

Summary: Literature review on financial technology and competition for banking services

Overview

This summary provides an overview of the 'Literature review on financial technology and competition for banking services' published by the Basel Committee on Banking Supervision. The document delves into the transformative role of fintech in the banking industry, highlighting the competition it introduces across various banking services. It also discusses the implications for incumbent banks, the evolution of fintech firms, and the enduring strengths of traditional banking models in the face of technological innovation.

Section 1: Introduction and Overview

The section reviews the impact of financial technology (fintech) on competition in the banking sector, highlighting that fintech has led to innovation and increased competition across various banking services such as payments, lending, deposit taking, and advisory services. The entry of new fintech-based firms has expanded access to financial services, challenging the market share and pricing power of traditional banks. These firms have initially succeeded in disintermediating banks in areas like peer-to-peer payments and lending, but over time, some have broadened their services, indicating potential synergies with traditional banking functions.

The literature suggests that consumers have generally benefited from fintech entry through enhanced digitalization, expanded service scope, and reduced costs. However, the benefits are not uniformly distributed, with some concerns over biases in algorithmic decision-making, such as in credit scoring and investment advice. Despite these issues, the overall effect of fintech on efficiency and access to financial services is seen as positive.

The review also notes that traditional banks have been innovating, leveraging online services to improve profitability and respond to competitive pressures. Research on competition in banking has explored market structure, product-level competition, and the trade-offs between competition and financial stability. The paper suggests that while fintech may introduce new risks, it also presents opportunities for banks to adapt and innovate.

The document concludes by identifying areas for future research, including the measurement of innovation in banks and non-banks, and the characteristics of banks that might help them compete effectively with new fintech entrants. It calls for further investigation into how technology affects economies of scale in banking and the viability of different business models in the face of fintech competition.

Section 2: Payments

Section 2.1: Introduction

The section examines the competitive dynamics introduced by financial technology in the electronic retail payments sector. It highlights the challenges and barriers to entry, such as the complexity and cost of payment infrastructure, which benefit from scale economies and scope economies once established. The retail payments market is characterized as two-sided, with the interdependence of consumer and merchant adoption of payment methods. Interchange fees play a critical role in this ecosystem, incentivizing banks to

promote card usage through rewards, despite being controversial and subject to regulatory scrutiny.

Empirical studies indicate a positive correlation between merchant acceptance and consumer usage of cards, with pricing and financial incentives influencing consumer behavior. Merchants in competitive environments are more likely to accept costly payment methods, while those with less competition may charge customers extra for using such methods. The literature also suggests that competition between payment networks can reduce interchange fees, although significant economies of scale and network effects have led to market concentration.

Factors influencing the adoption and usage of payment instruments include ease of use, record-keeping capabilities, safety, transaction speed, and social norms. Regulatory interventions, such as the European Commission's Interchange Fee Regulation, have aimed to address the anti-competitive concerns associated with interchange fees. Overall, the section underscores the complex interplay between technology, market structure, and regulation in shaping the competitive landscape of retail payments.

Section 2.2: Financial technology and payments

Financial technology innovations in payments can be categorized as either token-based, involving direct transfers of cryptoassets like stablecoins, or account-based, where claims on financial institutions are transferred. Cryptoassets are designed to operate outside traditional systems but have not seen widespread adoption for payments. Account-based payments are further divided into bank-account and non-bank account-based services, with examples like Mexico's CoDi and Brazil's Pix being introduced by public authorities, while private entities have launched services like Swish and Zelle. Big techs and fintech firms have also introduced independent payment services, such as M-Pesa and AliPay.

Fintech firms compete for fees traditionally captured by banks and card networks, and their evolution has been driven more by market demand than technology. Unmet demand for electronic payment services is a key factor in adoption, with fintech payments enhancing financial inclusion among the unbanked. Regulatory environments, public infrastructure, mobile phone penetration, and the cost of alternative payment technologies also influence fintech payment services' development.

Regulatory frameworks in the EU and other regions have opened markets to non-bank payment service providers, while some jurisdictions like the US have a market-led approach. Central banks have facilitated retail payments through fast public payment infrastructures like Pix, and fintech firms have partnered with banks to modernize payment systems. In emerging economies, fintech and big tech companies leverage high mobile phone penetration to offer payment services to underbanked populations.

The Financial Stability Board's analysis of payment app downloads suggests that market concentration in advanced economies decreased before the pandemic but increased slightly during 2020 and 2021, with big techs gaining market share. Physical cash shortages have also spurred digital payment adoption, benefiting fintech firms more than incumbent banks.

Cryptoasset adoption is low in North America and Europe, with most households using them as investments rather than for payments. However, adoption rates are higher in some emerging economies, driven by factors like low trust in traditional financial systems and high inflation. The volatility of cryptoassets' exchange rates is a barrier to their use as a medium of exchange, and stablecoins face challenges similar to privately issued monies in the past.

