Proceedings of ICEMGD 2025 Symposium: Innovating in Management and Economic Development
DOI: 10.54254/2754-1169/2025.LH39223

A Literature Review of Liquidity Risk Management in Chinese Commercial Banks Based on the Basel III Framework

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Abstract. This paper looks at all the research that has been done on how Chinese commercial banks handle liquidity risk under the Basel III framework. The paper looks at how major liquidity regulations—Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR)—affect bank behavior, portfolio changes, and systemic stability by combining worldwide theoretical frameworks with Chinese institutional specifics. This article will focus on three schools of thought—the Constraint School, the Portfolio Adjustment School, and the Feedback Loop School—to show how regulatory thresholds affect banks' liquidity strategies. We create a single optimization model that shows how LCR and NSFR work together in the Chinese financial system when there are problems. Based on bank-level panel data, empirical findings show that compliance behavior is not the same across the board, especially across large state-owned banks and smaller city commercial banks. The research also looks at localized policy changes, problems with steady finance, differences in regional liquidity, and the hazards of regulatory arbitrage. It ends with suggestions for differentiated regulation and ideas for future study using micro-level data and stress testing that is enhanced by machine learning. The results add to the continuing conversation about how to make global regulatory frameworks more in line with the realities of emerging markets.

Keywords: Basel III, Chinese Commercial Banks, Liquidity Risk, Regulatory Arbitrage, Stress Testing

1. Introduction

After the global financial crisis of 2008, liquidity risk became a major factor in financial stability, which led regulators around the world to make their supervisory regimes stronger. The Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR) are two important liquidity regulation measures that Basel III adopted to reduce short-term and long-term liquidity risks,

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DOI: 10.54254/2754-1169/2025.LH39223

respectively. Even though these measures have been accepted around the world, they are hard to use in China because of market segmentation, institutional friction, and different banking behaviors.

This study's goal is to look at how Chinese commercial banks handle liquidity risk within the Basel III framework in a systematic way, taking into account the unique structural, regulatory, and behavioral aspects of the Chinese financial system. The study looks at the following questions in particular:

(1)How do LCR and NSFR work together in the Chinese market, and what do banks have to give up to keep their short-term liquidity and long-term funding stable?

(2)What are the real-life trends and best practices for managing liquidity risk at different kinds of Chinese banks, such as state-owned, city commercial, and private banks?

(3)How do regulatory arbitrage, market frictions, and differences between regions affect how banks act and how money flows in China?

This study answers these concerns by doing a layered literature review and theoretical analysis based on the Basel III framework and putting it in the context of China's financial system. In Section 2, we talk about the basic ideas and types of liquidity risk, and we make a difference between static and dynamic hedging methods. Section 3 looks at what LCR and NSFR do and analyzes three main schools of thought: Constraint, Portfolio Adjustment, and Feedback Loop. Section 4 creates a unified optimization model that shows how Chinese banks deal with several regulatory constraints while also dealing with local market frictions. Section 5 gives real-world examples of how banks of different sizes and locations are adapting to Basel III by making strategic changes to their portfolios and taking advantage of regulatory gaps. Finally, Section 6 looks at real-world problems and policy effects, using lessons learned from around the world to help China improve its rules in the future.

This work helps improve liquidity regulation in emerging markets by combining global theory with local knowledge. It not only shows how the Basel III liquidity regulations affect behavior and the system in China, but it also suggests new ideas for future research that are based on theory, evidence, and policy.

2. What is liquidity risk and why is it critical

2.1. Liquidity risk classification: funding liquidity vs. market liquidity; systemic vs. non-systemic

Liquidity risk is the potential that a bank won't be able to pay its short-term debts. There are two kinds of it: financing liquidity risk and market liquidity risk.

Funding Liquidity Risk is when a bank can't pay its debts on time, which usually arises when it has more short-term commitments than it has cash on hand [1]. This happens when a bank has to pay a lot to renew its debt or can't receive adequate short-term funding, like when a "bank run" happens.

Market Liquidity Risk is the risk that a bank will have trouble selling assets rapidly at their fair value [1]. The bank may have to sell assets at a loss if the market isn't busy.

There are two types of liquidity risk: systemic and non-systemic. During a financial crisis, systemic liquidity risk can damage the overall financial system. Non-systemic liquidity risk, on the other hand, only impacts some institutions, usually because of bad management or specific occurrences [2].

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2.2. Why commercial banks face liquidity challenges

Commercial banks are especially vulnerable to liquidity risk for several reasons:

Maturity Mismatch: Banks borrow short-term (like deposits) and lend long-term (like loans). This creates a problem when the bank cannot quickly turn assets into cash to meet short-term obligations, as long-term loans cannot be easily sold or quickly paid back [3].

External Shocks: Unexpected events, such as economic downturns or changes in interest rates, can limit a bank's ability to raise funds or sell assets. For example, during times of financial instability, commercial banks may struggle to secure financing [4].

Confidence Effects: A bank's liquidity often depends on the confidence of its customers and investors. If depositors believe the bank is in trouble, they may withdraw their funds, which can lead to a liquidity crisis [5].

2.3. Analysis on liquidity advantage in the credit market

2.3.1. Digital transformation and pandemic-induced evolution of liquidity risk

For Chinese banks, these global trends interact with local challenges. This calls for updated liquidity management strategies that use digital technologies while aligning with Basel III requirements. Traditional liquidity definitions must now include the effects of real-time platforms and changing customer behaviors.

At the same time, the rapid rise of digital banking has changed how liquidity risk emerges and spreads. Mobile banking and instant transfers have made deposit withdrawals faster, raising the risk of 'digital bank runs'. However, digital tools also give banks real-time data and better control over liquidity, helping them respond more quickly [6].

