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# The Structure of Base Money Supply and Liquidity Stratification—Also on the "Mystery of Liquidity Disappearance" in Innovative Monetary Policies

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# Research Background

## Policy Background

- The Third Plenary Session of the 20th Central Committee of the Communist Party of China explicitly proposed "advancing the great rejuvenation of the Chinese nation through a Chinese path to modernization" and "deepening the reform of the financial system." Building a modern central banking system is regarded as the "linchpin" of a modern financial system. The development of a modern central banking system requires improving the base money supply mechanism and the money supply control mechanism.
- In recent years, China's monetary policy has adhered to a "self-determined" approach to regulation (Yi Gang, 2023). Innovative monetary policy tools have been gradually introduced, leading to significant structural changes in the base money supply mechanism.

# Research Background

## Real-World Context

- Changes in the structure of base money supply not only reflect alterations in the mechanism through which the central bank injects base money (the primary distribution of liquidity) but also fundamentally reshape the landscape of market liquidity allocation. This significantly impacts the re-distribution of liquidity within the banking system (interbank liquidity transactions).
- Particularly following the introduction of innovative monetary policy tools, a more pronounced phenomenon of liquidity stratification has emerged in the interbank market.
- Large banks have become wholesalers of funds, while smaller banks are primarily borrowers of funds (Wang Xi and Jin Zhao, 2021). The difficulty for small and medium-sized banks in obtaining liquidity is far greater than for large state-owned banks, which, to some extent, impedes the transmission of liquidity from the central bank.

# Research Background

## The "Structural Effect" of Innovative Monetary Policies

- The central bank has actively used innovative tools to inject liquidity into the banking system, ensuring overall ample liquidity while effectively maintaining stability in the interbank market. This approach has successfully navigated multiple episodes of "cash crunches" and averted potential liquidity crises.
- However, due to its differences from the foreign exchange purchase mechanism—the previous primary method of base money supply—this approach has also altered the structure of base money supply.
- The structural effect of innovative monetary policies is primarily reflected in how these policy tools change the structure of base money supply, thereby further influencing the banking system's liquidity structure (liquidity stratification).

# Research Background

## "The Mystery of Disappearing Liquidity"

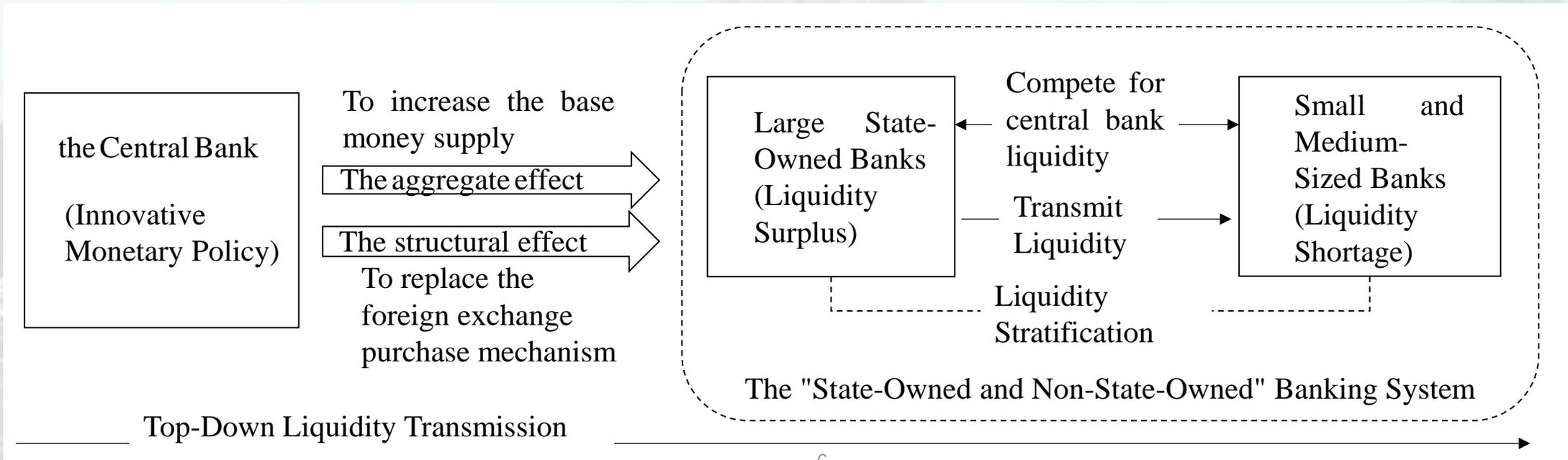
- As central banks increasingly adopt innovative monetary policies to inject liquidity into the real economy more rapidly, the "mystery of disappearing liquidity" has attracted significant attention among Western scholars (Copeland et al., 2021; Correa et al., 2021; Acharya and Rajan, 2022; Diamond et al., 2024).
- Acharya and Rajan (2022) pointed out that despite the Federal Reserve System expanding its balance sheet through quantitative easing and supplying more liquidity to the financial system than required by the private sector, banking institutions—particularly medium-sized regional banks—still faced severe liquidity shortages.

This phenomenon raises the critical question: **“Where did all the liquidity go?”**

# Research Background

## The Chinese Characteristics of the “Mystery of Disappearing Liquidity”

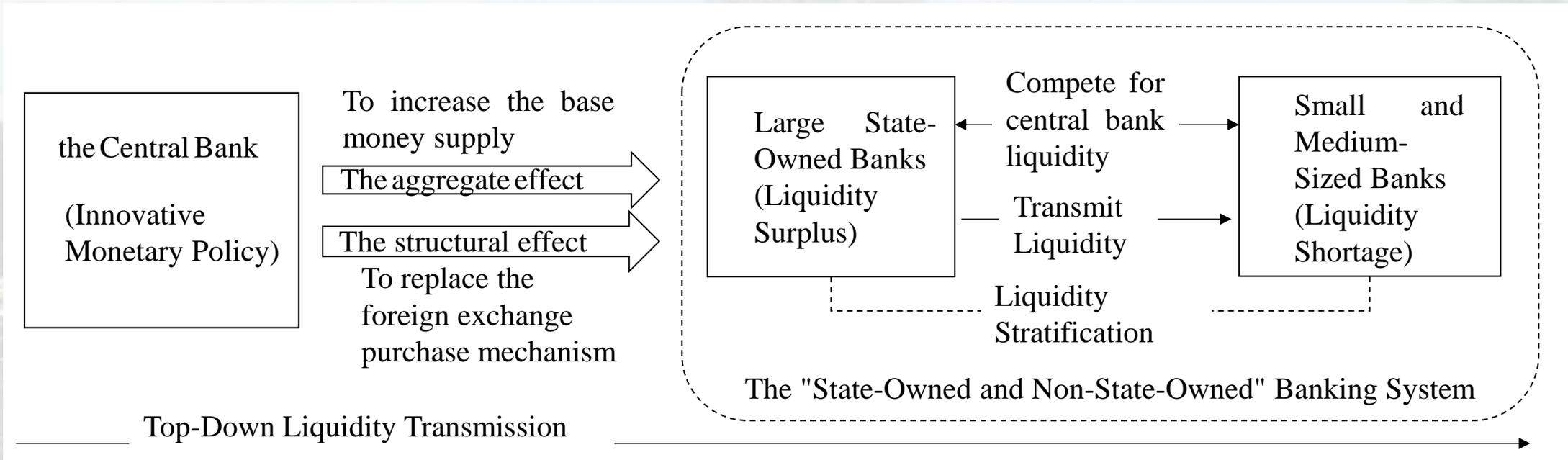
1. There are differences in the implementation of innovative monetary policies. China primarily relies on the central bank’s innovative monetary policy tools to inject liquidity through relending programs. While this increases the base money supply, it also alters the structure of how base money is distributed.



