

## Granular Insights into Japanese G-SIBs' Foreign Currency Deposits: Characteristics and Stickiness

Financial System and Bank Examination Department  
FUNADA Naoki, SAKATA Tomoya\*, OGAWA Yoshiya

July 2025

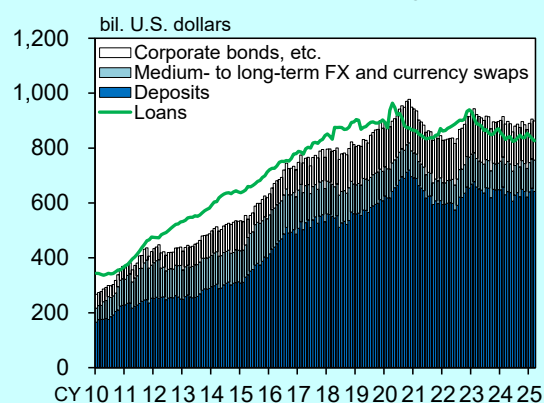
As major banks have increased their overseas lending, they have long regarded foreign currency liquidity risk as one of the key management risks and have made continuous efforts to enhance the stability of their foreign currency funding base. Against this backdrop, and in light of the international discussions triggered by events such as the collapse of Silicon Valley Bank (SVB), this paper analyzes the characteristics and stickiness of foreign currency deposits using granular data. The analysis shows that while the suppression of large, high-interest deposits has led to average deposit balance per account becoming smaller and diversified, the outstanding balance of transaction deposits, which can be acquired at low cost, has remained largely unchanged. Furthermore, the results indicate that deposit outflow rates and stickiness vary across depositor attributes. These findings also suggest that strengthening relationships with firms through acquisition of transaction deposits may contribute to enhanced deposit stickiness. Going forward, it will be important to deepen discussions with major banks and foreign authorities in order to further enhance major banks' foreign currency liquidity risk management.

### Introduction

Some Japanese major banks<sup>1</sup> (hereinafter referred to as "major banks") have actively expanded their overseas lending in recent years, against the backdrop of a persistently low interest rate environment in the domestic market. In this context, as the banks do not possess a stable retail deposit base in the United States, they have sought to acquire foreign currency deposits from firms while covering the shortfall through market-based funding, including short-term FX swaps and medium- to long-term FX and currency swaps as well as corporate bonds. For this reason, foreign currency liquidity risk has long been considered as one of the key management risks for major banks, and the Bank of Japan has also considered it important to monitor the situation. Major banks, while striving to optimize their funding costs, have made continuous efforts to enhance the stability of their foreign currency funding base by diversifying funding sources and extending the maturity of market funding. In the U.S., on the other hand, the outstanding balance of overseas lending has remained flat. This reflects several factors, including banks' more cautious lending stance<sup>2</sup> during and the COVID-19 pandemic and the lack of a notable increase

in corporate demand for bank loans— due in part to the continuation of a high interest rate environment following the Federal Reserve's interest rate hikes since March 2022—as well as heightened focus on profitability among major banks. Against this backdrop, the loan-to-funding gap of major banks—the difference between the outstanding amount of loans and that of long-term funding, such as through corporate bonds, and deposits, which are relatively stable compared to short-term FX swaps, etc.—shows that relatively stable

[Chart 1] Loan-to-Funding Gap



Note: "Corporate bonds, etc." and "Medium- to long-term FX and currency swaps" indicate funding maturing in over 1 year from end-June 2012 onward, with funding maturing in over 3 months prior to that time.

Source: Bank of Japan.

funding continues to exceed their loans (Chart 1).

Meanwhile, the turmoil in the banking sector in March 2023—triggered by the collapse of the U.S. regional bank Silicon Valley Bank (SVB) and the emergency merger of Credit Suisse—has prompted a renewed examination of the assumption that deposits constitute a stable source of funds, which has long been the premise for foreign currency liquidity risk management. Specifically, it has been highlighted that certain aspects—such as the possibility that the speed of outflows of some types of deposits may be faster than regulators' expectation due to the influence of social media and the potential impact of runs on large, uninsured deposits—must be appropriately taken into account in liquidity risk management. Furthermore, in the immediate aftermath of the SVB collapse, deposit outflows and sharp declines in stock prices intensified at other U.S. regional banks with similar risk profiles, and as a result, First Republic Bank was acquired by JP Morgan in early May 2023.<sup>3</sup>

In light of these developments following the outbreak of the COVID-19 pandemic, financial authorities both in Japan and abroad have been advancing discussions on the need to further enhance the liquidity risk management frameworks of banks. The Bank of Japan, in cooperation with the Financial Services Agency, has long been engaged in ongoing dialogue with some of the major banks classified as G-SIBs, mainly through the "Joint Survey on Foreign Currency Liquidity Risk Management."<sup>4</sup> In addition, to ensure more efficient and effective monitoring, efforts have been made to enhance the use of data reported by banks. With the cooperation of major banks, the coverage of granular foreign currency deposit transaction data reported to both the Bank of Japan and the Financial Services Agency (hereinafter referred to as "granular data")<sup>5</sup> has been expanded.