The COVID-19 pandemic has reshaped how banks view and manage liquidity risk. During the crisis, sudden deposit withdrawals, reduced cash flows, and regulatory uncertainty made liquidity risks more volatile and harder to predict [6, 7]. These conditions highlighted the importance of stronger liquidity buffers and more flexible stress testing frameworks.

2.3.2. Redefining liquidity risk in the post-pandemic and digital banking era

Gatev and Strahan say that banks have a special edge when it comes to liquidity in the credit markets. Banks can control the flow of deposits in and out, which means they can lend money to businesses even when the market is stressed [8]. Banks can change their liquidity by using their deposits to meet short-term demands. They say that banks can give out longer-term loans and handle liquidity issues better than lenders that aren't banks.

2.4. Summary: why liquidity management is core to bank stability

Effective liquidity management is essential for the stability of banks. The classification of liquidity risks into funding and market risks, along with the reasons why banks are vulnerable to liquidity problems (like maturity mismatches, external shocks, and confidence effects), shows the importance of liquidity management. Banks have natural advantages in managing liquidity, as Gatev & Strahan explain, and this is especially important in developing markets like China, where the regulatory and market environment may limit liquidity options [8].

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3. How do regulatory frameworks and measurement methods shape liquidity risk management

This part looks at how Basel III's liquidity rules, especially the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR), affect how Chinese commercial banks manage their liquidity risk. It does this by combining global and local points of view to show how these rules affect behavior, structure, and the system as a whole.

3.1. Basel III liquidity indicators

3.1.1. LCR (Liquidity Coverage Ratio): short-term solvency

The Liquidity Coverage Ratio (LCR) makes sure that banks have enough high-quality liquid assets (HQLA) to go through a month of financial stress. It serves as a short-term safety net to keep the business solvent during times of low cash flow. Compared to prior indicators, LCR is better at handling abrupt outflows and encourages more cautious liquidity management [9, 10].

3.1.2. NSFR (Net Stable Funding Ratio): medium- to long-term stability

The Net healthy Funding Ratio (NSFR) helps keep the economy healthy in the long run by making banks use more stable, long-term debts to pay for their assets. This means that you don't have to borrow money as often for short periods of time, and it also lowers the risk of having trouble getting money [11].

LCR and NSFR are the two main methods that Basel III deals with liquidity risk. They help fix difficulties that cropped up during the 2008 crisis by finding a balance between short-term cash requirements and long-term finance plans.

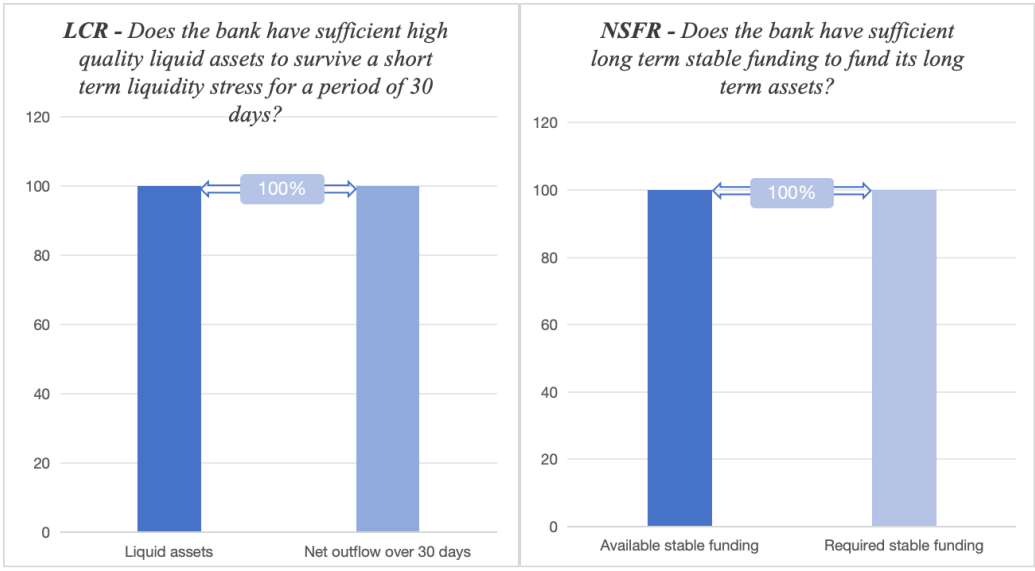

Figure 1. The main differences between the LCR and the NSFR under Basel III

DOI: 10.54254/2754-1169/2025.LH39223

3.2. Comparative literature review: integrating global and Chinese perspectives on liquidity regulation

Researchers have looked at how Basel III's liquidity rules change how banks function, going beyond just following the rules to look at how they affect the whole financial system. The literature can be divided into three main schools of thinking based on 34 important studies:

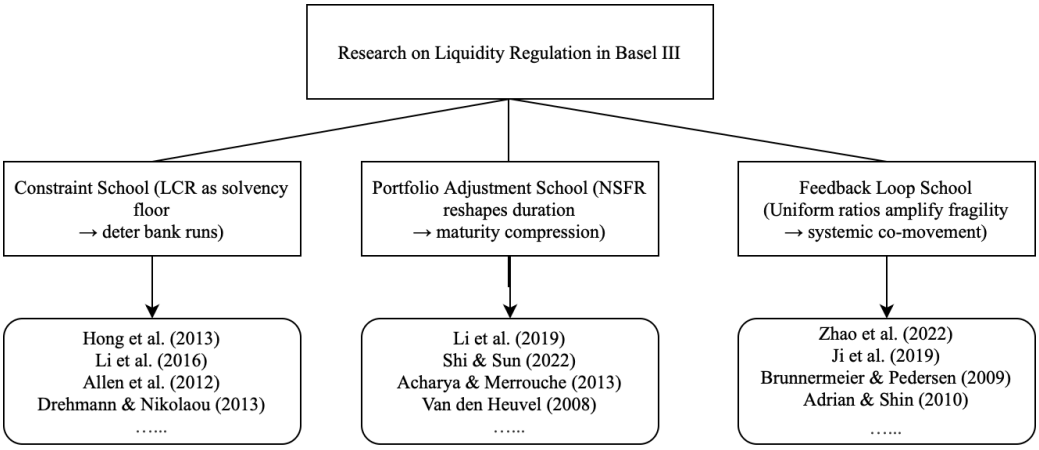

Figure 2. Three analytical traditions in Basel III liquidity regulation literature