# Research Background

## The Chinese Characteristics of the “Mystery of Disappearing Liquidity”

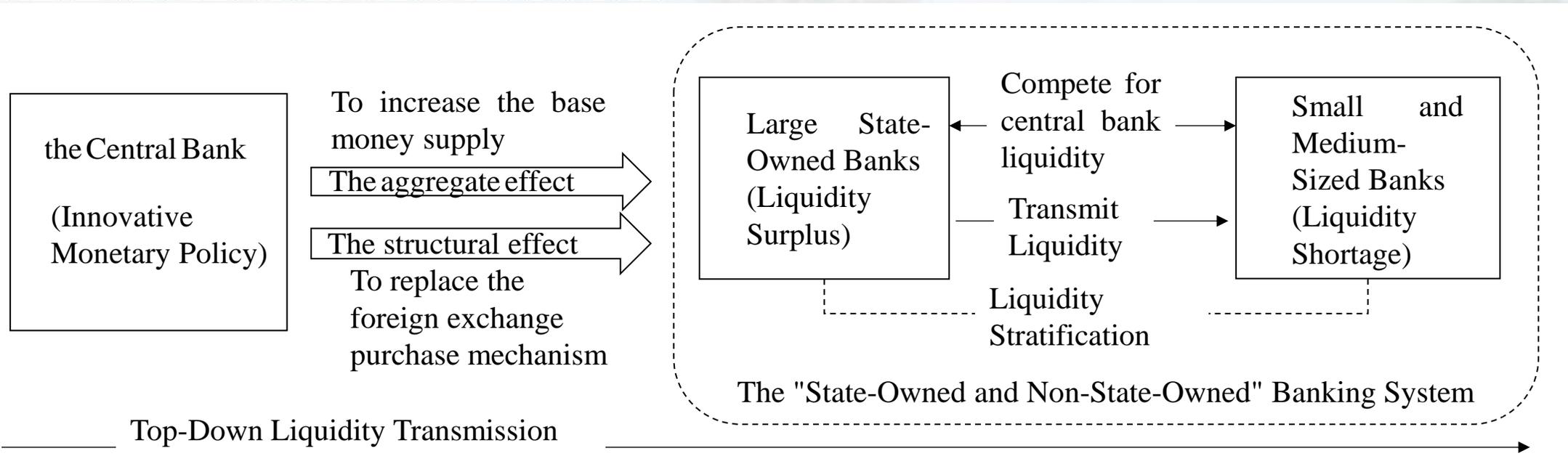
2. The pyramidal structure of the interbank market: Liquidity shortages are predominantly concentrated among small and medium-sized banks, while large state-owned banks maintain liquidity surpluses. This results in a clear pattern of liquidity stratification across the banking system.



# Research Background

## The Chinese Characteristics of the “Mystery of Disappearing Liquidity”

3. When the central bank injects base money into the real economy, it must be transmitted through a banking system with Chinese characteristics—comprising state-owned and non-state-owned banks. In this process, large state-owned banks not only compete with smaller banks for liquidity access but also act as intermediaries, channeling liquidity to small and medium-sized institutions.



# Research Content

- This paper focuses on the issuance rates of interbank certificates of deposit (NCDs) as a measure of banking liquidity adequacy.
- It investigates how the structure of the central bank's base money supply affects liquidity stratification in the banking system—that is, it seeks to clarify the liquidity stratification effects resulting from changes in the composition of base money injection.
- The study further explores the transmission mechanism through which the base money supply structure influences interbank liquidity stratification.
- Moreover, using the liquidity stratification effect as a starting point, this paper attempts to interpret China's “mystery of disappearing liquidity,” and provides a comparative analysis of the structural and aggregate effects of innovative monetary policies.
- Finally, it links the discussion to the operational income stability of commercial banks, specifically examining the impact of the base money supply structure on the net interest margins of small and medium-sized banks.

# Key Findings

1.



The rising share of base money injected by the central bank through innovative tools (relative to the foreign exchange purchase mechanism) significantly increases the issuance rates of interbank certificates of deposit (NCDs) for small and medium-sized banks, while having no effect on large state-owned banks.

This demonstrates that changes in the structure of base money supply exacerbate liquidity shortages among smaller banks, leading to increased liquidity stratification between them and large state-owned institutions.

# Key Findings

2.

**The Central Bank Credit Competition Mechanism:** Following the shift in the central bank's base money injection mechanism, banks' efforts to obtain liquidity have transitioned from competing for foreign exchange to competing for central bank credit. The intensity of this competition determines the extent to which the base money supply structure affects liquidity stratification.

**The Risk-Bearing Mechanism:** Large state-owned banks with lower risk exposure act as intermediaries of central bank liquidity to smaller banks. However, leveraging their buyer power, they demand higher NCD rates from these small and medium-sized commercial banks.

# Key Findings

3.

This study finds that the structural effect of the Medium-Term Lending Facility (MLF) has led to a “disappearance” of the liquidity injected by the central bank. That is, an increase in MLF balances alters the structure of base money supply, which in turn exacerbates liquidity stratification and raises NCD issuance rates for small and medium-sized banks. Moreover, the structural effect of MLF conflicts with its aggregate effect, thereby distorting the transmission of liquidity through policy tools to some extent.

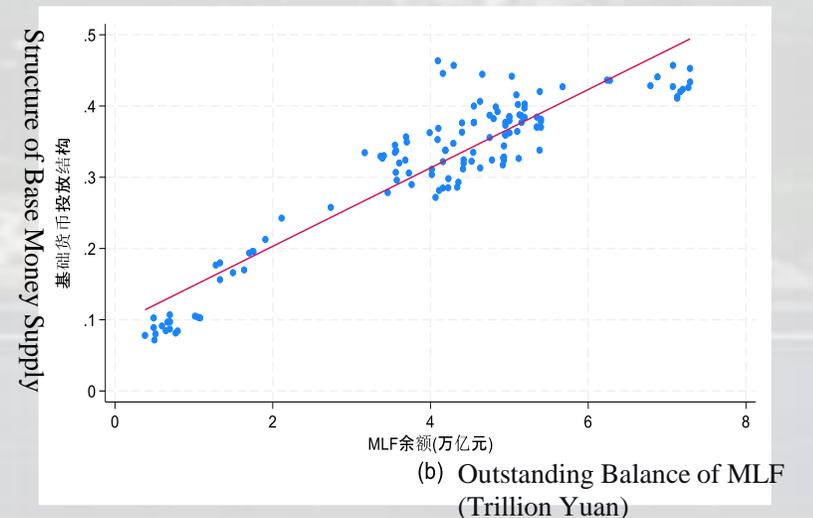
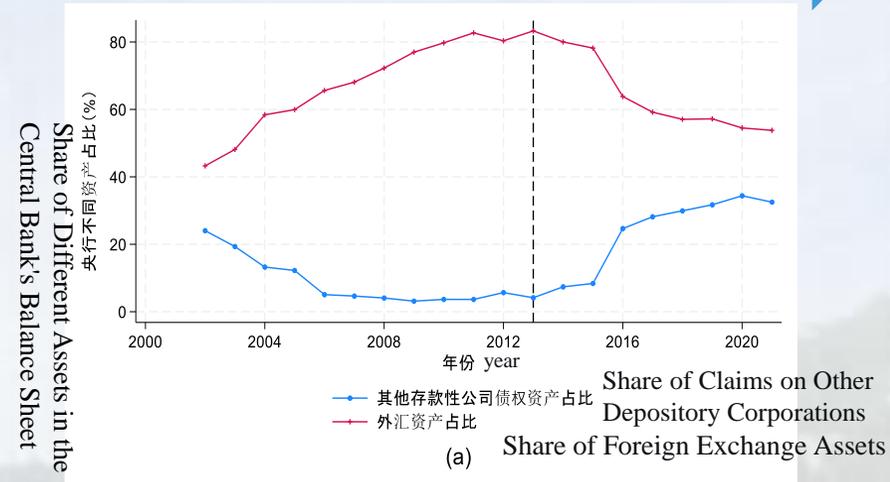
The study also shows that the liquidity stratification effect resulting from the base money supply structure increases liability costs (interest expenses) for small and medium-sized banks. This cost is subsequently passed on to the asset side, raising bank lending rates. Overall, however, the net interest margin of these banks narrows, putting operational pressure on them.

# Stylized Facts

## Changes in the Central Bank's Base Money Supply Mechanism

After 2013, the share of foreign exchange assets declined rapidly, while the share of claims on other depository corporations (claims on ODCs as a proportion of central bank total assets) gradually increased. This indicates a significant shift in the mechanism through which the central bank supplies base money.