Major banks themselves have been steadily advancing the sophistication of their foreign currency liquidity risk management. This paper examines the characteristics and stickiness of foreign currency deposits—which account for the majority of major banks' foreign currency funding—using granular data at the individual transaction level, to contribute to

further enhancement of major banks' foreign currency liquidity risk management.

## Granular Deposit Data

### *Details of the granular data*

While deposits are generally considered a low-cost and relatively stable source of funding for deposit-taking financial institutions, their stability in times of stress may vary depending on depositor attributes such as deposit type (demand deposits or time deposits), deposit size (large or small), relationship with the bank (Japanese firms or non-Japanese firms), and industry (non-financial corporations or financial institutions). The granular data used in this analysis consist of individual deposit transaction records, which allow for detailed information to be captured on deposit amounts, interest rates, maturities, and deposit types, as well as other detailed depositor attributes (Chart 2). (While this paper focuses on the analysis of U.S. dollar deposits, details on the acquisition of local currency deposits other than dollar are provided in BOX.) This allows us to monitor the trend in deposit acquisition strategies—specifically, from which depositor attributes major banks acquire deposits, at what interest rate levels, and in what amounts—as well as to assess the validity of the deposit outflow rate assumed by major banks in times of stress, taking into account the stickiness of deposits by depositor attribute. The following section presents key characteristics of foreign currency deposits of major banks identified from these granular data.

[Chart 2] Summary of Granular Data

Data items	Deposit amounts, interest rates, maturities, deposit types (demand deposit, time deposit)
Depositors attribute category	Industry (manufacturing, non-manufacturing, financial institutions), Japanese and non-Japanese firms
Coverage	FG basis (including local subsidiaries, excluding subsidiaries)
	All foreign currencies (USD, EUR, GBP, Thai baht, AUD, RMB, etc.)
Number of accounts	140,000 accounts (per depositor and bank <as of March 31, 2025>)

Source: Bank of Japan.

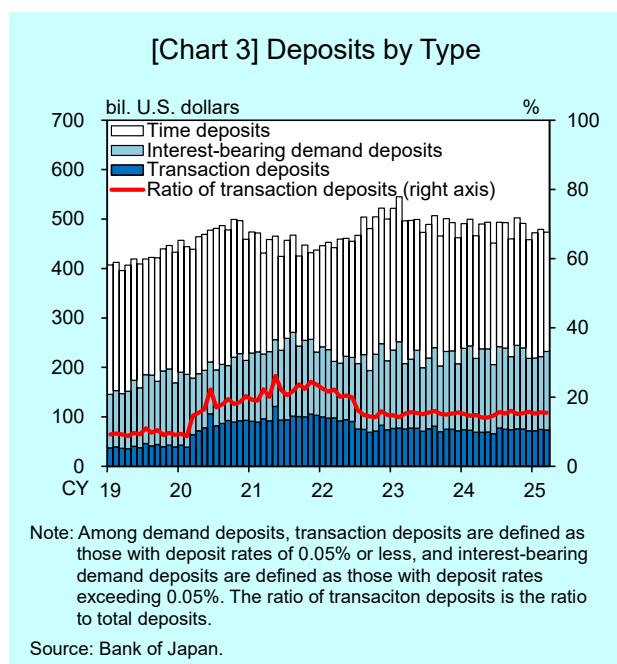
### *Acquisition of transaction deposits*

Generally, deposits are classified into two categories: "demand deposits," which have no fixed term, and

"time deposits," which have a specified maturity. Among demand deposits, a further distinction can be made between "transaction deposits," used for daily cash management and various payment such as foreign remittances, and other type of demand deposits. Typically, transaction deposits do not earn interest; this can be understood as depositors effectively paying an opportunity cost to banks in exchange for the economic value delivered from settlement services provided through the transaction deposit account.<sup>6</sup>

