[Member's Market View] Domestic Dollar Liquidity Analysis and Prospects: The Wind Rises at the End of the Green Clouds - A Compendium of Domestic Dollar Liquidity Indicators

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The U.S. Silicon Valley Bank bankruptcy event in the short term rapid fermentation, once again triggered the international market on the liquidity issue of concern, the ripples have not yet ended, the current U.S. dollar interest rates are still maintained at a stage of high, the liquidity risk prognosis can not be ignored.

Its characteristics. This paper will further analyze the path of foreign funds entering and depositing in the interbank market, summarize the quantitative indicators of domestic dollar liquidity to observe the source and use of domestic dollar funds, and introduce the existing indicators of dollar liquidity in the global market from a macro perspective, as well as the application of compilation of such indicators, and provide suggestions on alternative indicators of liquidity in the wake of the LIBOR rate reform. Finally, the paper briefly analyzes the potential ucture of the US dollar liquidity market, which current period of high interest rates.

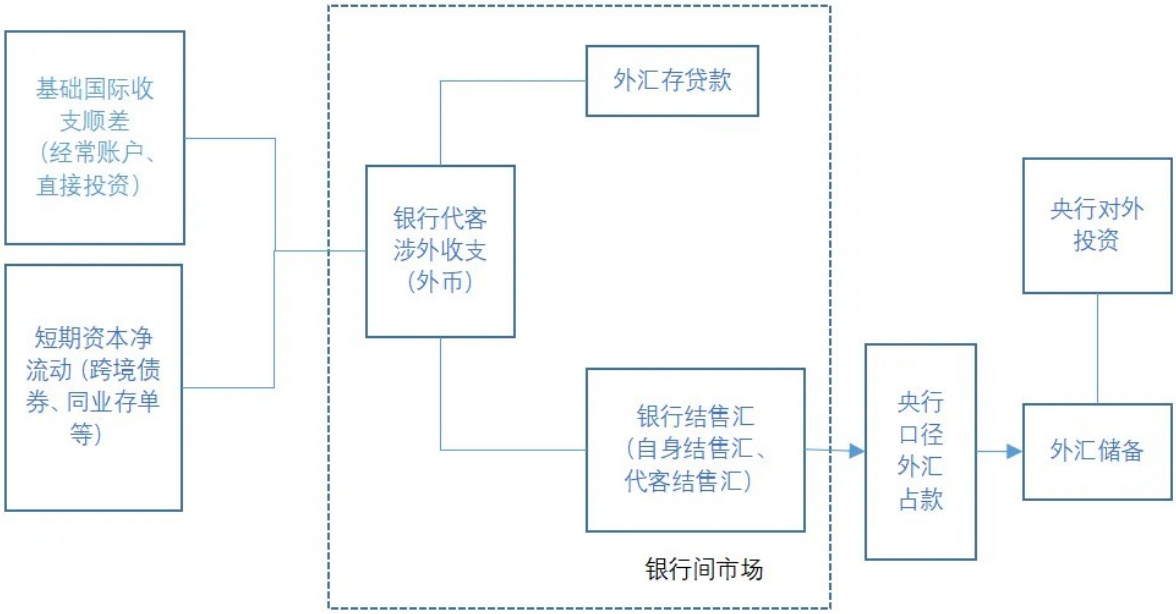
Analysis of the path of domestic dollar deposition

The global liquidity r than before, so it is recommended to keep a watchful eye on the situation.

Since domestic dollar liquidity is mainly retained within the domestic system of Chinese financial institutions, a brief inventory of the flow paths of foreign funds entering the country and depositing in the interbank market is used to roughly simulate the size of domestic and foreign currency funds, with a view to observing the characteristics of changes in domestic dollar liquidity. The main source of domestic dollars is the inflow of funds accompanying cross-border activities (trade, services and investment, etc.), part of which is in the form of foreign currencies, except for a small amount of cash held by enterprises and residents, and mainly flows into the inter-bank market, where itforms foreign exchange deposits after foreign currency-

related receipts of the banks, or directly settles the foreign exchange with the banks. Banks according to their own positions and needs and the central bank for leveling transactions, the domestic dollar further flow to the central bank caliber foreign exchange account and foreign exchange reserves.

Figure 1 Path of domestic and foreign currency flows



Data source: Author's compilation based on publicly available data

(i) Cross-border financial flows

1. Underlying balance of payments surpluses and short-term capital flows (based on balance of payments statements)

Domestic dollars are mostly financed by dollar income under trade and direct investment. Data from the Balance of Payments (BOP), published quarterly by the OFAC, can be used to observe the full range of activities of China's foreign trade and economic transactions over a certain period of time (note: it is more important than the customs and

The caliber published by the Ministry of Commerce is more in line with the path of funds deposited in the banking system; the foreign trade import and export data of the Customs caliber is a logistical concept that cannot be fully matched with the flow of funds; and the direct investment caliber of the Ministry of Commerce is not a net compilation and the statistics include such items as undistributed profits of direct investment enterprises.) The current account, capital and financial account, and net errors and omissions are included. The line items that mainly reflect cross-border financial movements are broadly summarized in two categories. The first is the primary balance of payments, which is the current account balance and the direct investment balance combined; the second is short-term capital flows, which comprise the current account balance and the direct investment balance.

including four items: portfolio investment, financial derivatives, other investment, and net errors and omissions. Among them, the net inflow of foreign capital in short-term capital is mostly in the form of cross-border RMB flows (note: according to the data of the RMB Internationalization Report and the China Monetary Policy Implementation Report, the proportion of RMB payments in other investments, financial derivatives and securities investments is estimated to be about 100% in 2022), and the overall impact on the deposit of domestic dollar liquidity is limited. In this paper, the underlying balance of payments indicator is chosen as one of the variables for the observation of dollar liquidity because of its overall limited impact on the deposition of domestic dollar liquidity. The statistical principle of balance of payments

data is accrual system, compiled in accordance with the debit and credit method, changes in the right of goods and capital changes correspond to each other, but capital changes may not necessarily produce cash receipts and payments in the same period, in addition to some statistics in the trade credit difference, the net error and omission under the net error and omission is difficult to distinguish between the overestimation of the current account surplus or underestimation of the capital account outflows.

