Asset Liability Management Practice: A Case Study on Select Listed Banks in India

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Abstract: *This study analyses the Residual Maturity Statement (ALM table) published in bank annual reports, as part of the regulatory requirement of the Reserve Bank of India (RBI). By analysing the structural mismatch between asset inflows and liability outflows, the study aims to evaluate banks' liquidity positions and ALM trends. The analysis reveals that sample banks use distinct strategic frameworks to manage the trade-off between liquidity risk and profitability. Furthermore, the study investigates how specific ALM strategies offer the bank a competitive advantage within the banking sector. To assess the resilience and effectiveness of these frameworks, the research incorporates the COVID-19 pandemic period as an external stressor, evaluating how unforeseen shocks affected bank stability. Ultimately, this study highlights the critical role of ALM practices in maintaining financial health during periods of economic volatility, risk management and profitability.*

***Keywords**: Asset Liability Management (ALM), Liquidity Risk, Risk Management.*

1. INTRODUCTION

Banks and financial institutions constitute the foundation of a nation's economy. The banking industry primarily functions by accepting deposits and paying interest, while simultaneously offering loans and charging interest on them. This inherent nature of business exposes banks to various risk categories. For example, Interest Rate Risk arises when changes in market rates impact the bank's profit margins. Credit Risk refers to the possibility that a borrower may default on a loan. In contrast, Liquidity Risk relates to the potential that a bank may lack the funds needed to carry out its immediate payment obligations. These risks are an inevitable part of the banking sector, but they can be managed effectively. By carefully deciding on the products they offer and monitoring their overall volume, banks can reduce their exposure. This is where the Asset and Liability Management (ALM) system holds an important role. ALM acts as a strategic tool that helps a bank maintain its assets and liabilities in balance. It enables banks to evaluate their risks and establish proper hedging that safeguards their long-term financial stability. To manage these risks successfully, a bank must do more than just acknowledge them—it needs a reliable way to measure them. This involves setting specific risk limits, identifying exactly where the bank is vulnerable, and creating clear policies to keep those risks within a safe tolerance level. Building on this foundation, this study specifically examines the strategic side of ALM.

2. PURPOSE OF THE STUDY

We look at how banks set these risk levels by managing "surpluses" (extra cash) and "deficits" (shortfalls) across the different time periods shown in their ALM tables. This creates a constant balancing act for bank managers. On the other hand, having extra funds is safer because it allows the bank to meet its financial obligations. However, this approach has an opportunity cost, as the money not invested is missing out on potential interest income. On the other hand, running a shortfall might suggest the bank has moved its money elsewhere to chase better profits, but this increases the danger of not having enough cash when it is actually needed. The purpose of this study is to examine how various banks manage the risk and reward trade-off to ensure stability.

3. REVIEW OF THE LITERATURE

The academic examination of **Asset-Liability Management (ALM**) in India has transitioned from basic regulatory adherence to a sophisticated strategic need. **Vaidyanathan (1999)** offered an initial analysis of this transformation, investigating the manner in which Indian banks navigated towards a strategic equilibrium between assets and liabilities in a newly deregulated context. **Beck et al. (2000)** soon after used portfolio duration to predict how interest rates would affect things, and **Vaidya and Sahi (2001)** found that interest rate and liquidity concerns were the most important factors for the Indian banking system.

Dash and Pathak (2010) made progress in the topic by suggesting a linear programming model to figure out how banks make the best use of their assets and liabilities. Their research showed that throughout this time, **Public Sector Banks (PSBs)** generally had more stable ALM holdings. This meant that they were able to meet liquidity needs while also lowering their risk of interest rate changes.