Central banks are exploring digital currencies, with most working on retail CBDCs and some on wholesale CBDCs. They aim to cooperate with the private sector for distribution and seek interoperability with existing payment systems. The impact of CBDCs on retail payments competition is uncertain, but central banks do not intend to compete directly with incumbent banks. The design choices and intermediaries used for

CBDC distribution could affect competition and banks' market positions.

Section 2.3: Concluding remarks and thoughts for future research

The chapter highlights the significant role of FinTech-based firms and big techs in account-based payments, noting their dual approach of collaborating with traditional financial institutions and competing against them, particularly through pricing and user-friendly digital payment apps. The impact of these new entrants varies by region, with their services complementing banks in emerging markets and economies in development, while potentially substituting bank services in advanced economies. However, the exact nature of their impact on competition and banks' market position in retail payments remains unclear due to insufficient data.

Future research could explore several areas: international consumer surveys to understand the usage of payment instruments across different providers, the adoption and payment use of cryptoassets and stablecoins, the influence of Central Bank Digital Currencies (CBDCs) on the payments ecosystem, and the value of payment transaction data in other markets like lending. These investigations could provide insights into whether new payment methods will remain niche or become mainstream and the broader implications for the banking sector.

Section 3: Lending in the Era of FinTech: Competition and Market Dynamics

The section on lending examines the impact of FinTech growth on the traditional banking sector, particularly in personal, small business, and mortgage lending markets. It discusses the competitive dynamics driven by innovation, regulatory changes, consumer behavior, and globalization. The section also reviews strategies such as digitalization, partnerships, and specialized product development used by banks and FinTech firms. Key literature on competition and information asymmetry in lending is analyzed, including the market power of informed lenders and the effects of information asymmetry on lender competition. Studies reviewed include those on the impact of competition on information production and market efficiency, as well as the comparison between relationship-based and transaction-based lending.

Section 3.1: Personal and Small Business Loans

FinTech companies are increasingly venturing into personal and small business lending, challenging traditional banks that have historically relied on both hard and soft information to make lending decisions. FinTech lending is categorized into marketplace lending and balance sheet lending, with most FinTech lenders not taking deposits, which affects their funding costs and regulatory burdens. Studies show that FinTech firms use advanced technology to analyze data from non-traditional sources, potentially offsetting their informational disadvantage compared to banks.

Research on data sharing policies like open banking reveals that it can improve financial inclusion and competition, although it may also reduce banks' incentives to produce data. Privacy regulations, such as the California Consumer Privacy Act, can increase FinTech lending by enhancing consumer data sharing willingness. Payment data is also leveraged by FinTech lenders to inform credit decisions, which can lead to a shift in the borrower pool for banks.

FinTech platforms benefit from a lighter regulatory burden, providing unsecured loans to SMEs that banks may avoid due to stringent regulations. This has led to FinTech firms complementing banks by serving riskier or underserved segments. However, the competitive advantage of FinTech in processing information varies, with some evidence suggesting they are better at handling hard information rather than converting soft information into hard data.

Big tech firms are also entering the lending space, using their access to vast customer data and machine learning to assess creditworthiness, which may outperform traditional credit bureau data. They offer an alternative to traditional banking services, particularly for short-term liquidity needs.

The "Buy Now, Pay Later" (BNPL) services are gaining traction, especially among younger consumers and those with limited access to traditional banking services. Banks are incorporating BNPL services with varying strategies, and the regulatory landscape for BNPL is evolving, with different countries adopting diverse approaches.

Overall, the relationship between FinTech-based firms and banks as substitutes or complements is context-dependent, with FinTech potentially enhancing financial inclusion and competition but also posing challenges to traditional banking models.

Section 3.2: Mortgage Lending

Research on FinTech in the U.S. mortgage market highlights its significant role due to the country's unique regulatory framework and government-insured loans, which foster a liquid secondary market and lower funding needs for originators. Studies have been grouped into two main areas: the impact of technology on FinTech lenders and their customers, and the effect of FinTech firms on traditional banks. Technological advancements, particularly machine learning, have been shown to expedite the mortgage process and improve risk prediction, although benefits may not be evenly distributed among different borrower demographics. On the competitive front, FinTech's rise poses challenges for smaller traditional lenders and is influenced by regulatory burdens and technological innovations. Regulatory interventions have been found to affect downstream lending competition, with suggestions that reducing shadow banks' reliance on traditional banks could enhance competition and consumer benefits.

Section 3.3: Taking stock

The impact of FinTech lenders on traditional banking remains uncertain, with studies indicating both competitive pressures and opportunities for financial inclusion. FinTech firms, benefiting from lower regulatory burdens and technological advancements, may outpace traditional banks in credit decision-making and customer acquisition. However, they also contribute to financial inclusion by serving previously underserved individuals and may even improve access to bank credit. The effect of FinTech loans on bank credit varies by market and geography. While the term "bank" typically refers to deposit-taking institutions, many firms, including those based on FinTech, offer banking services.

