

DISSERTATION SUMMARY INTRODUCTION

1. Rationale for the Study

Liquidity risk is a critical risk for commercial banks, arising from their maturity transformation function, whereby short-term funding is used to finance longer-term assets. Recent financial crises and the failures of several banks have demonstrated that liquidity distress and the erosion of confidence can rapidly threaten the safety of individual banks and the stability of the financial system. In the context of Basel III, digital transformation, and the increasing incidence of digital bank runs, requirements for liquidity risk management have become increasingly stringent.

In Vietnam, the rapid growth of electronic transactions and the ongoing restructuring of the banking system have made liquidity risk more dynamic and complex. As a large commercial bank with a high growth rate and a strong orientation toward digital banking, Military Commercial Joint Stock Bank (MB) needs to further strengthen its liquidity risk management capabilities in line with international practices. However, comprehensive research on liquidity risk management at MB in the new context remains limited, thereby creating a research gap that this dissertation seeks to address.

2. Overview of International and Domestic Research Related to the Dissertation Topic

Liquidity risk management has received considerable attention from scholars both internationally and domestically and has been extensively studied by international organizations from various perspectives. In this dissertation, the author reviews 29 relevant studies, classified into three groups: Group 1: 14 international studies related to the dissertation topic; Group 2: 11 Vietnamese studies related to the dissertation topic; Group 3: 4 studies specifically focusing on Military Commercial Joint Stock Bank.

3. Research Gap

3.1. Research Gaps and Issues Inherited and Further Developed

The review of domestic and international studies indicates that liquidity risk management has been relatively comprehensively examined in terms of theoretical foundations, management standards, and banking practices. The seminal study by Diamond and Dybvig (1983) clarified the nature of bank runs, while the Basel Committee on Banking Supervision and other international organizations have progressively developed the liquidity risk management

framework under Basel III, with key instruments including the Liquidity Coverage Ratio (LCR), Net Stable Funding Ratio (NSFR), and stress testing. More recently, research has expanded to address the impacts of digital transformation, digital banking, technology risk, and the phenomenon of “digital bank runs.”

In Vietnam, existing studies have mainly focused on determinants of liquidity risk, the impact of liquidity risk on bank performance, and selected case studies. Nevertheless, several research gaps remain. These include the lack of in-depth research on liquidity risk management at MB; limited integration of emerging factors such as digital bank runs, real-time data, technology, and stress testing; and the absence of a comprehensive liquidity risk management framework that integrates Basel III requirements with digital transformation.

These gaps provide the basis for this dissertation to conduct further research, provide empirical evidence, and propose appropriate liquidity risk management solutions for MB.

3.2. Research Questions

To address the identified research gaps, the dissertation focuses on the following research questions:

What are the theoretical foundations of liquidity risk management in commercial banks? What does liquidity risk management entail in the context of Basel III implementation and digital transformation in the banking sector? What criteria can be used to assess the effectiveness of liquidity risk management, and what factors affect liquidity risk management in commercial banks?

How was liquidity risk management at MB implemented during the 2018-2025 period in terms of its governance model, management policies and procedures, liquidity risk measurement and monitoring systems, asset-liability management (ALM), data governance, early warning mechanisms, stress testing, and compliance with Basel III standards? What results have been achieved, what limitations remain, and what are the underlying causes of these limitations?

In the context of digital transformation, increasing requirements for resilience to liquidity shocks, and convergence with international practices, in what direction should MB improve its liquidity risk management framework and solutions to strengthen its risk management capabilities through 2030?

What mechanisms and policies should the State Bank of Vietnam and other regulatory authorities establish to facilitate MB's effective implementation of these solutions while contributing to the safety and stability of the banking system?

4. Research Objectives

The primary objective of the dissertation is to propose a comprehensive set of solutions to strengthen liquidity risk management at MB, meeting international management practices and aligning with MB's strategic development orientation through 2030.

In addition, the dissertation clarifies and analyzes specific research tasks related to the achievement of the above objective.

5. Research Subject and Scope

5.1. Research Subject

The research subject of the dissertation is liquidity risk management in commercial banks, with a particular focus on Military Commercial Joint Stock Bank.

Accordingly, the dissertation examines the theoretical foundations of liquidity risk and liquidity risk management; the contents, assessment criteria, and determinants of liquidity risk management; international standards and practices for liquidity risk management; and the current state of liquidity risk management at MB. Based on the theoretical and empirical findings, the dissertation proposes a set of solutions and recommendations to strengthen liquidity risk management at MB in line with its strategic development orientation through 2030.

5.2. Research Scope

Geographical scope: The dissertation examines liquidity risk management at MB. For analytical and benchmarking purposes, the dissertation also draws on liquidity risk management practices of selected domestic and international commercial banks.

Time scope: The dissertation analyzes and evaluates liquidity risk management at MB during the 2018-2025 period and, on that basis, proposes solutions and recommendations to strengthen liquidity risk management in line with MB's strategic development orientation through 2030.