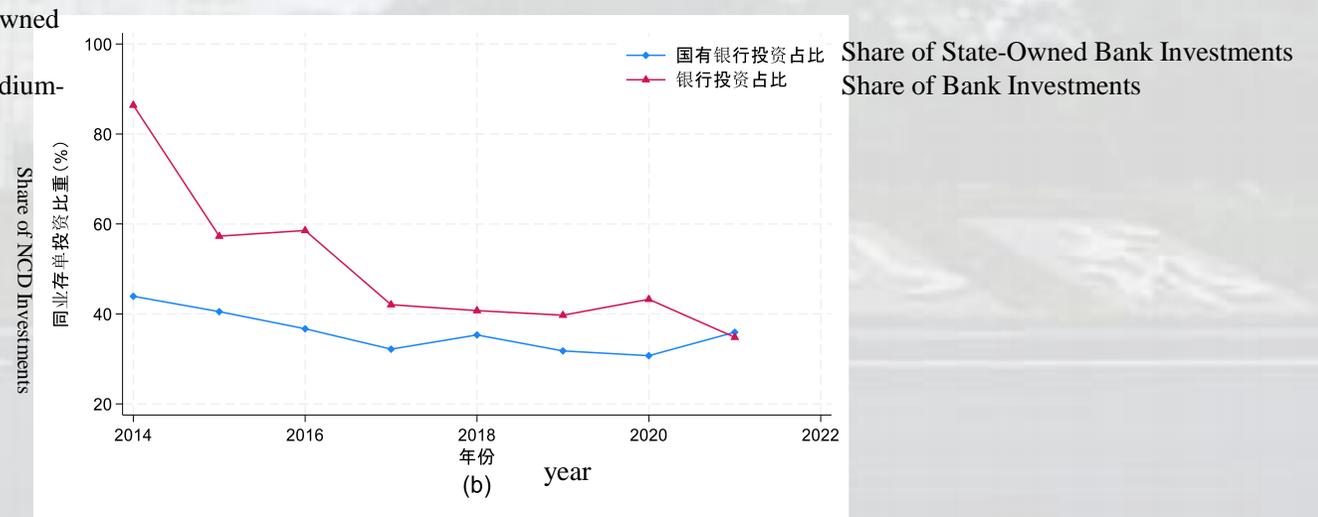
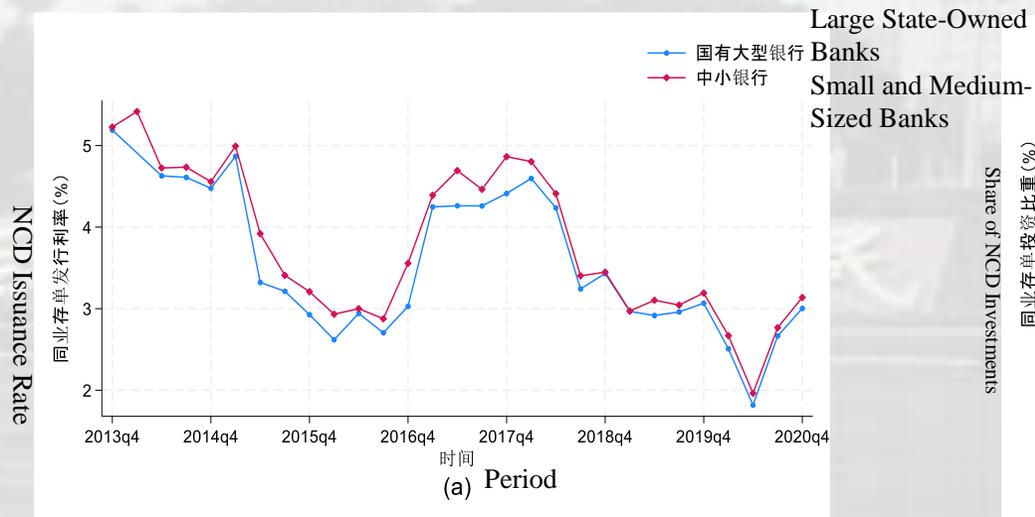
Based on the relationship between the structure of base money supply and MLF balances, it is evident that as MLF balances increase, the proportion of claims on other depository corporations within the base money supply structure also rises. This demonstrates that the introduction of innovative monetary policy tools has led to a structural transformation in base money injection.



# Stylized Facts

## Liquidity Stratification

Throughout the sample period, the issuance rates of interbank certificates of deposit (NCDs) of small and medium-sized banks have been consistently higher than those of large state-owned banks, forming a stable positive spread. This indicates the presence of liquidity stratification at the price level within the banking system, where smaller banks face higher costs in obtaining liquidity, while large state-owned banks experience relatively easier access to liquidity.

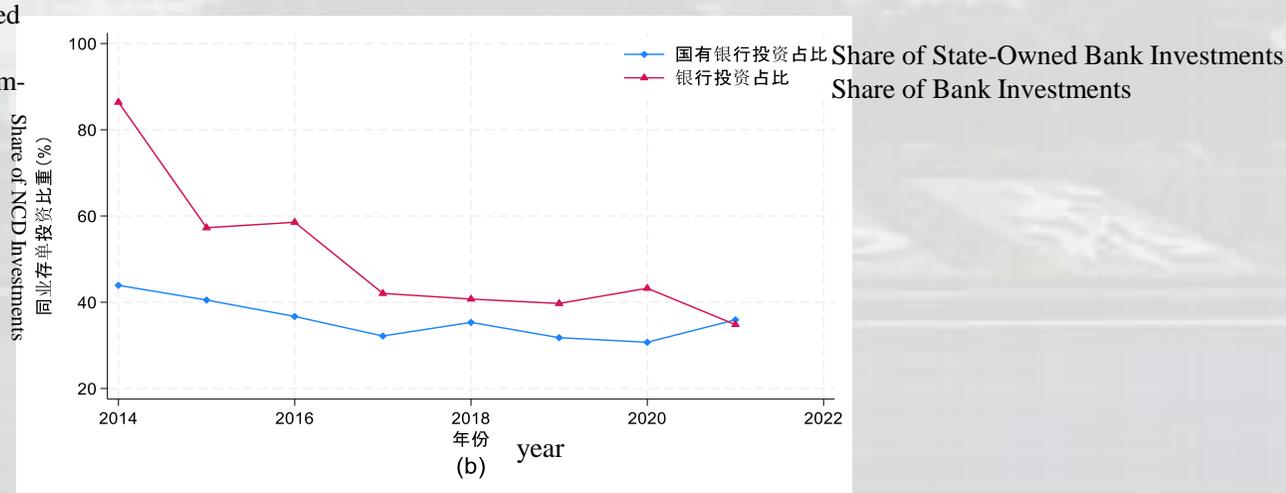
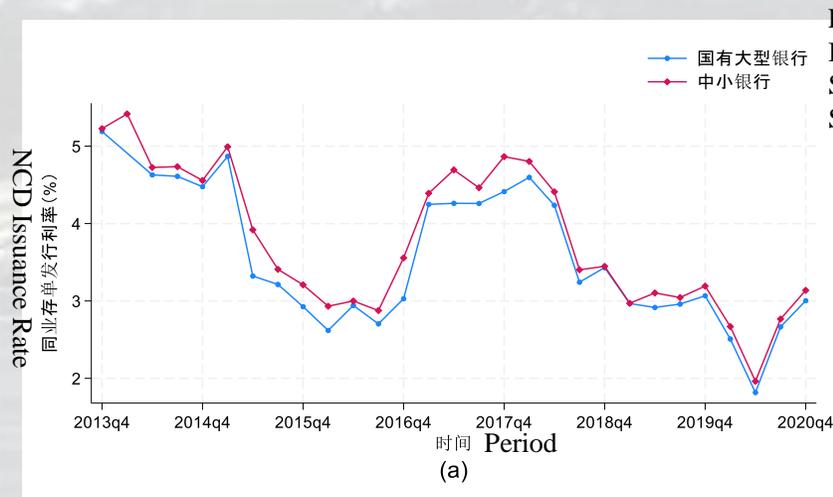


# Stylized Facts

## Liquidity Stratification

Especially during the peak of NCD issuance from 2017 to 2018, the discrepancy between the two became more pronounced.

Furthermore, state-owned banks have consistently maintained a high share of holdings among NCD investors, stably exceeding 30%. This suggests that state-owned banks have consistently acted as major buyers in the NCD market, supplying liquidity through this channel and playing a crucial role in liquidity reallocation within the interbank system.



# Literature Review

## The Liquidity Effects of Monetary Policy

1. The impact of traditional monetary policy on bank liquidity: Monetary policy exerts a significant liquidity transmission effect (Jiang Hai et al., 2021) and alters liquidity premiums (Drechsler et al., 2017).
2. Some studies focus on the transmission of monetary policy in the interbank market, finding that interbank activities and market frictions influence its liquidity transmission (Pan Bin et al., 2018; Wang Xi and Jin Zhao, 2021). Eisenschmidt et al. (2024) point out that in the European repo market, the market power of primary dealers can lead to impaired transmission of the European Central Bank's policy rates.

# Literature Review

## The Liquidity Effects of Monetary Policy

- 3. Unconventional innovative monetary policies serve liquidity management functions.** Expansionary policies such as quantitative easing that increase the central bank's balance sheet can make the financial system more reliant on liquidity and less resilient to liquidity shocks (Acharya and Rajan, 2022), further leading to a decline in credit supply (Diamond et al., 2024). From a collateral perspective, Duygan-Bump et al. (2013) and Wang Yongqin and Wu Xian (2018) find that lending facilities can enhance the liquidity of collateral assets.

# Literature Review

## The Liquidity Effects of Monetary Policy

4. Accommodative lending facilities can improve bank liquidity and influence funding availability (Hou Chengqi and Huang Tongtong, 2020; Deng Wei et al., 2022), while also reducing corporate financialization (Li Zengfu et al., 2022) and improving firms' access to trade credit financing (Deng Wei et al., 2023).
5. Liquidity effects of innovative monetary policies: Duygan-Bump et al. (2013) and Wang Yongqin and Wu Xian (2018) show that lending facilities improve the liquidity of collateral assets. Hou Chengqi and Huang Tongtong (2020) and Xu Wei et al. (2022) find that such facilities enhance bank liquidity.

