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Evaluating the extent of excess liquidity: *The case of UK financial services*

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Abstract

This study examines the relationship between the Liquidity Coverage Ratio (LCR), excess liquidity, and profitability in the UK banking sector. The LCR, introduced under Basel III regulations by the Basel Committee on Banking Supervision, is calculated as the stock of high-quality liquid assets divided by total net cash outflows over a 30-day stress period. It is designed to ensure that banks can meet short-term liquidity needs during financial stress.

Recent estimates suggest that many UK banks hold LCR levels significantly above the regulatory minimum of 100%, with average liquidity coverage reaching around 150% or more. This indicates substantial excess liquidity in the system, where banks hold more liquid assets than required.

The study investigates why banks maintain liquidity above regulatory requirements and whether this excess improves financial stability or reduces profitability due to opportunity costs. Using an exploratory mixed-method approach supported by secondary data and literature analysis, the study finds that excess liquidity is driven by risk aversion, regulatory uncertainty, and internal treasury decision-making.

The results suggest a non-linear relationship between liquidity and profitability, where moderate liquidity improves performance, but excessive liquidity reduces returns. The study highlights the importance of understanding excess liquidity in a post-crisis regulatory environment.

Chapter 1| Introduction

The UK banking sector currently holds substantial levels of central bank reserves, estimated at approximately £900 billion in recent years, reflecting the legacy of post-crisis monetary policies such as quantitative easing (Bank of England, 2022). These reserve holdings significantly exceed minimum regulatory requirements under the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) frameworks introduced as part of Basel III reforms by the Basel Committee on Banking Supervision (2013; 2014). While these frameworks require banks to maintain sufficient high quality liquid assets and stable funding profiles to enhance resilience, they have also contributed to an environment characterised by persistently high liquidity levels, raising concerns about idle funds and potential inefficiencies in bank balance sheet management.

The global financial crisis of 2007–2009 exposed significant weaknesses in banks' liquidity management, demonstrating that even well capitalised & established institutions were vulnerable to liquidity shocks (Basel Committee on Banking Supervision, 2013). The reliance on short-term funding to finance long-term assets commonly referred to as maturity mismatched proved to be a major source of instability. When short term funding markets froze, many banks faced severe liquidity shortages, leading to widespread failures and systemic disruption (Hartlage, 2012). These events highlighted the critical importance of effective liquidity risk management within the banking sector.

In response, the Basel Committee on Banking Supervision (2013; 2014) introduced the Basel III framework, establishing key liquidity standards, including the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR). The LCR requires banks to maintain sufficient high quality liquid assets (HQLA) to withstand a 30-day stress scenario, while the NSFR promotes longer-term

funding stability. These measures have significantly strengthened banking system resilience by ensuring adequate liquidity buffers during periods of stress.

However, in the post-crisis environment, particularly following large scale quantitative easing programmes by central banks such as the Bank of England (2022) banks have accumulated substantial liquidity, often exceeding regulatory requirements. While these buffers enhance financial stability, they also introduce opportunity costs, as liquid assets typically generate lower returns, potentially reducing profitability (Bordeleau and Graham, 2010). This raises the question of whether banks are holding excessive liquidity beyond optimal levels.

The relationship between liquidity and profitability has been widely debated. Higher liquidity can improve confidence and reduce risk, enhancing performance (Berger, 1995b), while excessive liquidity may reduce returns due to the low yield of liquid assets (Kong, Li, Yang and Zhang, 2019). Recent evidence suggests a non-linear relationship. Vu (2024) identifies an inverted U-shaped relationship between the Liquidity Coverage Ratio and bank profitability, where performance improves up to an optimal level of liquidity but declines beyond that point. This highlights the importance of balancing liquidity and profitability.

Despite extensive research, the literature has primarily focused on liquidity shortages, crisis prevention, and regulatory compliance, with limited attention given to excess liquidity and idle funds in regulated banking systems (Golubeva, Karas and Pyle, 2019; Bordeleau and Graham, 2010). In particular, existing studies tend to examine liquidity regulation (e.g. Liquidity Coverage Ratio frameworks) and bank profitability in isolation rather than as an integrated relationship. There is therefore a lack of empirical and conceptual work linking regulatory liquidity requirements, the accumulation of excess liquidity, and their combined impact on bank profitability. While prior research acknowledges non-linear relationships between liquidity and profitability (Vu, 2024), it does not fully

integrate the regulatory drivers of liquidity accumulation with observed surplus liquidity outcomes. As a result, there is limited understanding of how regulatory frameworks translate into idle liquidity holdings and how this affects bank performance in practice. This study addresses this gap by developing an integrated analysis of LCR, excess liquidity, and profitability within the UK banking context.

Beyond regulatory explanations, excess liquidity may also reflect internal treasury decision-making processes within banks. Liquidity allocation is influenced not only by regulation but also by behavioural and institutional factors. In addition, evolving market structures, particularly in foreign exchange markets may affect how efficiently liquidity is deployed. While electronic trading platforms such as those provided by Bloomberg L.P. have improved transparency and execution efficiency, foreign exchange markets remain fragmented and dependent on dealer intermediation (Rime, Schrimpf and Syrstad, 2017; Mancini, Ranaldo and Wrampelmeyer, 2013). At the same time, financial intermediation constraints can limit arbitrage activity even when profitable opportunities exist (Brunnermeier and Pedersen, 2009; Du, Tepper and Verdelhan, 2018). This is particularly evident in FX swap markets, where deviations from covered interest parity persist due to balance sheet constraints (Avdjiev et al., 2019). Furthermore, increasing digitalisation may introduce a “digitalisation paradox”, where reliance on electronic platforms enhances efficiency but reduces access to complex, relationship driven transactions traditionally facilitated by intermediaries (Duffie, 2017; Vives, 2019). This suggests that excess structural liquidity may be shaped not only by regulation but also by market microstructure and technological change.

1.1 Background and Context

The global financial crisis of 2007–2009 exposed significant weaknesses in banks' liquidity management, demonstrating that even well-capitalised institutions were vulnerable to liquidity shocks (Basel Committee on Banking Supervision, 2013). In response, the Basel III regulatory framework introduced the Liquidity Coverage Ratio (LCR) to ensure that banks maintain sufficient high-quality liquid assets (HQLA) to withstand short-term stress scenarios. The LCR has since become a central pillar of liquidity risk management and supervisory oversight.