3.2.1. Constraint school: LCR as a solvency threshold

LCR is seen as a very important safety measure under this approach. Chinese research demonstrates that it helps keep people from running to the bank and creates trust in depositors. But stronger LCR levels can make it harder for small businesses to get credit, which can make the economy tighter in ways that weren't planned [9, 10]. International experts say that LCR could break up markets or encourage people to hold too much cash [12, 13].

3.2.2. Portfolio adjustment school: regulatory-induced balance sheet shifts

In this case, liquidity rules are understood as limits that change the composition of bank portfolios. Some Chinese banks shorten loan terms to meet NSFR standards, while others lengthen them to take advantage of higher yields [14]. This is also true in global research, which demonstrate that banks move assets to safer securities, even if it means lending less [15].

3.2.3. Feedback loop school: endogenous systemic risk amplification

This younger school says that having the same standards for liquidity can make the whole system more risky. Chinese research demonstrate that stringent LCR enforcement can make the risk of default go up during times of stress [16, 17]. International work stresses that strict rules can cause liquidity spirals across the entire market, especially when banks hold onto HQLA [1, 18].

3.2.4. Comparative summary and implications for Chinese adaptation

In short, LCR and NSFR make banks more resilient, but they also change how banks work in complicated ways. Depending on how institutions are set up, the same rules might lead to radically

DOI: 10.54254/2754-1169/2025.LH39223

different results. Chinese banks may need specific thresholds to handle these trade-offs well because their markets are divided and there are limits on what they can do by law.

Table 1. Comparative view of liquidity regulation literature

Analytical School	Chinese Perspective	International Perspective	Core Insight / Tension
Constraint School	Jiang et al., (2022); Li et al., (2017):LCR enhances depositor confidence, but may suppress SME lending during tightening cycles.	Ma et al., (2022); Jin et al., (2022):LCR enforces safety buffers, yet risks market segmentation and liquidity hoarding.	LCR offers solvency assurance but can inadvertently reduce credit supply and interbank efficiency.
Portfolio Adjustment School	Li et al., (2025); Shi & Sun (2022): NSFR pressures drive maturity shifts, with divergence across bank ownership types.	Boamah et al., (2023):Regulatory constraints trigger capital reallocation toward low-risk assets.	Liquidity rules reshape asset allocation, with behavior shaped by institutional structure and strategic incentives.
Feedback Loop School	Ding et al., (2025); Shi et al., (2018): High LCR levels amplify systemic risk under stress via market fragmentation.	Brunnermeier & Pedersen (2009); Adrian & Shin (2010): Liquidity spirals emerge from regulatory-induced procyclicality.	Uniform rules can act as amplifiers of systemic fragility, especially in segmented or shallow markets.

These three schools of thought agree that liquidity requirements like LCR and NSFR significantly influence how banks manage their portfolios. However, they differ on how these behavioral changes affect the financial system as a whole. This gap in understanding motivates the development of our unified model in Section 3.3. By combining insights from each school, the model helps explain how banks in China respond to both short- and long-term liquidity rules under real-world constraints. Unlike many existing studies that focus only on static rule compliance or isolated policy effects, our model captures how these regulations interact with market-specific factors—such as interest rate ceilings, fragmented deposit bases, and off-balance-sheet activities—providing a more dynamic and realistic framework for liquidity risk analysis.

3.3. Toward a unified LCR–NSFR interaction model under Chinese market frictions

3.3.1. Model assumptions and variable definitions

We create a stylized utility-maximizing model that shows how Chinese banks deal with many liquidity needs at the same time. This model shows the trade-offs between profit, risk, and following the rules. The model assumes that a typical bank picks its portfolio structure, which includes loans, deposits, and cash, while following the LCR and NSFR rules mandated by Basel III. Every choice has an impact on both profits and the costs of following the rules.

The bank gets the most out of its planned utility by balancing profits with risks and penalties. It also adapts to market problems that are unique to China, like segmented deposit markets, interest rate limits, and limited access to steady long-term funding. The expense of retaining liquid assets, the penalty for not having enough NSFR, and the bank's dislike of risk are all important factors.

3.3.2. Model construction and calculation

The model that maximizes utility in this study reveals how banks adjust how they keep their assets and debts when two sets of laws are in place. The Liquidity Coverage Ratio (LCR) says that banks

DOI: 10.54254/2754-1169/2025.LH39223

need to have a short-term buffer against liquidity shocks. The Net Stable Financing Ratio (NSFR), on the other hand, looks at how stable long-term financing is. How these two rules work together has a huge effect on how banks deploy their resources, especially when things are tough.

According to simulation-based findings, banks tend to maintain more high-quality liquid assets when short-term liquidity demands rise. This conduct makes it easier for businesses to follow the rules, but it also unintentionally makes it harder for them to get credit, especially small and medium-sized businesses that are more likely to lose funding.

