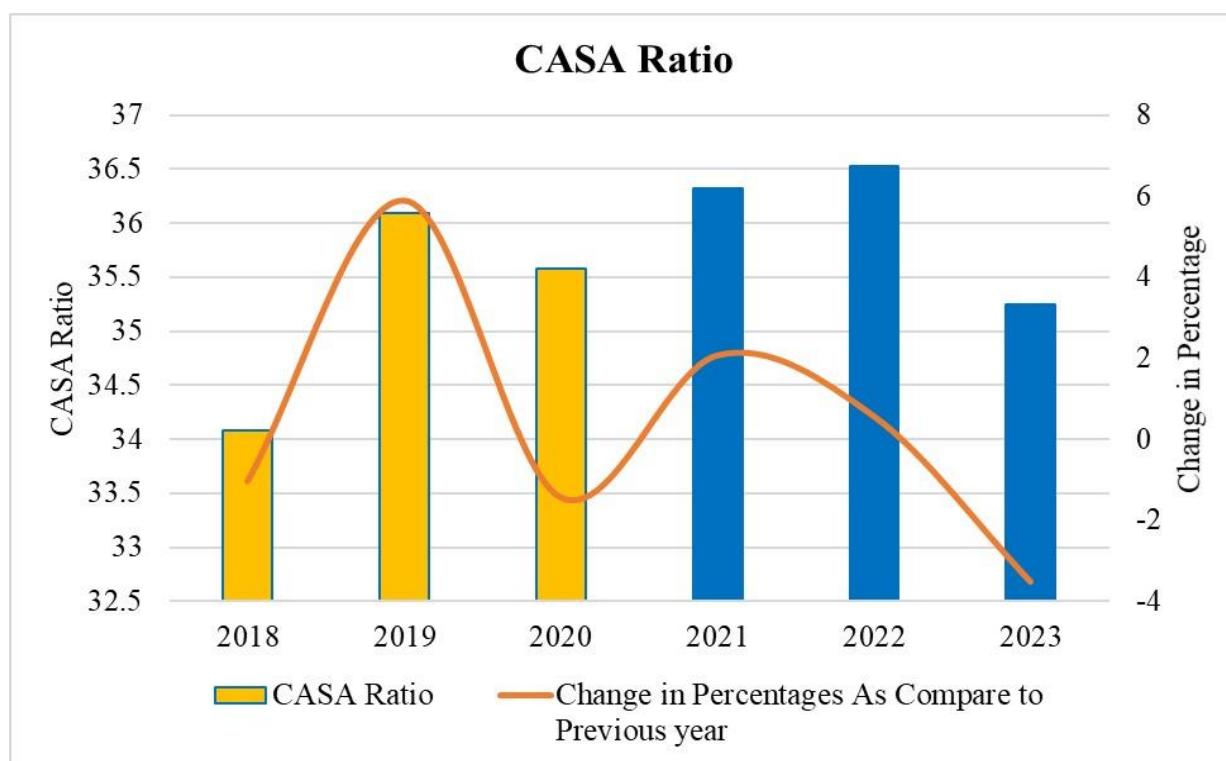
Table 01: Pre-Merger CASA Ratio of Union bank India

Year	CASA Ratio	Percentages Change	Year	CASA Ratio	Percentages Change
2018	34.08	-1.02	2021	36.32	2.08
2019	36.09	5.9	2022	36.53	0.58
2020	35.58	-1.42	2023	35.25	-3.50

Source: <https://www.moneycontrol.com/financials/unionbankofindia/ratiosVI/UBI01/2#UBI0>

Observations

Chart 1: CASA Ratio



As shown in Tables 1.1 and 1.2, In terms of the liquidity parameter, there is a fair amount of volatility in the current-to-savings account ratio. showing a slight upward trend between 2020 and 2022. In 2022, the CASA ratio was the highest, which showed the Enough liquidity of Union Bank of India. In 2023, it has, however, somewhat Increased. The table demonstrates that Union Bank of India's liquidity has grown since the merger. It shows that the merger has a positive impact on the liquidation of Union Bank of India.

