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THE RELATIONSHIP BETWEEN LIQUIDITY CREATION AND DIVERSIFICATION IN BANKING: A COMPREHENSIVE LITERATURE REVIEW

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***Abstract**: This study presents a structured literature review exploring the relationship between liquidity creation and diversification in the banking sector. As banks increasingly adopt diversification strategies—whether in income sources, funding channels, or asset portfolios—to improve performance and resilience, understanding how these strategies influence liquidity creation becomes critically important. While diversification is often associated with enhanced financial stability, its effects on banks' ability to generate liquidity remain inconclusive. This paper synthesizes theoretical frameworks and empirical findings to offer a comprehensive analysis of this complex relationship. In contrast to previous studies that examine diversification or liquidity creation in isolation, this review bridges both areas by drawing on a wide range of academic works, all of which are exclusively referenced from the submitted thesis. The findings suggest that while moderate diversification may support liquidity provision by reducing income volatility and funding risk, excessive diversification can increase operational complexity and systemic vulnerability, thereby weakening liquidity buffers. The review concludes by identifying key gaps in the existing literature and proposing directions for future research to clarify and expand upon these dynamics.*

***Keywords**: Liquidity Creation, Diversification, Financial Institutions*

***JEL Classification**: G21, G32, G33*

INTRODUCTION

Banks perform a vital financial intermediation function by transforming short-term liabilities into long-term assets, thereby providing liquidity to the economy (Diamond & Dybvig, 1983). Liquidity creation is essential not only for the efficient functioning of individual banks but also for broader financial system stability and economic

growth (Berger & Bouwman, 2009). A growing body of literature has aimed to identify the factors and macroeconomic implications of liquidity creation, including the impact of capital regulation (Berger & Bouwman, 2013), monetary policy (Berger A. N., Bouwman, Kick, & Schaeck, 2016), bank ownership structure (Fungáčová & Weill, 2012), and financial crises (Berger & Sedunov, 2017). In parallel, bank diversification - across income, assets, funding sources or geographical operations - has been widely studied in the context of risk management, performance and financial stability (Stiroh, 2004); (Mercieca, Schaeck, & Wolfe, 2007); (Demirgüç-Kunt & Huizinga, 2010). While the rationale for diversification is theoretically grounded in modern portfolio theory (Markowitz, 1952), empirical evidence on its effectiveness in banking remains inconclusive. Some studies suggest that diversification improves banks' risk-adjusted returns and buffers them against earnings volatility (Chiorazzo, Milani, & Salvini, 2008) ; (Liu, Reichert, & Gramlich, 2013), while others find that it can dilute core competencies, increase operational complexity and increase risk (Acharya, Saunders, & Hasan, 2001); (Stiroh, 2006a).

Despite the richness of these two separate strands of literature, research that jointly examines the relationship between diversification and liquidity creation remains scarce and fragmented. Although research directly examining the link between diversification and liquidity creation remains limited, theoretical arguments suggest a meaningful interplay between the two. For example, banks that diversify their assets or operate across multiple geographic regions may experience changes in their overall risk exposure and funding resilience—both of which are closely tied to their ability to create liquidity. On the other hand, relying heavily on non-interest income streams could introduce greater revenue volatility, potentially impairing banks' capacity to maintain liquidity. A few recent studies have begun to investigate this relationship. However, their findings are still inconclusive and vary across contexts (Fu, Lin, & Molyneux, 2016); (Fungáčová & Weill, 2012); (Roberts, Sarkar, & Shachar, 2018).

This paper provides a systematic and comprehensive review of the literature related to bank liquidity creation, bank diversification, and the nascent line of research investigating the connections between these topics. Methodologically, the analysis is organised by key themes: theoretical foundations, individual empirical findings for each concept, and research that pays direct attention to how the two interact. Through this approach, the study aims to lay a solid conceptual foundation for future empirical work on the joint behavior of diversification and liquidity creation in the banking sector.

THEORETICAL BACKGROUND

Foundations of Liquidity Creation Theory

The origins of liquidity creation theory can be linked to the foundational ideas presented by Adam Smith in *The Wealth of Nations* (1776). In the second volume of this influential work, Smith emphasizes the crucial role of banking in fostering economic growth through liquidity creation. He notes that trade volume in Glasgow doubled just fifteen years after the city's first bank was established—a clear early indicator of the transformative impact of banking on economic activity. (Smith A. , 1776) assertion that the role of banks in fostering trade growth in Scotland, particularly in Glasgow, was indisputable, underscores the significance of financial institutions in catalysing economic development.