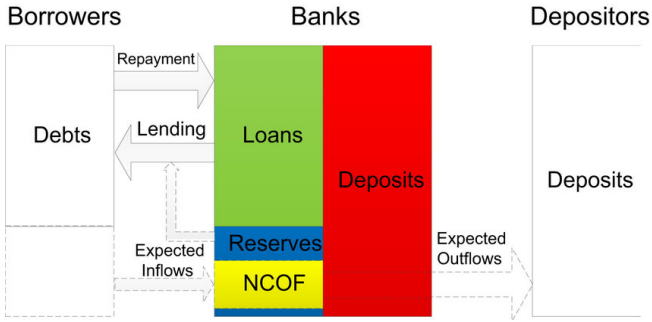

Figure 3. Schematic flow of bank credit creation under the LCR constraint. Source: [9]

Proposition 1: Strategic Substitution Between Constraints

The model reveals that banks do not treat LCR and NSFR as isolated requirements. Instead, they engage in regulatory arbitrage by rebalancing their portfolios toward the relatively less costly constraint. When short-term liquidity buffers become expensive to maintain, banks strategically substitute toward more stable, long-term funding—even if this alters their risk-return profile.

Proposition 2: Asymmetry Across Bank Types

Differences in bank size and funding capacity lead to distinct compliance behaviors.Big banks controlled by the government can change how they get money and deal with regulatory obligations in a way that works. Smaller banks, on the other hand, often have too much exposure to one type of liquidity but not enough compliance with another since they can't get enough capital and the rules are too strict. This structural imbalance makes responses to systemic shocks unequal.

The model indicates that it's vital to have different kinds of laws in different sectors of the financial system. If everyone had to follow the same rules for liquidity, it may have bad effects, especially for banks that can't readily adjust. Regulations that are tailored to the needs of each institution and the problems that come up in the market are more likely to keep the economy stable and make sure that regulation works.

3.4. Empirical evidence on China's localization of Basel III liquidity standards

Basel III sets a single worldwide norm for regulating liquidity, but China has taken a gradual approach to adapting these standards to its particular financial and institutional needs. Chinese regulators didn't put the whole system into place all at once. Instead, they slowly added liquidity requirements, changing the thresholds and supervisory priorities based on the demands of different banking sectors. This section looks at real-world data from three key moments in the development of this legislation. It also talks about how these changes have affected the behavior of banks, the structure of the sector, and the flow of money and regulatory policy in general.

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3.4.1. Policy evolution and implementation phases

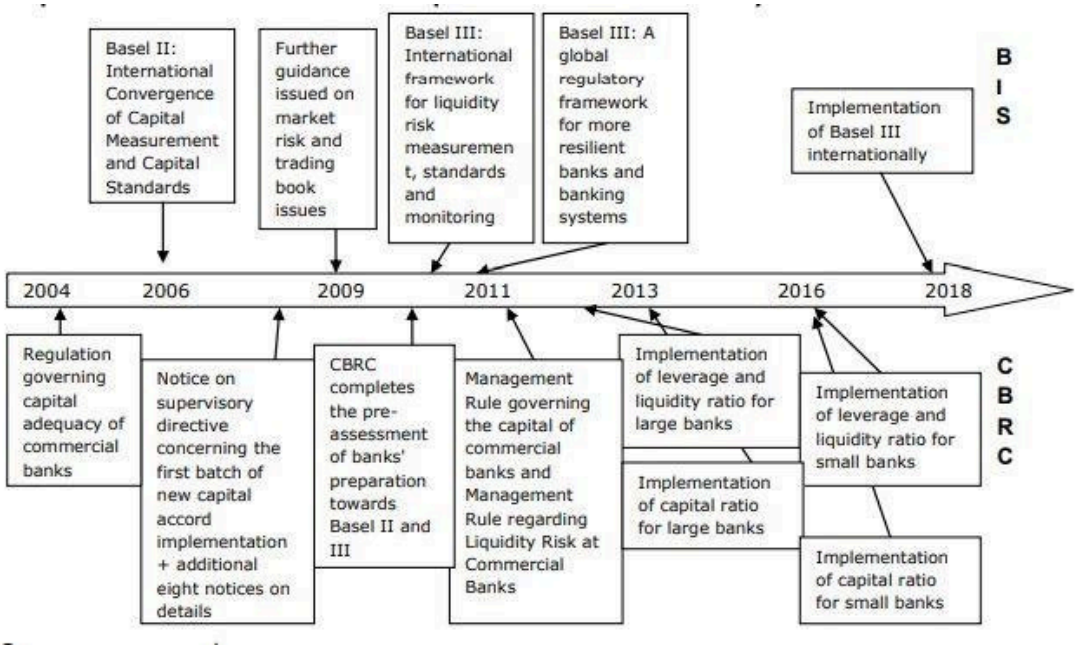

Figure 4. The basel accords' implementation timeline: China versus the rest of the world. Source: [19]

China has been slowly putting the Basel III liquidity standards into place in a way that is flexible and adaptable. The first implementation happened in big banks, and then it spread to smaller ones. Eventually, they became part of macroprudential policy frameworks. After COVID, authorities put in place adjustable thresholds and stress-responsive buffers to make the framework more flexible in response to changing economic situations.

The modifications in the rules mean that compliance will no longer be based on stringent rules, but will instead be based on a more flexible and adaptable system of supervision. This flexibility made it easier to quickly change the focus of regulations and the level of enforcement during times of systemic stress, like the pandemic.

3.4.2. Bank responses and behavioral adjustments

Banks have reacted to these changing rules in different ways. When LCR standards got stricter, big banks tended to borrow less money from other banks for short periods of time and lend less money to small businesses. You can see these effects, but just below the regulatory level, a bigger pattern starts to show up.

As the asset cutoff got closer to 200 billion RMB, a number of mid-sized banks began to use off-balance-sheet vehicles like wealth management products (WMPs) more and more. This move is an example of behavioral substitution: banks looked for ways to make money while still looking like they were following stable funding requirements. This strategy basically adjusts how responsibilities are grouped so that they don't have to pay regulatory costs.