2. **Foreign exchange account and foreign exchange reserves**

The foreign exchange account is the local currency investment formed by the purchase of foreign exchange by financial institutions.Before 2016, the domestic foreign exchange account indicators include **"** financial institutions' foreign exchange account**"** and **"**central bank caliber foreign exchange account**"**: foreign exchange inflows through cross-border channels such as trade surplus, through Foreign exchange inflows through cross-border channels such as trade surpluses, through the settlement and sale of foreign exchange behavior of enterprises and residents and banks to form the foreign exchange account of financial institutions; commercial banks in the inter-bank foreign exchange market and the central bank to carry out flat transactions, thus forming the foreign exchange account of the central bank, in addition, the central bank and the foreign currency transactions will also lead to changes in the foreign exchange account of the central bank caliber. **Therefore, the difference between the two mainly reflects the part of the financial institutions did not settle with the central bank,** with the change of China's foreign exchange control, the gradual abolition of the mandatory settlement and sale of foreign exchange system, the difference gradually increased, foreign currency funds deposited in the interbank market. 2016 onwards, only the central bank caliber of the foreign exchange account announced (Note: 2022)

At the end of the year, the volatility of the RMB exchange rate increased and depreciation pressure was high, and some commercial banks used RMB to replace foreign exchange to pay deposit reserves, leading to a steep increase in the central bank's foreign exchange account in the central bank's caliber). .

Compared with the foreign exchange account response to the historical valuation (for the local currency) of the cost of exchange, **foreign exchange reserves** will change with the exchange rate and the fluctuation of the price of the asset itself, reflecting the central bank's holdings of assets at the point of time of the statistics of the foreign currency. **The formation of foreign exchange reserves and the central bank caliber foreign exchange account is similar, but the market value of assets with the market fluctuations and investment gains and losses will lead to foreign exchange reserves and foreign exchange account difference.** In the balance of payments in the foreign exchange reserves reflects a certain period of time due to the transaction formation of reserve assets, is to remove the exchange rate, price and other non-transaction value changes in the flow of the concept, the foreign exchange bureau will also be announced every month the amount of the balance of foreign exchange reserves.

(ii) Interbank foreign exchange flows

1. Banks' foreign-related income and expenditures

Banks' external balances mainly refer to the inter-bank account transactions that accompany cross-border capital flows. The data of foreign-related balance of payments on behalf of banks and the data of foreign exchange settlement and sale on behalf of banks are generally of the same origin, and the main part of the funds in the two sets of data comes from the trade in goods under the current account and the direct investment under the capital and financial account, so the fluctuation of the two is basically the same. But there are also differences: First, some foreign exchange transfers (to complete the foreign-related balance of payments) will not be carried out after the settlement and sale of foreign exchange. Secondly, the currency of foreign-related income and expenditure statistics include RMB and foreign currencies, with the increase in the degree of internationalization of the RMB, the increase in the scale of direct settlement of import and export commodities in RMB, this type of transaction will be included in the foreign-related income and expenditure, but will not appear in the measurement of foreign exchange settlement and sale. Third, the settlement and sale of foreign exchange behavior by the RMB exchange rate and the impact of expectations, the residents will be for asset allocation and the settlement and sale of foreign exchange, if the foreign exchange does not cross the border through the account, will not be reflected in the foreign-related income and expenditure data. In addition, foreign exchange transactions such as foreign exchange for outbound travel will not appear in the foreign-related balance of payments (from the quantitative point of view, such transactions will not have a significant impact on the size of the

domestic dollar funds). From the perspective of balance of payments, the data on foreign-related receipts and payments are similar to the Balance of Payments in terms of compilation methodology, with the difference that the former adopts the capital receipt and payment system, while the latter adopts the accrual system, and there is a statistical mismatch between the two. At present, only the data on banks' foreign-related receipts and payments on behalf of their clients are published, and banks' own foreign-related receipts and payments are not available for the time being.

2. Bank settlement

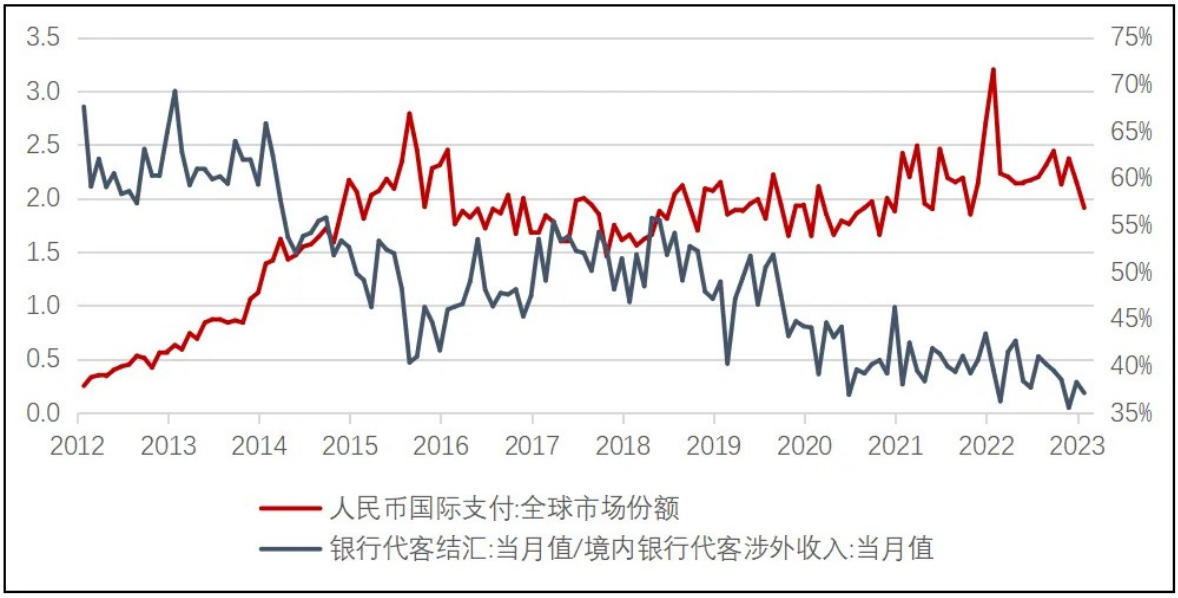
Bank settlement is an important indicator reflecting the supply and demand of domestic foreign exchange, which can be divided into its own settlement and sales and sales on behalf of customers, and the statistical point of time is when the exchange of RMB and foreign exchange occurs, which is the sum of the historical statistics. Because the banks' own balance of settlement and sale of foreign exchange usually fluctuates less, consisting of the banks' foreign bonus and dividend payment, capital injection of overseas branches, etc., and has limited impact on the scale of the domestic US dollar funds (only in the case of abnormal fluctuation of the settlement and sale of foreign exchange on behalf of the customer, which is used for balancing the position), the **banks' settlement and sale of foreign exchange difference is mainly dependent on the settlement and sale of foreign exchange on behalf of the customer.**