(Diamond & Dybvig, 1983) posit that financial institutions encounter the potential for unanticipated withdrawals within the context of liquidity creation. To mitigate the liquidity risk that a bank might face due to unexpected resource outflows, a conservative approach to maintaining all cash deposits can safeguard the bank, though it may hinder its ability to create liquidity. The model developed by (Diamond & Dybvig, 1983) underscores an economic role for banks, namely the conversion of illiquid assets into liquid liabilities. The most significant instrument that enables banks to fulfill this role is demand deposits. (Diamond & Dybvig, 1983) analysis focus exclusively on the liability side of the balance sheet. They contend that deposit insurance fosters liquidity creation by mitigating the risk of bankruptcy triggered by substantial deposit withdrawals.

The asset side of the balance sheet is addressed by (Diamond D. W., 1984) based on the "monitoring" service function of banks. (Diamond D. W., 1984) developed financial intermediation theory based on minimum cost information production. Financial intermediaries (e.g., banks) are tasked with monitoring the firms to which they provide loans. (Diamond D. W., 1984) asserts that banks play a pivotal role in mitigating asymmetric information between investors and firms due to their comparative advantage in monitoring their creditors. The repeated contacts between the bank and the same customer facilitate the acquisition of customer-specific information, a process referred to as "delegated monitoring."

According to the principles of modern financial intermediation theory, banks fulfill two pivotal roles within the economy. These are liquidity creation and transformation of risks (Bryant, 1980); (Diamond & Dybvig, 1983). These two roles are generally defined as "qualitative asset transformation" (Bhattacharya & Thakor, 1993). Firstly, banks facilitate liquidity by offering their customers the option to withdraw their deposits at their discretion, thereby converting illiquid assets into liquid liabilities. Concurrently, financial institutions encounter funding liquidity risk due to maturity mismatch. In this context, (Bryant, 1980) and (Diamond & Dybvig, 1983) have focused exclusively on the liability side of the balance sheet in their studies, emphasizing funding liquidity risk to understand financial crises. Secondly, banks also engage in risk transformation. They finance risky loans with risk-free deposits (Diamond D. W., 1984); (Ramakrishnan & Thakor, 1984); (Boyd & Prescott, 1986). While the roles of banks in transforming risks and creating liquidity overlap, the amount of liquidity created at a certain level of transformed risk may differ because the two roles do not act perfectly together(Berger & Bouwman, 2009). The functions of liquidity creation and risk transformation exhibit significant overlap. The transformation of risky and illiquid assets into safe and liquid deposits leads to an increase in the liquidity of the non-bank segment. Given the absence of an empirical risk transformation measure for the risk transformation role, the liquidity creation measure is employed to calculate the bank's total output (Berger, Boubakri, Guedhami, & Li, 2019).

After the studies conducted in the 1980s, the issue of banks' ability to generate liquidity from off-balance sheet transactions emerged as a central concern, prompting a series of studies in this domain. These studies placed particular emphasis on loan commitments as the primary source of liquidity generation from off-balance sheet transactions.(Kashyap, Rajan, & Stein, 2002)

The first paper to recognize the importance of measuring liquidity and to provide a theoretical solution was (Berger & Bouwman, 2009). They measure the "li-

quidity mismatch" at the bank level, launched a new area of literature focusing on the liquidity of the financial sector(Lacko, 2014).

Capital-Liquidity Creation Theory

A plethora of literature exists that addresses the necessity of elevated capital ratios for financial institutions. It is imperative to comprehend the impact of capital on liquidity creation, irrespective of the minimum capital regulations stipulated by regulatory and supervisory authorities. Capital ratios have been identified as the predominant factor influencing bank liquidity creation processes (Berger & Bouwman, 2015). In this context, the extant literature posits two opposing hypotheses to explain the relationship between capital and banks' liquidity creation.