This strategy change is important since it fits with what has been seen in Europe. Banks in different countries lowered their lending to small and medium-sized businesses and their exposure to other banks when the LCR was adopted. This shows that banks reacted in a similar way to liquidity limits, even if their structures were different.

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3.4.3. Causal mechanisms: from indicators to balance sheet adjustments

The dual-constraint mechanism helps us understand these trends better: banks must meet both short-term liquidity (LCR) and long-term funding (NSFR) needs at the same time. When these limits come together, banks have to either store more liquid assets or acquire more dependable funding, which is frequently more expensive.

This pressure is especially strong for mid-sized banks, which don't have many different ways to get money and rely largely on short-term wholesale borrowing. These banks find it hard to achieve both regulatory goals at the same time, both in terms of operations and money.

Because of this, many people turn to regulatory arbitrage, especially by using WMPs more. These tools let banks avoid NSFR penalties by moving debts off the balance sheet, which hides their funding weaknesses. These kinds of actions may help in the near term, but they also make things less clear and make liquidity regulation less trustworthy.

3.4.4. Structural factors: regional heterogeneity and shadow intermediation

There isn't an even distribution of regulatory workarounds. Local banks are more likely to have loan cycles and liquidity swings in areas where the government relies more on land-based revenues. Studies like Guo and Zhou suggest that banks in these areas are more prone to use WMPs to get around NSFR limits, which makes the system even more opaque.

These patterns show that the structure of the economy in a region and how the government reacts are closely related. When financial institutions are less sure about their finances, they are more prone to use aggressive liquidity management techniques, some of which could put the stability of the whole system at risk.

3.4.5. International comparison and policy translation

China's flexible attitude, notably during COVID, is very different from the EU's strict execution of Basel III. Some people feel that adjusting the rules when the economy changes has helped keep things from getting too tight when times are rough.

But this freedom comes with some costs, such rules that aren't clear, enforcement that isn't fair, and increasing use of shadow instruments like WMPs. These changes make Basel III less useful and might even make people want to disguise their risks.

China's case underscores how crucial it is to adapt global financial rules to the demands of local businesses. But this flexibility needs to be checked on a regular basis. If shadow intermediation, especially WMPs, isn't looked at more closely, it could hurt the credibility of liquidity regulation. Reforms in the future should look into ways to retain flexibility while removing loopholes that help banks avoid genuine funding limits.

3.5. Summary

Liquidity regulation in China is no longer a matter of static rule adoption, but of dynamic system design. The country's evolution from global standards to local adaptation offers a laboratory for testing how financial institutions navigate trade-offs between solvency, liquidity, and efficiency. A robust research agenda that integrates theory, data, and international experience will be key to designing sustainable regulatory architectures in the post-Basel era.

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4. What strategies and models optimize liquidity risk management

4.1. Common liquidity management strategies

4.1.1. Asset-liability structure optimization strategy

Debt term structure refers to the fact that long-term assets are funded by long-term capital and short-term assets are funded by short-term capital. In the real economy, it is not usually observed that firms implement perfect term matching. On the contrary, the firm implements the mismatch of investment and financing terms, and finances long-term investments using short-term loans. Banks will carry out liquidity risk management by managing the loan term structure, such as reducing long-term credit and increasing short-term loans.

Moreover, by securitizing illiquid assets, such as mortgage loans, and converting them into tradable liquid assets, one can enhance the liquidity of the assets [12].

4.1.2. Dynamic adjustment and stress testing

Banks calculate the optimal NSFR level with the PAM model based on their capital adequacy ratio and business model [11]. For example, banks with a high proportion of retail loans are allowed to have a lower NSFR target. The PAM model takes into account the costs such as the interest rate of issuing long-term liabilities to avoid the impact of aggressive adjustments on profits.

In addition to this, banks quantify the liquidity gap by simulating extreme scenarios of a "downturn in the property market" and a "steep rise in interest rates" [20-22]. Based on the result of the stress test, banks are expected to build up diversified financing channels such as interbank lending and central bank lending facilities so that banks can obtain funds in a timely manner during a crisis.

4.2. Model comparison and empirical review

S. Ma et al. applied Loan-weighted liquidity hoarding (LWLH) to calculate the shock of liquidity hoarding faced by firms with weighted bank loan weights and proved that LWLH would amplify the mismatch of maturity between firms' financing and investment, i.e., shorten the loan terms of firms or reduce the proportion of long-term credit [12]. But the model's categorization of bank balance sheet items into type (e.g., illiquid assets and liquid assets) can be discretionary, and the criteria for categorization applied can affect the precision of the LWLH indicator.

M. Li et al. applied The Partial Adjustment Model dynamically to forecast the target level and adjustment rate of banks' net stable funding ratio (NSFR) based on the influence of regulatory policy and capital adequacy ratios [11]. It hypothesizes that the NSFR adjustment rate (λ) is a constant in the long run or among different banks. But in practice, differences in funding costs, sizes, and risk appetites among banks can lead to large differences in their adjustment abilities.

Q. Shi et al. applied Bipartite Financial Network Model to build the network with asset types and banks as nodes to examine the transmission channel of systemic risks caused by the common asset exposure [14]. The model does not consider, however, that actual financial risks would evolve in nonlinear processes.

Kalimash et al. and Ndoka et al. used the OLS model when examining how liquidity measures influence bank performance [23, 24]. The study found that an extremely high current ratio will suffocate profits, but a moderate loan-to-deposit ratio, cash reserves and capital adequacy ratio will

DOI: 10.54254/2754-1169/2025.LH39223

enhance earnings. A low quick ratio or interest coverage capability may reduce equity return, but a high loan-to-asset ratio can improve performance. These findings affirm the balancing function of the capital adequacy ratio (CAR) in Basel III on the stability and profitability of banks and support the practical applicability of regulatory measures.