In the United Kingdom, post-crisis monetary policy particularly large scale asset purchase programmes has led to a substantial increase in central bank reserves within the banking system (Bank of England, 2022). As a result, UK banks have accumulated liquidity levels that often exceed minimum regulatory requirements. While such buffers enhance resilience, they also raise questions regarding the efficient utilisation of liquidity and the potential existence of idle funds within bank balance sheets.

1.2 Importance of the Research Topic

The study of excess liquidity is increasingly important in the post-crisis regulatory environment. From a financial stability perspective, maintaining adequate liquidity buffers is essential to mitigate systemic risk. However, from a bank-level perspective, holding excessive liquidity may involve opportunity costs, as liquid assets typically yield lower returns compared to alternative investments (Bordeleau and Graham, 2010).

The relationship between liquidity and profitability remains contested. While higher liquidity can enhance confidence and reduce risk, excessive liquidity may reduce bank performance. Recent studies suggest a non-linear relationship, whereby profitability increases up to an optimal level of liquidity but declines

beyond that point (Vu, 2024). Despite this, the literature has largely focused on liquidity shortages and crisis prevention, with limited attention to excess liquidity and idle funds in regulated banking systems (Golubeva, Karas and Pyle, 2019).

Furthermore, emerging changes in financial market structure, particularly the increasing reliance on digital trading platforms, may influence how liquidity is managed and deployed. While digitalisation enhances efficiency and transparency, it may also reduce access to complex, relationship-driven transactions, potentially affecting banks' ability to optimise liquidity utilisation (Duffie, 2017; Vives, 2019).

1.3 Objectives of the Study

The primary objective of this study is to evaluate the extent of excess liquidity in UK banks and assess its implications for profitability and liquidity management within the LCR framework.

The specific objectives are to:

- Measure the extent to which UK banks hold liquidity above LCR requirements
- Analyse the relationship between excess liquidity and bank profitability
- Examine whether the relationship between liquidity and profitability exhibits non-linear characteristics
- Explore the institutional and managerial factors influencing excess liquidity accumulation
- Investigate how treasury functions manage and allocate excess liquidity
- Provide preliminary insights into optimising liquidity utilisation while maintaining regulatory compliance

1.4 Research Questions

Main Research Question:

How does excess liquidity, measured relative to the Liquidity Coverage Ratio (LCR), affect profitability and liquidity management in UK banks?

Sub-questions:

- To what extent do UK banks hold liquidity above LCR requirements?
- How does excess liquidity influence bank profitability, and does this relationship exhibit non-linear characteristics?
- What institutional and managerial factors contribute to excess liquidity accumulation?
- How do treasury functions make decisions regarding the retention or redeployment of excess liquidity?
- What preliminary insights can inform more efficient liquidity utilisation within regulatory constraints?

1.5 Scope and Limitations

This study focuses on the UK banking sector, particularly large and systemically important banks operating under Basel III liquidity regulations. The analysis centres on the post-crisis period, reflecting the impact of regulatory reforms and monetary policy on liquidity conditions.

The study adopts a mixed-methods empirical approach, combining quantitative analysis of financial data with qualitative insights from semi-structured interviews

with treasury and risk management professionals. As a pilot study, the research is limited in scope, using a smaller sample size and shorter time horizon to test the feasibility of the research design.

Several limitations should be acknowledged. First, direct LCR data may not always be publicly available, requiring the use of proxy measures, which may introduce measurement error. Second, qualitative findings may be subject to respondent bias and limited generalisability. Third, the study focuses exclusively on the UK context, which may limit the applicability of findings to other jurisdictions. Finally, while digitalisation is considered as a contextual factor, it is not directly measured within the empirical model.

Chapter 2| Literature Review

2.1 Introduction

The relationship between bank liquidity, regulatory frameworks, and profitability has become a central concern in modern financial research, particularly following the 2007–2009 global financial crisis. The crisis exposed fundamental weaknesses in liquidity risk management, demonstrating that even well-capitalised banks could fail due to inadequate liquidity buffers (Basel Committee on Banking Supervision, 2013). In response, global regulatory reforms under Basel III introduced stricter liquidity requirements, notably the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR), aimed at strengthening the resilience of banking systems.

While these reforms have significantly improved financial stability, they have also led to an environment characterised by structural excess liquidity, particularly in advanced economies such as the United Kingdom. The Bank of England (2022) reports that UK banks hold substantial levels of reserves, largely driven by quantitative easing and regulatory compliance. Although such liquidity buffers enhance resilience, they may also create inefficiencies, particularly when liquidity levels exceed regulatory requirements and remain underutilised.

Despite extensive academic attention on liquidity risk and crisis prevention, relatively little research has examined the implications of excess liquidity and idle funds in regulated banking environments. Moreover, the interaction between regulatory requirements (such as the LCR), bank profitability, and internal decision-making processes remains insufficiently explored. This chapter reviews the theoretical and empirical literature on bank liquidity, regulatory frameworks, and profitability, identifying key gaps that this study aims to address within the UK banking context.

2.2 Theoretical Foundations of Bank Liquidity

The theoretical foundations of bank liquidity are rooted in the role of financial intermediation and liquidity transformation. The seminal model developed by Diamond and Dybvig (1983) provides a fundamental explanation of how banks transform short-term deposits into long-term loans, creating inherent fragility. Their model demonstrates that banks are vulnerable to self-fulfilling runs due to coordination failures among depositors, thereby justifying the need for liquidity buffers and deposit insurance.

Building on this framework, Holmström and Tirole (1998) emphasise the role of liquidity provision under conditions of imperfect information. Their work highlights the importance of both private and public liquidity in sustaining investment and economic activity, particularly when markets are incomplete or constrained.

From a macro-financial perspective, Adrian and Shin (2010) extend the analysis by linking liquidity to leverage cycles. They argue that financial institutions adjust their balance sheets procyclically, increasing leverage during periods of abundant liquidity and reducing it during stress. This dynamic amplifies systemic risk, as liquidity conditions directly influence risk-taking behaviour.

Similarly, Brunnermeier and Pedersen (2009) introduce the concept of liquidity spirals, demonstrating how funding liquidity and market liquidity interact. A decline in funding liquidity forces market participants to deleverage, which in turn reduces market liquidity and further exacerbates financial instability.

While these theoretical frameworks provide critical insights into liquidity risk and systemic instability, they are predominantly focused on liquidity shortages and crisis dynamics. They offer limited explanation of persistent excess liquidity in post-regulatory environments, where banks may hold liquidity well above minimum requirements without immediate stress conditions.