According to "Financial Fragility-Crowding Effect Hypothesis", the relationship between banks' capital ratio and liquidity creation is inverse (Diamond & Rajan, 2000). As the capital levels of banks decrease, their financial structures become more fragile. This is because a decrease in capital level is accompanied by an increase in deposits. The fragility of deposits stems from the uncertainty surrounding savers' intentions to withdraw their savings, despite deposits serving as the primary source of liquidity creation. Consequently, financial institutions with vulnerable structures exhibit a greater propensity to closely monitor their debtors. This heightened monitoring by banks, coupled with the availability of more information, is expected to mitigate the asymmetric information problem, thereby fostering an expansion in credit volumes. In summary, banking institutions that accumulate more deposits and allocate funds to loan-related activities are more susceptible to financial instability. However, this heightened susceptibility can also be a catalyst for augmented liquidity creation. Conversely, a bank with substantial capital reserves will exhibit reduced financial fragility, though its capacity for liquidity creation will concomitantly diminish. The financial fragility-crowding-out effect hypothesis is valid under the assumption that there is no full security in the deposit insurance system. According to (Gorton & Winton, 2017), in a general equilibrium, a substantial amount of capital can displace or substitute for deposits, thereby diminishing liquidity creation. In this scenario, deposits, which are the primary source of liquidity creation for banks, are transformed into capital, thereby becoming illiquid liabilities.

The risk absorption hypothesis is a theoretical framework that focuses on the role of banks in transforming risk. This hypothesis posits a positive relationship between capital and liquidity creation. The risk absorption hypothesis is associated with two strands of the literature. Firstly, the liquidity creation process exposes banks to liquidity risk (Allen & Gale, 2004). Secondly, an increase in capital leads to an enhancement in the risk-carrying capacity of banks, a phenomenon that is attributed to the reduction in risk and the facilitation of augmented liquidity creation (Allen & Santomero, 1998). Consequently, the relationship between capital and liquidity creation is positive and bidirectional.

Diversification Theory

Traditional banking theory (Diamond D. W., 1984); (Boyd & Prescott, 1986); (Ramakrishnan & Thakor, 1984) argues that banks can reduce their risk and probability of failure by maximizing diversification. The rationale behind this argument

is that diversification strengthens the intermediation role (Abuzayed, Al-Fayoumi, & Molyneux, 2018) and overcomes the asymmetric information problem between fund providers and fund demanders, thus reducing the cost of financial intermediation. According to (Diamond D. W., 1984) information obtained from activities that generate non-interest income through diversification helps banks in their credit allocation decisions and enables them to better manage credit risks. Thus, banks with diversified financial activities will have a less volatile and more stable loan portfolio in the face of shocks. Because banks with less diversification operate in fewer areas, they are more vulnerable to economic turmoil (Tabak, Fazio, & Cajueiro, 2011).

According to modern portfolio theory, the effect of diversification on bank risk is uncertain. If the volatility of cash flows from non-traditional banking activities is higher (lower) than that of cash flows from traditional banking activities, turning to non-traditional activities will increase (decrease) risk. On the other hand, if the correlation between cash flows is low, turning to non-traditional activities will reduce the risk. As a result, the effect of engaging in non-banking activities on the bank's overall risk will depend on the magnitude of these two effects. In addition, the effect of diversification on the components of total risk, namely systematic and unsystematic risk, is also uncertain. For example, if the cash flows from non-traditional banking activities are perfectly correlated with the return on the market portfolio, then turning to non-traditional activities will increase the systematic risk of the bank (Sawada, 2013).

The view that diversification has an overall negative effect on bank performance is based on agency theory. The agency problem arises because the principal and the agent have different objectives and the principal is not fully aware of the agent's decisions. (Weber, 1920) defined the agency problem as the creation of official secrecy by appointed bureaucrats that deviates from the goals of elected politicians (Çelik & Bedük, 2014). After the theory was addressed by Berle and Means (1932), it was developed by (Jensen & Meckling, 1976) and thus the agency problem was included in the literature as a theory for the first time (Çelik & Bedük, 2014). According to (Jensen M. C., 1986) free cash flow theory, managers of firms with high free cash flows and high borrowing capacity try to maximize their own interests by diversifying beyond the optimal level. Managers prefer this strategy if it serves individual interests, even if the market value of the firm decreases with diversification. At this point, agency costs arise as a result of conflicts of interest between managers and partners. Therefore, according to (Jensen M. C., 1986) in order to minimize possible agency problems, one should focus on traditional activities and not pursue diversification strategies. Since diversification will encourage managers to exceed the optimal size and reduce the transparency of the bank, the value of the bank will decrease.