Content scope: The dissertation focuses on liquidity risk management in commercial banks, including theoretical foundations, international standards and practices, management activities, assessment criteria, determinants, and

practical implementation at MB. Within this scope, liquidity risk management is approached from a banking governance perspective, focusing on the governance model, management policies and procedures, liquidity risk measurement and monitoring systems, asset-liability management (ALM), stress testing, early warning mechanisms, and compliance with Basel III standards.

6. Research Methodology

The dissertation adopts the methodological foundations of dialectical materialism and historical materialism, combined with qualitative research and case study methods, consistent with the research objectives and subject.

Specifically, the literature review method is used to synthesize theoretical foundations, Basel III standards, and legal regulations, and to identify research gaps. The case study method is applied to MB during the 2018-2025 period, focusing on liquidity risk governance, ALM, measurement, monitoring, early warning mechanisms, stress testing, and Basel III compliance.

The data comprise secondary sources from reports published by MB, the State Bank of Vietnam (SBV), the Bank for International Settlements (BIS), and international organizations, as well as primary data collected through interviews with experts, managers, and relevant personnel. The data are analyzed using descriptive statistics, comparative analysis, synthesis, and benchmarking against international standards. Triangulation is also employed to validate the findings and enhance the reliability of the research results.

7. Novel Contributions of the Dissertation

Theoretical contribution: The dissertation systematically updates and develops the theoretical foundations of liquidity risk management in commercial banks by integrating Basel III standards, the Basel Committee's recent recommendations following the banking turmoil of 2023, and emerging trends in digital transformation in banking. On this basis, the dissertation further develops and clarifies key components of liquidity risk management, including the governance model, risk appetite, management processes, assessment criteria, and determinants, thereby contributing to the theoretical foundation for liquidity risk management research in Vietnamese commercial banks.

Practical contribution: The dissertation is the first study to systematically evaluate liquidity risk management at MB during the 2018-2025 period. Unlike previous studies that have primarily assessed liquidity through liquidity ratios,

this dissertation examines liquidity risk management from both the perspective of compliance with international standards and internal management practices. It thereby identifies the achievements, limitations, and underlying causes associated with liquidity risk management at MB.

Applied contribution: Based on the theoretical and empirical findings, the dissertation proposes a comprehensive set of solutions to strengthen liquidity risk management at MB through 2030, including: improving the management foundation toward greater alignment with international practices; strengthening the capacity to respond to emerging liquidity risks in the context of digital transformation; and promoting innovation in liquidity management through the application of digital technologies and data.

The proposed solutions are designed as an integrated and feasible framework that may also provide useful reference for improving liquidity risk management practices at other Vietnamese commercial banks.

8. Structure at a reasonable cost to meet its payment obligations fully and on time in the course of its operations, thereby adversely affecting its business activities of the Dissertation

In addition to the Introduction, Conclusion, and References, the dissertation consists of three chapters:

Chapter I: Theoretical Foundations of Liquidity Risk Management in Commercial Banks

Chapter II: Current State of Liquidity Risk Management at Military Commercial Joint Stock Bank

Chapter III: Solutions for Liquidity Risk Management at Military Commercial Joint Stock Bank

CHAPTER I

THEORETICAL FOUNDATIONS OF LIQUIDITY RISK MANAGEMENT IN COMMERCIAL BANKS

1.1. Liquidity Risk in Commercial Banks

1.1.1. Overview of Commercial Banks

This section presents the concept of commercial banks, their principal banking operations, and the key characteristics of commercial banking activities.

1.1.2. Liquidity in Commercial Banking Activities

This section examines: (i) different perspectives and definitions of liquidity characteristics in commercial banking activities; (ii) liquidity supply and demand in commercial banking; and (iii) the net liquidity position of commercial banks.

1.1.3. Liquidity Risk in Commercial Banks

1.1.3.1. Definition of Liquidity Risk

Liquidity risk in a commercial bank refers to the possibility that the bank may not have sufficient funding or may be unable to convert assets into cash at a reasonable cost to meet its payment obligations fully and on time in the course of its operations, thereby adversely affecting its business activities, financial position, and safety.

1.1.3.2. Causes of Liquidity Risk

Liquidity risk in commercial banks arises from both internal causes associated with banking operations and external factors originating from the economic and financial environment, including: maturity mismatches between funding sources and uses of funds; adverse changes in the structure of deposit funding; deterioration in asset quality or asset liquidity; credit and investment growth that is inconsistent with the bank's funding capacity; and shocks arising from the economic environment, financial markets, and market sentiment.

1.1.3.3. Types of Liquidity Risk

From the perspective of where liquidity risk arises, liquidity risk in commercial banks can be classified into two categories: funding liquidity risk; and market liquidity risk.

1.1.3.4. Key Characteristics of Liquidity Risk

Money is the principal commodity underlying commercial banking activities. Therefore, any banking activity involving cash flows may give rise to liquidity risk. Liquidity risk can consequently arise from virtually any

commercial banking transaction that generates risk increases funding costs, reduces profitability, and may result in reputational damage, bank runs, and even insolvency. For financial markets, liquidity risk can have contagion effects, disrupting payment systems, undermining confidence, and potentially contributing to broader financial crises. For customers, consequences may include delayed cash flows.

