

FINTECH AND ITS IMPACT ON BANKS: SYSTEMATIC LITERATURE REVIEW

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School of Business and Economics**

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Subject: Banking and International Finance
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ABSTRACT

Author: R. P. Jayani Rajapathirana	
Title: Fintech and its impact on banks : Systematic literature review	
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Date: 31/05/2023	Number of pages: 86 pages
<p>Abstract:</p> <p>This study targets at providing a systematic literature review about the probable impact of Fintech and its associated uses on the banks in a global perspective. This study aims to review the literature to recognize the applicable advantages, the challenges which the Fintech firms could possess for the conventional system of banking.</p> <p>Financial services have altered significantly over the last few generations, owing primarily to advances in technology in telecommunications, information and technology, and banking policies. Technological advancements prompted innovative strategies that altered a range of different products, services, production methods, and institutional arrangements. Since some banks around the world continue providing antiquated, expensive, and time-consuming banking sectors, Fintech companies are capitalizing on the chance to just provide some many important functions of conventional banking that rely on innovative technology as a way to differentiate themselves Fintech businesses are creating pragmatic methods to improve the banking industry. The Fintech wave is backed by an assortment of offerings that appear to be less dedicated to marketing inventive financial products and much more centered on customers, allowing fast access to an extensive array of reasonably priced and incorporated financial products. The introduction of electronic advancements and their apparent effect on financial service sector increases study desire to investigate the phenomenon.</p> <p>The research used a systematic literature review as the method of the study and the materials or sources it were selected from seven databases like Scopus, Bank of International Settlements (BIS), OECD iLibrary, IEEE Xplore, and National Bureau of Economic Research (NBER), Springer Link, and Research Gate. The ultimate research sample was 23 articles from the years of 2009 to 2022. The major observations were themed and analyzed via the narrative synthesis methodology. According to the results obtained from the study, Fintech firms are making inroads and capturing the share of the market that was once dominated by traditional banks. Whereas, they are not expected to completely overshadow by banks. However, their presence drives enhancement in the performance of banks by fostering competition and pushing for advancement in technology and customer service. It is proposed in the pertinent literature that the innovations of Fintech innovations in lending might have a substantial function in removing the shortcomings of the credit market by alleviating knowledge variances for customers and forming knowledge spill overs to conventional banking systems.</p>	

Key words : Financial technologies, Financial service , Fintech , bank , regulation , bank performance

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1. INTRODUCTION

In recent years, the financial sector along with several other traditional industries has experienced a remarkable expansion attributed to the rapid advancement of the network technology and internet (Wang et al., 2021). The realm of Fintech is experiencing a tidal wave of revolutionary innovation which is being triggered by the emergence of a number of pioneering digital technologies such as block chain, big data, cloud computing, internet of things (IoT), augmented reality (AR), Virtual reality (VR), artificial intelligence (AI) and robot adversaries. This has resulted in the introduction of new payment methods, insurance, asset management, and other financial services, ultimately transforming the financial system and the overall business landscape. (Elia et al., 2022; Shaydullina, 2018; FSB, 2017). Fintech is an acronym that stands for "financial technology" (Gomber, 2017), the phrase refers to any digital tool that improves upon, replaces, digitizes, or otherwise alters the status quo of conventional banking and finance. According to Darolles (2016), Fintech pertains to the utilization of diverse advanced engineering techniques to promote the expansion of the financial services industry. By leveraging technological developments to facilitate new business models, rethink operational process, and deliver improved goods and services, Fintech companies have emerged as a new category of financial intermediaries (Suryono et al., 2020).

Even though Fintech has expanded rapidly over the past decade and is beginning to intrude on traditional banking activities, it is still a relatively small industry overall. In 2021, the estimated global financial services amounted to \$ 23,319.52 billion, while the size of the global Fintech activities that year was roughly \$210 billion (figure 1), which indicated that even in the finance industry Fintech has not yet had a significant impact. In the UK in 2020, for instance, the total amount of loans originated through P2P lenders was £4 billion, whereas banks originated £103 billion (Statista). Similar trends can be seen in other nations, while P2P lending has gained more traction in China and Japan (Statista).

The interconnection of information technology and financial services has been widely acknowledged and discussed topic. It has been widely debated during the last few decades (Thakor, 2020). In 1972, the term "Fintech" was coined in the scientific literature (Milian et al., 2019). The significant impact of digital technology on improving the efficiency of services provided by financial institutions to small and micro enterprises has led to the growth of Fintech, ultimately increasing the competitiveness of commercial banks (Berger et al., 2019). Financial institutions and banks are driven by a strong desire to reduce customer acquisition costs, manage risk, and improve operational efficiency while providing a

better user experience for a broader range of consumers, thus fueling the increasing demand for Fintech solutions (Wang et al., 2021).