LITERATURE OVERVIEW

Empirical Studies on Liquidity Creation

Although there are two opposing hypotheses regarding the effect of capital on liquidity creation (financial fragility-crowding out and risk absorption), the literature has found that the relationship is generally negative. In this context, several studies across countries suggest that increasing capital limits liquidity creation. While (Bryant, 1980) and (Diamond & Dybvig, 1983) suggested that banks support economic growth by creating liquidity in the economy, empirical evidence suggests that non-bank financial

institutions create negative liquidity. (Choi, Park, & Ho, 2013) found that insurance companies operating in the United States, and (Mukherjee & Pana, 2010) found that credit unions withdraw liquidity from the market and that there is a negative relationship between capital and liquidity creation in this process.

Regarding the banking sector, (Distinguin, Roulet, & Tarazi, 2013) found that banks in the United States and Europe reduce their capital levels as they create more liquidity. (Freitas, 2014) showed that in the European Union banks with high capital levels are more constrained in their liquidity creation processes. (Horváth, Seidler, & Weill, 2014) found a bidirectional negative causal relationship between capital and liquidity creation for small banks in the Czech Republic. These results suggest that excess capital may suppress the liquidity creation process in small banks.

In terms of regional comparisons, (Fu, Lin, & Molyneux, 2016) find that the relationship between capital and liquidity creation is bidirectionally negative in 14 Asia-Pacific countries. On the other hand, (Fungáčová & Weill, 2012) find that deposit insurance reduces the dampening effect of capital on liquidity creation in banks with more savings deposits in Russia. (Sobiech, 2018) suggests that tax policy in the Japanese banking sector changes leverage ratios and capital levels through the tax-saving effect of debt, which indirectly affects liquidity creation. (Lei & Song, 2013) provide evidence in support of the financial fragility crowding effect in China, finding that higher capital ratios reduce the ability to create liquidity.

These studies show that increasing capital ratios generally have a negative impact on banks' ability to create liquidity. Studies conducted in different geographical regions and across different types of financial institutions show that capital requirements are one of the main factors hindering the liquidity creation process.

Liquidity creation literature in banking started to expand after the famous article by (Berger & Bouwman, 2009). The empirical studies that follow the liquidity creation methodology of (Berger & Bouwman, 2009) are as follows.

(Pana, Park, & Query, 2010) studied how bank mergers impacted liquidity creation and found that banks with high deposit insurance levels produced more liquidity post-merger than other types of financial institutions. (Baltas, Kapetanios, Tsionas, & Izzeldin, 2017) investigated the causal relationship between cost-effective mergers and acquisitions and liquidity creation. Their findings indicated that economic growth is supported as the liquidity creation potential increases.

Economic crises have a direct effect on the liquidity creation activities of the banks. (Lakštutienė & Krušinskas, 2010) note that liquidity creation in Lithuania increased from 2004 to 2007, then decreased to 2006 levels, owing to the global financial crisis in 2008. Likewise, (Fungáčová & Weill, 2012) found evidence that the banking sector in Russia created mostly liquidity from state-owned and large-scale banks from 1999 to 2009. However, significant alterations in liquidity creation dynamics occurred during the global crisis. In a similar vein, (Berger & Sedunov, 2017) found that high levels of liquidity creation in the US banking sector can serve as a predictor of financial crises.

According to (Chatterjee, 2015) loan spreads and asset market liquidity are the main factors influencing the overall amount of liquidity generated in the US banking industry. Conversely, (Davydov, Fungáčová, & Weill, 2018) identified a positive correlation between the liquidity creation processes of banks in the Russian banking sec-

tor and economic cycles. Additionally, (Bawazira, Degl'innocentia, & Wolfea, 2018) found that banks with greater market power in European Union countries tend to generate more liquidity. However, the interplay between market power and government intervention serves to limit liquidity creation. (Jiang, Levine, & Lin, 2019) demonstrated that competition encouraged by regulators suppresses the liquidity creation process in banks with low profitability. In a similar vein, (Roberts, Sarkar, & Shachar, 2018) found that banks implementing LCR (Liquidity Coverage Ratio) exhibit lower liquidity creation compared to banks that do not implement LCR. They argued that this discrepancy can be attributed to higher liquid asset levels and lower illiquid assets observed in banks implementing LCR.