The difference between bank settlement and sale of foreign exchange and RMB exchange rate expectations showed a clear negative correlation, when there is a strong depreciation expectation of the RMB, the bank settlement and sale of foreign exchange deficit. However, since 2018, the two-way fluctuation of the RMB exchange rate flexibility has been enhanced, enterprises and residents of the exchange rate expectations are generally stable, irrational foreign exchange purchases and other trends are not obvious; Secondly, the impact of defaults, part of the financing environment for enterprises is relatively tighter, the foreign exchange deposits of non-financial enterprises is a decline in the situation, does not rule out the fact that some enterprises sell foreign exchange to take more into account their own needs for capital turnover, tends to close the foreign exchange in a timely manner, which also To a certain extent, this also makes the settlement deficit narrow. In addition, the widespread use of RMB payments also has a certain impact on foreign exchange settlement. The ratio of valet settlement rate (the ratio of banks' valet settlement to valet foreign income) is clearly related to the share of RMB cross-border payments, and ignoring the difference in the caliber of settlement and foreign income and expenditure, it can be roughly seen that residents' willingness to settle foreign exchange decreases along with the wide application of RMB international payments.

Figure 2 Bank Settlement Balance (USD billion) and RMB Exchange Rate (Right Axis)

Source: Wanderers, Bank of China, below.

Figure 3 Valet settlement rate (valet settlement/valet foreign income, right axis) and share of RMB cross-border payments (%)



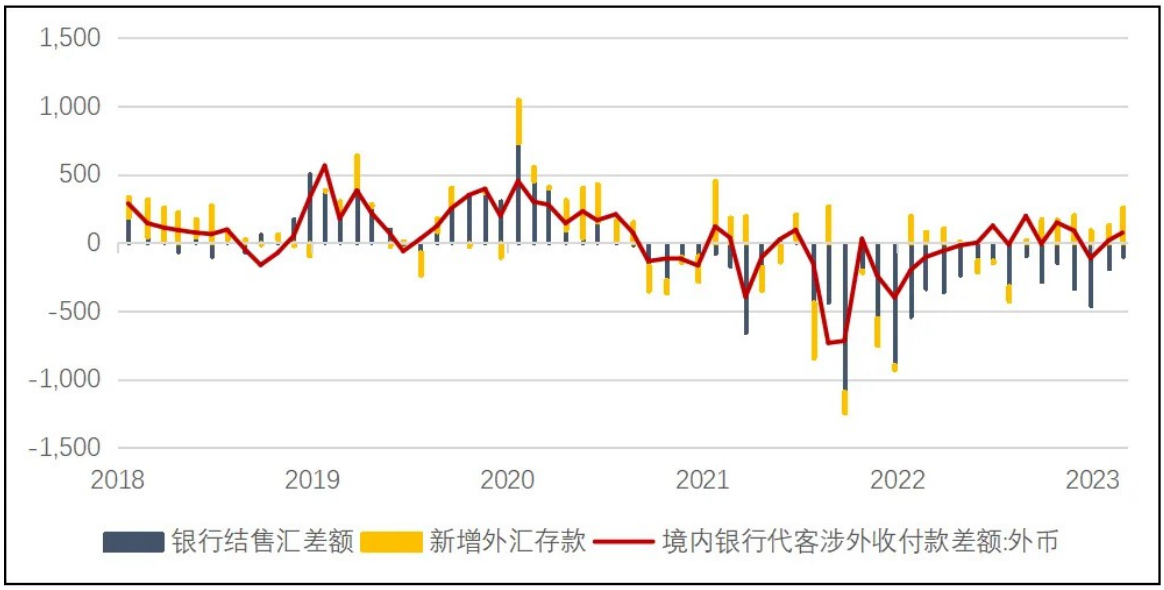
As can be seen from the above, the data on bank settlements and sales of foreign exchange mainly reflect the concept of "exchange", while the data on foreign receipts and payments better describes the " cross-border" financial behavior.

3. Foreign currency deposits and loans

Part of the foreign exchange funds will be deposited in commercial banks after entering the country, forming foreign exchange deposits; banks will issue foreign exchange funds as loans, which are foreign exchange loans. The scale of foreign exchange deposits is much lower than the scale of foreign exchange account, for commercial banks, foreign exchange deposits are liabilities, foreign exchange account is an asset. Foreign exchange deposits

and loans and the dollar interest rates and exchange rate trends related, usually, in the dollar interest rates higher, the dollar appreciation is expected to be stronger period, domestic enterprises and individuals tend to increase the dollar assets and reduce the dollar liabilities, there will be a rise in the size of the dollar deposits and the size of the dollar loan down phenomenon, deposit and loan spread positively expanding (or negatively contracted); On the contrary, the dollar deposit and loan spread narrowed or even negative. In terms of the amount, the difference between foreign currency-related receipts and payments on behalf of banks and foreign exchange deposits of financial institutions in the same period of time and the sum of the surplus of foreign exchange settlements and sales on behalf of banks, in line with the path of the inter-bank flow of U.S. dollars as described above.

Chart 4: Trends in the cumulative value of the difference between banks' foreign-currency customer-related income and expenditure and the difference between banks' foreign-currency settlements and new foreign-exchange deposits over the same period (in billions of U.S. dollars)



Analysis of United States dollar liquidity reference indicators

Since Chinese dollar liquidity is mainly retained among domestic financial institutions, according to the analysis of the dollar sedimentation path, this paper mainly chooses three indicators to approximate the simulation of the changes in the size of the domestic interbank dollar pool.

1. **Quantitative indicator I: "Base balance of payments - foreign exchange reserves"**

The indicator is based on the balance of payments statement and models marginal changes in the size of the domestic pool of United States dollar funds from sources. Owing to the low frequency of publication of the underlying indicators (quarterly and annually) and the fact that foreign exchange reserve statistics are affected by asset price fluctuations and exchange rates, the magnitude and frequency of changes in quantitative indicator 1 are high, making it difficult to detect changes in the size of the pool of funds in a timely and accurate manner.