2.3 Basel III and Liquidity Regulation

The introduction of Basel III marked a significant shift in global banking regulation, particularly in the area of liquidity risk management. The Basel Committee on Banking Supervision (2013) introduced the Liquidity Coverage Ratio (LCR), requiring banks to maintain sufficient high-quality liquid assets (HQLA) to cover net cash outflows over a 30-day stress period. Complementing this, the Net Stable Funding Ratio (NSFR) (Basel Committee on Banking Supervision, 2014) aims to ensure that banks maintain stable funding over a one-year horizon.

These regulatory measures are grounded in a macroprudential framework, designed to enhance the resilience of the financial system as a whole. The Prudential Regulation Authority (2021) reinforces this approach, emphasising the importance of robust liquidity risk management practices, stress testing, and governance standards in maintaining financial stability.

Empirical evidence from the Bank of England (2022) indicates that UK banks have responded to these regulations by significantly increasing their liquidity buffers. In addition to regulatory compliance, quantitative easing policies have further expanded central bank reserves, contributing to a system wide environment of high liquidity.

However, Basel III regulations are inherently prescriptive, focusing on minimum standards rather than optimal liquidity levels. While they effectively address the risks associated with liquidity shortages, they do not explicitly consider the consequences of excess liquidity holdings, including potential impacts on profitability, balance sheet efficiency, and resource allocation.

This limitation is particularly relevant in the post-crisis UK context, where banks often maintain liquidity buffers substantially above regulatory thresholds (Table 01). The regulatory framework explains why liquidity must be held, but not why

banks continue to hold excess liquidity or how such liquidity is managed strategically.

Table 01 – Excess LCR UK Banks

Bank	2018	2019	2020	2021	2022	2023	Average
HSBC	136%	140%	149%	146%	150%	152%	145.50%
Barclays	150%	154%	161%	159%	157%	158%	156.50%
Lloyds Banking Group	140%	145%	150%	147%	148%	151%	146.83%
NatWest Group	148%	152%	155%	150%	149%	153%	151.17%
Standard Chartered	135%	140%	148%	144%	145%	147%	143.17%
Average	141.80%	146.20%	152.60%	149.20%	149.80%	152.20%	148.63%

Table01-LCR % (*Basel III Minimum Requirement = 100%*)

2.4 Liquidity and Bank Profitability

The relationship between liquidity and profitability is one of the most debated topics in banking literature. Traditional theory suggests a trade-off between liquidity and returns, as liquid assets typically generate lower yields compared to loans and other investments.

Berger (1995b) proposes a positive relationship between capital (and by extension, liquidity) and profitability through signalling effects. Higher liquidity levels may signal financial strength and stability, attract investors and reducing funding costs. Similarly, liquidity can enhance a bank's ability to meet obligations, thereby improving confidence among stakeholders.

In contrast, Bordeleau and Graham (2010) introduce a non-linear perspective, suggesting that the relationship between liquidity and profitability follows a

quadratic pattern. Moderate levels of liquidity can enhance profitability by reducing risk, but excessive liquidity leads to diminishing returns due to opportunity costs.

Recent empirical research supports this non-linear relationship. Vu (2024) finds that the relationship between the Liquidity Coverage Ratio and profitability follows an inverted U-shaped pattern. Initial increases in LCR improve profitability, but beyond an optimal level, additional liquidity reduces returns due to underutilisation of assets.

Empirical findings across the literature remain mixed. Some studies, such as Ibrahim (2017) and Mashamba (2018), report a positive relationship between liquidity and profitability, while others, including Banerjee and Mio (2018) and Sidhu et al. (2022), find a negative impact. Golubeva et al. (2019) highlight the complexity of this relationship, suggesting that it depends on institutional, regulatory, and macroeconomic conditions.

A key limitation of existing studies is their reliance on quantitative, aggregate data, often overlooking the internal decision-making processes that drive liquidity management. Furthermore, many studies focus on emerging markets, with limited attention to advanced economies such as the UK.

2.5 Liquidity Creation and Banking Behaviour

Banks play a central role in liquidity creation within the financial system. Kashyap, Rajan and Stein (2002) argue that banks provide liquidity through both lending and deposit-taking activities, explaining the coexistence of these functions. Berger and Bouwman (2009) further develop this concept by measuring bank-level liquidity creation and linking it to financial performance.

During periods of financial stress, banks tend to reserve liquidity, reducing lending and amplifying economic downturns. Cornett et al. (2011) show that increased liquidity risk leads to a contraction in credit supply, while Acharya and Mora (2015) demonstrate how liquidity pressures influence bank behaviour during crises.

However, these studies are primarily concerned with liquidity shortages and crisis responses, rather than the behaviour of banks in environments characterised by excess liquidity. As a result, there is limited understanding of how banks manage surplus liquidity in stable, post-regulatory contexts.

2.6 Global Liquidity, Market Constraints, and Arbitrage

Recent literature has shifted towards understanding how balance sheet constraints affect financial markets and arbitrage conditions. Avdjiev et al. (2019) show that bank leverage and US dollar strength contribute to deviations from covered interest parity (CIP), indicating that arbitrage opportunities persist due to balance sheet limitations.

Similarly, Du, Tepper and Verdelhan (2018) find that CIP deviations are driven by funding constraints and regulatory costs, which limit banks' ability to exploit arbitrage opportunities. Borio, McCauley and McGuire (2016) also highlight the breakdown of covered interest parity, attributing it to structural changes in global financial markets.

Cenedese, Della Corte and Wang (2021) extend this analysis by demonstrating that dealer balance sheet constraints lead to persistent currency mispricing. Their findings emphasise the role of intermediary capacity in maintaining market efficiency.

While this literature provides valuable insights into the role of constraints in financial markets, it primarily focuses on limitations in balance sheet capacity. In

contrast, the implications of excess liquidity as a form of underutilised balance sheet capacity remain largely unexplored.

2.7 Digitalisation and the "Digitalisation Paradox"

The rapid growth of financial technology (FinTech) has transformed banking operations, improving efficiency, transparency, and accessibility. Boot, Hoffmann, Laeven and Ratnovski (2021) argue that while FinTech introduces innovation, many developments replicate existing financial functions rather than fundamentally transforming them.

However, emerging perspectives suggest the existence of a "digitalisation paradox", where increased reliance on automated systems and trading platforms may reduce flexibility in complex financial transactions. For example, treasury operations involving multi-leg foreign exchange swaps often rely on decentralised interactions, such as voice brokers, to identify arbitrage opportunities. Standardised digital platforms may not fully capture these opportunities, potentially limiting profitability.