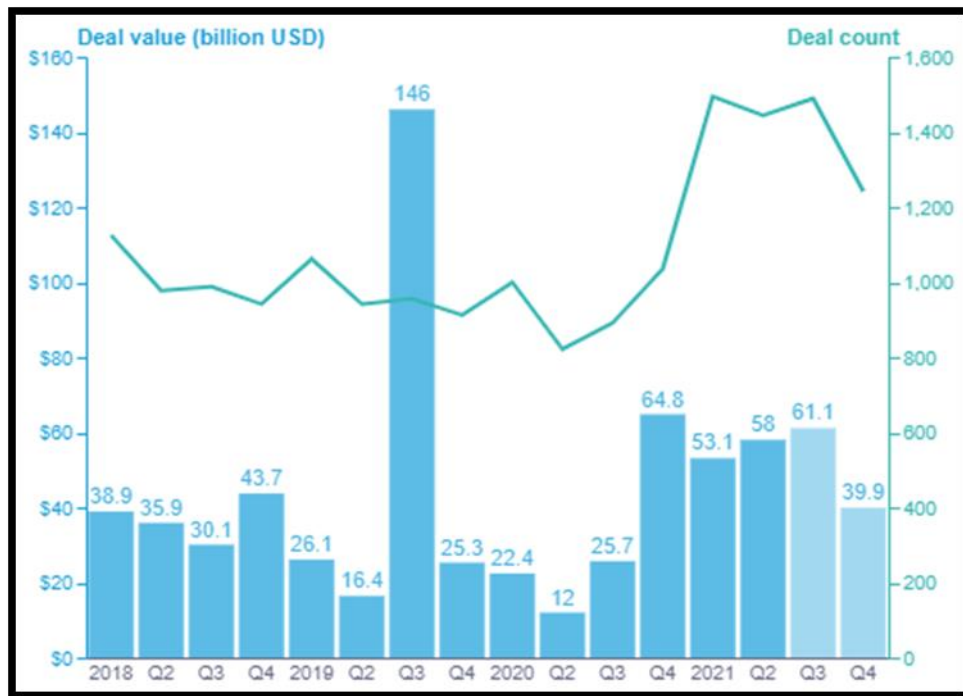


Figure 1: Total global investment activity in Fintech
Source: (KPMG international, 2022)

Since the banking industry is heavily dependent on information and technological advancements, the growth of Fintech has helped banks extend their operations, which has likely boosted their overall performance (Campanella et al., 2022). Dorfleitner et al. (2017) and Begenau et al. (2018) provide compelling evidence of the significant positive impact that Fintech innovation can exert on traditional banking, hinting at a potential paradigm shift in the financial landscape. The reason behind this is that banks can leverage their access to vast amounts of consumer information and transactional data to attain better business performance in comparison to internet-based micro-lending enterprises. Researchers such as Gu et al. (2020) and Sheng (2021) suggest that banks can leverage their vast "big data" resources to proactively identify potential borrowers and mitigate credit risk. The evolution of Fintech has a profound impact on the earnings power, capital adequacy, liquidity ratios, asset quality, and managerial efficiency of banks. Banks need to take a more objective stance towards the growth of Fintech, instead of resisting it, and instead look to the opportunities presented by this new technology rather than the threats it poses. Financial institutions can accelerate their digital transformation and innovation by increasing their collaboration with Fintech firms (Zhao et al., 2022, Temel et al., 2023).

However, Fintech surge is posing significant challenges to traditional banks, with Buchak et al. (2018) and Jagtiani and Lemieux (2018) highlighting the possibility of reduced market share and decreased profits due to intensified competition from online lending and investment platforms. Meanwhile, Boot et al. (2021) have conducted research revealing the far-reaching implications of online lending on banks' lending operations. Buchak et al. (2018) have reported that the Fintech industry was responsible for a staggering 30% of the growth observed in the shadow banking system in the United States during 2018, underscoring the seismic impact of Fintech's ascent on the financial landscape. The proliferation of shadow banks and Fintech enterprises within the residential mortgage market has resulted in a decline in market dominance of traditional banks. Banks are compelled to rely increasingly on riskier forms of debt as the cost of deposits rises, while the magnitude of these effects is relatively small (Cumming, 2022).

While some research suggests that Fintech can have an adverse impact on banking operations, particularly due to the stringent regulations imposed on conventional banks, Elia et al. (2022) argue that regulatory bodies must not impede the defining evolution of the sector. Instead, they should ensure the stability, efficiency, and protection of customers within the system. Fintech increases the complexity of the already complicated nature of the financial sector's regulatory and institutional systems. Any regulatory reaction to financial innovation must strike a balance between stifling progress and protecting consumers and investors from harm. To properly evaluate the dangers posed by Fintech, authorities must have an in-depth familiarity with the tools that power the new services and products (ESA, 2019).

Most of the available research on Fintech and banking only gives a superficial overview of the phenomenon by narrowing in on one aspect (Elia et al., 2022), such as security concerns (Milan et al., 2019), block chain applications (Cai, 2018), regulatory perspectives (Anagnostopoulos, 2018) or legal concerns (Shaydullina, 2018). In 2018, the Basel Committee on Banking and Supervision initiated a comprehensive appraisal to scrutinize the multifarious impacts of Fintech on the banking landscape, unraveling a wealth of opportunities and risks that Fintech presents for intermediaries and clients alike. They emphasized the importance of institutions adapting to Fintech from a supervisory standpoint. Despite the absence of comprehensive global regulatory framework effective regulation is essential for risk mitigation and ensuring the safety of all individuals utilizing Fintech services (Das et al., 2018).