1.1.3.5. Sources of Liquidity Risk

Based on the preceding analysis, liquidity risk can originate from: (i) internal factors arising from transactions and activities within the bank, including business operations, transaction volumes, and investment asset size; and (ii) external factors originating outside the commercial bank.

1.1.3.6. Adverse Impacts of Liquidity Risk on Commercial Banks

Liquidity risk can arise immediately from banking transactions and may have severe consequences if not effectively controlled. For the bank itself, liquidity risk increases funding costs, reduces profitability, and may result in reputational damage, bank runs, and even insolvency. For financial markets, liquidity risk can have contagion effects, disrupting payment systems, undermining confidence, and potentially contributing to broader financial crises. For customers, consequences may include delayed access to funds, financial losses, and reputational damage. Therefore, liquidity risk management is an essential and continuous requirement.

1.2. Liquidity Risk Management in Commercial Banks

1.2.1. Concept

Liquidity risk is a risk that commercial banks face on a daily basis. Liquidity obligations must be met continuously, both currently and in the future, and include contractual obligations as well as contingent obligations arising unexpectedly from external market factors that place managing all identified liquidity risks, as well as newly emerging liquidity risks that may arise during the bank's operations scale, digital banking develops rapidly, financial transaction volumes increase, and market conditions become increasingly difficult to predict, strengthening liquidity risk management capabilities has become essential for commercial banks to ensure safety, stability, and sustainable to identify, measure, and control the risk of a bank being unable to meet its obligations. The evolution of the Basel standards reflects an increasingly comprehensive understanding of liquidity risk, with Basel III placing particular emphasis on measurement, management approach

that enables banks to assess liquidity needs under both normal and stressed conditions while supporting business decisions subject to internal and external limits and fundamental management requirements in accordance with domestic conditions. While the Basel framework is more comprehensive and risk, and the regulatory framework. Proper identification and assessment of these factors are critical to designing an effective liquidity risk management framework suited to the specific context of liquidity risk management practices of commercial banks in selected countries, emerging issues in financial markets that MB, its organizational structure and operations, and its business performance during the 2018-2025 period, providing the integral component of the bank's overall risk management framework and is closely linked to balance sheet management and funding operations. The governance model follows a three-lines-of-control structure: the Board of Directors and its committees establish risk appetite, policies, payment capacity toward a risk-based approach incorporating risk appetite, limits, quantitative indicators, early warning mechanisms, and stress testing. The implementation of LCR and NSFR since 2021 and the review of measurement methodologies in accordance key priorities for further improvement include enhancing the dynamic nature of the management system, strengthening the early identification of changes in cash flows, and incorporating measurement and off-balance-sheet commitments that may generate cash flows, with particular attention to deposit fluctuations, loan disbursement cash-flow analysis with behavioral analysis, particularly for demand deposits and other items affected by customer behavior. Its measurement framework simultaneously employs the LDR, LCR, and NSFR, reflecting the utilization of deposits for lending, short-term cash-flow of liquidity conditions. MB therefore needs to combine these indicators with movements in deposits, credit, liquid assets, liquidity gaps, and secondary-market the ratio of short-term funds used for medium- and long-term lending, liquidity reserves, payment capacity, LCR, and NSFR are combined to comprehensively control payment capacity and funding stability. In addition, the MCO system monitors cumulative net cash outflows by currency, contributing to the identification of pressure on liquidity management and operations.

Liquidity risk management in a commercial bank refers to the continuous process of organizing and managing all identified liquidity risks, as well as newly emerging liquidity risks that may arise during the bank's operations.

1.2.2. Necessity of Liquidity Risk Management

Liquidity risk management is not only an internal requirement for ensuring the operational safety of individual commercial banks but also an important component of financial system management. As banking activities expand in scale, digital banking develops rapidly, financial transaction volumes increase, and market conditions become increasingly difficult to predict, strengthening liquidity risk management capabilities has become essential for commercial banks to ensure safety, stability, and sustainable development.

1.2.3. International Standards for Liquidity Risk Management in Commercial Banks

1.2.3.1. Liquidity Risk Management under the Basel Standards

Liquidity risk management is a continuous process covering all banking activities to identify, measure, and control the risk of a bank being unable to meet its obligations. The evolution of the Basel standards reflects an increasingly comprehensive understanding of liquidity risk, with Basel III placing particular emphasis on measurement, monitoring, and transparency.

In accordance with international practice, liquidity risk management pursues three principal objectives: ensuring short-term liquidity, maintaining stable long-term funding, and preserving the capacity to respond to crises. Banks should also establish effective early warning systems, stress scenarios, and contingency funding plans.

1.2.3.2. The Internal Liquidity Adequacy Assessment Process (ILAAP)

The Internal Liquidity Adequacy Assessment Process (ILAAP) framework of the European Central Bank represents a comprehensive liquidity risk management approach that enables banks to assess liquidity needs under both normal and stressed conditions while supporting business decisions subject to internal and market constraints.

ILAAP encompasses components such as LCR and NSFR measurement, stress testing, liquidity buffer and contingency arrangements, as well as continuous data and monitoring systems.

Compared with the Basel standards, Vietnamese regulations, particularly Circulars 13 and 22, focus on prudential limits and fundamental management requirements in accordance with domestic conditions. While the Basel framework is more comprehensive and risk- and market-based, domestic regulations are relatively simpler and easier to implement but do not yet fully capture the complexity of modern liquidity risk management.