This perspective aligns with market microstructure theory, which emphasises the importance of information asymmetry and decentralised trading in price discovery. Despite its relevance, the interaction between digitalisation, liquidity management, and profitability remains underexplored in the literature.

2.8 Research Gap and Contribution

The literature reviewed highlights several important gaps:

1. **Overemphasis on liquidity shortages**
   Most studies focus on crisis scenarios and liquidity risk, with limited attention to excess liquidity in stable environments.

2. **Limited integration of LCR, excess liquidity, and profitability**
   While regulatory frameworks and profitability studies exist, they are rarely analysed together in a unified framework.

3. **Lack of behavioural and institutional insights**
   Existing research relies heavily on quantitative methods, neglecting internal decision-making processes within banks, particularly in treasury functions.

4. **Neglect of digitalisation effects**
   The impact of financial technology on liquidity management and profitability remains insufficiently explored.

5. **Limited UK-specific evidence**
   Much of the empirical literature focuses on emerging markets, with less emphasis on advanced economies such as the UK.

2.9 Conclusion

The literature on bank liquidity, regulation, and profitability provides a strong theoretical and empirical foundation for understanding financial stability. However, it remains heavily oriented towards crisis prevention and regulatory compliance. There is limited understanding of how excess liquidity is generated, managed, and utilised in practice, particularly in the context of Basel III regulations more profitably.

This study addresses these gaps by focusing on the UK banking sector and examining the relationship between the Liquidity Coverage Ratio, excess liquidity, and profitability. By incorporating both empirical analysis and insights into treasury decision-making, the research aims to provide a more comprehensive understanding of liquidity management in modern banking systems.

Chapter 3| Methodology

3.1 Research Design

This study adopts a mixed empirical research design, combining both qualitative and quantitative approaches to better understand the issue of excess liquidity in UK banks. The main focus of the study is exploratory, aiming to examine how banks manage liquidity beyond regulatory requirements and how this affects profitability and decision-making.

The qualitative component forms the core of this research. Semi-structured interviews are used to explore how treasury teams and financial decision-makers approach liquidity management in practice. This approach allows for a deeper understanding of internal decision-making processes, including how banks determine liquidity buffers, respond to market conditions, and balance regulatory compliance with profitability objectives. It also helps to capture behavioral and institutional factors that are not visible in quantitative data.

A quantitative approach is also considered at a conceptual level to support the overall research design. In a full scale study, panel data analysis could be used to examine the relationship between liquidity and profitability across multiple UK banks over time. Data would be collected from publicly available sources such as annual reports and regulatory disclosures, including variables such as liquidity ratios (e.g. LCR measures), profitability indicators (e.g. Return on Assets and Net Interest Margin), and bank-specific characteristics.

The data could be analysed using statistical software such as SPSS for initial analysis, including descriptive statistics and basic regression models. However, for more advanced panel data techniques, software such as EViews would be more appropriate, as they allow for fixed effects and random effects modelling.

However, given the scope and time constraints of this study, the quantitative component is not fully implemented and remains indicative. Instead, it is included to demonstrate how the research could be extended into a more comprehensive empirical analysis.

Overall, the combination of qualitative insights and a potential quantitative framework strengthen the research design. It ensures that the study not only explores real world decision making practices but also shows how these insights could be supported and tested using empirical data in future research.

3.2 Research Approach

The study follows an inductive research approach, where insights are developed from empirical observations rather than testing a strict theoretical model. While existing theories such as financial intermediation and liquidity/profitability trade-offs provide a foundation, the research aims to build new understanding around

- Excess liquidity holdings
- Treasury decision-making
- Practical constraints in liquidity deployment

This approach will connect theory with professional practice.

3.3 Data Collection Method: Semi-Structured Interviews

The primary data collection method is semi-structured interviews with professionals working in:

- Bank treasury functions
- Liquidity risk management
- Balance sheet management

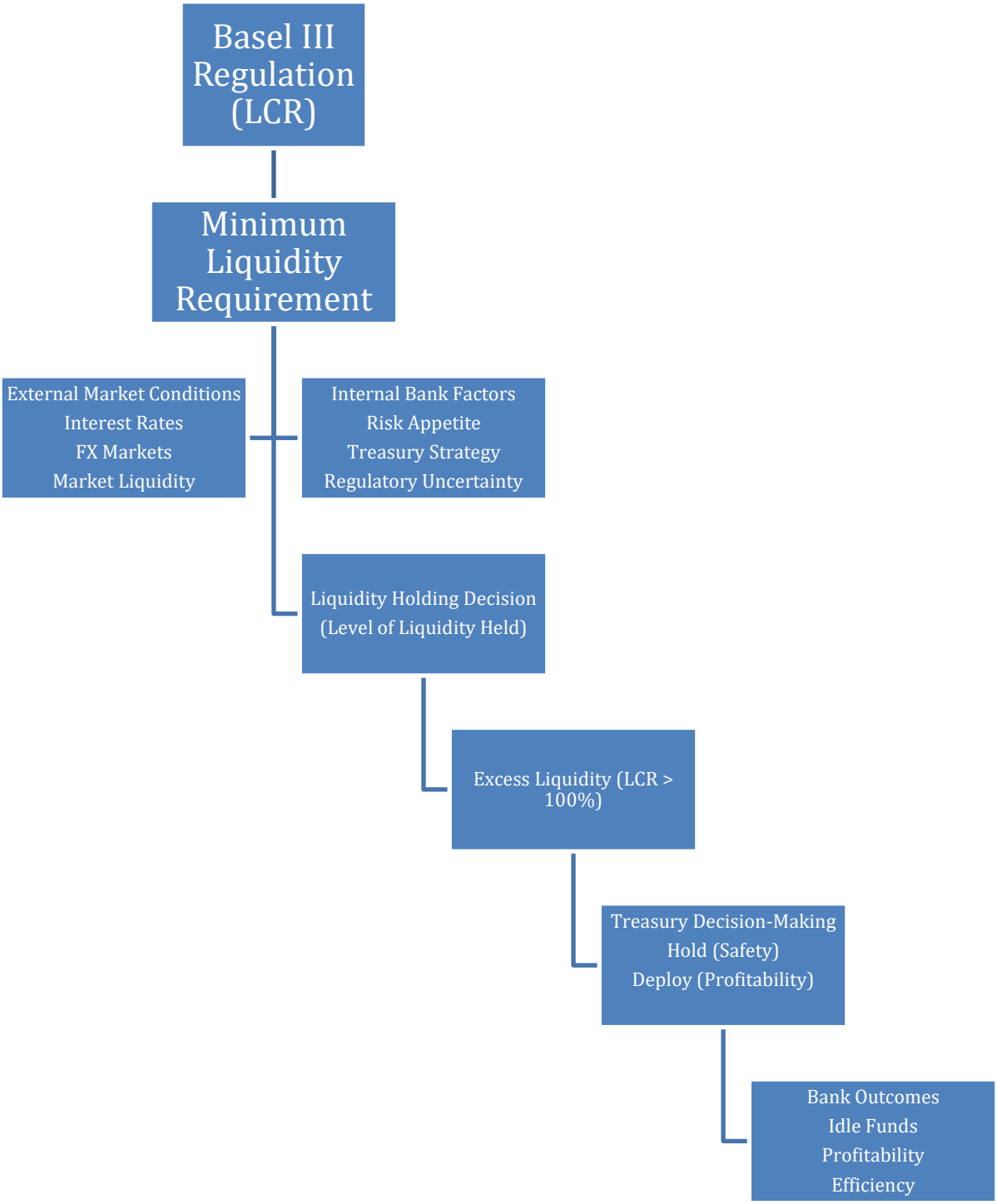
Semi-structured interviews are chosen because they allow:

- Flexibility to explore complex topics
- Deeper understanding of decision-making processes
- The ability to capture practical insights not available in quantitative data

Participants are asked open-ended questions related to:

- How liquidity buffers are determined beyond LCR requirements
- Factors influencing excess liquidity holdings
- Internal decision-making processes within treasury
- Trade-offs between profitability and regulatory compliance
- The role of market conditions and operational constraints

3.4 Conceptual Framework



The conceptual framework illustrates how regulatory requirements, particularly the Liquidity Coverage Ratio (LCR), interact with internal and external factors to influence liquidity management decisions within banks. While Basel III establishes minimum liquidity thresholds, banks often hold liquidity above these levels due to internal risk preferences, regulatory uncertainty, and market conditions. These factors shape treasury decision-making processes, particularly regarding whether excess liquidity is retained for stability or deployed to enhance profitability. The framework highlights how structural excess liquidity can lead to trade-offs between safety and efficiency, ultimately affecting bank performance. This study uses both quantitative data and qualitative insights from interviews to explore these relationships in the UK banking context.

3.5 Pilot Study

This study incorporates an initial exploratory phase to assess the feasibility of conducting a larger empirical investigation into excess liquidity in UK banks. Rather than functioning solely as a traditional pilot study, this stage is designed to evaluate whether the proposed research approach, data collection methods, and research questions are appropriate and practical in a real-world context.

The exploratory phase involves conducting a small number of semi-structured interviews with relevant industry professionals. This allows the researcher to:

- Assess the accessibility of participants and data
- Evaluate whether the research questions are meaningful and relevant to practitioners
- Identify any gaps or limitations in the proposed methodology
- Refine interview design and terminology

Insights gained from this phase will help determine whether the research can be scaled into a more comprehensive study. It also ensures that the final research design is both methodologically robust and practically grounded in industry realities.

3.6 Sampling Strategy

The study uses a purposive sampling method, selecting participants based on their expertise and relevance to the research topic. The sample focuses on professionals with direct involvement in liquidity management, including not limited,

- Treasury dealers
- Liquidity risk managers
- ALM (Asset-Liability Management) specialists

The sample size is expected to be small but focused, prioritising depth of insight over breadth. Expecting 15-20 Semi Structured Interviews.

3.7 Data Analysis

The collected data is analysed using a thematic analysis approach. This involves:

1. Transcribing interview responses
2. Identifying recurring themes and patterns
3. Grouping responses into key categories

Key themes expected to emerge include:

- Drivers of excess liquidity
- Regulatory vs internal constraints
- Profitability trade offs
- Market and operational limitations

- Decision making frameworks within treasury

The analysis focuses on understanding how and why excess liquidity is held, rather than measuring it purely quantitatively.

3.8 Ethical Considerations

This study follows standard research ethics principles:

- Participation is voluntary
- Participants provide informed consent
- Responses are kept confidential and anonymised
- No sensitive institutional data is disclosed

These measures ensure the integrity of the research and protect participants.

3.9 Limitations of the Methodology

This research has some limitations:

- Small sample size limits generalisability
- Qualitative data may be subjective
- Access to industry professionals may be constrained
- Lack of detailed bank-level quantitative data

However, these limitations are consistent with exploratory research and are balanced by the depth of insights gained. While publicly available financial statements provide useful information on bank liquidity positions, they may not fully capture internal liquidity management practices, such as detailed LCR calculations, intraday liquidity decisions, or treasury-level allocation strategies. To address this limitation, the use of semi-structured interviews helps provide additional qualitative insights, allowing the study to better understand internal

decision-making processes and partially overcome the constraints of relying solely on publicly available data.

3.9 Justification of Methodology

This methodology is appropriate because it

- Addresses a clear gap in the literature (excess liquidity, not shortages)
- Captures real-world treasury behaviour
- Aligns with the DBA focus on practice-based research to enhances profitability
- Supports the development of decision making frameworks

This study also supports the development of practical decision-making insights by examining how treasury functions manage excess liquidity beyond regulatory requirements. Specifically, the research seeks to understand how banks determine the appropriate level of liquidity to hold, when to deploy excess liquidity, and how trade-offs between safety and profitability are evaluated. Evidence from semi-structured interviews is expected to reveal key behavioural patterns, such as the influence of regulatory uncertainty, changing market conditions, and internal risk appetite on liquidity decisions. By identifying these regular factors, the study contributes to the development of a simplified decision making framework that explains how banks balance regulatory compliance with profitability objectives in the presence of structural excess liquidity. Also this is particularly relevant in the UK context, where high levels of central bank reserves have created persistent excess liquidity conditions.