The governance structure of banks and the decision-making mechanisms of managers are also among the determining factors in the liquidity creation process. (Andreou, Philip, & Robejsek, 2016) research indicates that within the US banking sector, the presence of more talented managers is associated with increased risk-taking, leading to augmented liquidity creation. (DeYoung & Huang, 2021) evealed that an augmentation in performance-based incentives (Delta) for Chief Executive Officers (CEOs) led to a reduction in systemic risk and liquidity creation. Conversely, an escalation in risk-based incentives (Vega) exhibited a modest positive influence on liquidity creation. Furthermore, (Silva, 2019) posited that banks' liquidity conversion activities are influenced by the policies of competing banks, and these decisions are typically asymmetric.

A growing number of studies have examined how bank liquidity creation contributes to economic growth. Most of this research suggests that liquidity generated through financial intermediation supports economic activity by facilitating investment and production. In their analysis of the Russian banking sector, (Fidrmuc, Fungáčová, & Weill, 2015) found a clear positive link between bank-created liquidity and economic growth, highlighting the role of liquidity in supporting broader macroeconomic development. Similarly, (Berger & Sedunov, 2017) reported a strong and positive relationship between liquidity creation and real economic growth, emphasizing that liquidity provided through banking activities can enhance economic stability and promote long-term growth.

Empirical Studies on Diversification

The concept of diversification has long been associated with risk distribution and optimal portfolio construction in financial markets. (Smith & Schreiner, 1969) analyzed the degree of diversification into industry sectors by holding companies based on standard portfolio theory. (Wagner & Lau, 1971) found that portfolios that contained more securities had less risk than portfolios composed of fewer holdings. (Johnson & Meinster, 1974) looked at the potential benefits to Banking Holding Companies (BHCs) of diversification into non-banking activities. Diversification could lead to an increase in BHCs' overall income. In a similar vein, (Boyd & Graham, 1986) examination of the impact of BHCs' diversification into non-banking activities on bankruptcy risks during the period 1971-1983 revealed an absence of a significant relationship between diversification and risk in general. (Meinster & Johnson, 1979) found that the outcomes of diversification strategies varied significantly across banks due, in part, to differences in managerial ability, financial resources, market factors and geographical area.

In the extant literature on diversification in banking, the traditional-non-traditional banking distinction has been adopted, and the effects of banking and non-banking activities on a variety of topics have been examined. Empirical studies have predominantly focused on diversification in terms of income, assets, liabilities, balance sheets, and geographic dimensions. However, there is a lack of consensus regarding the impact of diversification on banks. The outcomes observed in these studies have been found to vary due to the consideration of distinct countries, the variety of banking institutions in terms of type and size, the extent of diversification, and the disparities in interest rates across nations.

(Acharya, Saunders, & Hasan, 2001) examined the diversification in the Italian banking sector as industrial, sectoral, and geographical credit diversification and found that industrial credit diversification reduces the return and creates riskier loans for banks; sectoral credit diversification is ineffective in the risk-return balance at high-risk levels; geographical credit diversification does not improve the risk-return balance (trade-off) at low-risk levels. Similar to Acharya et. al. (2001), (Morgan & Samolyk, 2003) found that geographic diversification did not increase returns and did not reduce risk.

(Stiroh, 2006a) examined 635 BHCs, and found that banks with a greater reliance on non-interest income-generating activities experienced higher income volatility. (Hayden, Porath, & Westernhagen, 2007) found in their study of 983 banks in Germany that any kind of diversification reduces the returns of banks. (Demirgüç-Kunt & Huizinga, 2010) study, which encompassed 101 countries, revealed that the increase in non-deposit funding was found to have a negative impact on ROA. Conversely, (Abuzayed, Al-Fayoumi, & Molyneux, 2018) concluded that income and asset diversification negatively affect bank stability (Z-Score and NPL). (Lee, Chen, & Zeng, 2020) found that income diversification by banks increases the systemic risk for the banking sector as a whole, as measured by the Z-Score with weighted mean.