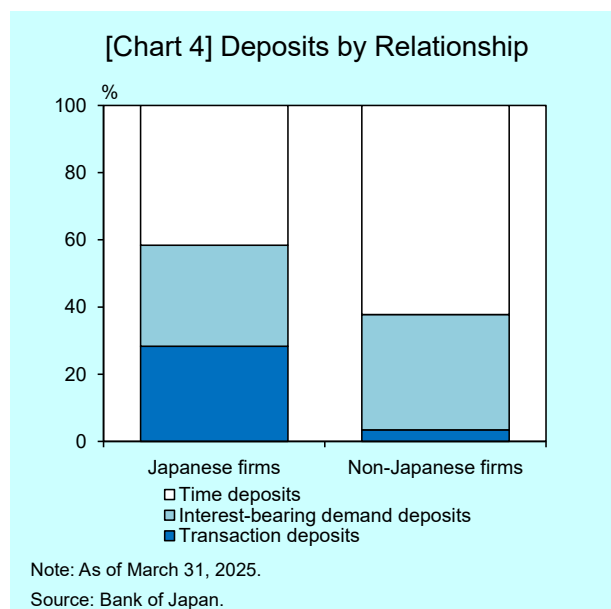
On the other hand, non-transaction demand deposits, while not having a fixed maturity like time deposits, often consist of surplus corporate funds on which banks offer interest rates comparable to those of time deposits in order to attract large deposits. In this paper, such deposits are referred to as "interest-bearing demand deposits."

Based on the conceptual distinction between the two types of demand deposits outlined above, we attempted to decompose demand deposits using interest rate information included in the granular data.<sup>7</sup> The analysis revealed that a large portion of demand deposits held by major banks can be classified as "interest-bearing demand deposits." Furthermore, the share of transaction deposits, which can be acquired at low cost, has remained largely unchanged over time (Chart 3).



## Relationship with the bank

Using depositor attribute information to distinguish between Japanese and non-Japanese firms shows that the share of transaction deposits from non-Japanese firms is particularly low (Chart 4).



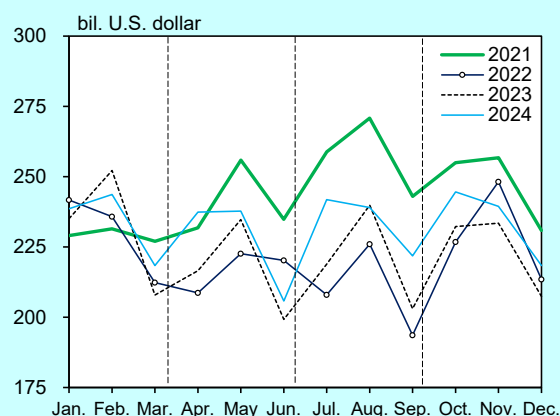
With regard to transaction deposits held by Japanese firms, major banks have actively sought to acquire deposits as Japanese firms expand their overseas operations. They have done so by extending working capital and investment loans to Japanese firms' local subsidiaries, while also providing cash management services (CMS). For firms, transaction deposit accounts serve as essential accounts for managing daily cash inflows and outflows, and banks that provide these accounts are often regarded as the firm's main banking partner. Accordingly, the presence of such accounts and the volume of deposits held therein can be considered indicative of the strength of the relationship between the bank and the firm. From the bank's perspective, holding transaction deposits not only strengthens client relationships but may also lead to cross-selling opportunities, thereby contributing significantly to overall profitability. In addition, as noted in Aoki et al. [2021],<sup>8</sup> during periods of heightened market stress, such as the COVID-19 pandemic, firms tend to shift funds drawn from their commitment lines to their main banks—particularly those with which they hold transaction deposit accounts. From this perspective, acquiring transaction deposits is important not only for strengthening client relationships, but also for securing

more stable funding sources that are less likely to flow out in times of stress. Meanwhile, in recent years, competition has intensified, as major financial institutions in U.S. and Europe have increasingly stepped up their transaction banking business for firms including Japanese firms.<sup>9</sup>

### Seasonality of deposits

Foreign currency deposits may exhibit fluctuations stemming from seasonal business practices or corporate behavior such as temporary loan repayments toward the end of fiscal periods, or scheduled payments of accounts receivable on a quarterly or semi-annual basis (Chart 5). Banks typically incorporate such seasonality into their liquidity planning based on depositor attributes. Leveraging granular data enables gaining further insights into the magnitude of these seasonal effects and the specific depositor attributes (size, industry, etc.) driving them.