2. **Quantitative Indicator II: "Banks' Foreign Currency Chargemaster Balance - New Foreign Exchange Accounts"**

The marginal change in the domestic dollar pool is roughly measured by subtracting the path of the final foreign exchange account from the total source of domestic dollars in the interbank market, and is updated on a monthly basis. Compared with the first quantitative indicator, the second indicator removes the direct flow of foreign funds to enterprises and residents without banks, as well as the impact of foreign reserves on asset values, earnings and exchange rate fluctuations, etc., so as to more accurately and timely reflect the changes in the size of US dollar funds in the interbank market.

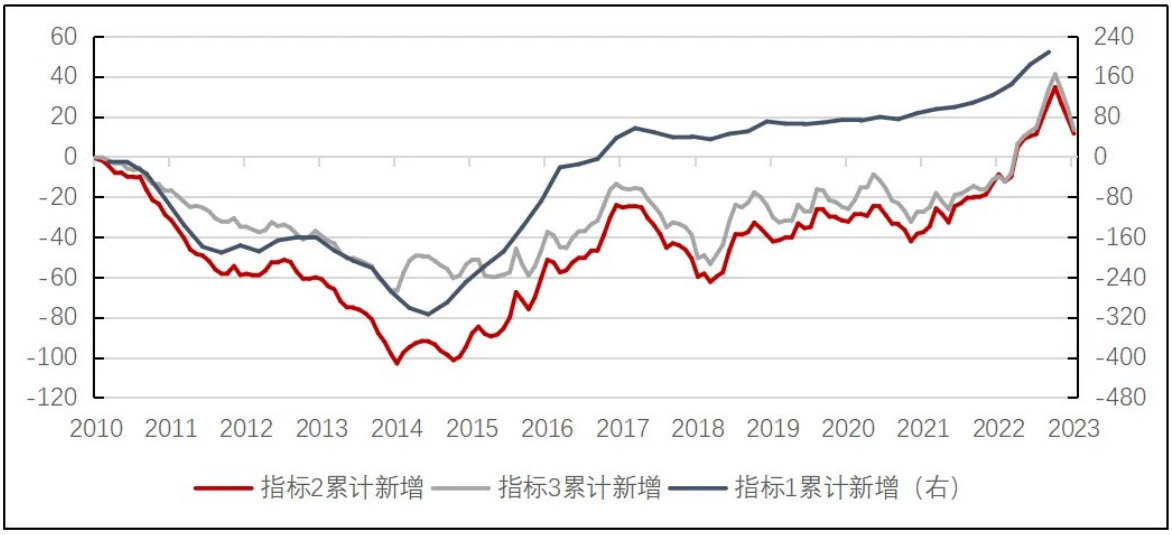
3. Quantitative Indicator III: "New financial institutions' foreign exchange reserves - new central bank-caliber foreign exchange reserves + new foreign exchange deposit and loan balances"

As the difference between financial institutions' foreign exchange account and the central bank's foreign exchange account is the part that financial institutions have not cleared with the central bank, the sum of the changes in the foreign exchange deposit and loan difference can represent the changes in the interbank US dollar funding pool. 2016 before the announcement of the new size of financial institutions' foreign exchange account and the difference between the bank's foreign exchange balance and the trend of the similar (see Figure 5), so when measuring the size of the US dollar funding pool, you can use the bank balance to approximate the replacement of the financial institutions' foreign exchange account. Therefore, when measuring the size of the U.S. dollar pool of funds, can use the bank balance of foreign exchange approximate alternative to the financial institutions caliber foreign exchange account, that is, the calculation of the "bank balance of foreign exchange - new central bank foreign exchange account + new foreign exchange deposit and loan difference", hereinafter referred to as "quantitative indicators of three. But in fact, the foreign exchange account will be directly affected by the inter-bank foreign exchange transactions, while the bank settlement and sale of foreign exchange will not. As can be seen from the formula, indicator three and indicator two of the number of

The volume gap is equal to the difference between banks' foreign-related receipts and payments and the sum of banks' settlements and new foreign exchange deposits and credits, so the difference between the two volumes is not large.

Chart 5: Proximity of the difference between bank balances and the change in financial institutions' foreign exchange account (billions of dollars)

Figure 6: Changes in the United States dollar pool as measured by the three quantitative indicators (in billions of United States dollars)



According to the results, the volatility of indicator 1 is much larger than that of indicators 2 and 3, and the volatility of new and accrued amounts is about four times that of the other indicators. The trends in the size of the domestic dollar pool as depicted by the three types of quantitative indicators are consistent, with a contraction in the size of the domestic dollar from 2010 to 2015, ranging from 1 to 3 trillion dollars, and a contraction from 2021 to 2015, with an increase in the size of the domestic dollar pool of about 1 to 3 trillion dollars.

In the third quarter of 2022, the loose monetary policy of international central banks during the epidemic caused the world to face abundant monetary

liquidity, and China's advantage in net exports and interest rate differentials made the "water reserves" in the domestic US dollar pool of funds begin to accelerate, rapidly increasing by about 5,000 to 1 trillion US dollars in less than two years. Starting from November 2022, import and export trade will fall back due to the contraction of overseas demand, coupled with the rise in the center of the domestic RMB funding rate, and the domestic US dollar funding will tighten.

(i) Interest rate indicators

On the macro side, we have chosen to present three major indicators commonly used in international markets to observe liquidity in the US dollar market, all of which are interest rate indicators.

1. **Interest Rate Indicators I: Reference Indicators for Measuring Credit Stress: LIBOR-OIS Spreads**

LIBOR is the London Interbank Offered Rate for U.S. dollar financing, which is formed by quotes. 3-month LIBOR is usually used as a benchmark for U.S. dollar loans and debt financing, and is the floating end of interest rate swaps within the U.S., which has a direct impact on both corporate financing and interest rate risk hedging; overnight indexed swaps (OIS) are interest rate swaps that exchange the geometric mean of the fixed interest rate and the floating interest rate for a certain period of time. The OIS rate usually refers to the fixed rate in the corresponding maturity swap contract, and the short end of the floating rate is usually the FED Fund Rate (EFFR) or SOFR (Note: In the case of a USD 3M OIS swap, the floating rate end is the actual daily FED Fund Rate or SOFR, which is compounded daily and settled at maturity three months later).) . Because the OIS price is a real marketable price and provides a more accurate level of risk-free interbank lending rates, the market uses the 3M LIBOR-OIS spread as a reference indicator of credit market tightness and as a measure of the global cost of U.S. dollar borrowing and lending, including pressures on the cost of U.S. dollar financing for the corporate sector. If the spread continues to widen significantly, it could signal: first, a decline in banks' willingness to lend (either because of funding constraints or an increased risk of assessed counterparty defaults) and a rise in uncertainty about the path of the Fed's monetary policy; and, second, a spike in the cost of corporate financing or a rise in the cost of hedging corporate interest rate exposures. The gradual decline in credit market liquidity is seen as a signal of potential economic tightening.