Dash et al. (2011) examined the direct effect of ALM on profitability in thirty-five Indian banks, uncovering a prevalent "negative maturity mismatch" in short-term buckets, hence advancing this quantitative trend. This analysis indicated that numerous banks were deliberately preserving these gaps to enhance short-term profitability, despite the associated increase in liquidity risk. **Dash and Kabra (2010)** also looked into the connection between risk and return. They found that good ALM practices were strongly linked to increased **Net Interest Margins (NIM).** In subsequent years, researchers initiated comparisons of various institutional frameworks to evaluate the practical application of these theories. **Kaur and Pasricha (2012)** looked at maturity gaps in public sector banks and found that banks were facing significant challenges in short-term liquidity. **Sheela and Bastray (2013)** did a more detailed analysis of Union Bank of India and ICICI Bank. Their study revealed that although both institutions faced interest rate risk, the public sector bank (UBI) maintained a stricter yet stable Asset-Liability Management (ALM) framework in comparison with the private sector bank (ICICI), which used a more flexible strategy.

In the last half of the decade, the focus changed to technology and global standards. **Chaudhury and Singh (2016)** noted that banks could switch from static reporting to "dynamic" ALM when they started using advanced information systems. This made it easier for them to respond to changes in the market. This technology transformation became necessary as banks adopted Basel III rules. **Srivastava (2019)** observed the change of process in the banks and found that stronger liquidity coverage requirements were important for maintaining bank resilience. The COVID-19 pandemic was the first time these methods were really put to the test. **Singh and Bodla (2020)** pointed out that the pandemic led to uncertain times that, in turn, displayed a rise in precautionary savings. This created a unique liquidity surplus that had to be carefully managed to ensure profit maximisation. **Tripathi (2024)** recently compared the post-pandemic strategies of public and private banks. He said that public banks still prioritise low mismatch ratios for safety, but private banks have become more aggressive in managing long-term gaps to get the most out of a turbulent economy. The studies show that ALM has changed from a basic need for protection to a strategic tool for gaining a competitive advantage.

3. RESEARCH METHODOLOGY

This study analyses the asset and liability management (ALM) of selected listed public and private sector banks in India. The main goal is to determine their liquidity position and maturity profiling. The study includes data from **5** banks for 6 years from **2020 to 2025**. The basic method used is the traditional Maturity Gap Analysis model. This helps to find the surplus or deficit in liquidity by looking at the maturity duration of assets and liabilities.

The data for the liquidity profile (or residual maturity profile) of the banks is collected from their annual reports. This information is mandatorily disclosed by banks in a standardised format according to RBI guidelines. The format includes asset components like loans and advances, investments, and foreign assets, along with liability components like deposits, borrowings, and foreign liabilities. These are disclosed across 11-time slabs, which we have denoted under Slab1-Slab11 and the total gap under Slab12:

1. **S1 - Next day / 1 day**
2. **S2 – 2 to7 days**
3. **S3 - 8 to14 days**

4. **S4 - 15 to 30/31 days**
5. **S5 - 1-2 months**
6. **S6 - 2-3 months**
7. **S7 - 3-6 months**
8. **S8 - 6 months to a year**
9. **S9 - 1-3 years**
10. **S10 - 3-5 years**
11. **S11 - More than 5 years**

To calculate the results, all asset and liability components are added to find the total asset and total liability for each time slab. The maturity gap is then found by subtracting the outflows (liabilities) from the inflows (assets) of that specific group.

A positive gap means the inflow is greater than the outflow for that bucket, resulting in a liquidity surplus. A negative gap means the outflow is greater than the inflow, resulting in a liquidity deficit. A negative gap suggests the bank may not be able to meet its liability payments with the assets available for that specific duration. Generally, a higher gap represents a bigger liquidity risk.

Currently, India has 12 public sector banks and 21 private sector banks, totalling 33 banks. From the 33 banks, I have selected 5 banks through random selection. The ALM tables for these selected banks were obtained from their official annual reports. For the analysis, I have numbered the 11-time slabs from **S1 to S11** and the total gap as **S12.**

My sample bank includes:

1. **Indian Overseas Bank**
2. **South Indian Bank**
3. **Axis Bank**
4. **Punjab & Sindh Bank**
5. **City Union Bank**

4. ANALYSIS AND OBSERVATION

The quantitative outcomes of the gap analysis for the five sampled banks are presented in the tables below, while the structural mismatch is illustrated in the line chart.