[Chart 5] Seasonality of Demand Deposits



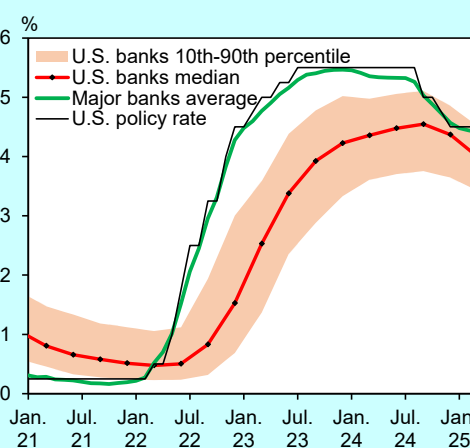
Source: Bank of Japan.

## Deposit Rates by Attribute

### Deposit rates

Foreign bank branches operating in the U.S. face challenges in attracting retail deposits, as such deposits are not covered by deposit insurance and thus remain uninsured. As a result, major banks have sought to acquire foreign currency deposits from corporate clients by offering deposit rates that are relatively higher than those of U.S. banks (Chart 6). However, with the Federal Reserve having begun lowering policy rates in September 2024, these deposit rates have recently declined somewhat from their peak levels.

[Chart 6] Time Deposit Rates



Note: U.S. banks with total domestic assets of \$5 billion or more are covered (288 banks as of March 2025). Figures for large banks are monthly averages; those for U.S. banks are quarterly averages.

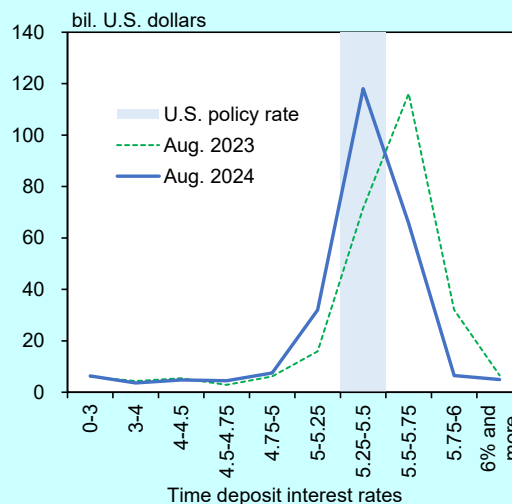
Sources: FFIEC; Bank of Japan.

### Reduction of low-margin deposits

In acquiring foreign currency deposits, major banks strategically adjust interest rates they offer, taking into account the amount of funding needed. While major banks have actively acquired deposits, loan growth has remained broadly flat. Against this backdrop, some banks have begun lowering deposit rates to avoid retaining low-margin, high-interest deposits, thereby reducing overall funding costs.

In this regard, the distribution of deposit interest rate bands shows the decline in the volume of deposits raised at higher rates. This suggests that banks are responding flexibly by balancing the need to secure a

[Chart 7] Distribution of Time Deposit Rates



Source: Bank of Japan.

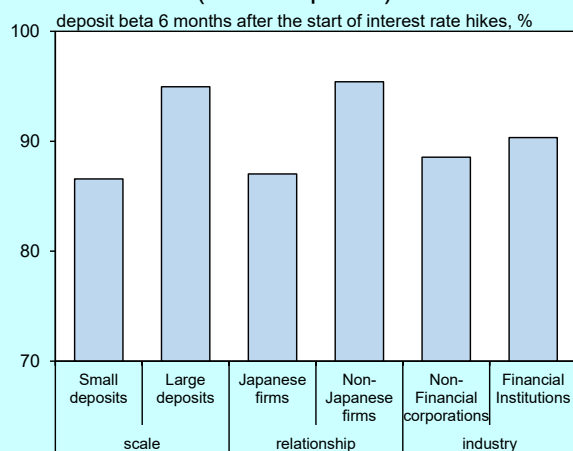
sufficient level of deposits with profitability considerations (Chart 7).<sup>10</sup>

### Pass-through of policy rates to deposit rates

Deposit interest rates are set in accordance with the depositor attributes. Specifically, banks adjust the interest rates they offer based on factors such as deposit size, relationship, and industry. This reflects an effort to balance the volume of deposits to be secured with the associated funding costs. To investigate this further, we calculated the pass-through of policy rates to deposit rates—the extent to which deposit rates are adjusted in response to changes in policy rates—by depositor attribute. For instance, during a rate hike phase, banks tend to offer higher interest rates to depositors who are more sensitive to interest rate changes and thus more likely to shift funds to competing banks, thereby resulting in higher pass-through rates. Conversely, for depositors with lower interest rate sensitivity, there is less incentive to raise deposit rates, leading to lower pass-through rates.