# Literature Review

## The Impact of Base Money Supply

- During the international financial crisis, the United States doubled its base money supply within a short period through asset purchases (Gavin, 2009).
- International studies have primarily focused on the **aggregate effects** of base money supply, finding that an increase in base money can stimulate both aggregate demand and total output (Nelson, 2002). However, as the Federal Reserve did not credibly commit to a permanent expansion of the monetary base, quantitative easing policies were unable to sustainably stimulate growth in aggregate demand (Beckworth, 2017).
- Honda et al. (2013) and Hanisch (2017) mainly examined the impact of the Bank of Japan's base money supply on the economy.
- To compensate for the decline in base money injection via the foreign exchange purchase channel and enhance monetary policy autonomy, China's base money supply mechanism is transitioning from foreign exchange purchases to new monetary policy tools (Liu Shengfu and Han Yong, 2019; Yan Se, 2020).
- Shao Xinjian et al. (2020) explored how the shift in base money supply channels affects bank wealth management products. He Yujie and Liu Xinrui (2024) found that changes in the structure of base money supply increase the issuance volume of interbank certificates of deposit (NCDs) by small and medium-sized banks.

# Literature Review

## Liquidity Stratification

- Hu Yue et al. (2022) constructed a liquidity stratification index for the money market and pointed out that liquidity stratification increases the financing costs of low-rated and private enterprises. Li Qilin and Jiang Yangtian (2018) found that interbank regulation intensified liquidity stratification among banks.
- Liquidity stratification has also emerged in the European repo market, where repo rates have become more fragmented and decoupled from the European Central Bank's key policy rates (Eisenschmidt et al., 2024).
- The expansion of interbank certificates of deposit (NCDs) has enhanced the transmission efficiency of interest rate-based policies to the credit provision of non-state banks, but it has also raised systemic risk in the banking sector (Chen et al., 2021) and exacerbated local stock price crash risk (Ni Xiaoran and Liu Shida, 2020).

# Marginal Contributions

## Regarding base money supply:

This study is grounded in the institutional context of China's shift in base money supply from foreign exchange purchases to innovative policy tools. It investigates the impact of changes in the base money supply structure on bank liquidity stratification and, for the first time, employs empirical analysis using data on interbank certificate of deposit (NCD) issuance rates to clarify the relationship between the central bank's primary liquidity allocation and secondary redistribution. This expands the research on the base money supply mechanism.

## Regarding innovative monetary policy:

Based on the liquidity stratification effects arising from the base money supply structure, this study analyzes the liquidity transmission effects of innovative monetary policies. It compares the structural and aggregate effects of innovative monetary policy instruments, as well as how structural effects distort liquidity transmission. These findings enhance the understanding of the structural and aggregate functions of monetary policy and provide a new explanation for the “mystery of disappearing liquidity.”

## Regarding liquidity stratification:

This paper explores the role of base money supply factors in liquidity stratification in China and elucidates how competition for central bank credit and risk-bearing capacity play key roles in the formation of liquidity stratification and the transmission of central bank liquidity. It also examines the effects of liquidity stratification on bank net interest margins and lending rates, offering an institutional explanation at the base money level for the recent operational pressures faced by small and medium-sized banks and obstacles in monetary policy transmission.

# Theory Analysis

## The Impact of Base Money Supply Structure on Bank Liquidity Stratification

1. From an institutional design perspective, most small and medium-sized banks struggle to meet the primary dealer qualifications and macroprudential assessment requirements necessary for accessing innovative policy tools. Moreover, large banks hold a greater proportion of the eligible collateral required by these facilities (Deng Wei et al., 2022). These factors collectively reinforce the privileged position of large state-owned banks in a system where innovative tools dominate the base money supply mechanism.
2. The central bank exercises caution in selecting counterparties for its innovative monetary operations, showing a clear preference for large state-owned banks with stronger credit profiles. This preference is influenced not only by their shared central government affiliation and unified management under the State Council—which implies stronger political constraints—but also by the robust financial capacity of these banks, which reduces counterparty risk for the central bank.

# Theory Analysis

## The Impact of Base Money Supply Structure on Bank Liquidity Stratification

3. From the perspective of monetary policy operational costs, the central bank tends to focus liquidity management efforts on major banks that hold a dominant market position. This “managing the large, releasing the small” (抓大放小) strategy helps reduce operational costs and improves the efficiency of base money injection.
4. As one of the most frequently issued wholesale financing instruments in the interbank market, interbank certificates of deposit (NCDs) are often offered at higher rates by small and medium-sized banks seeking to quickly fill liquidity shortfalls.  
In contrast, large state-owned banks can relatively easily obtain liquidity injected by the central bank’s innovative monetary policies and do not need to raise premiums to attract funding.

### **H1: Changes in the base money supply structure will lead to bank liquidity stratification.**

As the share of base money supplied through innovative monetary policy tools increases, the issuance rates of NCDs offered by small and medium-sized banks will rise, while those of large state-owned banks will not change significantly.

# Theory Analysis

## The Moderating Mechanism of Central Bank Credit Competition

1. When the base money supply mechanism shifts from foreign exchange purchases to innovative tools, the reduction in forex purchases and the imbalanced allocation of central bank credit between large state-owned banks and small and medium-sized banks compel commercial banks to compete for central bank funding during the primary distribution of liquidity. The share of credit obtained through this competition determines a bank's influence in the subsequent reallocation of liquidity within the interbank market.

The larger the share of central bank credit obtained by large state-owned banks, the more base money they receive from the central bank, thereby crowding out liquidity available to small and medium-sized banks and exacerbating the latter's liquidity shortfalls.

# Theory Analysis

## The Moderating Mechanism of Central Bank Credit Competition

2. If small and medium-sized banks secure a greater share of central bank credit, their liquidity constraints can be alleviated to some extent, reducing their disadvantaged position in liquidity reallocation (i.e., the interbank market). This, in turn, allows them to offer lower interest rates when issuing NCDs.
3. The central bank may also use targeted lending programs to enhance the credit competitiveness of individual small and medium-sized banks, mitigate their liquidity shortages, and thus reduce their urgency to issue NCDs as well as the corresponding issuance rates.

**H2: The central bank credit competition mechanism moderates the impact of the base money supply structure on bank liquidity stratification premiums.**

The smaller the share of credit obtained by small and medium-sized banks in this competition, the stronger the positive effect of changes in the base money supply structure on their NCD issuance rates.

# Theory Analysis

## The Moderating Mechanism of Risk-Taking

1. The base money supplied by the central bank primarily flows first to large state-owned banks, which then act as liquidity providers in the interbank certificate of deposit (NCD) market, transmitting a portion of this liquidity to small and medium-sized banks. While this lengthens the liquidity transmission chain, it also increases liquidity premiums.
2. On one hand, influenced by the central bank's risk aversion, and on the other hand, due to their own size and political considerations, these large state-owned banks also tend to adopt low risk-taking strategies in managing the liquidity obtained from the central bank.
3. When large banks with higher risk aversion shift from extending loans to purchasing NCDs, they may use their monopsonistic power as dominant buyers to demand higher NCD issuance rates from small and medium-sized banks to capture wider interest margins.

# Theory Analysis

## The Moderating Mechanism of Risk-Taking

4. Furthermore, large banks with stronger risk aversion are more sensitive to factors indicating default risk on NCDs. Once they detect that an issuing bank is experiencing asset impairment or declining operational profitability—signals that exhibit heightened credit risk—they react more strongly to such signals and likewise demand higher NCD issuance rates from smaller banks.

**H3: A risk-taking mechanism moderates the impact of the base money supply structure on bank liquidity stratification.** The lower the risk tolerance of large state-owned banks, or the higher their perceived default risk of small and medium-sized banks, the stronger the positive effect of the base money supply structure on the NCD issuance rates of small and medium-sized banks.

# Research Design

## Sample Selection

### **Interbank Certificate of Deposit (NCD) Data of Commercial Banks:**

Data were sourced from NCD issuance announcements published on the China Money Network, including issuing bank name, issue amount, issuance date, maturity, coupon rate, and issuer credit rating. This information was manually collected and organized, resulting in a dataset of over 190,000 individual issuance records from the inception of NCDs in 2013 through 2023.

### **Central Bank Data:**

Data were obtained from the People's Bank of China (PBOC) official website, including the Monetary Authority's Balance Sheet, the Balance Sheet of Other Depository Corporations, and the RMB Credit Balance Sheet of Large Chinese Financial Institutions.

### **Commercial Bank Financial Data:**

Data came from the CSMAR (China Stock Market & Accounting Research) and Wind databases, covering indicators related to bank risk and operations.