2. **Interest Rate Indicator II: Measure of liquidity: TED spread (LIBOR3M-US three-month Treasury yield)**

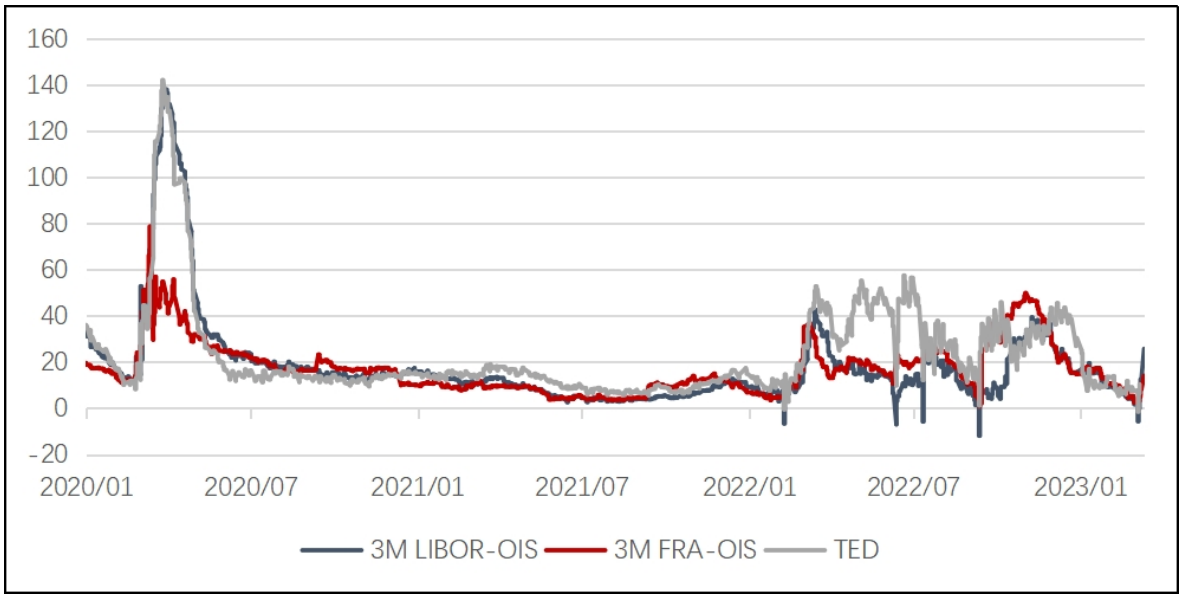
The TED spread is the difference between the 3-month USD LIBOR and the yield on U.S. bonds of the same maturity, which is used to measure the difference between the lending rate and the risk-free rate in the international financial market, reflecting the market liquidity situation. When the market volatility amplitude, the international financial market risk aversion rises, investors will tend to buy basically risk-free U.S. Treasury bonds, for market borrowing activities tend to require higher returns, so that the market tends to tighten the supply of funds, the LIBOR will rise accordingly, TED spreads appear to expand; on the contrary, when the TED spread is narrowed, on behalf of the gradual reduction of market risk, the funds tend to be loose.

3. **Interest Rate Indicator III: Measure of Expectations for Funding Liquidity: FRA (Forward Rate Agreement) and OIS Spreads**

Forward Rate Agreements (FRAs) are contracts in which two parties (mostly financial institutions) agree to exchange a fixed interest rate for a reference floating interest rate for a specified period of time in the future, and settle

the difference at the end of the contract, usually using LIBOR or SOFR as the reference interest rate. For example, USD FRA 3M IMM1 represents the level of 3M interest rate one month from now; 3M OIS roughly reflects the level of the risk-free rate; 3M FRA-OIS spread represents the cost of borrowing funds in the future; when the market expects LIBOR to rise in the future, there may be a shortage of funds in the financing market, and the worse the liquidity of the U.S. dollar, the higher the risk premium demanded by the market, which will push up the spread between FRA and OIS. Historically, FRA-OIS tends to lead LIBOR-OIS.

Figure 7: Dollar liquidity as measured by three types of interest rate indicators (BP)



Source: Bloomberg, Bank of China, same below

At the beginning of the epidemic in March 2020, the TED spread and the LIBOR-OIS spread climbed to around 140 BP and the 3M FRA-OIS rose to nearly 80 BP due to concerns about credit conditions and the expectation of increased market volatility.2022 As the Federal Reserve began to tighten monetary policy, all three interest rate indicators rose at the point of interest rate hikes, and US dollar liquidity tightened; in particular, the TED spread remained high, suggesting that US Treasuries attracted large amounts of US dollar funding after interest rate hikes, and interbank borrowing costs rose further. The TED spreads, in particular, remained high, indicating that after the rise in interest rates, U.S. Treasuries attracted a large amount of U.S. dollar funds, and the interbank borrowing costs of banks rose further.2023 On March 9, 2023, the Silicon Valley bank had a sudden liquidity crisis, which became the largest bank to announce its closure in the U.S. since the financial crisis of 2008, which triggered the market turbulence, and the fermentation of the market's risk aversion sentiments, and more investors invested their funds in risk-free assets, and more investors invested their funds in risk-free assets. The market turmoil triggered a fermentation of risk aversion in the market, with more investors investing in risk-free assets, tightening liquidity in the market, and a significant rise in all three interest rate indicators.