Using granular data, we analyzed pass-through rates by depositor attribute. While the results should be interpreted with some caution, taking into account factors such as depositor size, duration, and the presence of other transactions including loans, we found that pass-through rates were relatively high for large deposits and deposits of non-Japanese firms and

[Chart 8] Path-through Rate by Attribute (Time Deposits)



Note: Shows pass-through rates to deposit rates of the increase in the 3-month FF rate from before the start of rate hikes (February 2022) to 6 months after the start of the hikes (September 2022).

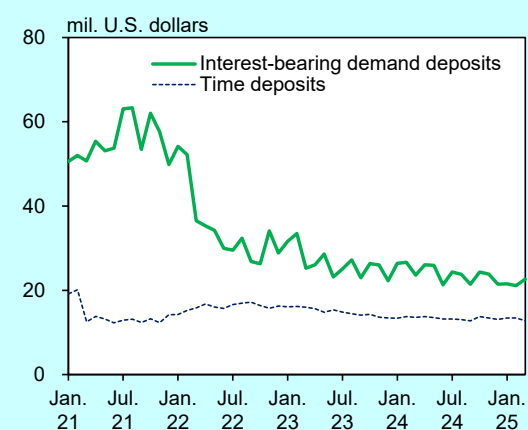
Source: Bank of Japan.

financial institutions. These findings are broadly consistent with the general assessment of interest rate sensitivity by depositor attribute (Chart 8).

### Diversification of deposits

With loan growth remaining flat, the necessity of offering high interest rates to attract large deposits has diminished, and major banks have begun to restrain the accumulation of large deposits. Consequently, the average deposit balance per account has become smaller and diversified, particularly for interest-bearing demand deposits (Chart 9).

[Chart 9] Deposit Outstanding per Account



Source: Bank of Japan.

Nonetheless, considering that rapid outflows of large deposits were observed at U.S. regional banks at the time of the SVB collapse, it remains essential to continue monitoring changes in the composition and volatility of large deposit holders.

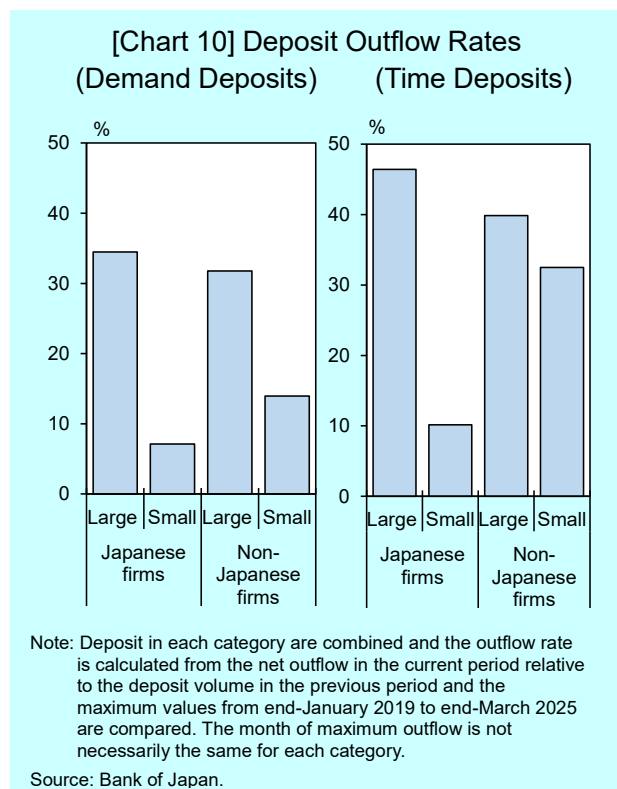
### Deposit Outflow Rates by Depositor Attribute

#### Deposit stickiness

In the wake of the collapse of SVB, there has been a growing global interest, particularly among financial authorities, in deposit stickiness, namely, the extent to which deposits are retained. Nevertheless, no substantial deposit outflows were observed in the foreign currency deposits of major banks at the time of the SVB collapse, and overall, deposits at major banks appear to exhibit relatively high stickiness.