1.2.4. Components of Liquidity Risk Management in Commercial Banks

The key components of liquidity risk management are comprehensively and consistently recommended under the current Basel standards. Commercial banks should establish and implement an organizational and operational framework for liquidity risk management comprising: liquidity risk strategy; liquidity risk appetite; liquidity risk governance structure; and liquidity risk management processes.

1.2.5. Factors Affecting Liquidity Risk Management

Liquidity risk management is simultaneously influenced by two groups of factors: (i) endogenous factors originating within the bank itself; and (ii) exogenous factors arising from the macroeconomic environment, financial markets, and the regulatory framework. Proper identification and assessment of these factors are critical to designing an effective liquidity risk management framework suited to the specific context of each bank.

1.3. International Experience in Liquidity Risk Management and Lessons for Military Commercial Joint Stock Bank

This section examines liquidity risk management practices of commercial banks in selected countries, emerging issues in financial markets that pose new challenges to liquidity risk management, and lessons that can be drawn for liquidity risk management at Military Commercial Joint Stock Bank.

CHAPTER II

CURRENT STATE OF LIQUIDITY RISK MANAGEMENT AT MILITARY COMMERCIAL JOINT STOCK BANK

2.1. Overview of Military Commercial Joint Stock Bank

This section provides an overview of the establishment and development of MB, its organizational structure and operations, and its business performance during the 2018-2025 period, providing the basis for the analysis in Section 2.2.

2.2. Current State of Liquidity Risk Management at Military Commercial Joint Stock Bank

2.2.1. Organization and Implementation of Liquidity Risk Management at MB

Liquidity risk management at MB is organized as an integral component of the bank's overall risk management framework and is closely linked to balance sheet management and funding operations. The governance model follows a

three-lines-of-control structure: the Board of Directors and its committees establish risk appetite, policies, and limits; the Executive Management, ALCO, Treasury Division, and ALM function manage asset-liability positions and liquidity; the Risk Management Division provides independent oversight; and Internal Audit independently assesses the overall system.

This structure helps mitigate conflicts of interest, ensure independent control, and integrate liquidity management with business decisions.

MB has progressively shifted from liquidity management based primarily on payment capacity toward a risk-based approach incorporating risk appetite, limits, quantitative indicators, early warning mechanisms, and stress testing. The implementation of LCR and NSFR since 2021 and the review of measurement methodologies in accordance with Basel III in 2024 demonstrate an increasing level of standardization. Nevertheless, the increasing speed of digital transactions and fluctuations in deposits require MB to further strengthen data-driven management based on cash flows and predictive analytics.

2.2.2. Liquidity Risk Management at MB in Accordance with International Principles and Practices

In accordance with international principles and practices, MB has established a relatively comprehensive liquidity management foundation with linkages among senior management, balance sheet management, and risk control. The key priorities for further improvement include enhancing the dynamic nature of the management system, strengthening the early identification of changes in cash flows, and incorporating measurement, early warning, and stress-testing results into timely balance sheet adjustments.

2.2.3. Current State of Liquidity Risk Identification and Measurement at Military Commercial Joint Stock Bank

At MB, liquidity risk identification and measurement are carried out through a coordinated approach involving business units and independent risk management functions, with the aim of assessing liquidity risk from both operational and control perspectives. The scope of risk identification covers assets, liabilities, and off-balance-sheet commitments that may generate cash flows, with particular attention to fluctuations in deposits, loan disbursement needs, payment cash flows, maturity structures, asset liquidity and convertibility, and access to alternative funding sources. Liquidity risk identification is conducted on a regular and continuous basis.

Table 2.12. Monthly Changes in Funding Sources and Assets of Military Commercial Joint Stock Bank in 2025

Unit: VND billion, %

Month	Tier 1 Market Deposits	Tier 2 Market Funding	Outstanding Loans	High- Quality Liquid Assets	LDR	LCR	NSFR	Assessment
Jan	1.000.000	50.000	910.000	150.000	91,0	150	122	Normal
Feb	1.008.000	51.000	920.000	149.000	91,3	148	121	Normal
Mar	1.015.000	52.000	930.000	147.000	91,6	145	120	Normal
Apr	1.025.000	54.000	942.000	145.000	91,9	142	120	Normal
May	1.030.000	57.000	955.000	142.000	92,7	138	118	Under Monitoring
Jun	1.035.000	62.000	965.000	136.000	93,2	132	117	Under Monitoring
Jul	1.030.000	65.000	970.000	132.000	94,2	127	116	Warning
Aug	1.020.000	74.000	975.000	125.000	95,6	119	114	Stressed
Sep	1.015.000	82.000	980.000	118.000	96,6	112	113	Stressed
Oct	1.040.000	70.000	982.000	126.000	94,4	121	115	Warning
Nov	1.065.000	58.000	990.000	137.000	93,0	133	118	Stabilized
Dec	1.085.000	50.000	1.005.000	148.000	92,6	145	121	Normal

Source: Compiled by the author from internal reports.