(ii) Preparation of risk reference indicators

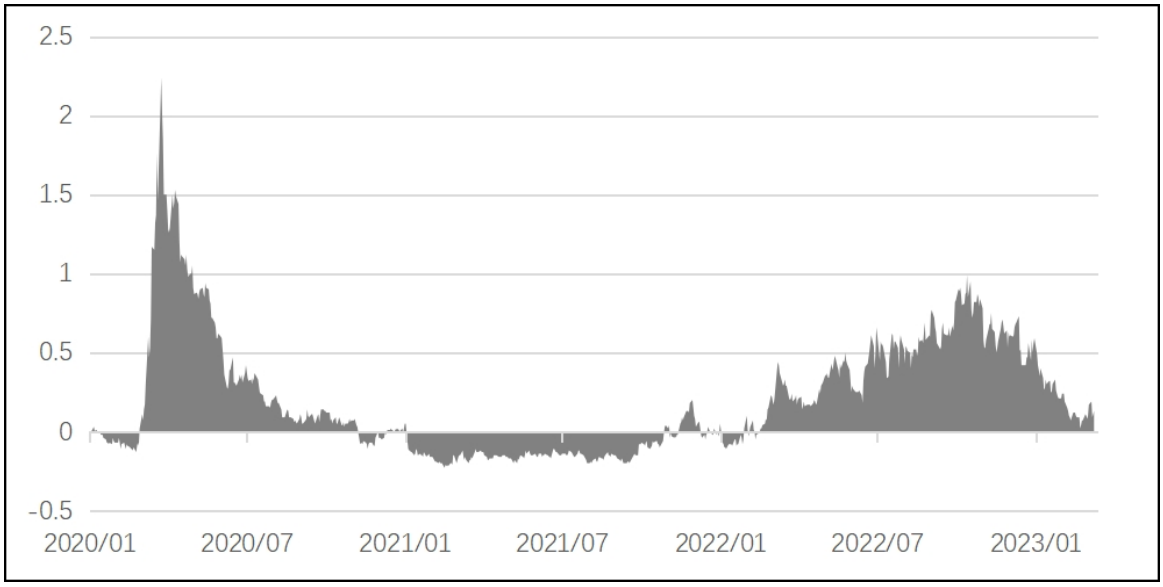
1. Composite indicator I: Bank of America compilation of the Global Liquidity Risk Index (BofA Securities GFSI Liquidity Risk)

The Liquidity Risk Index was developed by Bank of America to measure the global cross-asset risk index GFSI (Note: Launched by Bank of America in November 2010, the GFSI includes Market risk, Solvency risk, and Liquidity risk. It covers the measurement of financial risk, the need for risk aversion, and the level of investor risk appetite in five major markets: credit, equity, interest rate, foreign exchange, and commodities.) A sub-category of

The standard, which is primarily used to measure the pressure to raise capital in the global financial system, is greater than 0 or less than 0, which represents a higher-than-normal level of financing, respectively.

The extent to which funding pressures increase or decrease. The liquidity risk index is calculated by using the spread between government bond rates and OIS, the spread between Libor and OIS, the U.S. and European 3yr/5yr corporate credit curve, the U.S. and European 5yr CDS-Bond basis, and the Basis Swap spread between the U.S. dollar and the euro. The liquidity index is calculated from the charts of the US and European 5 yr CDS-Bond basis, and the Basis Swap spread between the US dollar and the euro. The Liquidity Risk Index follows the trend of the interest rate indicators mentioned above, with liquidity tightening in the first half of 2020 and after 2022, and a significant increase in funding pressures on the global financial system. The index does not only cover USD liquidity risk, but also partly reflects the level of global credit and US/EU spreads, so at some points, the Global Liquidity Risk Index differs slightly from the pure USD interest rate category.

Figure 8: Global liquidity risk index compiled by Bank of America

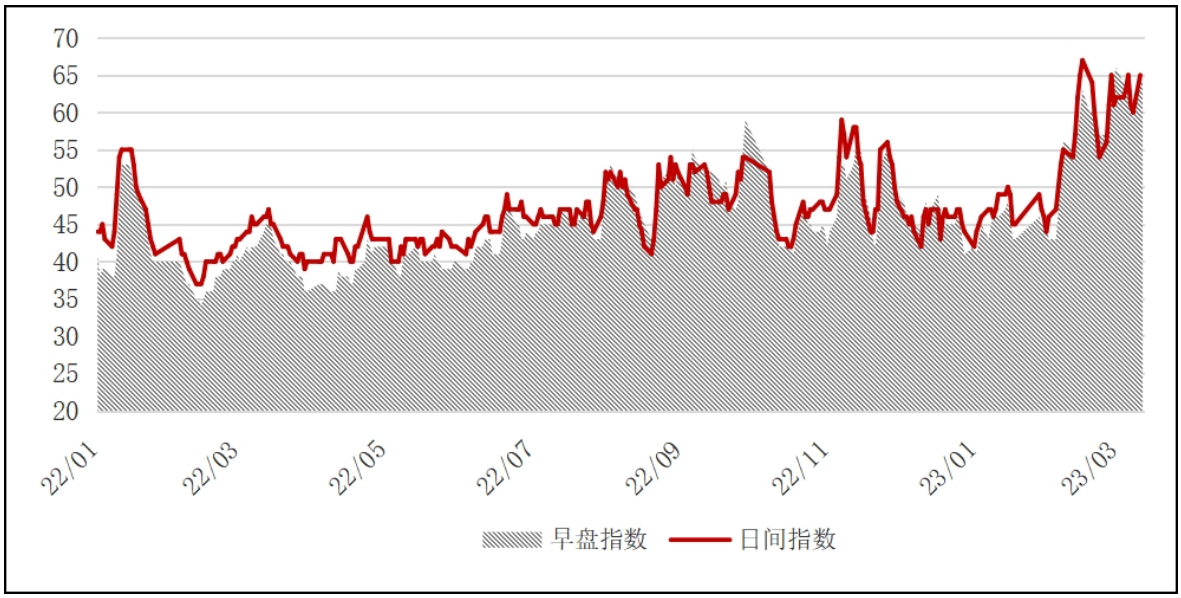


2. **Composite Indicator II: CFETS Interbank Dollar Borrowing and Lending Funding Sentiment Index**