# Research Design

## Benchmark Model

$$Yield_{it} = \beta_0 + \beta_1 Bmstru_t + \beta_2 Controls_{it} + \mu_t + \nu_i + \varepsilon_{it}$$

- **Dependent Variable (Yield)**

Since NCD issuance data are recorded transaction-by-transaction, while the base money supply structure is measured monthly, this study calculates a weighted average of NCD issuance rates at the bank-month level—using the amount of each certificate as the weight—to avoid potential distortions caused by varying issuance frequency. The resulting monthly average NCD issuance rate per bank serves as the dependent variable, *Yield*.

- **Explanatory Variable (Bmstru)**

The structure of the central bank's base money supply is primarily reflected in the shift from foreign exchange purchases to the use of innovative monetary policy tools. Foreign exchange purchases are represented as “Foreign Exchange Reserves” on the monetary authority's balance sheet, while base money injected via innovative monetary tools corresponds mainly to “Claims on Other Depository Corporations.” These two types of assets also account for the largest share of the central bank's balance sheet.

- Following the approach of Shao Xinjian et al. (2020), this study uses the ratio of Claims on Other Depository Corporations to the sum of Claims on Other Depository Corporations and Foreign Exchange Reserves as a proxy variable for the base money supply structure (*Bmstru*). A higher value of this ratio indicates a greater extent of transition in the base money supply mechanism from foreign exchange purchases toward innovative monetary policy tools.

# Research Design

## Benchmark Model

$$Yield_{it} = \beta_0 + \beta_1 Bmstru_t + \beta_2 Controls_{it} + \mu_t + \nu_i + \varepsilon_{it}$$

### • Control Variables

- **Macroeconomic variables** are included primarily to control for the influence of the monetary policy environment and underlying economic development trends on the base money supply structure. These include money supply growth and economic growth. Changes in monetary policy are measured by the year-on-year growth rate of M2 in a given month (*M2rate*), with data sourced from the Wind database. Economic growth is represented by the year-on-year growth rate of quarterly GDP (*Gdprate*), and related data are obtained from the National Bureau of Statistics website.
- **Bank-level variables** are used to control for bank-specific risk and liquidity factors. These include the Capital Adequacy Ratio (*CAR*), the growth rate of Risk-Weighted Assets (*Rwarate*), the Cost-to-Income Ratio (*CTIR*), the natural logarithm of total assets (*LnAsset*), the ratio of liquid assets to total assets (*Liq*), Return on Assets (*ROA*), and the Deposit Growth rate (*DG*). Related data are winsorized at the top and bottom 1%.
- **NCD issuance characteristics** include the credit rating (*Rating*) and the term of issuance (*Bondterm*). These are calculated as weighted averages—using the issuance amount as the weight—of the credit ratings and terms of all NCDs issued by each bank in each month.

$$Yield_{it} = \beta_0 + \beta_1 Bmstru_t + \beta_2 Bmstru_t \times Cbcre_{it} + \beta_3 Controls_{it} + \mu_t + \nu_i + \varepsilon_{it}$$

### Moderating Variables for the Credit Competition Mechanism

- **Credit Competition Pressure from Large State-Owned Banks on Small and Medium-Sized Banks**

**Crestru:** The ratio of claims on large Chinese financial institutions by the central bank to the central bank's total "Claims on Other Depository Corporations." Specifically, this is measured as "Borrowing from the Central Bank" by large Chinese financial institutions divided by the central bank's "Claims on Other Depository Corporations."

**Crestrulia:** The ratio of liabilities of large state-owned banks to the central bank relative to the total liabilities of other depository corporations to the central bank. Specifically, this is measured as "Borrowing from the Central Bank" by large Chinese financial institutions divided by "Liabilities to the Central Bank" by other depository corporations.

- **Credit Competition Among Small and Medium-Sized Banks**

**Collpc:** The ratio of collateral held by a single small or medium-sized bank to the total collateral held by all small and medium-sized banks.

**Cbcrepc:** The ratio of borrowings from the central bank by a single small and medium-sized bank to the total borrowings from the central bank by all small and medium-sized banks.

# Research Design

Analysis of the Risk-Bearing Mechanism in Large State-Owned Banks

$$Yield_{it} = \beta_0 + \beta_1 Bmstru_t + \beta_2 Bmstru_t \times Risk_{it} + \beta_3 Controls_{it} + \mu_t + \nu_i + \varepsilon_{it}$$

- **Moderator Variables for the Risk-Taking Mechanism**
  - **Risk-Taking of Large State-Owned Banks**
    - **LpvraS**: Loan Provisioning Ratio
    - **CARS**: Capital Adequacy Ratio
  - **Risk Signals Released by Small and Medium-Sized Banks**
    - **Nplratio**: Non-Performing Loan Ratio
    - **ROA**: Return on Assets

# Research Design

## Descriptive statistics

Variables	Definition	(1) Observations	(2) Mean	(3) Standard deviation	(4) Minimum	(5) Maximum
<b>NCD Issuance Variables</b>						
Yield	NCD Issuance Rate (%)	19,922	0.4482	0.2807	0.0767	3
Bondterm	NCD Term to Maturity (Years)	19,922	3.3774	0.8753	0.1000	6.9001
Rating	NCD Credit Rating	19,844	2.7629	1.5585	1	8
<b>Bank-Level Variables</b>						
CAR	the Capital Adequacy Ratio (%)	1,745	13.9107	2.4875	8.6500	36.6100
LnAsset	the natural logarithm of total bank assets	1,762	26.0906	1.5975	22.1703	30.4491
ROA	Return on Assets (%)	1,704	0.7857	0.3524	0.0166	2.3876
Rwarate	the growth rate of Risk-Weighted Assets	1,551	0.1336	0.1196	-0.2460	0.8877
DG	the Deposit Growth rate	1,738	0.1302	0.1199	-0.2358	0.8995
CTIR	the Cost-to-Income Ratio (%)	1,381	33.9994	8.9692	19.0400	78.5000
Liq	the ratio of liquid assets to total assets	1,758	0.1332	0.0598	0.0547	0.4817
Nplratio	Non-Performing Loan Ratio	1,709	1.6297	0.7973	0.0400	7.2600
Collpc	Collateral Share	855	0.8887	2.3919	0	41.7085
Cbcrepc	Central Bank Borrowing Share	1,531	0.6960	2.8567	0	61.4340
<b>Macro-Level Variables</b>						
Bmstru	Base Money Supply Structure	111	0.2713	0.1159	0.0435	0.4066
M2rate	Interbank Lending Rate (%)	111	10.4640	1.9171	8.0000	14.7000
Crestru	The Ratio of Central Bank Claims on Large State-Owned Banks (%)	111	33.6999	12.9335	3.0795	48.6849
Crestrulia	The Ratio of Liabilities of Large State-Owned Banks to the Central Bank (%)	111	34.2969	13.7404	2.9302	48.8308
Gdprate	GDP Growth Rate (%)	38	6.1579	3.3416	-6.8000	18.9000
Cpi	Consumer Price Index (CPI) (%)	38	1.9320	0.9102	-0.0136	4.8847
LpvraS	Loan Provisioning Ratio of State-Owned Banks (%)	38	2.9357	0.2149	2.5715	3.2517
CARS	Capital Adequacy Ratio of Large State-Owned Banks (%)	38	14.7530	1.3409	11.9500	16.8650

# Benchmark Empirical Results

## The Impact of Base Money Supply Structure on Bank Liquidity Stratification

- The regression coefficient of the base money supply structure (*Bmstru*) on the NCD issuance rates of small and medium-sized banks is significantly positive (Columns 1 and 2), while its coefficient on the NCD issuance rates of large state-owned banks is statistically insignificant (Columns 3 and 4).
- The higher the proportion of base money supplied by the central bank through claims on other depository corporations (**innovative monetary policy tools**), the higher the interbank certificate of deposit issuance rates for small and medium-sized banks. This indicates a liquidity shortage among these banks. However, the interbank certificate of deposit issuance rates for large state-owned banks remain unaffected.
- The results remain consistent after further controlling for interactive year and quarter fixed effects (Columns 5 and 6).

	(1)	(2)	(3)	(4)	(5)	(6)
	Small and Medium-Sized Banks	Small and Medium-Sized Banks	State-Owned Banks	State-Owned Banks	Small and Medium-Sized Banks	State-Owned Banks
Variables	Yield	Yield	Yield	Yield	Yield	Yield
Bmstru	6.2623*** (37.0116)	4.3673*** (15.0790)	4.0997 (4.9137)	1.6117 (3.1001)	7.5983*** (24.5279)	5.2304 (2.6346)
Control variables	N	Y	N	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Year × Quarter FE	N	N	N	N	Y	Y
Observations	19,549	9,647	372	364	9,647	364
Adjusted R-squared	0.7681	0.8018	0.7463	0.8125	0.9332	0.9344

# Addressing Endogeneity Concerns

## Omitted Variables

### Incorporation of Interactive Fixed Effects

- Interactive fixed effects are added to the baseline regression, including interactions between individual bank and year effects, as well as interactions between year and quarter effects.
- The coefficient for the base money supply structure remains significantly positive at the 1% level in the sample of small and medium-sized banks, while it remains statistically insignificant in the sample of large state-owned banks (Columns 1 and 2).
- The results are consistent when further tested using transaction-level NCD issuance data (Columns 3 and 4).