## Deposit outflow rates by category

In order to assess deposit stickiness<sup>11</sup> by depositor attribute, we examine the outflow rates of deposits using data aggregated by depositor category. Specifically, we calculate the one-month deposit outflow rate for each category and compare the maximum outflow rates observed (Chart 10). The results confirm that the general assessment that large deposits exhibit higher outflow rates and therefore lower stickiness applies for all categories.<sup>12</sup>

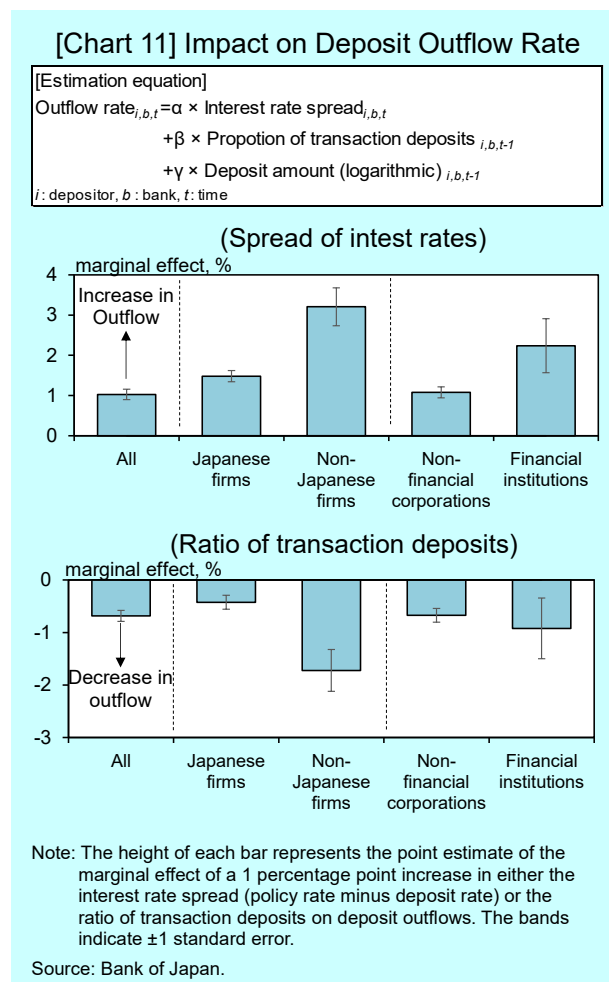


## Deposit outflow rates at the individual level

Thus far, the deposit outflow rates have been calculated based on aggregated figures by depositor category. To identify the factors influencing outflow rates at the individual depositor level, we conducted a panel analysis using account-level data.<sup>13</sup>

The analysis indicates that deposits of non-Japanese firms and financial institutions tend to exhibit relatively high interest rate sensitivity; the wider the spread between the policy rate and deposit interest rates, the higher the outflow rates and the lower the stickiness of their deposits. In addition, depositors with a higher proportion of transaction deposits—indicating a stronger relationship with banks—tend to show lower outflow rates (Chart 11). These results suggest that

efforts by banks to acquire transaction deposits, such as through the provision of CMS, may contribute to enhancing deposit stickiness. Moreover, this effect appears to be more pronounced for non-Japanese firms than for Japanese firms. The analysis also statistically confirms that larger deposits are more likely to flow out and exhibit lower stickiness.<sup>14</sup>



## Conclusion

This paper analyzed the characteristics and stickiness of major banks' foreign currency deposits using granular data. The results confirm that major banks have employed various strategies to acquire foreign currency deposits while remaining mindful of profitability. Specifically, (1) while the suppression of large, high-interest deposits has led to average deposit balance per account becoming smaller and diversified, (2) the outstanding balance of transaction deposits has remained largely flat, and their amounts outstanding are limited especially among non-Japanese firms.

The results also indicate that deposit outflow rates

vary across depositor attributes, with large deposits and deposits of non-Japanese firms and financial institutions exhibiting lower stickiness. Furthermore, the results suggest that strengthening relationships with firms through acquisition of transaction deposits may contribute to enhanced deposit stickiness. Based on these findings, setting the outflow rate assumptions in consideration of depositor attributes can further enhance liquidity risk management. In this regard, major banks are validating the appropriateness of their assumptions by leveraging historical data. Such efforts toward refinement are consistent with the results of this analysis.

The granular data used in this paper include local currencies other than the U.S. dollar. Given geopolitical factors, it would be beneficial to use the granular data to enhance monitoring of local currency liquidity risk.