Alta 'ani used multiple linear regression in examining the relationship between the liquidity gap and profits of Albanian commercial banks and found that Cash is negatively correlated with PBT, i.e., holding excessive cash would decrease profits due to opportunity costs [25]. GAP is negatively correlated with PBT, i.e., the increase in the liquidity gap will heighten risks and compromise returns.

4.3. China's commercial banks' practice analysis

The state-owned banks realize liquidity optimization through strict asset classification management, dividing credit assets into "held-to-maturity" and "trading" based on the maturity and risk levels. The former assures liquidity by holding high-rated bonds, while the latter responds to market fluctuations by dynamically adjusting the trading account size. Additionally, the state-owned banks rebalance the maturities of assets through utilizing the loan-weighted liquidity Hoarding (LWLH) model, provide long-term credit but strictly control maturity mismatch. When confronting liquidity hoarding, the state-owned banks will more likely reduce risks by shortening the loan term of firms, and the reducing rate of their proportion of long-term credit is 17.6% faster than city commercial banks. Meanwhile, a dynamic adjustment model of the Net stable funding Ratio (NSFR) was brought in. The target level was 130%, 30 percentage points higher than the regulatory minimum requirement, and the adjustment speed was 0.48 times annually. Besides, as systemically important banks, they rigorously implement the Macroprudential Assessment (MPA) system. When the growth rate of broad credit exceeds the growth rate of M2 by 22%, they voluntarily cut down on interbank business and non-standard investment in order to avoid the liquidity gap.

City commercial banks allocate 30% to 40% of their assets to regional infrastructure and small and micro enterprises. They set the NSFR target at 115% to 120% according to the PAM model, with an adjustment speed of 0.35 times annually, and utilize regional interbank lending to regulate liquidity. Besides, city commercial banks implement a "dual limit" management policy for real estate loans. But the too-high regional concentration will create liquidity volatility, and the frequency of using the central bank's lending facility instruments is 30% higher than that of state-owned banks.

The private banks predict customer cash flow through machine learning models, shorten the consumer credit securitization cycle to 7 days, and the asset securitization volume amounted to 18% of the assets in 2020. Relying on their poor deposit absorption capacity, they utilize interbank certificates of deposit and central bank lending facilities (e.g., SLF and MLF) to complement liquidity. Their liability costs are 50-80 basis points higher than those of state-owned banks, and the regulatory effect of ESG disclosure on liquidity stability is relatively poor.

4.4. Summary

Liquidity risk management strategies are diverse. In actual use, nevertheless, a balance between strategy diversity and reality adaptability has to be found. Different types of banks, market environments, and business natures require managers to select appropriate management strategies and models based on their respective circumstances. In the future, together with the constant

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development of the financial market, liquidity risk management strategies need to be innovated and optimized constantly in order to cope better with increasingly complex risk issues.

5. What are the main challenges and future lessons

5.1. Practical challenges faced by Basel III indicators

5.1.1. "Hoarding liquidity" → market distortion

Basel III requires banks to hold highly liquid assets to meet indicators like the LCR. Theoretically, this bolsters risk resilience. Yet in practice, excessive hoarding of high - quality liquid assets (e.g., government bonds, central bank bills) by banks causes market distortions. A large volume of these high - quality assets sits on banks' balance sheets, shrinking the supply of tradable high - quality liquid assets in financial markets. This drives up asset trading prices and saps market liquidity. Meanwhile, real - economy sectors such as enterprises struggle to secure these high - quality assets from financial markets for mortgage financing. This indirectly lifts financing costs, impedes the "funds shift from virtual to real", and disrupts financial markets' resource - allocation function.

5.1.2. Regulatory arbitrage and insufficient information disclosure

Complex financial innovations provide a breeding ground for regulatory arbitrage: Some banks use asset securitization, financial derivatives trading, etc., to disguise low - liquidity assets as "high - liquidity assets that meet regulatory requirements" to achieve superficial compliance with indicators such as the LCR. In fact, it buries potential risk hazards. For example, long - term non - standard assets are packaged and layered, and the underlying high - risk and low - liquidity assets are structured in a way that they are misidentified as high - quality liquidity reserves in indicator calculations.

Insufficient information disclosure exacerbates "information asymmetry" in the market. Banks do not fully disclose the details of their liquidity risk management strategies and asset - liability structures. As a result, investors and regulators find it difficult to accurately assess the real liquidity risks of banks. When the market fluctuates, vague information can easily trigger panic runs. Moreover, regulators can hardly detect the liquidity risks that banks cover up through "financial statement window - dressing" in a timely manner, weakening the effectiveness of regulation. As a result, investors and regulators find it difficult to accurately assess the real liquidity risks of banks. When the market fluctuates, vague information can easily trigger panic runs. Moreover, regulators can hardly detect the liquidity risks that banks cover up through "financial statement window - dressing" in a timely manner, weakening the effectiveness of regulation.

5.2. Challenges in the Chinese context

5.2.1. Difficulties in stable financing for small and medium - sized banks

Compared with large state-owned banks, small and medium-sized banks such as city commercial banks and rural commercial banks face intrinsic disadvantages in stable financing. They suffer from limited brand recognition and narrow funding sources, often relying on local deposits and interbank borrowing. During economic downturns or regional financial stress—such as real estate market shocks—these banks see faster deposit outflows and shrinking interbank access due to risk aversion.

DOI: 10.54254/2754-1169/2025.LH39223

As a result, their cost of stable financing is higher, maturities are shorter, and matching long-term credit assets becomes increasingly difficult.

In addition, regulations from the PBOC and CBIRC, including credit quotas and asset allocation mandates, often constrain these banks' flexibility in managing liquidity, forcing them to hold low-liquidity assets or excess reserves, which amplifies their funding fragility.