Table 1. The Asset and Liability Maturity Gap of Indian Overseas Bank (in crores)

INDIAN OVERSEAS BANK							
Time Slabs		Yearly Asset and Liability Mismatch Gap (in crores)					
		2020	2021	2022	2023	2024	2025
1 day / next day	S1	14051	27491	26967	22192	15288	26024
2-7 days	S2	1069	-1262	-180	773	-519	560
8-14 days	S3	2213	-4069	-2308	-2735	-3212	2312
15-30/31 days	S4	-2452	-2161	-2614	1547	-3732	-6633
1-2 months	S5	1217	2057	3400	2429	1774	-4816
2-3 months	S6	3654	3036	5263	878	5270	7094
3-6 months	S7	-8573	-8234	-10741	-8872	-16944	-26209
6-12 months	S8	-7840	-5291	-8782	-9653	-10817	-51998
1-3 years	S9	25648	28511	24156	13611	-53466	37816
3-5 years	S10	4075	6588	9123	26387	18196	15677
5 years & above	S11	-47246	-55537	-55533	-35078	50521	-9147
Total	S12	-14184	-8869	-11250	11480	2358	-9322

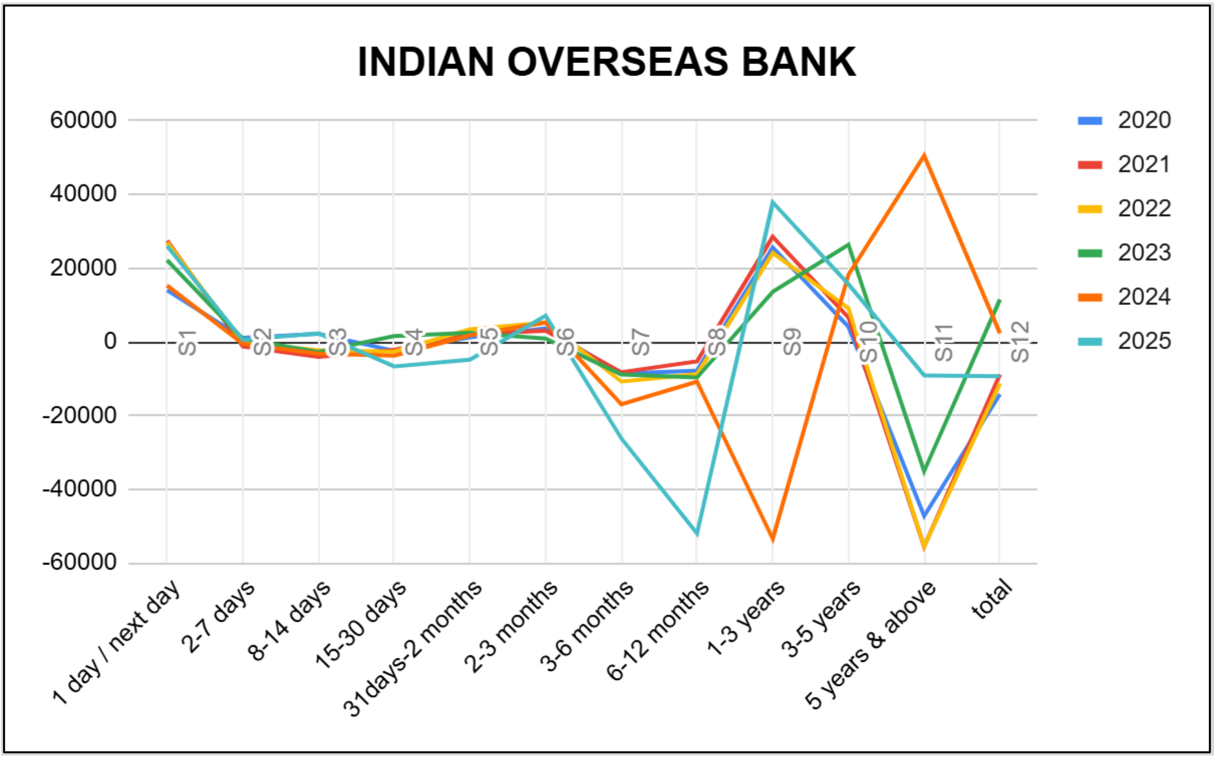

Figure 1. Asset and Liability Maturity Mismatch of Indian Overseas Bank (values in crores)