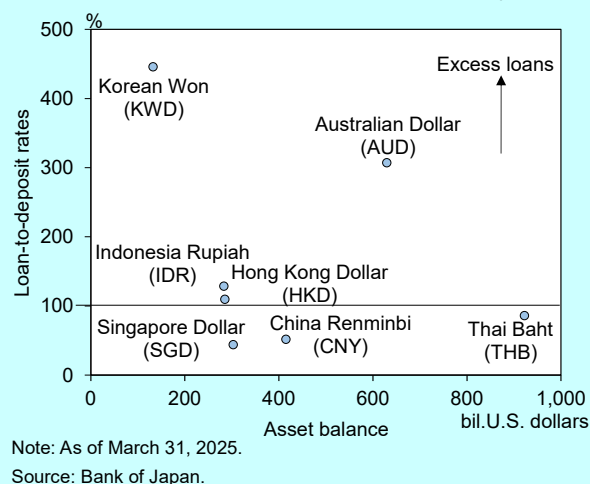
Going forward, it will be important to deepen discussions with major banks and foreign authorities, leveraging the findings of the analysis and related insights, in order to further enhance major banks' foreign currency liquidity risk management.

### BOX: Foreign Currency Deposits in Local Currencies

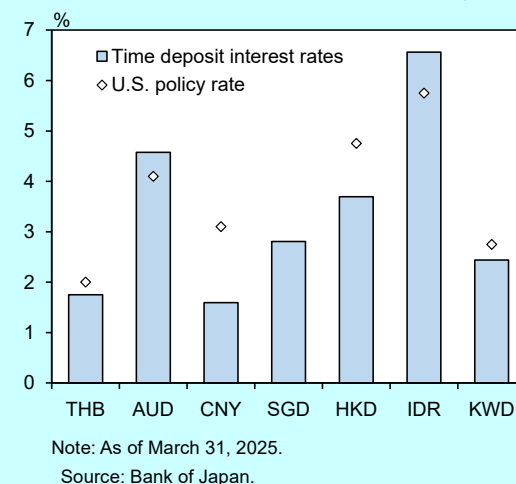
In recent years, major banks have expanded lending business in Asia, where high economic growth is expected. In fact, the loan-to-deposit gap by currency shows that some currencies exhibit significant excess lending. It is therefore desirable to obtain a more detailed understanding of the funding and investment structures associated with these currencies. For instance, in the case of the Australian dollar, which represents a relatively large asset size, the proportion of pension funds within individuals' financial assets is high, making it difficult to attract deposits. Therefore, from an economic standpoint, it is more rational to rely on foreign exchange swaps and repos rather than incurring high costs to attract deposits. Consequently, the loan-to-deposit gap exhibits significant excess lending (BOX Chart 1). Also, in certain parts of Asia, competition for large time deposits is intense, and considering the associated funding cost, it appears more difficult to increase deposits than to extend loans. If lending were to be further expanded in the regions, greater attention would need to be paid to the stability of funding sources and foreign currency liquidity risk (BOX Chart 2).

In this regard, with respect to local currencies, it is important to recognize country-specific factors—such as deposit insurance premium rates—and the competitive environment, but the use of granular data enables the analysis of depositors, dependence on large depositors for funding, and the stickiness of deposits.

[BOX Chart 1] Loan-to-Deposit Rates by Currency



[BOX Chart 2] Time Deposit Rates by Currency



\* Currently at the Information System Services Department

<sup>1</sup> Major banks in this paper are the three megabanks. Unless otherwise noted, figures in the charts show the totals of the three megabanks.

<sup>2</sup> According to the Senior Loan Officer Opinion Survey on Bank Lending Practices in the U.S. (SLOOS), lending standards for businesses tightened during the period of COVID-19, against a backdrop of heightened economic uncertainty. For more details,

see Federal Reserve's Financial Stability Report (November 2020).

<sup>3</sup> On May 1, 2023, the California financial authorities decided to sell First Republic Bank to JP Morgan under public control. In doing so, JP Morgan assumed the deposits from the FDIC, regardless of whether they are covered by deposit insurance, and certain other liabilities.

<sup>4</sup> For details on major banks' risk management efforts, see Financial System and Bank Examination Department, Bank of Japan, and Strategy Development and Management Bureau, Financial Services Agency, "Foreign Currency Liquidity Risk Management at Japanese Major Banks: Efforts and Enhancement," *Bank of Japan Review Series*, no. 2024-E-3, May 2024.