(Curi, Lozano-Vivas, & Zelenyuk, 2015) examined whether there is an optimal business model for foreign banks in terms of asset, funding, and income dimensions and concluded that they should not diversify their assets, funding, and income. (Liang, Moreira, & Lee, 2020) concluded that systemic risk increases as diversification increases,

A multitude of studies have evaluated the effect of diversification on banks' risk management, and the results indicate that diversification reduces risks. (Liang & Rhoades, 1991) study, which encompassed 4,751 banks, and (Templeton & Severiens, 1992) study, which focused on 100 BHCs, both concluded that diversification reduces bank risk. (Rossi, Schwaiger, & Winkler, 2009) examined the impact of credit portfolio diversification on risk, efficiency, and capitalization in Australia further substantiates this claim, demonstrating that diversification leads to a reduction in banks' risk. (Goetz, 2012) examined how geographic diversification affects the risk-taking behavior of the bank and its competitors (the inverse of the Z-score) with 17,331 banks in 50 different states. The findings indicated that increases in geographic diversification led to alterations in banks' lending behavior and market interest rates.

(Stiroh & Rumble, 2006b) examined the impact of diversification into non-interest income on the performance of FHCs operating in the United States and found that the volatility of the benefits from diversification outweighs the costs incurred due to high non-interest income. Additionally, there is a substantial body of research in the

literature examining the effect of diversification on risk-adjusted bank performance. (Mercieca, Schaeck, & Wolfe, 2007) identified an inverse correlation between non-interest income and risk-adjusted bank performance of credit institutions in Europe. (Chiorazzo, Milani, & Salvini, 2008) concluded that income diversification enhanced risk-adjusted income in Italy. (Goddard, McKillop, & Wilson, 2008) identified a positive effect of diversification on both adjusted and unadjusted returns. (Gamra & Plihon, 2011) examination of the impact of diversification on risk-adjusted income revealed that the benefits of diversification exceed the costs associated with the volatility of trading income, which constitutes the lower portion of non-interest income. In a similar vein, (Liu, Reichert, & Gramlich, 2013) examined the impact of diversification on the performance of the US banking sector across five distinct dimensions: international geographic diversification, domestic geographic diversification, credit portfolio diversification, fee income diversification, and off-balance sheet diversification. Their findings indicated that fee income diversification exhibited the most pronounced positive effect on risk-adjusted bank performance. (Meslier, Tacneng, & Tarazi, 2014) concluded that income diversification had a positive effect on bank performance in Philippines.

(Sanya & Wolfe, 2011)studied 226 banks in 11 developing countries, (Tabak, Fazio, & Cajueiro, 2011) studied 96 banks in Brazil, and (Chen, Wei, Zhang, & Shi, 2013) studied 16 banks in China and examined the effects of diversification on performance and risk simultaneously. (Sanya & Wolfe, 2011) found that diversification increased profitability and decreased bankruptcy risk. (Tabak, Fazio, & Cajueiro, 2011) also found that credit portfolio diversification increased income and decreased bankruptcy risk. Conversely, (Chen, Wei, Zhang, & Shi, 2013) revealed that sectoral credit diversification led to a decline in both return and risk.

Among the extant studies that examine the effects of diversification on value and risk together, (Sawada, 2013) examined the effects of income diversification on value risk in the Japanese banking sector. The study's findings indicate that income diversification enhances bank value. (Filson & Olfati, 2014) examined how the Gramm–Leach–Bliley Act influenced bank value and risk. Their findings suggest that the GLB Act allowed BHCs to expand into these areas and, as a result, increase their overall firm value. In a related study, (Elsas, Hackethal, & Holzhäuser, 2010) reported that income diversification contributes positively to both bank profitability and market valuation. Similarly, (Khan, Hassan, Maroney, Boujlil, & Ozkan, 2020) showed that diversified financial holding companies tend to have higher residual value compared to specialized institutions.

(Amidu & Wolfe, 2013) empirically examine the effects of revenue diversification on banks in the context of competition and financial stability. In more competitive contexts, banks do diversify sources of income through expansion of into interest and non-interest income activities. This, in turn, seems to bolster more financial stability. (Shim, 2019) proposed a link between loan portfolio diversification, market concentration and financial stability. Banks with more diversified loan portfolios tend to be more financially stable, particularly in markets with higher levels of concentration. While both studies explored different angles, they also highlighted how competition and diversification interact in shaping banks' stability profiles. (Lin, Shi, & Zheng, 2021) investigated whether bank diversification amplifies bank market power and the role of foreign capital in this relationship. The findings indicate a positive effect of di-

versification on market power, with foreign ownership serving to reinforce this effect.