Table 2. The Asset and Liability Maturity Gap of South Indian Bank (in crores)

SOUTH INDIAN BANK							
Time Slabs		**Yearly Asset and Liability Mismatch Gap (in crores)**					
		2020	**2021**	**2022**	**2023**	**2024**	**2025**
1 day / next day	**S1**	1955	5389	4444	6262	6003	444
2-7 days	**S2**	-528	272	-466	-532	374	-47
8-14 days	**S3**	158	-30	147	1792	490	15
15-30/31 days	**S4**	-98	745	4151	2599	1317	415
1-2 months	**S5**	-1760	707	575	4927	5201	58
2-3 months	**S6**	-518	593	4159	3196	3662	416
3-6 months	**S7**	2935	3149	6815	7987	2505	681

6-12 months	**S8**	-382	3291	3397	2382	-2528	340
1-3 years	**S9**	6033	3479	2472	-386	628	247
3-5 years	**S10**	-682	-1918	-1815	-2112	2718	-181
5 years & above	**S11**	-14462	-22813	-31238	-28383	-23553	-3124
Total	**S12**	-7350	-7136	-7358	-2269	-3183	-736

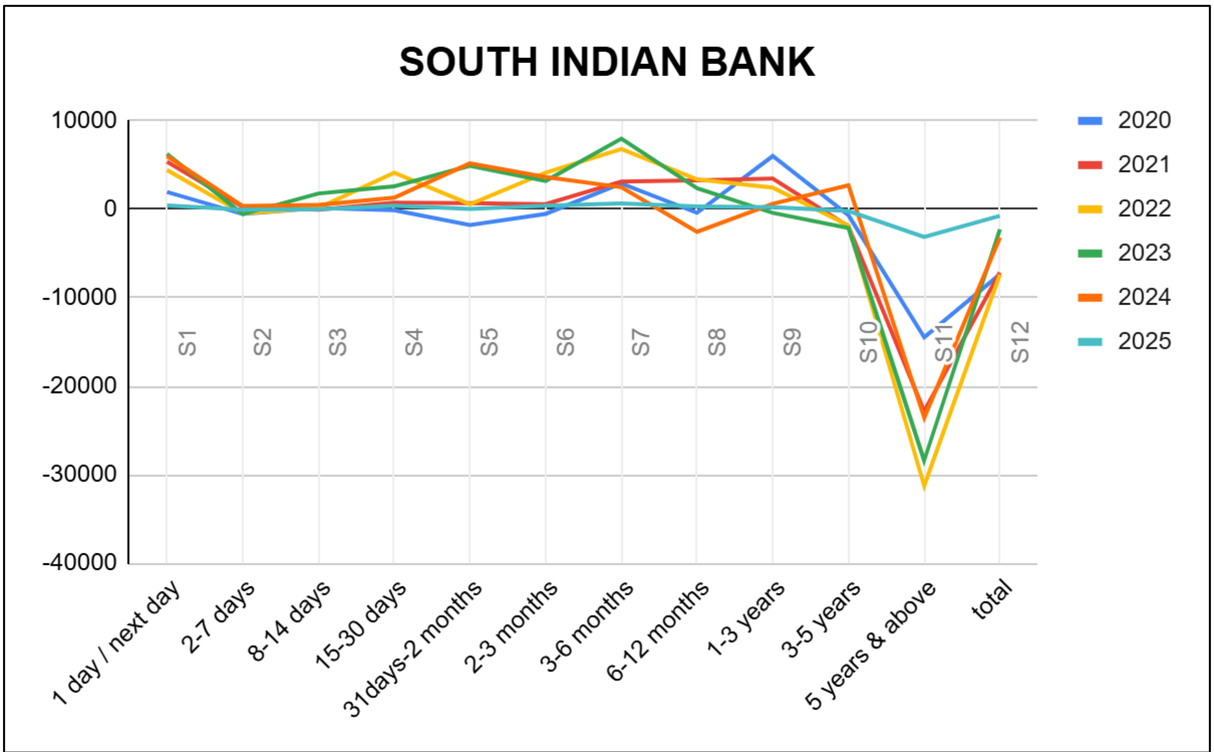

Figure 2. Asset and Liability Maturity Mismatch of Indian Overseas Bank (values in crores)