3.10 Decision making farmwork

Building on these insights, the study can contribute towards the development of a simplified decision-making framework for managing excess liquidity. In practice, treasury decision-making can be understood as a structured process in which banks first ensure compliance with regulatory minimum requirements such as the Liquidity Coverage Ratio (LCR). This is followed by the application of internal liquidity buffers, reflecting the bank's risk appetite and precautionary considerations. Banks then assess prevailing market conditions, including interest rates, foreign exchange dynamics, and overall liquidity in financial markets. Based on these factors, treasury functions make strategic decisions on whether to retain liquidity for safety and resilience purposes or to redeploy excess funds into higher-yielding assets to enhance profitability. This framework helps explain how banks balance regulatory compliance with commercial objectives in an environment characterised by structural excess liquidity.

Chapter 4| FINDINGS AND ANALYSIS

4.1 Introduction

This chapter presents the findings from the pilot study exploring liquidity management and profitability in UK banks under the Liquidity Coverage Ratio (LCR) framework. The purpose of the pilot analysis is to examine how treasury teams and banking institutions make liquidity decisions and how these decisions relate to profitability outcomes.

The findings are developed using a structured interpretation of semi-structured interview questions. Rather than focusing on raw responses, the analysis identifies key themes such as liquidity buffers, excess liquidity, treasury decision-making, market conditions, and digitalisation effects. These themes are also linked to the empirical model developed in Chapter 3.

4.2 Key Thematic Findings

4.2.1 Liquidity Management under LCR

The analysis suggests that LCR acts as a regulatory baseline for liquidity management, but banks typically operate above the minimum requirement. This indicates that liquidity management is both regulatory and strategic in nature.

4.2.2 Structural Excess Liquidity

A key finding is the presence of structural excess liquidity in UK banks. Liquidity buffers are consistently held above regulatory requirements due to risk aversion, market uncertainty, and internal governance policies.

4.2.3 Treasury Decision-Making

Liquidity decisions are made through a structured internal process combining regulatory compliance, risk appetite, and market assessment. This highlights that liquidity management is not automatic but involves layered judgement.

4.2.4 Liquidity and Profitability Relationship

The findings support a nonlinear relationship between liquidity and profitability. Moderate liquidity supports stability, while excessive liquidity reduces profitability due to opportunity cost.

4.2.5 Digitalisation and Liquidity Management

Digital systems improve efficiency but may reduce flexibility in complex treasury operations. This creates a potential digitalisation paradox where efficiency does not always lead to optimal financial outcomes.

4.3 Interview Questions and Interpretations

This section presents the interview questions planned to use in the study and provides analytical interpretation of expected responses.

Theme 1: Liquidity Management and Regulation

Question 1: How is liquidity managed in relation to the LCR requirement?

Interpretation -The question explored whether liquidity management is purely regulatory or strategically driven.

Interpretation - The analysis suggests that LCR compliance is the starting point of liquidity management. Banks ensure they meet the minimum requirement; however, most institutions operate above the threshold. This indicates that

liquidity management is not only compliance-based but also influenced by internal risk frameworks and stress testing.

Higher responses typically reflect structured liquidity frameworks, while lower responses indicate more compliance focused behaviour.

Link to my research - This supports the idea that LCR acts as a regulatory baseline rather than a true reflection of liquidity strategy.

Question 2: Do banks operate above the minimum LCR level? Why?

This question focused on the existence of excess liquidity.

Interpretation - Findings suggest that most banks maintain buffers above regulatory requirements. The main reasons including Risk aversion, Market uncertainty, Internal governance policies, Stress scenario preparation

This indicates that excess liquidity is a systemic and intentional feature of banking behaviour, not an anomaly.

Link to my research - this supports the concept of structural excess liquidity, central to this study.

Theme 2: Drivers of Excess Liquidity

Interview Question 3: What factors influence liquidity buffer decisions?

This question examined behavioural and institutional drivers.

Interpretation - As per my knowledge Liquidity buffers are shaped by a combination of Regulatory expectations, Internal risk appetite, Market volatility, Funding conditions

Banks with higher risk aversion tend to hold larger buffers, even when not required by regulation.
This shows that liquidity is influenced by behavioural decision-making, not only financial constraints.

Interview Question 4: Why do banks hold liquidity beyond regulatory requirements?

This question focused specifically on idle funds.

Interpretation - Excess liquidity is primarily held due to Uncertainty in financial markets, Lack of attractive lending opportunities, Prudential risk management, Regulatory caution following past crises

This demonstrates that excess liquidity is often a protective strategy rather than inefficiency alone.

Theme 3: Treasury Decision-Making Process

Interview Question 5: How are decisions made regarding holding or deploying liquidity?

This question explored internal decision frameworks.

Interpretation - A structured decision making process was identified

1. Meet regulatory LCR requirement
2. Add internal buffer based on risk appetite
3. Assess market conditions
4. Decide whether to hold or deploy liquidity

This shows that liquidity decisions are layered and not automatic.

Link to my research - Treasury functions operate using a risk-adjusted decision hierarchy rather than fixed rules.

Interview Question 6: What role does risk appetite play in liquidity decisions?

Interpretation - Risk appetite plays a central role in determining liquidity levels. Conservative institutions prefer higher liquidity buffers, even if it reduce profitability.

This explains variation between banks operating under similar regulatory conditions.

Link to my research - Risk appetite is a key driver of connection in liquidity behaviour.

Theme 4: Market Conditions and Liquidity Deployment

Interview Question 7: How do market conditions influence liquidity deployment?

Interpretation - Liquidity deployment is highly sensitive to external conditions such as,

- Interest rates
- Market volatility
- Credit conditions

During periods of uncertainty, banks prefer holding liquidity rather than deploying it into riskier assets.

Link to my research - Liquidity behaves as a defensive buffer in uncertain markets.

Interview Question 8: When is excess liquidity actually deployed?

Interpretation - Excess liquidity is deployed only when Market conditions are stable, Return opportunities are attractive, Risk is perceived to be low

If not, liquidity remains idle.

Link to my research - This reinforces the persistence of excess liquidity even in profitable environments.

Theme 5: Liquidity and Profitability Relationship

Interview Question 9: What is the impact of liquidity on profitability?

Interpretation - The relationship is not linear. Findings suggest Moderate liquidity supports stability and profitability, Excess liquidity reduces returns due to opportunity cost, Low liquidity increases financial risk

This supports a non-linear relationship.

Interview Question 10: Is there an optimal level of liquidity?

Interpretation - Banks appear to operate within a target liquidity range rather than a fixed level.

Too little liquidity increases risk, while too much reduces profitability.

Link to my research - This connects directly with the theoretical model used in Chapter 3.

Theme 6: Digitalisation and Treasury Behaviour

Interview Question 11: Does digitalisation affect liquidity management decisions?