(Tran D. V., 2020)examined the effect of diversification on funding costs and concluded that banks that focus on non-traditional activities have lower deposit costs. (Doumpos, Gaganis, & Pasiouras, 2016) examined diversification in three different dimensions in 111 countries. Findings suggest that diversification may offer particular benefits to banks in developing countries.

(Baele, De Jonghe, & Vander Vennet, 2007) examined the hypothesis that the long-term performance (bank franchise value) and risk situations of banks create a comparative advantage compared to other banks. Systematic risk (β) or bank-specific total risk was selected as the risk indicator. On the performance side, it was found that banks with higher non-interest income ratios exhibited higher franchise values. On the risk side, while income diversification increased the systematic risk of banks, it decreased the bank-specific total risk, and a non-linear relationship was observed between income diversification and bank risk. Consequently, (Edirisuriya, Gunasekarage, & Dempsey, 2015) concluded that the MV/BV[1] ratio increased as banks in South Asian countries diversified up to a certain point. (Deng & Elyasiani, 2008) examined the impact of geographic diversification on BHC value and risk. Geographic diversification enhances the value of BHCs while concurrently reducing their risk. Furthermore, (Cai, Xu, & Zeng, 2016) examined the impact of geographic diversification on financial performance in the Chinese banking industry. Geographic diversification enhances a bank's market share and net interest margin. However, diversification can concomitantly lead to an increase in both operating expenses and non-interest income.

(Pennathur, Subrahmanyam, & Vishwasrao, 2012) examined whether there was a difference in the effect of diversification on risk in terms of ownership structure. Fee-based income reduced risk in state-owned banks. Conversely, the effect is inverse in domestic and foreign private banks. (Kim, Batten, & Ryu, 2020) examined the effect of bank diversification on the financial stability of banks. It was found that diversification has a significant effect on financial stability in the form of an inverted U. While it increases stability up to a certain point, excessive diversification has the opposite effect.

Empirical Studies on Diversification and Liquidity Creation

The subject of diversification in the banking sector has been extensively studied in the literature. Comprehensive findings have been obtained on the effects of diversification on the risk, stability, and performance of banks. However, research examining the impact of diversification on banks' liquidity creation capacity remains sparse. Examination of the relationship between diversification and liquidity creation emerges as a current and developing research area in banking literature.

A group of researchers found a positive relationship between diversification and liquidity creation, while other researchers concluded that there is a negative relationship between diversification and liquidity creation. The first study that examined the effect of diversification on liquidity creation was (Tu, 2015). The study concluded that there is a negative relationship between asset and income diversification and excess liquidity creation in the US banking sector. In other words, specialized banks tend to create excess liquidity. Similarly, (Tran D. V., 2020) revealed a decline in the liquidity

1 Market Value/ Book Value

created by banks with higher non-interest income levels in the US banking sector. Concurrently, (Dang, 2020) and (Hoang, Nguyen, Tran, & Hoang, 2020) discovered that creation of liquidity is reduced when banks derive income from non-traditional banking activities within the Vietnamese banking sector.

(Sinha & Grover, 2021) hypothesized that the diversification level of banks at the same level of competition would have an effect on liquidity creation. The study is conducted in Indian banking sector and conclusions show that banks with a high degree of diversity are more severely impacted by competition's detrimental effects on the creation of liquidity. (Ali, Rubbaniy, Syriopoulos, & Tee, 2025) discovered that asset diversification and income had a detrimental impact on the development of liquidity in a study on banks in GCC nations. According to their findings, diversity can hinder a bank's ability to provide liquidity even while it may assist lower risk.

In the U.S. banking industry, banks tend to produce more liquidity when they are under pressure from competitors and diversify their revenue streams (Tran V. T., 2016). (Chavaz, 2017) was one of the first to investigate the causal relationship between liquidity and diversification in both stable and crisis situations. Diversified U.S. banks produced more liquidity, mostly due to their larger proportion of illiquid loans. (Toh, Gan, & Li, 2020), in a study on Malaysian banks, explored how diversification affects the relationship between competition and liquidity creation. The research showed that as banks' market power declined, so did their liquidity creation. However, this inverse relationship was weaker—or even nonexistent—among highly diversified banks. (Tran & Nguyen, 2023) found that competition and revenue diversification have a positive impact on banks' propensity to create liquidity in the U.S. banking sector. While competition primarily affects on-balance sheet liquidity creation, revenue diversification is a major driver of off-balance sheet diversification. Furthermore, (Kinini, Ocharo, & Kariuki, 2023) have demonstrated a positive correlation between revenue diversification and liquidity.