Table 3. The Asset and Liability Maturity Gap of Axis Bank (in crores)

AXIS BANK							
Time Slabs		**Yearly Asset and Liability Mismatch Gap (in crores)**					
		2020	**2021**	**2022**	**2023**	**2024**	**2025**
1 day / next day	**S1**	38263	65544	75898	94755	113525	156990

2-7 days	**S2**	-21597	-22721	-23133	-12048	7014	11460
8-14 days	**S3**	-6917	4449	-1489	-3260	5457	2615
15-30/31 days	**S4**	-7418	-7433	-14694	5387	4786	-9227
1-2 months	**S5**	-21600	-11028	-12865	-10148	-5359	19939
2-3 months	**S6**	-13891	-3640	-18082	-31373	-30997	-14943
3-6 months	**S7**	-44672	-9108	-37674	-31866	-73464	-94047
6-12 months	**S8**	-62850	-52804	-59329	-68421	-123962	-106030
1-3 years	**S9**	53235	99928	102450	87579	94893	83787
3-5 years	**S10**	60296	67629	77356	91029	101330	111965
5 years & above	**S11**	-33470	-128276	-105885	-120343	-61690	-82510
Total	**S12**	-60621	2540	-17447	1291	31532	79999

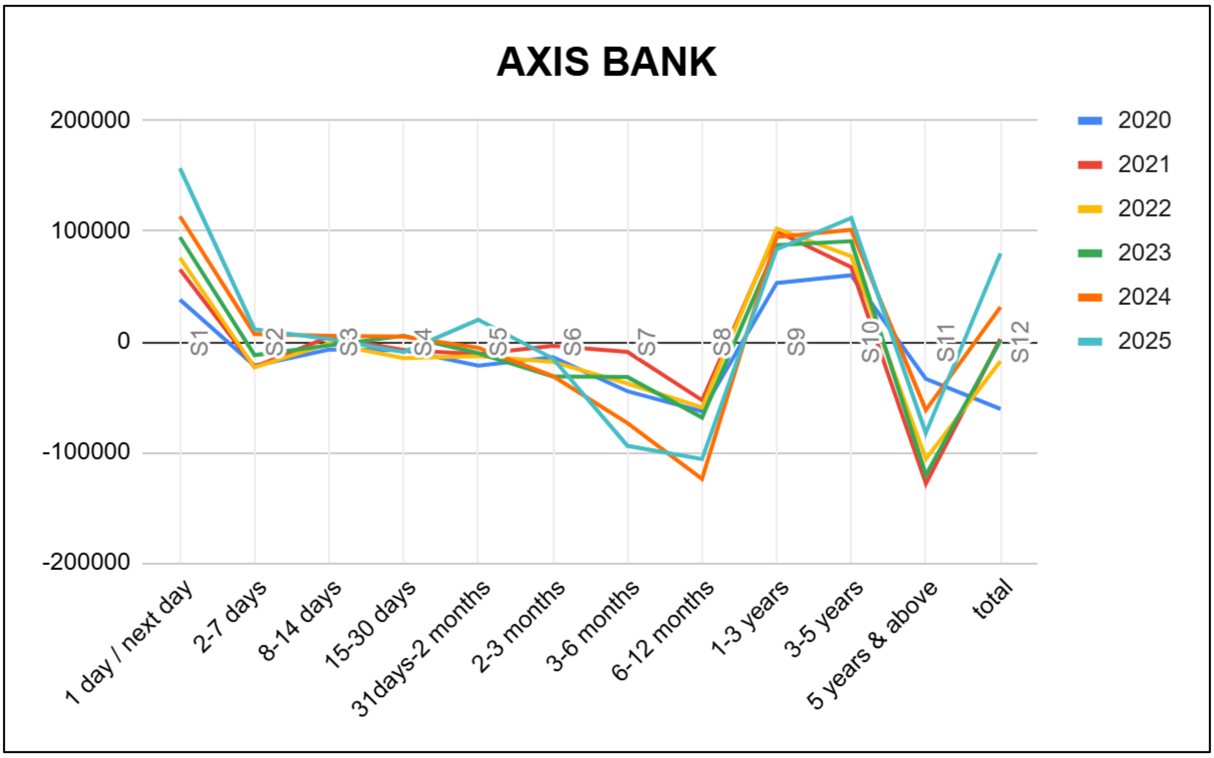

Figure 3. Asset and Liability Maturity Mismatch of Axis Bank (values in crores)

Table 4. The Asset and Liability Maturity Gap of Punjab and Sindh Bank (in crores)

PUNJAB AND SINDH BANK							
Time Slabs		Yearly Asset and Liability Mismatch Gap (in crores)					
		2020	2021	2022	2023	2024	2025
1 day / next day	S1	439	2378	883	889	96	39
2-7 days	S2	-842	-2408	-822	-5866	-6267	-5232
8-14 days	S3	-134	-54	-701	-581	-257	10
15-30/31 days	S4	-3244	-751	142	-1097	-711	2263
1-2 months	S5	-6013	-5963	-6645	-5383	-5482	-2508
2-3 months	S6	-4793	-5056	-5078	-2434	-3715	2160
3-6 months	S7	-10019	-7088	-10420	-12379	-11627	-14526
6-12 months	S8	-17944	-22287	-18399	-20603	-23679	-19633
1-3 years	S9	-3487	-2147	-8326	-7832	-9847	6877
3-5 years	S10	3781	3338	1227	5240	13928	10577
5 years & above	S11	35311	34597	48835	53371	51019	20415
Total	S12	-6944	-5441	695	3325	3458	442