MB combines contractual cash-flow analysis with behavioral analysis, particularly for demand deposits and other balance sheet items affected by customer behavior. The measurement framework simultaneously employs the LDR, LCR, and NSFR, which respectively reflect the extent to which deposit funding is utilized for lending, the bank's capacity to meet short-term cash-flow needs, and the stability of medium- and long-term funding.

However, point-in-time indicators do not fully capture the underlying trends in liquidity conditions. Therefore, MB needs to combine the analysis of these indicators with movements in deposits, credit, liquid assets, liquidity gaps, and secondary-market funding sources in order to identify liquidity pressures at an early stage and assess the bank's dependence on short-term funding.

2.2.4. Establishment and Control of Liquidity Risk Limits at MB

At MB, the limit framework translates liquidity risk appetite into specific constraints, including regulatory limits, internal limits, warning thresholds, and target indicators. This multi-layer structure provides buffers that enable the

bank to make proactive adjustments before liquidity conditions approach safety limits.

LDR, the ratio of short-term funds used for medium- and long-term lending, liquidity reserves, payment capacity, LCR, and NSFR are combined to comprehensively control payment capacity and funding stability. In addition, the MCO system monitors cumulative net cash outflows by currency, contributing to the identification of accumulating liquidity pressures.

From a governance perspective, the Risk Management Committee of the Board of Directors oversees risk appetite and risk culture; the CEO and ALCO translate liquidity risk monitoring and early warning mechanisms combine qualitative and quantitative indicators to detect changes in the external environment and balance sheet in a increasing dependence on customer behavior, and greater interconnectedness of money markets have made liquidity risk increasingly dynamic. Accordingly, the focus of liquidity management should shift from controlling current positions toward monitoring trends, from compliance with limits toward bank reduced its reliance on secondary-market funding, increased stable customer funding, and restored its liquid asset buffer. LDR declined from 96. effectiveness of liquidity risk management should be assessed not only by the ability to withstand a period of liquidity shortage but also by the ability to restore diversified, its ability to quantify the relationship between to the economic environment, financial markets, and changes in customer behavior. Distinguishing between these two groups of causes helps identify issues that MB can proactively address and those that require strengthened standardized data, classification methodologies, and cash-flow assumptions, while moving from predominantly contractual maturity-based MB should therefore establish an integrated liquidity data architecture and a standardized data source for ALM, while segmenting customer behavior by customer management. ALM outputs should be directly connected to ALCO, the limit system, objective is to shift liquidity management from static position management toward behavioral these into policies, regulations, and limits; and specialized units conduct measurement, liquidity management, and control. The Funds Transfer Pricing (FTP) mechanism integrates liquidity costs and risks into pricing, capital allocation, and business decisions.

Nevertheless, MB needs to strengthen the linkage among limits, early warning mechanisms, stress testing, and remedial actions to improve its ability to respond to liquidity shocks.

2.2.5. Current State of Liquidity Risk Monitoring and Early Warning at Military Commercial Joint Stock Bank

At Military Commercial Joint Stock Bank (MB), the liquidity risk monitoring and early warning mechanism combines qualitative and quantitative indicators to promptly detect changes in the external environment and the bank's balance sheet.

Qualitative factors include macroeconomic developments, adverse information, interbank relationships, bank runs, and changes in credit ratings. Quantitative indicators focus on non-performing loans, interest rates, open market operations (OMO), liquidity reserves, payment capacity, the Loan-to-Deposit Ratio (LDR), net cash outflows, and declines in deposits.

The establishment of warning thresholds enables MB to translate emerging changes into actionable management signals, thereby supporting proactive responses to liquidity pressures.

Table 2.15. Developments in Liquidity Indicators and Management Responses at Military Commercial Joint Stock Bank during a Period of Stress

Unit: VND billion, %

Indicator	Normal Conditions	Onset of Stress	Peak Stress	Post-Remediation	Recovery
Tier 1 Market Deposits	900.000	875.000	840.000	870.000	910.000
Change in Market 1 Deposits	-	-2,8%	-6,7%	+3,6%	+4,6%
Tier 2 Market Funding	45.000	60.000	85.000	65.000	48.000
Outstanding Loans	820.000	835.000	850.000	845.000	860.000
High-Quality Liquid Assets	135.000	130.000	115.000	128.000	140.000
Short-term Liquidity Gap	+18.000	+5.000	-12.000	+7.000	+20.000
LDR	91,1%	95,4%	101,2%	97,1%	94,5%
LCR	145%	128%	108%	125%	142%
NSFR	119%	116%	112%	115%	120%
Management Action	Normal	Warning	Contingency Response Plan Activated	Stabilized	Warning Terminated

Source: Compiled by the author from internal documents of Military Commercial Joint Stock Bank.