Hypothesis Testing

H0: There is no significant difference between CASA Ratio and Change in Percentages of CASA of Pre and Post Merger Period of Union Bank of India.



Table 02: Hypothesis Testing CASA Ratio

CASA Ratio			Change in Percentages of CASA	
	Pre- Merger	Post-Merger	Pre- Merger	Post-Merger
Mean	35.25	36.0333	1.15333	-0.28
Variance	1.0917	0.47123	16.9381	8.3388
Observations	3	3	3	3
df	2	2	2	2
F	2.3166		2.03124	
P(F<=f) one-tail	0.3015		0.3299	
F Critical one-tail	19		19	

Result: P Value- 0.3015 (CASA Ratio)

P Value- 0.3299 (Change in Percentages of CASA)

According to the F-Test applied for the above hypothesis, P value is 0.3015 (**CASA Ratio**) and 0.3299 (**Change in Percentages of CASA**) which is greater than the standard P value limit of 0.05 which means the Null hypothesis would be admissible in both the scenario. There is no significant difference between CASA Ratio and **Change in Percentages of CASA** of Pre and Post Merger Period of Union Bank of India. It is observable that there is no significant movement of CASA Value from pre and post-merger which indicate that liquidity position of the bank had not changed from pre to post merger period. It is essential in banking industry to maintain a good liquid ratio to meet the deposit requirement of the bank. If there would be a positive moment in liquid scenario it would have indicated that there is idol liquidity available with the bank and if there is negative moment in liquid position it would have indicated that there is a shortage of the liquidity to meet deposit demand for the bank so it is required to have a constant liquidity position which researcher have observed in the hypothesis test as H₀ is rejected.

7.2: Current ratio

The current ratio demonstrates a bank's capacity to pay its immediate debts. Divide current assets by current liabilities to get the ratio. If an asset can be turned into cash in a year or less, it is deemed current; on the other hand, current liabilities are debts that must be settled in a year or less.

Formula of current ratio:
$$\frac{\text{Current Assets}}{\text{Current liability}}$$



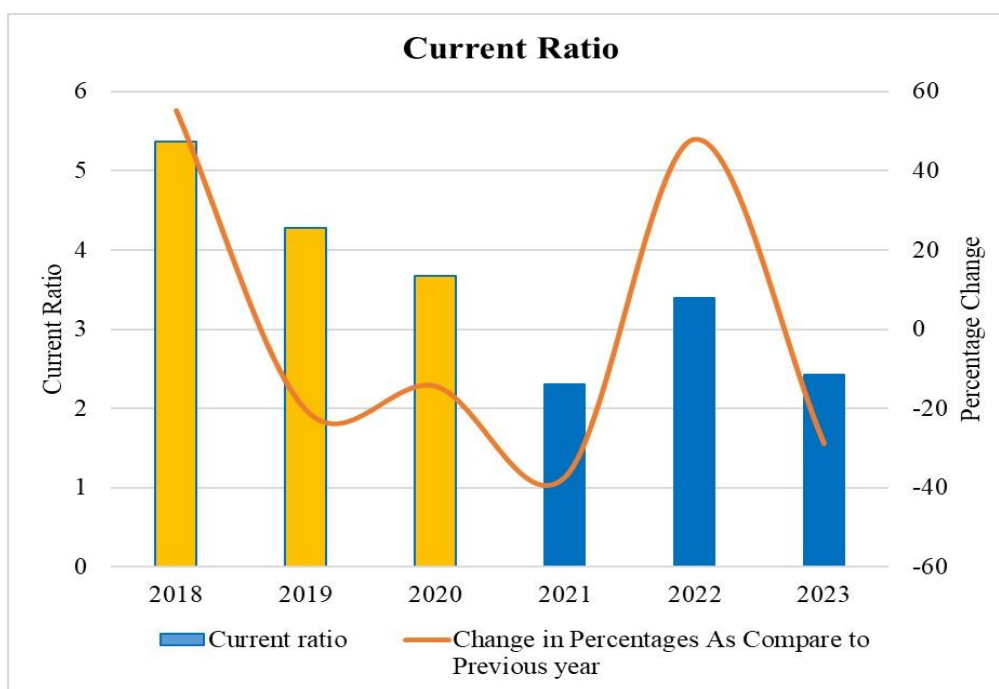
Discussion:

Table 03: Current ratio of Pre-Merger of Union bank of India

Year	Current Ratio	Change Percentages	Year	Current Ratio	Change Percentages
2018	5.37	55.34	2021	2.30	-37.29
2019	4.28	-20.32	2022	3.40	48.06
2020	3.67	-14.34	2023	2.42	-28.87

Observation:

Chart 02: Current Ratio



The Union Bank of India's current ratio, which is 2.42, indicates that the company has enough current assets to cover its short-term debt obligations. This is the case for the most recent quarter that ended in March 2023. In comparison to the previous financial year, UNIONBANK's current ratio has decreased by 28.87 percentage. The ratio's highest point, 3.40, was reached in the year that ended on March 2022, and its lowest point, 2.30, was reached in the year that ended on March 2021.

Hypothesis Testing

H0: There is no significant difference between Current Ratio and Change in Percentages of Current Ratio of Pre and Post Merger Period of Union Bank of India.



Table 04: Hypothesis Testing

Current Ratio			Change in Percentages of Current Ratio	
	Pre-Merger	Post-Merger	Pre- Merger	Post-Merger
Mean	4.44	2.7067	6.8933	-6.0333
Variance	0.7417	0.3641	1769.2497	2212.2906
Observations	3	3	3	3
df	2	2	2	2
F	2.0369		0.7997	
P(F<=f) one-tail	0.3293		0.4443	
F Critical one-tail	19		0.0526	

Result: P Value- 0.3292 (Current Ratio)

P Value- 0.4443 (Change in Percentages of Current Ratio)

According to the F-Test applied for the above hypothesis, P value is 0.3292 (**Current Ratio**) and 0.4443 (**Change in Percentages of Current Ratio**) which is greater than the standard P value limit of 0.05 which means the Null hypothesis would be admissible in both the scenario. There is no significant difference between **Current Ratio** and **Change in Percentages of Current Ratio** of Pre and Post Merger Period of Union Bank of India. It is observable that there is no significant movement of **Current Ratio** Value from pre and post-merger which indicate that liquidity position of the bank had not changed from pre to post merger period. It is essential in banking industry to maintain a good liquid ratio to meet the deposit requirement of the bank. If there would be a positive moment in liquid scenario it would have indicated that there is idol liquidity available with the bank and if there is negative moment in liquid position it would have indicated that there is a shortage of the liquidity to meet deposit demand for the bank so it is required to have a constant liquidity position which researcher have observed in the hypothesis test as H₀ is rejected.

7.3: Total Deposit to Total Assets Ratio

The ratio of total deposits to total assets is used to calculate the range in which assets are guaranteed by a portion of constant deposits. The RBI's recommended indicative benchmark is at least 50%. A higher ratio signifies a stable liquidity position for the banks.