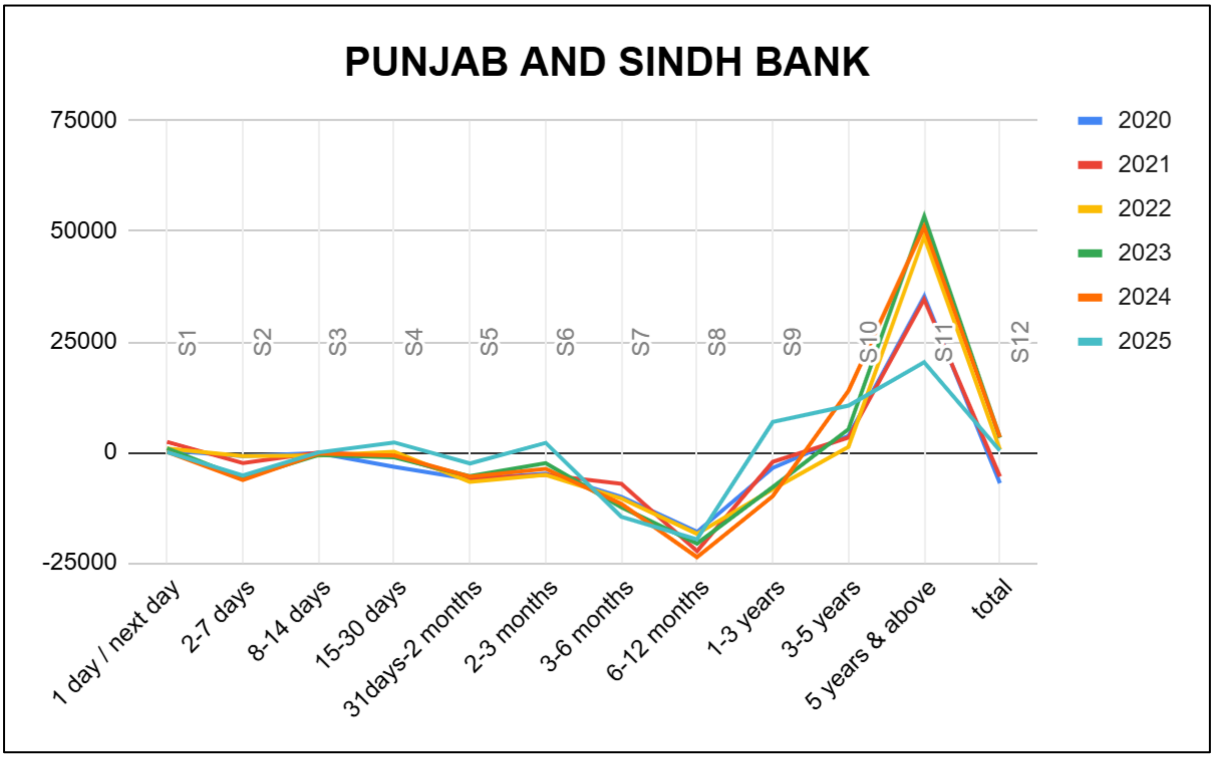

Figure 4. Asset and Liability Maturity Mismatch of Punjab and Sindh Bank (values in crores)

Table 5. The Asset and Liability Maturity Gap of City Union Bank (in crores)

CITY UNION BANK							
Time Slab		**Yearly Asset and Liability Mismatch Gap (in crores)**					
		2020	**2021**	**2022**	**2023**	**2024**	**2025**
1 day / next day	**S1**	1456	1239	4892	5669	5724	7069
2-7 days	**S2**	722	945	-1603	-1149	-3495	-941
8-14 days	**S3**	1198	452	141	-38	-235	-461
15-30/31 days	**S4**	668	191	-339	-508	-854	-563
1-2 months	**S5**	67	351	452	152	-906	-535
2-3 months	**S6**	677	421	-466	-21	22	2099
3-6 months	**S7**	492	2217	2140	1282	432	-1709

6-12 months	**S8**	1523	3438	4172	2735	3304	3686
1-3 years	**S9**	-9353	-12650	-13265	-12164	-9831	-11925
3-5 years	**S10**	497	1026	1496	1924	2146	3239
5 years & above	**S11**	2230	2082	1992	2442	4504	4430
Total	**S12**	177	-287	-388	324	812	4389