Domestic US dollar flows are mainly influenced by the onshore US dollar interest rate and the US-China interest rate differential, in addition, the utilization of funds by domestic financial institutions has a more significant impact on the domestic liquidity market. In order to measure the domestic USD lending sentiment, CFETS and Shanghai International Money Brokerage Company (SIMBC) converted the USD lending and borrowing situation of each maturity into an index of 0-100 according to a certain weighting based on the information of foreign currency lending and borrowing transactions and quotations (the morning index), with 50 as the equilibrium value, and the higher the value of the index represents the more tense the situation of the USD funding situation within the Chinese territory. Later on this basis, the index is optimized by combining the supply and demand situation in the domestic and foreign markets and the changes in the day-to-day funding situation to add a new day-to-day index. From Figure 9, it can be seen that in the first half of 2022, US dollar lending sentiment was oscillatory and loose, and in the second half of the year, especially after November, year-end domestic US dollar funding liquidity tightened, and lending pressure increased. Since February this year, US dollar lending sentiment has tightened, or the following factors: First, the Fed rate hike is expected to heat up, the US dollar and US bond yields have risen to the highest level since the beginning of this year, which has been transmitted to the domestic US dollar market, resulting in a tightening of domestic US dollar funds; second, the domestic currency market has converged at the margins, and the center of funds interest rates has risen, triggering an increase in the demand for domestic US dollars in the swaps market; third, the import and export trade of China has improved at the margins in January and February, but year-on-year is still negative, and the domestic US dollar liquidity has increased. year-on-year still negative, the size of the domestic dollar pool decreased (see Figure 6). After

the outbreak of the Silicon Valley Bank incident, the US dollar lending sentiment index rose from 61 on March 9 to 65 on March 13, and the pressure on domestic US dollar lending increased steeply.

Figure 9: CFETS Interbank Dollar Borrowing and Lending Funding Sentiment Index



Source: Foreign Exchange Trading Center, Bank of China

Comparison of the application of liquidity indicators

(i) Characterization of indicators

Combined with the characteristics of the dollar liquidity measurement indicators listed in this paper, the comparison concludes that: first, from the perspective of update frequency, interest rate indicators, composite indicators > quantitative indicators two and three > quantitative indicators one, for black swan events similar to Silicon Valley Bank, the higher the frequency of the indicators the more sensitive, the more timely the data changes; second, China's domestic dollar funds at the same time subject to the global dollar market and the domestic economic and trade environment Secondly, China's domestic dollar funds are affected by both the global dollar market and the domestic economic and trade environment (see the previous article in this series for details), and the use of global liquidity indicators alone does not accurately reflect the situation of the dollar liquidity in China. Third, with the acceleration of the conversion of global benchmark interest rates, LIBOR and other quoted interest rates will be gradually withdrawn, the market is more familiar with the LIBOR-based calculation of interest rate liquidity observation indicators are also facing substitution, and its candidate interest rates or indicators are worth paying attention to.

Table 1 Comparison of dollar liquidity measures

	计算规则	更新频率	应用市场范围	优点	缺点
数量指标一	基础国际收支-外汇储备	季度、年度	我国境内美元	从数量上直观看出我国境内美元资金池规模的边际变化	波动幅度大，更新频率低、实际滞后，受人民币汇率及资产价格变动的影响较大
数量指标二	银行外币代客涉外收支差额-新增外汇占款	月度	我国境内美元		更新时间滞后，可用于回顾市场，对突发流动性事件无法及时体现
数量指标三	银行结售汇差额-新增央行外汇占款+新增外汇存贷款差额	月度	我国境内美元		
利率指标一	LIBOR-OIS（3M）	日度	全球美元市场	及时反应全球美元市场流动性变化	LIBOR即将被替换，需选择合适的利率替代
利率指标二	LIBOR-美债收益率（3M）	日度	全球美元市场		
利率指标三	FRA-OIS（3M）	日度	全球美元市场		
综合指标一	美国银行编制	日度	全球金融市场		计算方式不透明
综合指标二	CFETS与上海国际货币经纪公司编制	日度	我国境内美元	及时反应我国境内美元市场资金市场情绪	

From the current performance of liquidity indicators, the dollar liquidity market tightened slightly but the overall in the normal range of oscillation, the state is still stable, anddid not such as stocks, bonds, foreign exchange and other markets by the Silicon Valley Bank event appeared large fluctuations, it can be seen that the event has not spread to produce a systemic impact. But the market for the second half of the Fed's expected path of interest rate hikes have been quickly adjusted, the OIS market has been fully

priced Fed March and May each 25BP interest rate hike, and once again expected to appear in the year the possibility of interest rate cuts.

(ii) Analysis of alternative indicators following the reform of the prime rate

This section briefly analyzes two alternative indicators of the Libor rate and their respective advantages and disadvantages in calculating a measure of the global dollar liquidity rate indicator.

1. Alternative indicator I: Forward-looking secured overnight financing term rate (Term SOFR)

Term SOFR is a forward-looking term rate calculated by CME Group based on the implied expectations of the SOFR derivatives market (with reference maturities of one, three and six months) and has been adopted by the New York Federal Reserve and the ARRC (Alternative Reference Rates Committee). The forward-looking term rates adopted by the Newburgh Fed and the ARRC (note: the Alternative Reference Rate Committee), particularly in the context of multi-lender financings, middle-market lending and trade finance lending, are more consistent with the trading practices and requirements of commercial lending activities. However, the widespread use of term rates in the lending market would affect the trading of derivatives related to the SOFR (Secured Overnight Financing Rate), which in turn would affect the pricing of the SOFR term rate, thereby undermining the robustness of the SOFR overnight rate and the term rate. As a result, term rates are limited in their use in the vast majority of derivatives markets.