5.2.2. Differences in liquidity transmission among regions

China's unbalanced regional development causes significant disparities in liquidity transmission. In the eastern coastal regions, financial markets are deeper, banks have better funding channels, and liquidity circulates more efficiently. By contrast, banks in central and western regions, heavily reliant on traditional deposit-loan models, lack access to developed secondary markets and qualified counterparties, limiting their ability to recycle liquidity.

Even when the central bank injects funds through tools like MLF, liquidity often "stays" in financial hubs and fails to reach less developed areas, reducing monetary policy's effectiveness. This uneven distribution creates structural liquidity asymmetries that complicate risk management for smaller regional banks.

5.3. Insights from international literature

5.3.1. Gatev's participant model

The "liquidity spiral" model proposed by scholars such as [8] Gatev reveals that the liquidity risk of banks is highly correlated with the behavior of market participants. When a bank suffers a liquidity shock (such as the loss of a large amount of deposits), it will urgently sell assets to obtain cash, resulting in a decline in asset prices; Other banks, due to asset depreciation and exposure of risk positions, will also follow suit and sell assets, forming a negative spiral of "selling - price decline - more selling", which aggravates systemic liquidity risks. This implies that Chinese regulators and banks that liquidity management cannot only focus on the indicators of individual institutions, but also pay attention to the linkage effect of "banks - market - investors", and establish an inter - institution and inter - market liquidity monitoring mechanism to early warn of risk transmission caused by group behavior.

5.3.2. Hong's criticism of the LCR setting

Scholars such as [26] Hong point out that there is a "one - size - fits - all" problem in the setting of the LCR indicator: Uniformly requiring banks to hold high - liquidity assets ignore the differences in business models and risk preferences of different banks. For example, retail - oriented banks rely on stable deposits, and their liquidity pressure is inherently lower than that of banks with a high proportion of inter - bank business. However, the LCR does not distinguish such differences, which may lead to retail - oriented banks hoarding assets excessively and sacrificing profitability; For banks with a high proportion of inter - bank business, the complex liquidity risks (such as the maturity mismatch of "borrowing short - term and lending long - term" in inter - bank funds) cannot be fully covered only by the LCR indicator. This suggests that in regulatory practice in China, it is necessary to refine the adaptability of indicators and design differentiated regulatory requirements according to bank types and business structures.

DOI: 10.54254/2754-1169/2025.LH39223

5.3.3. Constraints from regulatory structures and market systems

Banks must follow global rules like LCR and NSFR under Basel III. But using these the same way at all Chinese banks could not take into account the realities of the institutions and regions. For example, Chinese banks have very different ways of getting money, dealing with regulations, and running their businesses. Banks that specialize on retail customers depend more on stable deposits from those customers. Banks that perform a lot of interbank or shadow banking, on the other hand, have more volatile liquidity.

The Chinese financial system is still moving toward being fully market-based. Standardized rules don't work as well when there are illiquid products, risk-pricing mechanisms that aren't fully matured, and implicit promises. Regulatory instruments need to work with China's divided markets and layered policy regulations, especially for banks that are medium or small in size.

5.4. Suggested directions for China's liquidity risk management policies

This section suggests an integrated framework of policy orientations that strikes a compromise between global regulatory consistency and localized adaptation, based on both theoretical modeling and real-world facts, as well as China's institutional circumstances. The goal of these suggestions is to make liquidity regulation more effective under two sets of rules (LCR and NSFR) and make the system more stable without making it less flexible.

5.4.1. Indicator fine-tuning: adapting to the local market

To make China's marching orders fit with China's one-of-a-kind financial system, they should be localized and changed as needed. For example, the definition of High-Quality Liquid Assets (HQLA) may be changed to include qualified local government bonds and green financial instruments. This would help achieve national policy goals while also increasing the amount of liquid assets available.

The LCR's assumptions about the stability of retail deposits may be modified for small and medium-sized banks because they have a strong presence in certain areas and customers tend to stick with them. This would reduce unneeded regulatory stress. Also, future study should look into liquidity metrics based on elasticity instead than fixed compliance levels. These metrics would show how much liquidity costs change when things go tough.

5.4.2. Classified supervision: differentiated policies

Given the significant heterogeneity in bank size, funding models, and systemic importance, a tiered and risk-sensitive supervision framework is essential.

Large state-owned banks should be held to higher macroprudential expectations and act as "systemic liquidity anchors," participating in national liquidity mutual assistance mechanisms and absorbing counter-cyclical policy buffers.

City and rural commercial banks, whose liquidity is more vulnerable to regional economic cycles, should focus on deposit stability and credit quality. For them, simplified tools like regional interbank liquidity pools or municipal bank cooperation frameworks can improve liquidity resilience.

Private and internet-based banks require dedicated monitoring of digital liquidity flows, including targeted stress testing for instantaneous digital withdrawals and tailored oversight of their liability-side innovations.

DOI: 10.54254/2754-1169/2025.LH39223

5.4.3. Macro-prudential coordination: synergistic policy implementation

Liquidity risk management must operate within a broader macro-financial context. Monetary policy easing (e.g., RRR or interest rate cuts) should be coordinated with macroprudential adjustments to avoid misaligned incentives and excessive risk-taking.

In expansionary cycles, counter-cyclical capital buffers for systemically important banks can restrain credit overextension.

In tight liquidity environments, tools such as the Medium-term Lending Facility (MLF) or Total Loss-Absorbing Capacity (TLAC) bonds should be deployed with precision to channel liquidity to more vulnerable banks.

To improve transparency, regulatory agencies should disclose how LCR and NSFR metrics factor into Macroprudential Assessment (MPA) scoring, enhancing both market discipline and policy credibility.