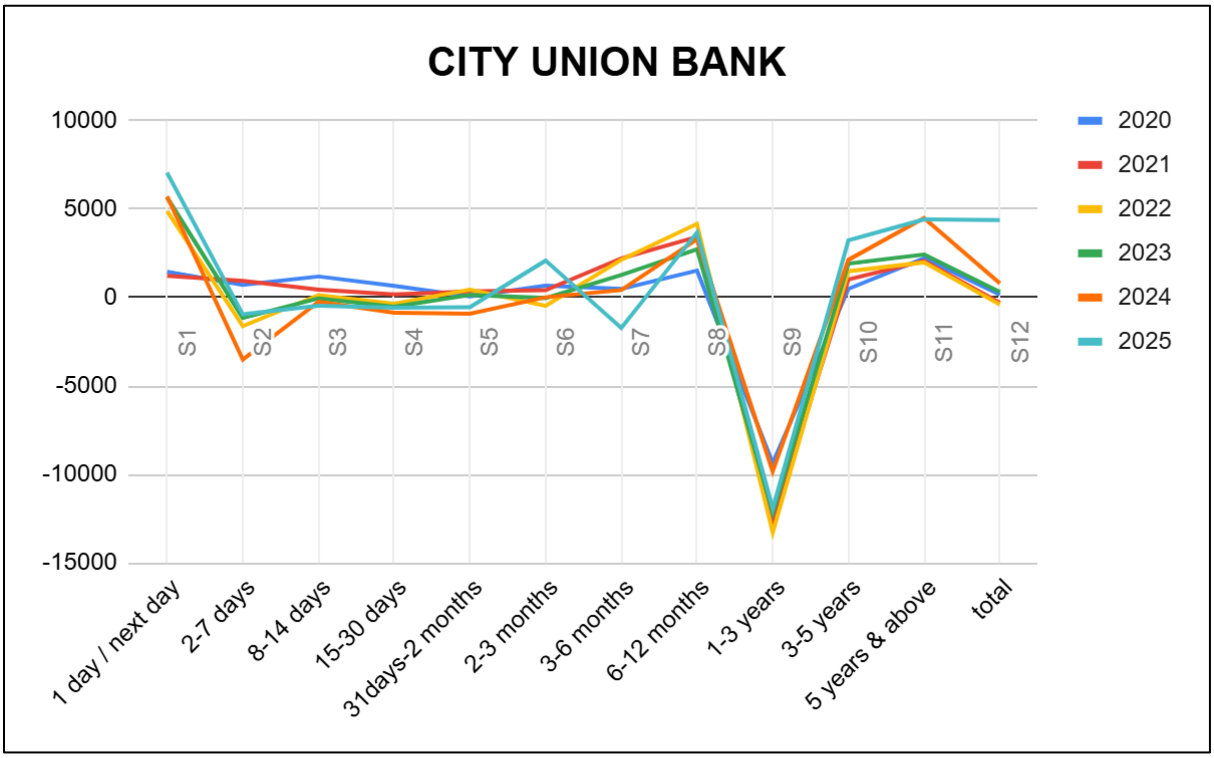

Figure 5. Asset and Liability Maturity Mismatch of City Union Bank (values in crores)

Looking at the graphs of these five banks from 2020 to 2025, we see a clear difference in how they handle their money over time. For public sector banks like Punjab & Sind Bank and Indian Overseas Bank, the graphs often show a deep V-shape liquidity deficit. This situation implies a significant amount of debt maturing in the next few years, yet the banks have allocated those funds to longer-term loans, extending beyond five years. We see the data stabilising around 2025, which really shows the bank's shift in strategy. They've managed to ditch the high-risk corporate lending that used to tie up their cash for years. Instead, they're leaning into shorter-term retail and MSME loans, which are much easier to manage.

In the private sector, Axis Bank stands out because it keeps a massive amount of liquid funds ready for the very short term. Its graph stays high at the beginning, meaning it has plenty of money available to handle sudden withdrawals or quick digital lending.

On the other hand, City Union Bank has the most stable-looking graph. Its lines are almost flat and stay very close together, indicating closely matched assets and liabilities. This tells us the bank is very careful; it matches the timing of its deposits almost perfectly with the timing of its loans, mostly by focusing on safe, short-term options like gold loans.

South Indian Bank stands out because it doesn't follow the usual pattern. Its lines often sink below the zero level in the middle sections, showing a period where outgoing payments outweigh incoming collections. This indicates the bank is currently focused on gathering deposits, likely to establish a financial buffer before it significantly increases its lending activities down the line.