Section 4: Funding

Section 4.1: Introduction

The section examines the impact of financial technology on competition for banking services, particularly focusing on funding aspects such as deposits and other financing sources. Traditional banks have an advantage in attracting deposits due to lower costs associated with deposit insurance and market power. The literature indicates that banks in concentrated markets can offer lower deposit rates, and market concentration is inversely related to deposit rates. Discrete choice models have been used to analyze competition for deposits, considering factors beyond rates like location and services, though these models require clear market definitions which can be challenging in the presence of both physical and online banking services. Efficiency gains in banks have been observed following the removal of interest rate ceilings, suggesting increased competition. Additionally, banks face competition from non-bank deposit-like products, with evidence showing that money market funds can lead to disintermediation of bank deposits in

rising rate environments due to their faster pass-through of higher policy rates.

Section 4.2: Deposits

Deposit-taking, typically a regulated activity requiring a banking license, has been traditionally dominated by incumbent banks, which have utilized technology to offer online deposit services. However, the landscape is changing as new online-only banks emerge and some fintech firms either acquire licenses or existing banks to accept deposits. S&P Global Analysis indicates that online banks in the U.S. experienced faster deposit growth than traditional banks even before the COVID-19 pandemic, a trend also observed in European markets and supported by licensing initiatives in China and Hong Kong.

The competitive dynamics introduced by online banks are complex, as they are not confined to local markets. Abrams (2019) suggests that online banks can increase their market presence through advertising, as shown in a discrete choice model where consumers have a "limited consideration" set of banks. The study found that online banks have gained significant market power, comparable to large mid-sized banks, and have reduced the market power of other banks. Simulations within the model indicate that the entry of a big tech depository could further intensify competition for deposits, potentially benefiting consumers.

Recent research by Koont, Santos, and Zingales (2023) reveals that deposits at banks offering online services via mobile apps are more responsive to market interest rate changes, suggesting that while online deposit-taking can reduce operational costs, it may also diminish the ability of banks to gather deposits at lower-than-market rates. Some traditional banks have responded by collaborating with fintech firms or featuring their products on comparison websites, which can enhance competition by expanding the range of options available to depositors. An example is the German platform "Weltsparen," which allows customers to access fixed deposits with favorable interest rates from banks across Europe, leveraging higher interest rates in other countries while still offering European deposit insurance.

Section 4.3: Deposits versus deposit-like products

Fintech firms have pursued banking licenses or introduced deposit-like products to compete in the market for deposits. Alipay's Yu'eobao, a money market fund launched in 2013, is one such product that offered liquidity and stability without full insurance, integrating with Alipay's payment network to facilitate instant payments. Its introduction in China, under a regulatory regime with deposit rate ceilings, led to lower deposit growth for the most affected banks, who then innovated or offered higher rates post-2015 to compete. Research suggests that fintech innovations like Yu'eobao can dampen the effectiveness of monetary policy on loan growth and economic variables.

Stablecoins, compared to other forms of private money, share features with deposits and money market funds but lack the "no-questions-asked" status essential for widespread use as a medium of exchange. Empirical studies indicate that private stablecoins, particularly algorithmic ones without collateralization, may not be stable in the face of large demand shocks. Even asset-backed stablecoins could be prone to runs, and backing them with safe assets may not be economically viable.

The potential introduction of retail Central Bank Digital Currencies (CBDCs) by central banks, which would be guaranteed like fiat currency, raises concerns about their impact on banks' funding costs and the attractiveness of bank deposits. The literature suggests that both stablecoins and CBDCs could influence consumer preferences and banks' funding strategies.

Section 4.4: Equity, wholesale and other borrowing, off-balance sheet funding

Central banks are exploring Central Bank Digital Currencies (CBDCs) with a focus on preventing the disintermediation of depository institutions. While there is no direct evidence linking financial technology to competition in funding sources like equity or off-balance sheet funding, these sources are crucial for non-banks and fintech firms that lack deposit access. Venture capital (VC) investment in fintech is more accessible in developed markets, but regulatory sandboxes, such as the UK's, have improved VC access by providing regulatory clarity. Acquisitions of fintech firms by banks are often aimed at enhancing services rather than stifling competition. Banks exert market power over shadow banks in short-term borrowing, which could be mitigated by faster loan purchases by government-sponsored enterprises. The growth of stablecoins could influence the demand for safe assets and affect short-term funding markets. Off-balance sheet funding is significant for fintech lenders without deposit access, with marketplace lending platforms like Lending Club and Prosper transitioning from peer-to-peer to institutional funding and passive investing strategies. European lending platforms have also centralized screening and pricing, relying more on institutional investors.