	(1) Small and Medium-Sized Banks Yield	(2) State-Owned Banks Yield	(3) Small and Medium-Sized Banks Yield	(4) State-Owned Banks Yield
Bmstru	8.0228*** (24.4779)	4.4175 (3.2948)	6.7352*** (27.4334)	3.9771 (5.0284)
Control variables	Y	Y	Y	Y
Firm × Year FE	Y	Y	Y	Y
Year × Quarter FE	Y	Y	Y	Y
Observations	18,828	348	187,127	4,699
Adjusted R-squared	0.9288	0.9501	0.9272	0.9196

# Addressing Endogeneity Concerns

## Reverse Causality

### Instrumental Variables Approach

- The trade dependence ratio (*Dependex*) is selected as an instrumental variable for the base money supply structure.
- If the importance of exports to the economy declines, foreign exchange purchases decrease accordingly, prompting the central bank to passively increase base money supply through innovative monetary tools. Thus, trade dependence is closely related to the base money supply structure (relevance condition).
- Under normal circumstances, however, trade dependence merely reflects the structure of the Chinese economy and is influenced more by international demand factors, without directly affecting banks' NCD issuance (exogeneity condition).
- The trade dependence ratio (*Dependex*) is calculated as the ratio of China's total quarterly exports to GDP.

### Lagged Treatment of Explanatory Variables

- The base money supply structure (*Bmstru*) is lagged by one period.

## Dynamic Factors

**System GMM:** The first to third lags of the NCD issuance rate are included as explanatory variables.

# Addressing Endogeneity Concerns

## Regression Results

	(1)	(2)	(3)	(4)
	The First Stage of 2SLS	The Second Stage of 2SLS	Lagged Explanatory Variables	Dynamic GMM
Variables	Bmstru	Yield	Yield	Yield
L. Yield				0.3298*** (2.9356)
L2. Yield				-0.0508 (-1.4122)
L3. Yield				0.2240*** (7.2613)
Bmstru		74.3355*** (5.7582)		9.9594*** (4.5910)
L.bmstru			4.2962*** (11.0513)	
Dependex	-0.2114*** -5.780			
Control variables	Y	Y	Y	Y
Individual FE	Y	Y	Y	N
Year FE	Y	Y	Y	Y
Observations	8528	8,528	5,495	6,915
Adjusted R-squared			0.8344	
C-D Wald F-statistic	33.456			
AR(1) ( <i>p</i> -value)				0.000
AR(2) ( <i>p</i> -value)				0.152
Hansen Test ( <i>p</i> -value)				0.127

### Instrumental Variables (IV) Approach

- **First Stage (Column 1):** The regression coefficient of the trade dependence ratio (*Dependex*) is significantly negative at the 1% level, indicating that as trade dependence decreases, base money supplied through foreign exchange purchases is replaced by innovative policy tools.
- The weak instrument test shows an F-statistic of 33.46 (greater than 10), confirming that *Dependex* is a strong instrumental variable for the base money supply structure.
- **Second Stage (Column 2):** The regression coefficient of the base money supply structure (*Bmstru*) is significantly positive at the 1% level, consistent with the baseline regression results. This indicates that the findings remain robust after accounting for endogeneity.
- The one-period lagged base money supply structure (*L.Bmstru*) also shows a significantly positive coefficient at the 1% level (Column 3).

### System GMM

- The first and third lags of the NCD issuance rate have a positive effect on the current issuance rate, while the effect of the second lag is not significant.
- After controlling for the dynamic changes of NCDs, the regression coefficient of the base money supply structure (*Bmstru*) remains significantly positive at the 1% level (Column 4).

# Robustness check

- **Replacement of the Dependent Variable**

- The liquidity premium (*Liqpremium*), measured as the difference between the contemporaneous NCD issuance rate and the policy rate, captures the spread between the primary allocation and secondary redistribution of liquidity (Column 1).

- **Replacement of the Explanatory Variable**

- The ratio of "MLF balance / (MLF balance + foreign exchange assets)" is used as a proxy variable for the base money supply structure (*BmstruMLF*) (Column 2).

- **Alternative Clustering Approaches**

- Clustering at the individual bank level (Columns 3 and 4).
- Using transaction-level data with modified clustering (Columns 5 and 6).

	(1)	(2)	(3)	(4)	(5)	(6)
	Replacing the Dependent Variable	Replacing the Explanatory Variable	Clustering at the State-Owned Bank Level	Clustering at the Small and Medium-Sized Bank Level	Clustering at the State-Owned Bank Level	Clustering at the Small and Medium-Sized Bank Level
Variables	Liqpreium	Yield	Yield	Yield	Yield	Yield
Bmstru	5.7121*** (24.4209)		1.6117* (2.1596)	4.3673*** (18.9271)	1.2506 (1.6320)	4.4430*** (15.2921)
BmstruMLF		2.0225*** (4.7114)				
Control variables	Y	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Observations	8,802	9,574	364	9,647	4,707	133,380
Adjusted R-squared	0.7712	0.7974	0.8270	0.8061	0.7691	0.8047

# The Moderating Mechanism of Central Bank Credit Competition

## Empirical Results

1. The coefficient of the interaction term between the base money supply structure and the ratio of central bank claims on large state-owned banks ( $Bmstru \times Crestru$ ) is significantly positive.
2. The coefficient of the interaction term between the base money supply structure and the ratio of liabilities of large state-owned banks to the central bank ( $Bmstru \times Crestrulia$ ) is also significantly positive.

# The Moderating Mechanism of Central Bank Credit Competition

## Empirical Results

3. The interaction term between the base money supply structure and the collateral share of small and medium-sized banks ( $Bmstru \times Collpc$ ) is significantly negative at the 5% level.
4. The interaction term between the base money supply structure and the relending share of small and medium-sized banks ( $Bmstru \times Cbcrepc$ ) is significantly negative at the 1% level.

# The Moderating Mechanism of Central Bank Credit Competition

## Regression Results of the Central Bank Credit Competition Moderating Mechanism

An increase in the share of central bank credit obtained by large state-owned banks indicates, **on the one hand**, that their monopolistic power in liquidity redistribution has strengthened, potentially enabling them to demand higher NCD issuance rates from small and medium-sized banks to maximize their own returns.

**On the other hand**, it suggests that large state-owned banks crowd out small and medium-sized banks' access to central bank relending credit quotas, exacerbating liquidity shortages for smaller banks and forcing them to raise NCD issuance rates.

Variables	(1) Yield	(2) Yield	(3) Yield	(4) Yield
Bmstru	4.8303*** (12.7211)	2.5506*** (8.6574)	10.6215*** (29.9333)	7.1742*** (26.0186)
Bmstru×Crestru	0.0828*** (7.4398)			
Crestrubf	-0.0138*** (-6.6317)			
Bmstru×Crestrulia		0.1518*** (15.0081)		
Crestrubflia		-0.0224*** (-10.1061)		
Bmstru×Collpc			-0.0909** (-2.2082)	
Collpc			0.0377** (2.1019)	
Bmstru×Cbcrepc				-0.1994*** (-3.9738)
Cbcrepc				0.0451*** (3.5075)
Control variables	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Quarter FE	Y	Y	Y	Y
Observations	9,647	9,647	4,488	8,932
Adjusted R-squared	0.8254	0.8279	0.7859	0.8266

€ A higher collateral share among small and medium-sized banks **weakens** the positive effect of the base money supply structure on their NCD issuance rates.↵

A lower relending share among small and medium-sized banks **amplifies** the positive effect of the base money supply structure on their NCD issuance rates.↵

# The Moderating Mechanism of State-Owned Banks' Risk-Taking

## Empirical Results

1. The coefficient of the interaction term between the base money supply structure and the loan provisioning ratio of large state-owned banks ( $Bmstru \times LprvaS$ ) is significantly positive.
2. The coefficient of the interaction term between the base money supply structure and the capital adequacy ratio of large state-owned banks ( $Bmstru \times CARS$ ) is also significantly positive.

A higher capital adequacy ratio of large state-owned banks strengthens the positive effect of the base money supply structure on the NCD issuance rates of small and medium-sized banks.

# The Moderating Mechanism of State-Owned Banks' Risk-Taking

## Empirical Results

3. The coefficient of the interaction term between the base money supply structure and the non-performing loan ratio of small and medium-sized banks ( $Bmstru \times Nplratio$ ) is significantly positive.
4. The coefficient of the interaction term between the base money supply structure and the return on assets of small and medium-sized banks ( $Bmstru \times ROA$ ) is significantly negative.

The liquidity stratification effect of the base money supply structure is more pronounced among small and medium-sized banks with weaker operational stability.