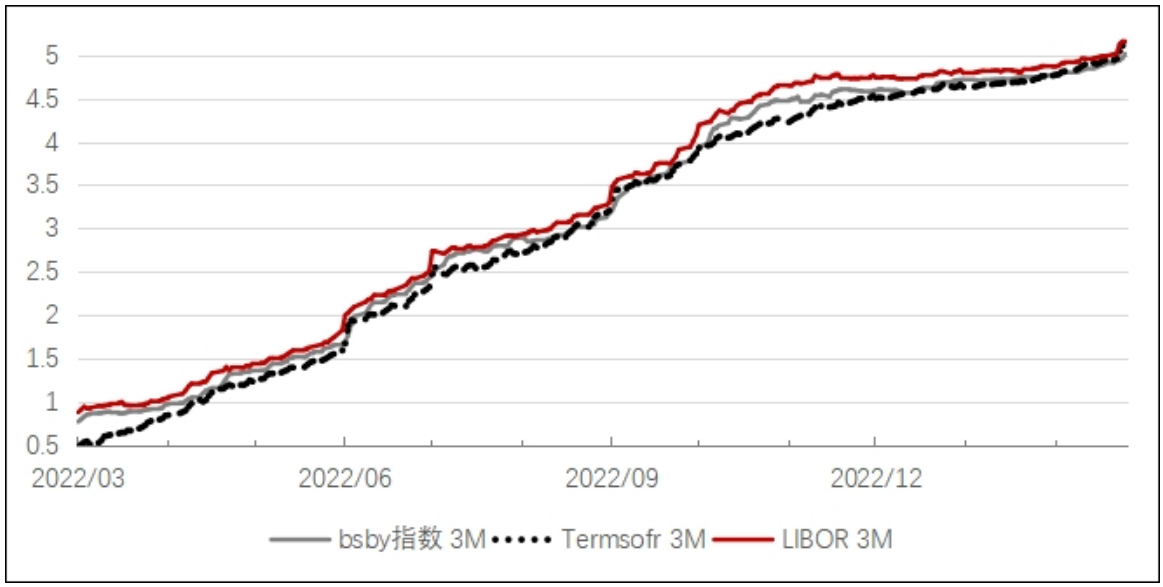
2. Alternative indicator II: short-term credit-inclusive sensitivity index (BSBY)

The BSBY complements the SOFR to meet the market's need to replace the credit component of the original LIBOR. Bloomberg launched the Bloomberg Short Term Bank Yield Index (BSBY), which uses a curve-fitting methodology to calculate overnight, one-month, three-month, six-month and 12-month yields for five maturities. The index is based on a combination of anonymized data, primarily from trades and executable quotes from Bloomberg Electronic Trading Solutions and short-term senior bank corporate bond trading data reported by FINRA. The rate is broadly in line with the level of LIBOR volatility. BSBY is currently activated and authorized for use as a benchmark for lending products in the U.S., but is not currently available for use as a benchmark under the U.K. Benchmarks Regulation (BMR), nor for use as a benchmark in the United Kingdom.

In summary, Term SOFR represents the level of collateralized risk-free interest rate, while LIBOR or BSBY represents the level of interbank unsecured lending rate, so the difference between the two indicators may reflect to a certain extent the level of financial institutions' credit risk premium and willingness to borrow. From the historical trend of the two alternative indicators, Term SOFR has relatively smooth fluctuations, and may not be able to fully reflect the credit spreads of financial institutions and market liquidity conditions in the context of market turbulence; while BSBY, although the trend is consistent with that of LIBOR, has not been authorized for use by the world's large-scale regulators, so both alternative indicators

are not perfect, and it is recommended to use them in combination as a reference.

Figure 10: BSBY/Term SOFR Alternative Libor Measurement Liquidity (%)



Source: Bloomberg, Bank of China

Potential points of risk or impact of the dollar liquidity market structure

The ripples caused by the Silicon Valley incident may not be over, the current dollar interest rates are still maintained at a stage of high, liquidity risk prediction can not be ignored.

Over the past year, as global interest rates have risen, financial risks are being exposed, and many financial events have erupted around the world, such as the UK pension risk, the Credit Suisse fiasco, cryptocurrency events, and real estate fund foreclosures, etc. With the conversion of the benchmark interest rate, the pricing of collateralized financing has reduced the market's credit risk to a certain extent, but the endogenous risk of liquidity markets may have a more significant impact on market stability and will indirectly guide monetary policy decisions. indirectly guide monetary policy decisions.

During the current period of high interest rates, the US dollar liquidity market is highly volatile. Currently, the U.S. onshore liquidity market is dominated by repo transactions (see the previous article in this series for details), which is equivalent to "monetizing" collateral (mostly U.S. bonds), and once the collateral assets are exposed to market risk, it will easily trigger a liquidity crisis that will be transmitted to the entire financial market. For example, when U.S. bond yields rise, the discount rate of U.S. bonds as collateral will rise, and the rising demand for margin calls will lead to a widening of the gap between the dealer's cash financing, especially when the collateral is a long-lived asset, both sides of the transaction will face simultaneous liquidity pressures, especially when there is a high degree of leverage, and the slightest change in Treasury yields may cause significant liquidity risks. In the event of a default, the sale of collateral by the financial lender of the repo transaction may lead to a further deterioration of liquidity, which inturn may drive down the price of long-term treasury bonds (and push up yields), and ultimately create a vicious cycle of liquidity. Looking back at recent history, whether it is the SVB or the March 2020 Treasury yield spike, the logic behind is very similar, once the market liquidity spiral, the market is difficult to self-heal, the monetary authorities have to intervene, including the introduction of emergency liquidity support tools, medium-term adjustments to monetary policy, or even changes in regulatory requirements, and so on.

In the late stage of sharp rate hikes, global liquidity risk may spread faster than before. The current onshore and offshore dollar market has been highly integrated, the Federal Reserve's monetary policy will directly affect the global offshore dollar market (see above for details), when the onshore

dollar market liquidity will tighten when the global dollar financing premium will rise, and at the same time, should not be ignored that the financing or liquidity pressures will be through the layers of conduction of counter-suppression of the dollar onshore market: first, the sharp rise in the premium for overseas dollar financing to inhibit the market investment and operations

（As a result of this activity (and impaired asset valuations), financial institutions will sell assets to secure liquidity, further triggering a sharp fall in asset prices. Secondly, a higher dollar financing premium may create a risk-taking sentiment in the market. As a result of the high dollar financing premium, overseas investors investing in U.S. assets will experience lower overall returns due to higher exchange rate hedging costs. In order to compensate for the loss, institutions may buy more long-dated risky assets or use higher leverage, further increasing market instability. Third, a high dollar financing premium means higher dollar hedging costs, which will cause overseas investors holding dollars to reduce their foreign exchange hedging ratios. With the rapid interest rate hikes, the continued rise in the US dollar exchange rate may put pressure on some unhedged foreign exchange positions to be repaid, and overseas investors may sell their assets to pay off the US dollar. If overseas investors sell their own assets, this will lead to a liquidity crunch in their home markets and capital outflows. If an investor sells US dollar assets, whether offshore dollar-denominated assets or onshore dollar-denominated assets, the margin call requirement and the panic caused by the sale of the assets itself will create a liquidity shock in the US financial market.

"US Dollar Liquidity Analysis and Outlook" Recent Review

- The tide rises, the sky is wide.