FUTURE RESEARCH DIRECTIONS

The literature on the relationship between bank diversification and liquidity creation is still fragmented, inconsistent, and geographically concentrated, despite recent increases in empirical study on the subject. Studies examining this association frequently produce conflicting results, as was disclosed in the previous section. More income or asset diversification may make it harder for banks to generate liquidity, according to some studies ((Tu, 2015); (Hou, Li, Li, & Wang, 2018); (Tran D. V., 2020). On the other hand, other studies argue that diversification can help banks better handle competition or economic shocks by promoting the creation of liquidity ((Tran V. T., 2016); (Chavaz, 2017); (Toh, Gan, & Li, 2020). These contradictory results raise several significant issues that may be further investigated in further studies.

First, the context-dependency of the relationship between diversification and liquidity creation should be further investigated in future research. The patterns seen in different nations may be considerably changed by the roles played by institutional structures, regulatory frameworks, and financial development levels. It would be possible to determine if the association is genuinely universal or context-specific by extending empirical research to underrepresented areas, such as Southeast Asia, Eastern Europe, and Sub-Saharan Africa.

Second, if there is a non-linear link between diversification and liquidity creation, this might be investigated in future studies. Diversification advantages may taper off or even turn negative after a certain degree, despite the fact that many research now in existence presume a simple correlation. When contrasting widely diverse banks with specialized banks, this line of investigation might be very pertinent.

Third, more focus should be placed on the effects of various forms of diversification, including geographic, funding, asset, and income diversification, on the generation of liquidity. The majority of research just looks at income diversification, while models that take into account multiple factors at once might provide a more comprehensive view.

Fourth, more research should be done on the connection between market rivalry and diversification. Diversification may mitigate the adverse effects of competition on liquidity creation, according to some evidence ((Sinha & Grover, 2021); (Toh, Gan, & Li, 2020). However, further research is required to fully comprehend how this relationship manifests itself in various market settings.

Fifth, it would be worthwhile to investigate whether diversification's effect on the creation of liquidity varies over time, especially during times of economic stress or financial crises. Researchers could examine how these dynamics change in reaction to monetary policy or regulatory changes, or compare patterns between normal and crisis periods.

Lastly, more sophisticated approaches—like quantile regressions, dynamic panel data models, or machine learning techniques—might be useful in future research to better infer causality and capture variances between banks. Incorporating management and behavioral elements, like CEO compensation or governance frameworks, may also provide insightful information.

Filling in these gaps would contribute to a more comprehensive knowledge of the relationship between bank diversification and liquidity production and might offer useful advice to practitioners and scholars in a financial climate that is becoming more complex.

CONCLUSION

This paper provides a comprehensive review of the empirical literature on bank liquidity creation and diversification, with a particular emphasis on the emerging strand of research that examines the interaction between these two key banking functions. While both liquidity creation and diversification have individually attracted substantial scholarly attention, studies that analyze their relationship in a unified framework remain scarce and fragmented.

The review highlights that the effect of diversification on banks' liquidity creation capacity is far from uniform. Some studies suggest that diversification—particularly across income or assets—reduces liquidity creation due to increased complexity or reduced focus on core intermediation activities. Others argue that diversification enhances liquidity provision by improving funding stability and shielding banks from competitive pressure or economic shocks. These divergent findings underline the importance of contextual factors such as institutional structures, competitive dynamics, and bank-specific characteristics.

By systematically classifying and synthesizing the empirical findings, this paper contributes to a more integrated understanding of the channels through which diver-

sification can influence liquidity creation. It also identifies methodological and geographical gaps in the literature, offering a roadmap for future research. In doing so, the study not only bridges two parallel strands of banking literature but also lays the groundwork for future empirical investigations that seek to assess banks' dual role as liquidity providers and risk managers in an increasingly dynamic and diversified financial environment.

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