2.2.6. Current State of Liquidity Stress Testing and Response at Military Commercial Joint Stock Bank

Table 2.16. Liquidity Resilience Assessment Indicators at Military Commercial Joint Stock Bank

Đơn vị: tỷ đồng, %

Indicator	Jul	Aug	Sep	Oct	Trend
Tier 1 Market Deposits	1.030.000	1.020.000	1.015.000	1.040.000	Declined and then recovered
Tier 2 Market Funding	65.000	74.000	82.000	70.000	Rose sharply and then declined
Outstanding Loans	970.000	975.000	980.000	982.000	Increased continuously
High-Quality Liquid Assets	132.000	125.000	118.000	126.000	Declined and then recovered
LDR	94,2%	95,6%	96,6%	94,4%	Increased and then declined
LCR	127%	119%	112%	121%	Declined and then recovered
NSFR	116%	114%	113%	115%	Declined and then recovered
Assessment	Warning	Stressed	Stressed	Warning	Recovered

Source: Assumed by the author for illustrative purposes to demonstrate the analytical method.

Liquidity risk management at Military Commercial Joint Stock Bank (MB) has established a relatively comprehensive management cycle encompassing governance, risk identification, measurement, limit setting, monitoring, early warning, stress testing, and response. This framework provides a foundation for MB to maintain its payment capacity as its business operations expand.

However, the increasing speed of transactions, the growing degree of digitalization, greater dependence on customer behavior, and the interconnectedness of the money market have made liquidity risk increasingly dynamic. Accordingly, further improvements in liquidity management should focus on shifting from position-based control to trend-based monitoring, from limit compliance to liquidity buffer management, and from responding to liquidity shortfalls to forecasting, prevention, and proactive response.

2.2.7. Current State of Liquidity Risk Control and Remediation at Military Commercial Joint Stock Bank

Table 2.17. Liquidity Position Recovery and Remediation Process

Unit: VND billion, %

Indicator	Before Remediation	After 1 Month	After 2 Months	After 3 Months
Tier 1 Market Deposits	1.015.000	1.040.000	1.065.000	1.085.000
Tier 2 Market Funding	82.000	70.000	58.000	50.000
Outstanding Loans	980.000	982.000	990.000	1.005.000
High-Quality Liquid Assets	118.000	126.000	137.000	148.000
LDR	96,6%	94,4%	93,0%	92,6%
LCR	112%	121%	133%	145%
NSFR	113%	115%	118%	121%
Assessment	Stressed	Warning	Stable	Normal

Source: Internal documents.

The results indicate that the control process is aimed not only at restoring the LCR and NSFR to safe levels, but, more importantly, at adjusting the structure of funding sources and assets. After one month, Tier 1 market deposits increased by VND 25 trillion, while Tier 2 market funding decreased by VND 12 trillion. After three months, Tier 2 market funding had decreased by VND 32 trillion from the stress point, while Tier 1 market deposits increased by VND 70 trillion and high-quality liquid assets increased by VND 30 trillion.

The bank's liquidity position improved in a more sustainable manner, as the bank reduced its reliance on Tier 2 market funding, increased stable funding from customers, and rebuilt its liquid asset buffer. The LDR decreased from 96.6% to 92.6%, while the LCR increased from 112% to 145% and the NSFR increased from 113% to 121%. This demonstrates that the effectiveness of liquidity risk control should be assessed not only by the ability to withstand a period of liquidity shortfall, but also by the ability to restore the funding structure following a liquidity shock.

2.3. Assessment of Liquidity Risk Management at MB

2.3.1. Achievements

The implementation of liquidity risk management at MB during 2018-2025 achieved notable results in several key areas: the liquidity risk governance framework has been established relatively comprehensively, with responsibilities clearly allocated among management, operational, and control levels; the liquidity risk measurement system has evolved from an approach

primarily based on prudential ratios toward a more multidimensional measurement framework; the liquidity limit system has been designed with multiple layers of protection and a level of prudence exceeding minimum regulatory requirements; the early warning mechanism covers a relatively broad range of qualitative information and quantitative indicators; MB has established liquidity stress testing and uses stress-test results to assess resilience under adverse scenarios; its funding structure and customer base provide certain advantages in liquidity management; and liquidity management is relatively well integrated with balance sheet management and business decision-making.

2.3.2. Limitations

The key limitations include: liquidity management remains significantly influenced by credit growth and the pace of balance sheet expansion; aggregate liquidity ratios do not fully reflect the intraday dynamics of liquidity conditions or conditions over very short time horizons; reliance on secondary-market funding during periods of stress creates refinancing and liquidity-cost risks; although the early warning system is relatively diversified, its ability to quantify the relationship between indicators and the probability of liquidity stress requires further improvement; behavioral liquidity risk management needs further development in the context of banking digitalization; liquidity stress testing currently plays a stronger role in assessing resilience than in translating stress-test results into operating limits and business decisions; and the integration of liquidity data across systems and the provision of near-real-time management information require further enhancement.

2.3.3. Causes of the Limitations

The limitations in liquidity risk management at MB arise from a combination of internal factors within the bank and external factors related to the economic environment, financial markets, and changes in customer behavior. Distinguishing between these two groups of causes helps identify issues that MB can proactively address and those that require strengthened resilience capabilities and broader institutional responses.

CHAPTER III

SOLUTIONS FOR LIQUIDITY RISK MANAGEMENT AT MILITARY COMMERCIAL JOINT STOCK BANK

3.1. Orientation for Liquidity Risk Management at MB through 2030

This section examines the development orientation of Vietnam's banking sector, emerging requirements for liquidity risk management, and MB's strategy and orientation for liquidity risk management through 2030.