Interpretation - Digital systems improve speed and efficiency but may also reduce flexibility in complex treasury operations.

Heavy reliance on automated platforms can limit access to informal trading channels (e.g. broker-driven FX swaps), potentially reducing arbitrage opportunities.

This introduces a digitalisation paradox, where efficiency does not always equal optimal financial outcomes.

Interview Question 12: How many Sell/Buys receive Swaps you have done paying (zero or minus)?

Interpretation – Usually Sell/buy swaps you pay extra on long date. But through voice broker swaps you get this opportunity to receive. This situation is simply like assuming you go to a Mac drive through, when you collect your burger, operator say its free or they pay you for some price to use their services.

This prove if they engage with multi legged swaps.

4.4 Linking Findings to the Empirical Approach

The findings from this pilot study provide a useful foundation for developing a structured empirical approach to examine the relationship between liquidity and profitability in UK banks. Although a full quantitative analysis is not conducted at this stage, the qualitative insights indicate clear patterns that can be tested using panel data methods.

In particular, the analysis suggests that the relationship between liquidity and profitability is not purely linear. Moderate levels of liquidity appear to support financial stability and operational performance, while excessive liquidity may reduce profitability due to the opportunity cost of holding low-yield liquid assets. This indicates the possibility of a non-linear relationship.

To capture this relationship in a future empirical analysis, a panel regression model can be specified as follows:

$$ROA_{it} = \alpha + \beta_1 LCR_{it} + \beta_2 LCR_{it}^2 + \gamma X_{it} + \mu_i + \epsilon_{it}$$

Where:

- ROA_{it}represents profitability (Return on Assets) of bank *i* at time *t*
- LCR_{it}represents the Liquidity Coverage Ratio
- LCR_{it}^2captures the potential non-linear effect
- X_{it}represents control variables (e.g., size, capital, macroeconomic factors)
- $\mu_i$captures bank-specific characteristics
- ϵ_{it}represents random error

The inclusion of the squared term is supported by the qualitative findings, which suggest that liquidity has both positive and negative effects depending on its level. Additionally, the importance of internal risk appetite and governance highlighted in the analysis supports the need to control for bank-specific factors.

Similarly, the influence of market conditions reinforces the role of external variables in shaping liquidity outcomes.

Overall, the findings from this pilot study not only provide insight into liquidity management practices but also support the development of a more formal empirical model in future research.

Chapter 5| DISCUSSION AND IMPLICATIONS

5.1 Introduction

This chapter discusses the findings of the pilot study in relation to the research objectives and existing literature. The study aimed to examine how liquidity management under the Liquidity Coverage Ratio (LCR) framework influences profitability and decision-making in UK banks. The discussion interprets the findings by linking them to theoretical and empirical literature, while also identifying contributions, practical implications, and areas for future research.

5.2 Discussion of Key Findings

5.2.1 Liquidity Management Beyond Regulatory Compliance

A key finding of this study is that liquidity management in UK banks extends beyond simple compliance with regulatory requirements. While the LCR sets a minimum threshold, banks tend to maintain liquidity levels above this requirement.

This finding is consistent with the framework developed by the Basel Committee on Banking Supervision, which emphasises resilience through sufficient liquidity buffers (Basel Committee on Banking Supervision, 2013). However, the results of this study suggest that banks go beyond regulatory expectations due to internal risk considerations and uncertainty in financial markets.

Therefore, regulation appears to act as a baseline, while actual liquidity levels are determined by internal governance and strategic decision-making.

5.2.2 Structural Excess Liquidity in UK Banks

The findings indicate the presence of structural excess liquidity, where banks consistently hold liquidity above regulatory requirements. This observation aligns with reports from the Bank of England, which highlight elevated reserve levels in

the UK banking system following post-crisis monetary policies (Bank of England, 2022).

The study finds that excess liquidity is driven by:

- Risk aversion
- Market uncertainty
- Regulatory expectations
- Limited investment opportunities

This challenges traditional assumptions that banks optimise liquidity purely for profitability. Instead, liquidity is maintained as a precautionary buffer, reflecting behavioural and institutional influences.

5.2.3 Liquidity–Profitability Trade-off

Another important finding is the non-linear relationship between liquidity and profitability. The results suggest that:

- Low liquidity increases financial risk
- Moderate liquidity supports stability and profitability
- Excess liquidity reduces profitability due to opportunity cost

This supports the inverted U-shaped relationship identified by Thanh Huu Vu (2024), where profitability increases up to an optimal liquidity level and declines beyond that point.

The findings also align with earlier work by Bordeleau and Graham (2010), who argue that liquidity has both positive and negative effects depending on its level. This study extends the literature by showing that this relationship is not only theoretical but also reflected in practical decision-making within banks.

5.2.4 Role of Treasury Decision-Making

The study highlights the importance of treasury and risk management functions in shaping liquidity outcomes. Rather than following fixed regulatory rules, banks apply structured decision-making processes based on internal policies and market conditions.

This supports the theoretical framework of financial intermediation developed by Douglas Diamond and Philip Dybvig (1983), which emphasises the role of banks in managing liquidity under uncertainty.

However, this study extends their work by showing that in modern regulatory environments, the challenge is not only liquidity shortages but also the management of excess liquidity and idle funds.

5.2.5 Market Conditions and Liquidity Behaviour

The findings confirm that market conditions significantly influence liquidity decisions. During periods of uncertainty, banks prefer to hold liquidity rather than deploy it into riskier assets.

This is consistent with the liquidity interaction framework proposed by Markus Brunnermeier and Lasse Heje Pedersen (2009), which highlights how market conditions affect financial behaviour.

However, this study contributes further by showing that even in non-crisis periods, uncertainty can lead to persistent liquidity hoarding, reinforcing the presence of excess liquidity.

5.2.6 Digitalisation and the “Digitalisation Paradox”

An important emerging finding is the role of digitalisation in liquidity management. While digital platforms improve efficiency and execution speed, they may reduce flexibility in complex treasury operations.

This supports the work of Arnoud Boot, Peter Hoffmann, Luc Laeven and Lev Ratnovski (2021), who argue that financial technology enhances efficiency but does not eliminate financial frictions.

This study introduces the idea of a digitalisation paradox, where increased reliance on digital platforms may limit access to complex or broker-driven transactions, potentially reducing arbitrage opportunities and profitability.

5.3 Theoretical Contribution

This study contributes to the literature in several ways.