Formula :-
$$\frac{\text{Total Deposits}}{\text{Total Assets}}$$



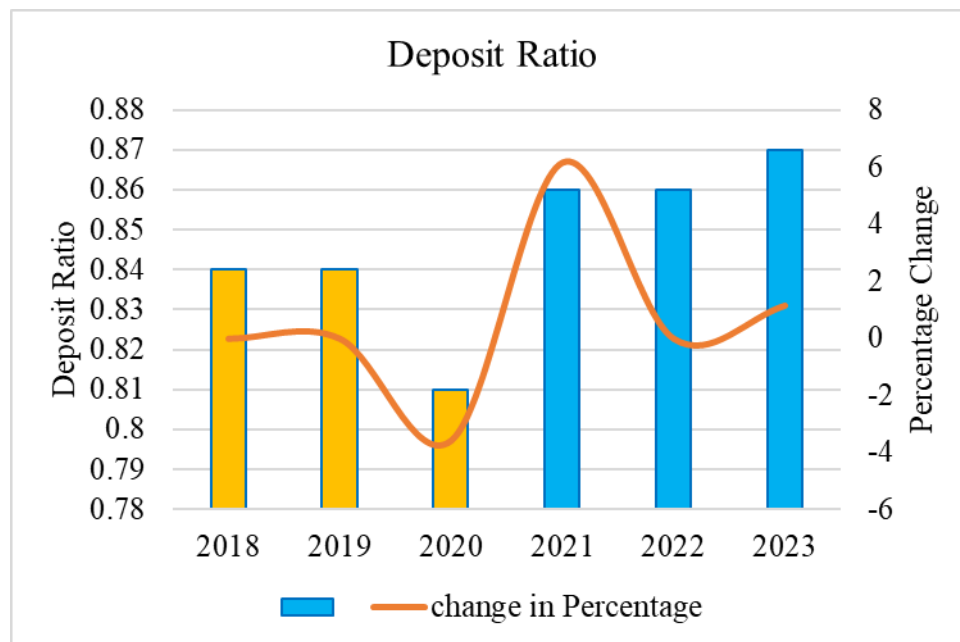
Discussion : -

Table 05: Total Deposit to Total Assets Ratio of Pre Merger of Union bank of India

Year	Total Deposit to Total Assets Ratio	Percentage Change	Year	Total Deposit to Total Assets Ratio	Percentage Change
2018	0.84	0	2021	0.86	6.17
2019	0.84	0	2022	0.86	0
2020	0.81	-3.57	2023	0.87	1.16

Observations

Chart 03: Deposit Ratio



As shown in the chart, The total deposits to total ratio of Union bank of India is 0.84, a constant in years 2018 and 2019, and then it declined by 0.81 in 2020. After 2020, it showed an upward trend. In 2021, it increased by 0.86 percentage, and in 2023, it was 0.87 percentage.

Hypothesis Testing

H0: There is no significant difference between Deposit Ratio and Change in Percentages of Deposit Ratio of Pre and Post Merger Period of Union Bank of India.



Table 06: Hypothesis Testing – Deposit Ratio

Deposit Ratio			Change in Percentages of Deposit Ratio	
	Pre- Merger	Post-Merger	Pre- Merger	Post-Merger
Mean	0.83	0.8633	-1.19	2.4433
Variance	0.0003	3.3333	4.2483	10.7524
Observations	3	3	3	3
df	2	2	2	2
F	9		0.3951	
P(F<=f) one-tail	0.1		0.2832	
F Critical one-tail	19		0.0526	

Result: P Value- 0.1 (Deposit Ratio)

P Value- 0.2832 (Change in Percentages of Deposit Ratio)

According to the F-Test applied for the above hypothesis, P value is 0.1 (**Deposit Ratio**) and 0.2832 (**Change in Percentages of Deposit Ratio**) which is greater than the standard P value limit of 0.05 which means the Null hypothesis would be admissible in both the scenario. There is no significant difference between **Deposit Ratio** and **Change in Percentages of Deposit Ratio** of Pre and Post Merger Period of Union Bank of India. It is observable that there is no significant movement of **Current Ratio** Value from pre and post-merger which indicate that liquidity position of the bank had not changed from pre to post merger period. It is essential in banking industry to maintain a good liquid ratio to meet the deposit requirement of the bank. If there would be a positive moment in liquid scenario it would have indicated that there is idol liquidity available with the bank and if there is negative moment in liquid position it would have indicated that there is a shortage of the liquidity to meet deposit demand for the bank so it is required to have a constant liquidity position which researcher have observed in the hypothesis test as H₀ is rejected.

8: Conclusion

After the consolidation exercise, an analysis of bank liquidity has been attempted. The bank's liquidity in the pre-merger and post-merger scenarios did not differ significantly, on average, according to the CASA liquidity ratio, current ratio, and deposit ratio results. So, as per observation and results, it can be concluded that the liquidity position of Union Bank of India has neither a positive nor negative impact of the merger, which indicates a stable liquidity position, which means Union Bank of India has enough ability to meet its current liabilities and doesn't have idol liquidity availability.

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