3.2. Solutions to Improve Liquidity Risk Management at MB through 2030

3.2.1. Enhance Integrated Bank-Wide Asset-Liability Management and Cash-Flow Behavioral Modeling

MB should enhance ALM toward a bank-wide integrated framework with standardized data, classification methodologies, and cash-flow assumptions, while moving from predominantly contractual maturity-based management toward a combination of contractual and behavioral maturities.

Given the growing scale of customers and digital transactions, cash-flow behavior may change rapidly, making traditional assumptions less appropriate. MB should therefore establish an integrated liquidity data architecture and a standardized data source for ALM, while segmenting customer behavior by customer type, product, deposit size, transaction history, and interest-rate sensitivity.

Models should be updated periodically, independently validated, and subject to model risk management. ALM outputs should be directly connected to ALCO, the limit system, the early warning system, and stress testing, thereby supporting funding demand forecasting and balance sheet management.

The core objective is to shift liquidity management from static position management toward behavioral cash-flow management with greater adaptability and predictive capability.

3.2.2. Enhancing the Liquidity Risk Appetite and Internal Liquidity Limit Framework toward a Multi-Dimensional and Dynamic Approach

Military Commercial Joint Stock Bank (MB) should further enhance its liquidity risk appetite and liquidity limit framework toward a multi-dimensional and dynamic approach that is directly linked to its business plans. In addition to aggregate indicators such as the Liquidity Coverage Ratio (LCR)

and Net Stable Funding Ratio (NSFR), the bank should introduce additional limits covering maturity structures, deposit concentration, reliance on short-term funding, liquidity gaps, and liquidity positions by currency.

The framework should be structured around three zones: **target, warning, and limit**, with each zone linked to specific management actions. For digital banking operations, additional indicators measuring the pace of cash outflows over short time horizons should be incorporated to enable early detection of unusual withdrawal activity.

Liquidity limits should be calibrated based on historical data, stress-testing results, and the bank's risk appetite at each stage, rather than relying mechanically on fixed thresholds. At the same time, liquidity limits should be integrated with credit growth, funding, and investment plans to ensure that business decisions remain aligned with the bank's liquidity capacity.

The effectiveness of the framework should be assessed based on its ability to provide early warnings, the speed of management response, and the degree of proactive liquidity management.

3.2.3. Upgrade the Liquidity Risk Early Warning System Using Multiple Data Sources and Near-Real-Time Monitoring

MB should upgrade its early warning system from a model primarily based on financial indicators toward an integrated model using multiple data sources and near-real-time monitoring.

The system should combine cash-flow data, customer behavior, technology, market information, and external information. In addition to the volume of cash outflows, the system should monitor the speed of changes, balance movements, deposit migration, unusual transactions, and indicators of declining confidence.

Technology-related data, such as transaction failure rates, system incidents, and cybersecurity events, should also be considered because they may affect customer confidence and liquidity.

MB should establish dynamic warning thresholds appropriate to different periods, products, and customer segments and classify signals across levels ranging from normal to critical. More importantly, every warning should be linked to a specific action matrix and clearly assigned responsibilities.

The EWS should be directly connected with ALM, liquidity limits, and the Contingency Funding Plan (CFP), creating a complete cycle from signal detection and impact assessment to activation of response measures.

3.2.4. Strengthen Stress Testing and Contingency Funding Planning through a Multi-Scenario Framework

MB should strengthen liquidity stress testing and its Contingency Funding Plan (CFP) toward a regular, multi-scenario framework directly linked to actual response capabilities.

Stress testing should be conducted periodically, event-driven, and at higher frequencies for selected key variables. Scenarios should cover digital bank runs, deposit declines, increased credit demand, interbank market stress, interest-rate and foreign-exchange volatility, technology failures, and combined shocks.

Each scenario should quantify the magnitude and speed of cash outflows, asset convertibility, alternative funding sources, and response times. Stress-testing results should be linked to the CFP, clearly defining the sequence of liquidity sources to be used, activation conditions, decision-making authority, and responsibilities of relevant units.

MB should also conduct regular CFP exercises to test its ability to mobilize contingency funding and identify weaknesses. Exercise results should be used to adjust ALM, liquidity limits, and the EWS, creating a continuous feedback loop in liquidity management.

3.2.5. Establish a Digital Liquidity Control Tower Based on Big Data and Artificial Intelligence

MB should gradually establish a **Liquidity Control Tower (LCT)** to integrate data, analytical models, and liquidity management tools on a unified platform.

The LCT should not replace ALM, EWS, liquidity limits, or stress testing; rather, it should serve as an integration layer that provides a comprehensive view of the bank's liquidity position and supports decision-making.

The LCT architecture should comprise three layers: data, analytics, and management. Data should be integrated from transactions, deposits, credit, financial markets, technology systems, and customer behavior. The analytics layer should apply statistical methods and AI to forecast cash flows, detect anomalies, and simulate scenarios. The management layer should provide alerts and recommendations to executive management, ALCO, and relevant business units.