<sup>5</sup> Federal Reserve's Supervisory and Regulatory Report has made liquidity risk management a supervisory priority since the SVB collapse. The report states that Federal Reserve's supervision of Japanese major banks will focus on assessing their liquidity risk management, including whether conservative assumptions about deposit outflow rates have been made.

<sup>6</sup> Transaction deposits in yen are fully covered by deposit insurance and are not capped at 10 million yen, which also creates an incentive to maintain funds in transaction deposits.

<sup>7</sup> In this paper, "demand deposits" with deposit rates below 0.05% are defined as "transaction deposits" and all other deposits are defined as "interest-bearing demand deposits," which are automatically decomposed. Therefore, it should be noted that, after the COVID-19 outbreak in March 2020 until the Federal Reserve started raising interest rates in September 2022 when the policy rate remained low, the automatic decomposition in this analysis may not correctly identify "transaction deposits" and "interest-bearing demand deposits."

<sup>8</sup> For details on the foreign currency funding operations of major banks at the time of the COVID-19, see Aoki, R., Antoku, K., Fukushima, S., Yagi, T., and Watanabe, S., "Foreign Currency Funding of Major Japanese Banks," *Bank of Japan Review Series*, no. 2021-E-4, October 2021.

<sup>9</sup> The foreign banks operating globally have been aggressively investing in infrastructure to take advantage of economies of scale, and have provided services such as reduced system processing times for deposits and transactions, based on its high quality infrastructure systems. They are prioritizing system upgrades to comply with ISO 20022 by November 2025, and actively promoting transaction banking for Japanese firms to reduce costs and create business opportunities.

<sup>10</sup> Deposit rates offered by banks incorporate factors such as the outlook for the U.S. policy rate at each point in time. Thus, for example, the deposit rate at the end of August 2024 factors in a decrease in the deposit rate reflecting the increased expectations for a rate cut at the FOMC meeting the following month.

<sup>11</sup> The deposit outflow rate in this analysis is calculated as the ratio of the amount of deposits that actually flowed out during

the month to the total amount of demand deposits and time deposits maturing during the month (within 30 days).

<sup>12</sup> An overview of the historical average deposit outflow rates for non-financial corporations and financial institutions shows that the maximum outflow rate is about 20% for non-financial corporations and 40% for financial institutions, which are within the range of the outflow rate assumed by the LCR.

<sup>13</sup> As shown in Chart 11, the estimation model is based on the sum of interest-bearing demand and time deposits, the monthly outflow rate of deposits held by depositor  $i$  at bank  $b$  (a complete outflow corresponds to +100%, with outflows defined as positive) as the dependent variable. The panel estimated a two-dimensional fixed effects model (crossing  $i$  and  $b$ ) and monthly time effects for the relationship between each bank and depositor, using the interest rate spread for each depositor (the policy rate minus deposit rate), transaction deposit ratio (transaction deposits/total deposits) and deposit amount (logarithmic) as explanatory variables. The estimation period is from end-January 2019 to end-March 2025 (monthly), using unbalanced panel dataset comprising approximately 140,000 accounts at major banks (as of end-March 2025). To examine differences in interest rate sensitivity to deposit outflow rates by depositor attribute, the sample is divided by depositor attributes (Japanese firms and non-Japanese firms, non-financial corporations and financial institutions), and each is estimated independently. Regarding the sign conditions of the assumed explanatory variables, the relationship with the interest rate spread is as follows: the larger the spread between the policy rate and the deposit rate offered to depositors, the more likely deposits are to flow out (positive sign assumed); the higher the transaction deposit ratio—i.e., the stronger the relationship between depositors and banks—the less likely deposits are to flow out (negative sign assumed); and the larger the deposit size, the more likely deposits are to flow out (positive sign assumed). The estimation results for all samples and for each depositor attribute have shown that explanatory variables satisfy the sign conditions and are statistically significant. Standard errors are based on the cluster-robust method.

<sup>14</sup> Although the estimation results are not shown due to space limitation, the coefficient of deposit amount (logarithmic) in the estimation equation was found to be statistically significant and positive.

The Bank of Japan Review Series is published by the Bank to explain recent economic and financial topics for a wide range of readers. This report, 2025-E-8, is a translation of the Japanese original, 2025-J-4, published in June 2025. Views expressed are those of the authors and do not necessarily reflect those of the Bank. If you have any comments or questions, please contact Financial System and Bank Examination Department (E-mail : emu-fsbe51\_post@boj.or.jp). The Bank of Japan Review Series and the Bank of Japan Working Paper Series are available at <https://www.boj.or.jp/en/index.htm>.