5. When small and medium-sized banks face negative operational shocks—such as a rise in non-performing loans or a decline in return on assets—large state-owned banks, motivated by risk aversion, demand a higher risk premium on NCDs issued by these banks.

# The Moderating Mechanism of State-Owned Banks' Risk-Taking

## Regression Results of the Risk-Taking Moderating Mechanism of State-Owned Banks

Variables	(1) Yield	(2) Yield	(3) Yield	(4) Yield
Bmstru	0.4844 (0.2483)	3.4394** (2.1824)	6.2708*** (18.2512)	7.8841*** (23.6957)
Bmstru×LprvaS	1.9764*** (2.9913)			
LprvaS	-3.6028*** (-12.6892)			
Bmstru×CARS		0.1978* (1.8322)		
CARS		-0.5902*** (-7.5552)		
Bmstru×Nplratio			0.6276*** (4.7593)	
Nplratio			-0.1846*** (-3.9109)	
Bmstru×ROA				-0.7186*** (-4.0355)
ROA				7.8841*** (23.6957)
Control variables	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Quarter FE	Y	Y	Y	Y
Observations	9,647	9,647	9,580	9,647
Adjusted R-squared	0.8404	0.8318	0.8255	0.8247

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Step 1: Clarifying the "Mystery of Disappearing Liquidity"

- Analyze the overall effect of innovative monetary policies on the NCD issuance rates of small and medium-sized banks.
- The Medium-term Lending Facility (MLF), the most frequently used tool among innovative monetary policies, is selected as a representative example.
- The explanatory variable is the outstanding balance of MLF injections (MLFquota).
- The dependent variable is the NCD issuance rate of small and medium-sized banks (Yield).
- To control for the influence of price-based monetary policy, the MLF interest rate (MLFrate) is included as a control variable.
- Bank × Year interactive fixed effects are controlled for.

The econometric model is specified as follows:

$$Yield_{it} = \beta_0 + \beta_1 MLFquota_t + \beta_2 MLFrate_t + \beta_3 Controls_{it} + \mu_t + \nu_i + \varepsilon_{it}$$

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Step 2: Clarifying the Transmission Channel of the Structural Effect of Innovative Monetary Policy

- Investigate the impact of the MLF tool on the structure of base money supply.
- The explanatory variable is the outstanding balance of MLF injections (*MLFquota*).
- The dependent variable is the base money supply structure (*Bmstru*).
- Given the limited number of time-series observations, the Bootstrap method is employed with 1,000 replications for regression.

The econometric model is specified as follows:

$$Bmstru_t = \beta_0 + \beta_1 MLFquota_t + \beta_2 MLFrate_t + \mu_t$$

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Step 3: Clarifying the Structural Effect of Innovative Monetary Policy

- On the basis of Step 1, incorporate the base money supply structure (*Bmstru*) into the model.
- Compare the aggregate effect and the structural effect of innovative monetary policy.
- The coefficient of *Bmstru* represents the structural effect attributable to the MLF tool.
- After controlling for *Bmstru*, the coefficient of *MLFquota* captures the "clean" aggregate effect.

The econometric model is specified as follows:

$$Yield_{it} = \beta_0 + \beta_1 MLFquota_t + \beta_2 MLFrate_t + \beta_3 Bmstru_t + \beta_4 Controls_{it} + \mu_t + \nu_i + \varepsilon_{it}$$

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Regression Results

	(1)	(2)	(3)	(4)	(5)
Variables	Yield	Bmstru	Yield	Yield	Yield
MLFquota	0.0941*** (7.5121)	0.0183*** (4.6431)	-0.1409*** (-11.0392)	0.0729*** (6.5064)	-0.1377*** (-11.2554)
MLFrate	0.6138*** (6.4967)	-0.0922*** (-3.9546)	0.6352*** (7.2023)	0.4789*** (5.0362)	0.4728*** (5.0029)
Bmstru			10.7724*** (28.8826)		10.2660*** (27.7735)
Control variables	Y	N	Y	Y	Y
Year FE	Y		Y	Y	Y
Bank × Year FE	Y		Y	Y	Y
Quarter FE	Y		Y	Y	Y
Year × Quarter FE		Y			
Observations	17,585	112	17,585	179,825	179,825
Adjusted R-squared	0.8113	0.9799	0.8305	0.8234	0.8373

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Empirical Results

### Step 1 (Column 1)

- The coefficient of *MLFquota* is significantly positive, indicating that an expansionary quantitative MLF tool generally raises the NCD issuance rates of small and medium-sized banks, exacerbating their liquidity shortages.
- This confirms the "mystery of disappearing liquidity" in China: an increase in base money supplied through the MLF tool fails to meet the liquidity demands of small and medium-sized banks and instead intensifies their liquidity constraints.
- The coefficient of *MLFrate* is significantly positive, suggesting that a decrease in the MLF rate leads to a reduction in the NCD issuance rates of small and medium-sized banks, implying that the price-based MLF tool does not exhibit the "mystery of disappearing liquidity."

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Empirical Results

### Step 2 (Column 2)

- The coefficient of  $Bmstru$  is significantly positive, reflecting the liquidity stratification effect resulting from changes in the base money supply structure.
- The coefficient of the MLF balance ( $MLFquota$ ) is also significantly positive, indicating that a larger MLF balance leads to greater changes in the base money supply structure.
- These results corroborate the characteristic facts discussed earlier: the implementation of innovative monetary policy tools, which actively inject base money into the banking system, substitutes the foreign exchange purchase channel and alters the structure of base money supply.
- Innovative monetary policies exhibit a structural effect. The implementation of these tools actively injects base money into the banking system, complementing the foreign exchange purchase channel.
- Rather than replacing the central bank relending component within the claims on other depository corporations.

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Empirical Results

### Step 3 (Column 3)

- After controlling for  $Bmstru$ , the coefficient of  $MLFquota$  becomes significantly negative at the 1% level. This indicates that an expansionary quantitative MLF tool reduces the NCD issuance rates of small and medium-sized banks, demonstrating that the **aggregate effect** of the MLF tool lowers these rates.
- The aggregate effect injects liquidity into the market, thereby reducing the NCD issuance rates of small and medium-sized banks.
- The structural effect explains China's "mystery of disappearing liquidity": although the MLF tool supplies ample liquidity, its imbalanced allocation—concentrated primarily in large state-owned banks—worsens liquidity shortages for small and medium-sized banks, distorts the transmission of central bank liquidity, and leads to the apparent "disappearance" of liquidity injected via innovative monetary policies.

**This study also conducts regressions using transaction-level NCD data from small and medium-sized banks (Columns 4 and 5).**

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Event Study Analysis

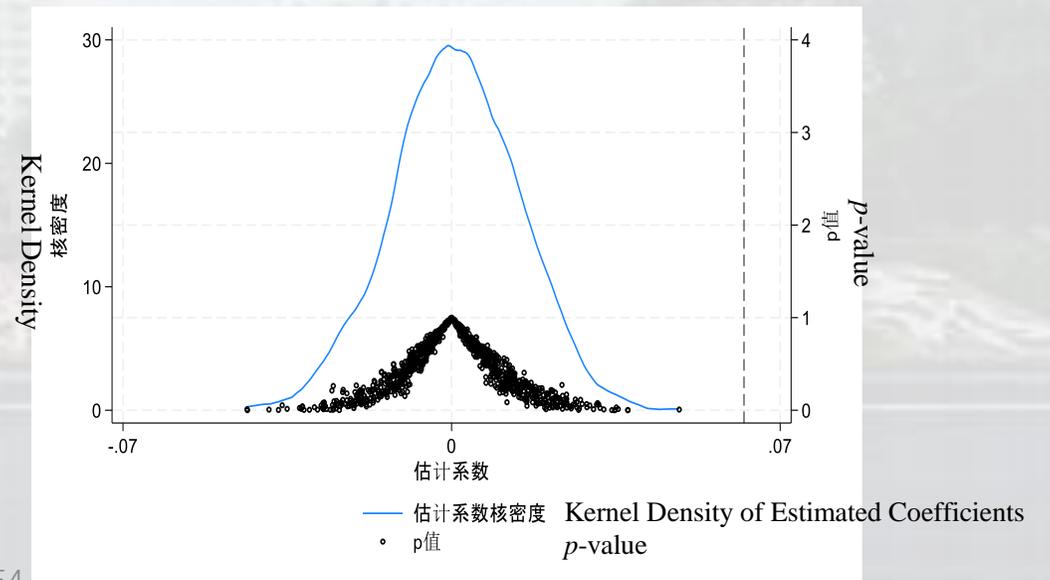
- The introduction of the MLF tool is used as a policy event to examine the liquidity stratification effect of innovative monetary policy tools.
- A policy variable (*Policy*) is defined, taking the value 0 before September 2014 and 1 thereafter, with a study window covering one year before and three years after policy implementation.
- A bank type variable (*Banktype*) is constructed, where *Banktype* equals 1 if the issuer of the NCD is a small or medium-sized bank, and 0 if the issuer is a large state-owned bank.
- The NCD issuance rate (*Yield*) is regressed on the interaction term  $Policy \times Banktype$ .

# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Event Study Analysis

- The coefficient of the interaction term  $Policy \times Banktype$  is significantly positive at the 1% level (Columns 1 and 2).
- After the introduction of the MLF tool, the NCD issuance rates of small and medium-sized banks increased significantly compared to those of large state-owned banks, exacerbating liquidity stratification in the banking system.
- Regression results using transaction-level NCD data show that the coefficient of  $Policy \times Banktype$  remains significantly positive (Columns 3 and 4).
- Placebo Test

Variables	(1) Yield	(2) Yield	(3) Yield	(4) Yield
Policy×Banktype	0.1092*** (0.0137)	0.0623*** (0.0218)	0.1536*** (8.7812)	0.0799*** (3.0804)
Control variable	N	Y	N	Y
Individual FE	Y	Y	Y	Y
Year×Month FE	Y	Y	Y	Y
Observations	6,445	3,336	50,124	37,322
Adjusted R-squared	0.9435	0.9595	0.9267	0.9379



# The "Mystery of Disappearing Liquidity" and the Structural Effect of Innovative Monetary Policy

## Structural Effects and Monetary Policy Stances

This study further investigates the heterogeneous impact of the base money supply structure on the NCD issuance rates of small and medium-sized banks under different policy stances, aiming to clarify whether the structural and aggregate effects of innovative monetary policy are coordinated.

Samples are divided into two groups based on the median of the MLF balance: those above the median are classified as the quantitative easing group, while those below form the quantitative tightening group.

In both the quantitative easing and tightening groups, the coefficient of *Bmstru* is significantly positive, but it is larger in the quantitative easing group (Columns 1 and 2).

The results remain consistent when monetary policy stances are identified using the HP filter (Columns 3 and 4).

	(1)	(2)	(3)	(4)
	The quantitative easing states	The quantitative tightening states	The quantitative easing states	The quantitative tightening states
Variables	Yield	Yield	Yield	Yield
<i>Bmstru</i>	9.7568*** (18.9743)	3.5431*** (10.7631)	16.7901*** (25.6946)	3.1645*** (14.2019)
Control variable	Y	Y	Y	Y
Bank × Year FE	Y	Y	Y	Y
Quarter FE	Y	Y	Y	Y
Month FE	Y	Y	Y	Y
Test of Group Differences ( <i>p</i> -value)	0.000		0.000	
Observations	10,175	7,005	8,239	9,012
Adjusted R-squared	0.8826	0.8410	0.8250	0.7785

# Further Analysis: How Liquidity Stratification Affects the Net Interest Margin of Small and Medium-Sized Banks

## Regression Model Design

- **Dependent variable:** Net interest spread (*NIS*)
- **Explanatory variable:** Base money supply structure (*Bmstru*)
- **To examine the impact of the base money supply structure on the interest income and expenditure of small and medium-sized banks**, the dependent variable is replaced with the growth of interest expenditure (*InterEx*) and the growth of interest income (*InterInc*), respectively.
- **Transmission to the asset side:** The dependent variable is replaced with the bank credit rate (*CreRatio*) to investigate the impact of the base money supply structure on bank credit rates.

$$NIS_{it} = \beta_0 + \beta_1 Bmstru_t + \beta_3 Controls_{it} + \nu_i + \varepsilon_{it}$$

# Further Analysis: The Relationship Between NCD Issuance Rates and Bank Lending Rates

## Empirical Conclusions

- The coefficient of the base money supply structure on the net interest spread (*NIS*) is significantly negative at the 5% level (Column 1).
- This indicates that the liquidity stratification effect resulting from the base money supply structure raises the NCD issuance rates of small and medium-sized banks, further leading to a narrowing of their net interest spread.
- The increase in NCD issuance rates raises the interest expenditure on liabilities for small and medium-sized banks (Column 2).
- To cover the higher interest expenses on liabilities, small and medium-sized banks increase interest income from the asset side (Column 3).
- The base money supply structure also leads to an increase in lending rates (Column 4).
- Changes in the base money supply structure further result in a compression of the net interest margin (*NIM*) for small and medium-sized banks (Column 5).

Variables	(1) NIS	(2) InterEx	(3) InterInc	(4) CreRatio	(5) NIM
Bmstru	-5.3276** (-2.2010)	0.2131** (2.3993)	0.2132*** (7.7401)	0.1550*** (4.3938)	-8.8459*** (-2.8125)
Control variable	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y
Observations	252	578	574	574	255
Adjusted R-squared	0.9250	0.7609	0.4032	0.2166	0.9027

# Further Analysis: The Relationship Between NCD Issuance Rates and Bank Lending Rates

## Robustness Tests

Since changes in the base money supply structure may also induce other factors that contribute to the decline in bank net interest spreads, the estimation results above may contain certain biases.

The base money supply structure leads to interbank liquidity stratification, which is primarily reflected in the increase in NCD issuance rates of small and medium-sized banks.

The explanatory variable is directly replaced with the NCD issuance rate of small and medium-sized banks (*Yield*).

The coefficient of the NCD issuance rate (*Yield*) is consistent with that of the base money supply structure.

Variables	(1) NIS	(2) InterEx	(3) InterInc	(4) CreRatio	(5) NIM
Yield	-0.1166** (-2.3267)	0.0041** (2.3890)	0.0031*** (6.1075)	0.0025*** (3.0401)	-0.2072*** (-3.5313)
Control variable	Y	Y	Y	Y	Y
Individual FE	Y	Y	Y	Y	Y
Observations	252	578	574	574	255
Adjusted R-squared	0.9261	0.7618	0.3788	0.2158	0.9059

# Conclusion and Implications

## Main Conclusions

1. Reforms in the central bank's monetary policy framework and the introduction of innovative monetary tools have led to structural changes in base money supply, significantly reshaping the liquidity landscape of the banking system.
2. As the share of claims on other depository corporations in base money supply increases, bank liquidity stratification becomes more pronounced. This is reflected in rising NCD issuance rates among small and medium-sized banks, while the rates of large state-owned banks remain unchanged.
3. Analysis of the central bank credit competition mechanism shows that weaker competitive positioning of small and medium-sized banks in accessing central bank credit strengthens the positive impact of the base money supply structure on their NCD issuance rates.

# Conclusion and Implications

## Main Conclusions

4. Analysis of the risk-bearing mechanism indicates that lower risk-taking by large state-owned banks amplifies the liquidity stratification effect driven by changes in the base money supply structure.
5. The aggregate effect of the MLF tool reduces bank liquidity stratification, while its structural effect—transmitted through the base money supply structure—raises NCD issuance rates of small and medium-sized banks. This structural effect is more prominent under accommodative monetary conditions.
6. Examining the impact of the base money supply structure on the net interest spreads of small and medium-sized banks reveals that rising NCD issuance rates increase their interest expenses, prompting them to raise interest income from assets. This transmission to lending rates contributes to higher financing costs for the real economy (“expensive financing”).

# Conclusion and Implications

## Summary of the Central Bank's Innovative Monetary Policies

1. Faced with weakening external demand and a decline in base money supply through foreign exchange purchases, the People's Bank of China actively adhered to a “self-determined” policy approach and introduced innovative monetary policy tools.

These measures injected necessary liquidity into the banking system and the real economy in a timely manner, effectively alleviating liquidity shortages on multiple occasions, “escorting” China's economy steadily into the new normal, and playing a key role in maintaining financial stability and supporting high-quality economic development.

# Conclusion and Implications

## Summary of the Central Bank's Innovative Monetary Policies

2. However, in practice, the structural and aggregate effects of innovative monetary policies can conflict, impairing the effective execution of both their structural and overall functions.

Due to the central bank's reliance on the liquidity stratification pyramid, innovative monetary policies exhibit certain structural effects, resulting in heterogeneous allocation of injected base money across different types of banks. This tends to raise liquidity costs for small and medium-sized banks and ultimately exacerbates liquidity stratification within the banking system.

3. Therefore, to enhance the effectiveness of central bank liquidity transmission and effectively support real economic demand stimulation, it is necessary to improve the development of a modern central banking system and better coordinate the aggregate and structural functions of innovative monetary policies.

# Conclusion and Implications

## Policy Recommendations

➤ Improve the base money supply mechanism and strengthen the role of innovative monetary policies in serving the real economy.

➤ Optimize the adjustment of both aggregate and structural functions of innovative monetary policies, and continue to actively promote the transition from quantitative to price-based policy tools.

➤ Enhance bank liquidity management, curb vicious competition in NCD issuance, and improve the capacity of small and medium-sized banks to support the real economy.



**You're welcome! I greatly appreciate your openness to feedback and constructive criticism.**



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