5.4.4. Dynamic monitoring and data-driven supervision

Traditional static assessments of liquidity compliance are increasingly inadequate. China should promote the development of dynamic monitoring systems, integrating supervisory filings with high-frequency indicators like real-time HQLA buffers, interbank spreads, and repo market pricing.Furthermore, adopting agent-based models (ABM) or network simulations could capture system-wide interactions and feedback loops among banks under stress. Combining loan-level data with supervisory metrics (e.g., MPA scores) will enable regulators to identify behavioral substitution, arbitrage activities, and liquidity spiral risks in a more granular and anticipatory manner.

5.5. Summary of this section

In the future, liquidity supervision needs to find a balance between "stability" and "flexibility": It is necessary to build a risk bottom line through the Basel III indicator framework to prevent systemic liquidity crises; At the same time, it needs to adapt to the reality of "large regional differences and diverse banking systems" in China's financial market. Through indicator fine - tuning, classified supervision, and policy coordination, banks are given more flexible space for risk management. Only in this way can liquidity supervision truly "fit the market and serve the real economy", and both safeguard financial security and stimulate financial vitality.

6. Conclusion

Through systematic sorting out of "the definition and importance of liquidity risk", "regulatory systems and measurement", "management strategies and methods", and "challenges and future insights", the core findings can be summarized as follows:

Liquidity risk has the dual attributes of "funds and market" and "systemic and individual", and is the "core threat" to the stable operation of banks. Its outbreak may quickly evolve into a systemic crisis through mechanisms such as maturity mismatch and confidence transmission (such as the 2008 financial crisis and the risk events of small and medium - sized banks in China).

Indicators such as the LCR and NSFR under the Basel III framework set hard constraints for banks from the dimensions of "short - term solvency" and "long - term stability", promoting the standardization of risk management. However, due to problems such as "difficulties in localizing

DOI: 10.54254/2754-1169/2025.LH39223

and adapting international rules" and "spaces for regulatory arbitrage", there is a tension with the actual behavior of banks.

Static models (such as reserve analysis) provide basic risk monitoring tools for banks, and dynamic methods (such as stress testing) are more in line with complex market changes; However, due to differences in business models among different banks (state - owned banks, city commercial banks, private banks), there are significant differences in the effectiveness of strategies, and "bank - specific policies" are needed.

International regulatory indicators face "market distortions" and "arbitrage loopholes", and domestic challenges in China focus on "difficulties in financing for small and medium - sized banks" and "differences in regional transmission". It is necessary to optimize regulatory tools in combination with international literature (such as Gatev's model and Hong's criticism) to balance "risk prevention and control" and "financial vitality".

Core Liquidity Risk Dilemmas of Chinese Commercial Banks include: (1) the adaptation pressure of international rules, as aligning with Basel III introduces conflicts between global regulatory standards and local financial realities—such as the scarcity of eligible liquid assets and the challenge of supporting real-economy lending while maintaining compliance; (2) constraints stemming from domestic market structure, including significant disparities across bank sizes and regions, where small and medium-sized banks often face persistent stable funding difficulties and regional liquidity imbalances hinder effective monetary transmission; and (3) lagging management strategies, with some banks relying on passive compliance rather than proactive, technology-driven liquidity risk models, making them less prepared to address emerging threats from financial innovation like digital currency and internet-based credit platforms.

6.1. Future research directions: micro - data + empirical verification

It is recommended that future research focus on "precision and localization" empirical analysis:

Mine individual bank data (such as item - by - item deposit withdrawal records and asset transaction flows), build a liquidity risk transmission model of "bank - customer - market", and accurately identify the impact of different businesses and customer groups on liquidity.

Use machine learning (such as random forests and neural networks) to optimize liquidity stress test scenarios, and combine with the cycles of China's financial market (such as the real estate regulation cycle and the monetary policy transition period) to verify the "counter - cyclical effectiveness" of indicators such as the LCR and NSFR; Use the difference - in - differences model (DID) to evaluate the actual effects of policies such as classified supervision and indicator fine - tuning.

6.2. Innovation of regulatory tools: adapting to the Chinese market

To promote the "customized" upgrade of regulatory tools, three directions need to be focused on:

Digital Monitoring: Build a "national liquidity risk monitoring platform", integrate data from the inter - bank market, securities market, and real - economy enterprises, and use big data and blockchain technology to track the flow of funds and fluctuations in asset prices in real time, and early warn of the risks of the "liquidity spiral".

Differentiated Tools: Design "liquidity incentive tools" for national strategic businesses such as green finance and inclusive finance (such as giving priority to including green assets in high - quality liquidity reserves); For small and medium - sized banks, explore "regional liquidity mutual

DOI: 10.54254/2754-1169/2025.LH39223

assistance funds" and "local government - bank liquidity co - sharing mechanisms" to alleviate the pressure of stable financing.

Dynamic Adjustment Mechanism: Establish a "counter - cyclical adjustment" rule for regulatory indicators, and dynamically adjust the assessment thresholds of indicators such as the LCR and NSFR according to the macro - economic heat and financial market fluctuations (such as M2 growth rate and inter - bank borrowing interest rate), so as to avoid "strengthening risks in a pro - cyclical manner" (such as excessively tightening indicators during an economic downturn and exacerbating banks' reluctance to lend).

Liquidity risk management of Chinese commercial banks needs to seek a balance between "international rules" and "local practice", and between "risk prevention and control" and "financial innovation". By deepening theoretical research, optimizing regulatory tools, and strengthening banks' active management capabilities, a liquidity risk management system that "adapts to the Chinese market and takes into account both security and vitality" can be built, so as to build a "liquidity safety net" for finance to support the real economy.

Acknowledgment

Jiongzhuo Li, Ruize Chen, Yaqi Zhao and Mingjie Li contributed equally to this work and should be considered co-first authors.

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