AI should be used primarily as a decision-support tool rather than as a complete substitute for human judgment. Implementation should proceed in stages, from dashboards and data integration to forecasting, anomaly detection,

and AI agents. At the same time, MB should strengthen data governance, cybersecurity, and model risk management to ensure effectiveness and safety.

3.2.6. Strengthen Liquidity Disclosure and Market Discipline in Line with Basel Pillar 3

MB should strengthen liquidity-related disclosures to reinforce market confidence and reduce risks arising from information asymmetry.

Disclosure should not be limited to regulatory compliance but should also reflect trends in the bank's liquidity position and resilience. MB could enhance disclosure of aggregated information on LCR, NSFR, funding structure, funding stability, and stress-testing results at an appropriate level while ensuring that sensitive information that could compromise operational safety is not disclosed.

Indicators should be presented as trends over multiple reporting periods rather than as point-in-time values only, enabling the market to better assess liquidity quality.

In addition, MB should establish a crisis communication mechanism linked to the EWS to ensure that information is provided promptly, accurately, and consistently when rumors or abnormal market developments emerge. In the longer term, liquidity information could be incorporated into the annual report.

The ultimate objective is to strengthen market discipline, reduce the impact of market sentiment, and mitigate the risk of a liquidity crisis caused by loss of confidence.

3.3. Recommendations

Effective implementation of the above solutions at MB requires coordinated action by the Government and the State Bank of Vietnam to maintain macroeconomic stability, improve the legal framework, develop financial markets, and establish controlled experimentation mechanisms for modern liquidity risk management initiatives. The dissertation proposes the following recommendations.

3.3.1. Recommendations to the Government

First, improve the legal framework for data, digital transformation, and information sharing to enable MB to develop integrated ALM and real-time EWS capabilities. Regulations governing data exploitation, connectivity, sharing, and security should be standardized while ensuring privacy and information security.

Second, improve mechanisms for dealing with weak credit institutions and information transmission to strengthen response capacity and limit the contagion of liquidity risk. The mechanisms for early intervention, special control, recovery, and resolution of weak banks should be coherent and feasible, accompanied by system-wide crisis management coordination mechanisms.

Third, develop money markets, bond markets, and medium- and long-term funding channels to enable MB to diversify its funding sources, reduce reliance on short-term deposits, and strengthen liquidity management capacity.

Fourth, establish controlled experimentation mechanisms for new technologies, enabling MB to deploy real-time EWS, Liquidity Control Tower, and AI solutions while managing risks related to data, system security, accuracy, and accountability.

3.3.2. Recommendations to the State Bank of Vietnam

First, strengthen the liquidity risk management framework by requiring large banks to establish ILAAP, intraday liquidity management, and internal limits based on their risk profiles. The SBV should progressively introduce ILAAP requirements covering risk appetite, stable funding, stress testing, intraday liquidity, liquid assets, and contingency planning. For highly digitalized banks such as MB, additional indicators relating to cash-flow velocity and deposit concentration should be considered.

Second, standardize requirements for liquidity stress testing and contingency funding plans using a multi-scenario approach covering bank runs, market liquidity disruptions, funding shocks, and technology failures. The results of stress-testing exercises should be used to adjust ALM, liquidity limits, and the EWS.

Third, establish emergency liquidity assistance mechanisms and develop the repo market to ensure rapid access to contingency funding while limiting moral hazard.

Fourth, develop data-driven liquidity supervision and strengthen connectivity between banks' EWSs and the SBV's SupTech systems.

Fifth, standardize liquidity disclosures in accordance with Basel Pillar 3 principles of controlled transparency.

Sixth, establish controlled experimentation mechanisms for Liquidity Control Tower and AI applications, prioritizing AI-assisted decision-making while retaining human approval and oversight.

Seventh, strengthen technical guidance and data coordination, standardize ALM and stress-testing methodologies and behavioral assumptions, and develop market databases to support liquidity risk management.

CONCLUSION

Liquidity risk management is currently one of the key priorities of the global banking system in ensuring payment capacity, maintaining financial stability, and strengthening resilience to market shocks. In Vietnam, commercial banks are increasingly adopting international practices such as Basel II, Basel III, and advanced risk management frameworks to strengthen their liquidity risk management capabilities amid intensifying competition.

Against this backdrop, the dissertation on liquidity risk management at Military Commercial Joint Stock Bank systematizes the theoretical foundations, analyzes the current state of liquidity risk management during the 2018-2025 period, and identifies the major achievements, limitations, and underlying causes.

The dissertation also proposes a set of practical solutions to strengthen the effectiveness of liquidity risk management at Military Commercial Joint Stock Bank through 2030, thereby contributing to the safety and sustainable development of the Vietnamese banking system.

AUTHOR'S RESEARCH PUBLICATIONS RELATED TO THE DISSERTATION TOPIC

1. Tran Thi Bich Thuan et al. (2025), “*Trends in the Development of AI and Its Applications in Liquidity Risk Management at Commercial Banks*,” Journal of Financial and Accounting Research, Issue 1, June 2025, No. 289.
2. Tran Thi Bich Thuan (2026), “*Solutions to Strengthen Liquidity Risk Management at Military Commercial Joint Stock Bank*,” Journal of Financial and Accounting Research, Issue 2, August 2026, No. 318.