Section 4.5: Taking Stock

Financial technology has challenged traditional banks' dominance in deposit acquisition by fostering the growth of online deposits and introducing deposit-like products. However, there are inherent limitations to how interchangeable these fintech products are with bank deposits. The competitive edge for fintech firms lies in their funding models, which may involve a balance between regulatory costs and the benefits of deposit access. In the realm of asset management and investment advice, banks face competition from non-bank entities, although these services are still commonly offered by banks and their affiliates.

Section 5: Asset management and investment advice

Section 5.1: Introduction

Asset management, brokerage, and investment advice are increasingly offered by both banks and non-bank entities, leading to more accessible and affordable investment opportunities, such as exchange-traded funds and low-fee brokerage services. Innovations like robo-advice have further democratized investment access. Research indicates that fund performance and inflows are positively correlated, with higher-performing funds attracting more capital, although this may not align with investors' best interests due to the unpredictability of future performance. Additionally, financial advisors often direct clients towards higher-fee funds, which may not be the most beneficial for the investor, suggesting that competition may not effectively reduce fees. This section of the document highlights the complexities and potential conflicts of interest in the asset management industry, as well as the impact of technological advancements on investment services.

Section 5.2: Robo advice

Wealth management services are increasingly utilizing robo advisors, which are algorithms providing automated investment advice and portfolio management. These advisors offer a cost-effective alternative to traditional human advisors, particularly for smaller portfolios. Research indicates that robo advisors can lead to positive wealth effects for consumers, particularly those without prior access to in-person advice, by enabling more sophisticated investment strategies than those offered by index funds. They also appear to improve portfolio allocation, especially for less sophisticated investors.

There is evidence of potential complementarities between robo advisors and fintech tools, such as tax-loss harvesting, and between in-person and automated advice, with established firms potentially benefiting from offering hybrid services. Robo advisors may also help mitigate bias in investment recommendations, as

they are less prone to engage in returns chasing. However, concerns remain about the appropriateness of the advice provided by robo advisors, particularly regarding increased risk-taking by users.

The design of robo advisors varies, with some only making recommendations and others implementing investment strategies. The presentation of information by these advisors can significantly influence investor behavior, as seen in studies of Chinese investment funds on online platforms. There is also a risk of fund managers taking excessive risks to attract investment flows, which could be detrimental to users of robo advice.

Algorithmic tools, including robo advisors, can exhibit biases, potentially reflecting historical biases or being designed to optimize fee income over investor returns. Advances in algorithmic fairness suggest the importance of a human element in decision-making to address potential biases in the design, testing, and implementation of such tools. Competition among firms could induce bias in robo advice or promote unwarranted risk-taking by investment managers, potentially limiting the benefits of robo advice.

Section 5.3: Taking Stock

Innovations in financial technology, particularly in investment advice and wealth management, have democratized access to these services, benefiting investors with lower wealth. While algorithmic tools used in robo-advisory services introduce certain risks, such as biases in investment advice, these risks are not exclusive to algorithms and can also be found in human advisors. Further research is warranted to explore how competition in the investment advice market affects the positive aspects of robo-advisory services. A broader review of banking services indicates that fintech has significantly influenced market competition, with implications for future research directions, particularly concerning the risks and benefits of automated investment advice.

Section 6: Discussion and Conclusions

Financial technology (fintech) has significantly influenced competition in banking services, enhancing service availability and pressuring incumbents' market share and margins. Fintech firms have successfully filled service gaps left by traditional banks, leveraging technologies like mobile networks and regulatory differences to gain competitive advantages. Banks' legacy systems and reluctance to innovate due to fear of cannibalizing existing revenues have contributed to this dynamic.

Regulation plays a dual role, constraining banks while also enabling fintech growth, such as through data portability requirements. Despite fintech competition, the traditional banking model, which bundles payments, deposit-taking, lending, and wealth management, remains viable. Fintech firms and big tech companies have even sought banking licenses, indicating the model's appeal.

Big tech's entry into banking highlights synergies between banking services and other sectors, though their strengths have limitations, particularly regarding creditworthiness information and regulatory challenges. The interaction between banking services and financial technology does not suggest the obsolescence of traditional banking models.

The relationship between competition and banking stability is complex, with mixed evidence. However, financial technology may affect stability, as seen in the rapid withdrawal of funds facilitated by online banking and social media's role in coordinating bank runs. Fintech lenders could mitigate the real effects of banking sector shocks by providing alternative access to credit.

The document identifies areas for future research, including measuring innovation in banking, exploring partnerships between banks and non-banks, and understanding the characteristics of banks that enable

them to compete effectively with fintech entrants. Further research will help clarify the evolving landscape of financial technology and its impact on banking competition.