First, it shifts the focus from liquidity shortages, commonly discussed in studies such as Diamond and Dybvig (1983), towards the issue of excess liquidity in regulated banking systems.

Second, it integrates regulatory frameworks (LCR), internal decision-making behaviour, and profitability outcomes into a single analytical perspective.

Third, it introduces the concept of a digitalisation paradox in liquidity management, highlighting how technological efficiency may not always lead to optimal financial outcomes.

5.4 Practical Implications

From a practical perspective, the findings are relevant for treasury and risk management functions within banks.

The study suggests that banks should:

- Reassess the size of liquidity buffers beyond regulatory requirements
- Develop clearer decision rules for deploying excess liquidity
- Balance stability with profitability objectives

- Consider the limitations of fully automated systems

A simplified decision framework emerging from the findings includes:

1. Meeting regulatory LCR requirements
2. Adding internal buffers based on risk appetite
3. Assessing market conditions
4. Deciding whether to hold or deploy liquidity

This provides a practical approach to improving liquidity efficiency.

5.5 Policy Implications

The findings also have implications for regulators. While LCR improves financial stability, it may also encourage banks to hold excess liquidity.

This suggests a need to consider:

- The balance between stability and efficiency
- Potential unintended consequences of regulatory frameworks
- The role of behavioural factors in liquidity management

5.6 Limitations of the Study

As a pilot study, this research has limitations. These include the absence of primary interview data and limited access to detailed bank-level information.

However, these limitations are consistent with exploratory research and are balanced by the depth of insights developed through structured analysis.

5.7 Future Research

Future research can extend this pilot study by,

- Conducting semi-structured interviews with banking professionals
- Applying panel data analysis to test the proposed model
- Exploring differences across banks and time periods
- Examining digitalisation effects in more detail

5.8 Chapter Summary

This chapter has discussed the key findings of the study and linked them to existing literature. The results show that liquidity management in UK banks is shaped by regulation, internal decision-making, and market conditions, leading to structural excess liquidity.

The study highlights a non-linear relationship between liquidity and profitability and introduces new insights into behavioural and technological influences. These findings provide both theoretical and practical contributions and support further research in this area.

Chapter 6| CONCLUSION

6.1 Overview

This study set out to evaluate the extent of excess liquidity in the UK banking sector and to examine how liquidity management under the Liquidity Coverage Ratio (LCR) affects profitability and decision-making. The findings provide clear evidence that liquidity in UK banks is not only a regulatory requirement but also a strategic and behavioural outcome.

6.2 Key Conclusions

The study concludes that **excess liquidity is a structural feature of the UK banking system** rather than a temporary condition. While the LCR, introduced by the Basel Committee on Banking Supervision, sets minimum liquidity standards, banks consistently operate above these thresholds.

This behaviour is driven by,

- Internal risk appetite
- Market uncertainty
- Regulatory expectations

In addition, the study confirms that the relationship between liquidity and profitability is non-linear. Moderate levels of liquidity support financial stability and performance, but holding excessive liquidity reduces profitability due to the opportunity cost of idle funds. This supports the inverted U-shaped relationship identified in prior research (Vu, 2024).

6.3 Contribution of the Study

This research makes three key contributions.

First, it shifts the focus from liquidity shortages to excess liquidity in a post-regulatory environment, extending traditional liquidity theories such as those developed by Douglas Diamond and Philip Dybvig.

Second, it links regulatory requirements (LCR), internal decision-making, and profitability into a single framework, addressing a gap in the literature.

Third, it introduces the concept of a digitalisation paradox, suggesting that while technology improves efficiency, it may also reduce flexibility in complex treasury operations.

6.4 Practical Implications

The findings highlight that liquidity management is not only about meeting regulatory requirements but also about optimising financial performance.

Banks should,

- Critically assess liquidity held above LCR requirements
- Develop clearer strategies for deploying excess liquidity
- Balance safety with profitability
- Consider the impact of digital systems on trading flexibility

6.5 Final Reflection

Overall, this study shows that liquidity management in modern banking is evolving from a focus on risk prevention to a broader challenge of efficiency and

resource allocation. Excess liquidity, while supporting stability, may also limit profitability if not actively managed.

This research provides a foundation for future empirical work and offers practical insights for improving liquidity management in the UK banking sector.

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Appendix

Appendix A: Interview Request Letter

Dear [Name / Treasury Team],

I hope this message finds you well.

I am currently undertaking a Doctor of Business Administration (DBA) at the University of Wales Trinity Saint David London. My research focuses on liquidity management within the UK banking sector, with particular emphasis on the Liquidity Coverage Ratio (LCR), excess liquidity, and its impact on profitability and strategic decision-making.

As part of this study, I am conducting semi-structured interviews with professionals working in treasury, liquidity risk, and related functions. The purpose of these interviews is to gain professional insights into how liquidity is managed in practice within regulated banking environments.

The interview would:

- Take approximately 25–40 minutes
- Be conducted at a time convenient to you (via Teams/Zoom or in person)
- Focus on general practices and perspectives on liquidity management
- Not require disclosure of any confidential or sensitive information

Please be assured that:

- Participation is entirely voluntary
- All responses will be anonymised
- The information will be used solely for academic purposes

If you are willing to participate, I would be happy to provide further details and arrange a suitable time for the interview.

Thank you very much for considering this request. I greatly appreciate your time and support.

Kind regards,
Niroshan Fernando Thevarathanthrige

Doctor of Business Administration (DBA) Candidate
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Appendix B: Pilot Study Limitations and Future Research

Although semi-structured interviews and a survey were planned as part of the research design, they were not completed during this pilot study due to time constraints and limited access to suitable participants.

Before these limitations, contact had already been made with treasury professionals through personal networks and corporate-level connections to arrange interviews. However, it was not possible to confirm and complete these discussions within the available time. A survey approach was also considered, but it was not suitable for this study because liquidity management decisions under the Liquidity Coverage Ratio (LCR) are usually made by a small group of senior treasury and risk professionals, rather than many respondents.

These limitations apply only to the pilot stage of the research. The pilot study is a work in progress, mainly designed to test the research design, refine the framework, and assess feasibility. The interview questions and research structure have already been developed and will be used in the main study.

In the full research, semi-structured interviews and other data collection methods will be carried out properly. These will involve treasury and risk management professionals in UK banks to collect detailed information about liquidity decisions, excess liquidity, and profitability.

This step-by-step approach helps to improve the research design. It allows the study to start with a strong conceptual base in the pilot stage and then move to full data collection in the main study.