Overall, the 2025 data across all these banks shows a common trend: they are all trying to close these gaps to make their financial health more stable and less dependent on unpredictable market changes.

The five-year period from March 2020 to March 2025 shows a dramatic shift in these graphs, directly tracking the impact of the pandemic and subsequent interest rate cycles. In 2020 and 2021, the graphs for most banks showed massive spikes in short-term liquidity (S1–S4) as the RBI slashed repo rates to historic lows and the market was flooded with emergency cash. This caused a "liquidity hike" where banks had more cash than they could lend out. "Everything shifted when the RBI started hiking the repo rate in 2022 to keep inflation in check. The cost of keeping money in the bank shot up, and the 'easy' liquidity disappeared. This created a bit of a crisis by 2024; the V-shape deficit got much worse because banks couldn't attract long-term depositors in such a high-rate environment. In the end, they had no choice but to rely on expensive, short-term borrowing to bridge the gap for their long-term lending.

5. CONCLUSION

In summary, City Union Bank stands out for its most balanced and stable structure, effectively neutralising liquidity risk through disciplined regional matching and a high-quality gold loan portfolio. Conversely, while Axis Bank maintains the highest level of immediate liquidity, its aggressive reliance on short-term retail deposits to fund rapid digital expansion exposes it to the highest operational liquidity risk. In contrast, South Indian Bank shows the greatest structural risk due to its deliberate negative gap as it undergoes a high-stakes balance sheet transition.

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