Fintech is generating significant enthusiasm and research interest due to its ability to bypass traditional intermediaries in the delivery of financial services (Thakor, 2020). Despite the banking industry's increasing interest in Fintech, practitioners and scholars lack a clear definition and theoretical foundation in this field. There is a dearth of academic literature that systematically addresses this topic, and literature reviews are particularly scarce (Milan et al., 2019).

Hence the objective of this research is to conduct a comprehensive and systematic analysis of the potential impact of financial technology and its associated applications on banks from a global standpoint. The main objective of this study

is to conduct an extensive review of the existing literature to discern the pertinent advantages and challenges that may arise from the presence of Fintech firms for the conventional banking system.

1.1 Research question

The Study is motivated by the growing prevalence of Fintech firms that offer comparable financial services to conventional financial institutions. The examination of how Fintech companies impact on banks and the potential consequences for changing financial industry is of interest. This thesis aims to investigate the effect of Fintech firms on conventional financial institutions and assess their potential consequence for the future of the financial industry. The main research question of the thesis is,

What is the impact of Fintech companies on banks?

In order to enhance its precision, the research question is accompanied by sub-questions.

1. Has Fintech resulted to increase or decrease in the performance of banks?
2. What is the impact of Fintech on lending in Banks?
3. How Fintech regulations have influenced the banking industry?

1.2 Structure of the thesis

The thesis is structured as follows; Section 2 describes the theoretical background of the study relevant to the main research accompanied with the sub questions and main definitions, concepts and relevant applications. Section 3 illustrates the methodology adopted to carry out the study, the method used to carry out the SLR is described. Section 4 illustrates results achieved by the descriptive data relevant to the research questions. Finally, section 5 concludes the study and provide the possible future research development.

2. THEORITICAL BACKGROUND AND LITERATURE REVIREW

Within this chapter, a thorough examination of prior literature is provided, with each section containing a profound exploration of topics that are integral to the central thesis. Specifically, the literature scrutinizes Fintech and its diverse applications, as well as an appraisal of the effects that Fintech firms have had on the industry.

2.1 Fintech definition and concept

Demirguc-Kunt et al. (2018) describe Fintech as the use of cutting edge technology to provide financial services in a more convenient, secure and with greater transparency than conventional banking institutions. Fintech realm comprises wide array of operations including monetary transactions, payment loans, lending technology, block chain technology, insurance and assets management. Various definitions have been put forth by scholars regarding Fintech, with Zavolokina et al., (2016) and Puschmann (2017) characterizing it as the fusion of technology and finance. Financial innovation is closely associated with Fintech, which involves the creation of novel products, services, processes, and companies in the financial sector, as observed by Frame and White (2014). As per Lerner and Tufano (2011), Fintech is responsible for creating new financial technologies, instruments, institutions, and markets. Fichman et al., (2014) also observed that Fintech has introduced new business models. The crucial role of technology in Fintech is evident, and Baur et al., (2015) emphasized that it is utilized to develop innovative financial products and services that challenge our traditional notions of money and banking. By providing opportunities to circumvent intermediaries, reduce costs, and enhance transparency, Fintech has the potential to empower individuals, as highlighted by Zavolokina et al., (2016).

Zavolokina et al. (2016) have highlighted the ever-changing nature of Fintech as well as its consistent development of new innovations. Schindler (2017) has also acknowledged that technology -driven financial innovations is a continuous process, with the emergence of Fintech being particularly noteworthy. This leads to a wide range of Fintech entities entering the financial industry and introducing disruptive innovations. Additionally, Dorfleitner et al., (2017) have pointed out that the financial industry is in a constant state of flux, with numerous business models adopted by Fintech firms and a plethora of start-ups contributing to this dynamic phase. While some research studies referred Fintech as start-ups, others link it to the global digitalization of the banking industry (Cuesta et al., 2015) or to the technological or digital innovation (Fichman et al., 2014). The innovation and the desired to improve customer experiences are the driving forces behind the Fintech. Fintech has grown tremendously in recent

years, and investment in the sector have increased considerably (Tandon et al., 2021), which has contributed to the sector's significant expansion. This development can be attributed in part to the numerous benefits that Fintech provides, such as increased accessibility and convenience, reduced costs and enhanced transparency (Dwivedi et al., 2021). Fintech is revolutionizing the financial services sector by offering innovative solutions that are altering the way how individuals access and use financial services. The primary focus of Fintech is centered on facilitating the transfer of funds. To enhance the efficiency, safety and affordability services, Fintech firms are creating novel, cutting-edge payment methods such as mobile wallets, peer to peer payment and digital currencies (Carstens, 2018). The lending sector is experiencing a notable influence from the Fintech. Fintech lending platform leverages technology to link borrowers and lenders improving the loan applications process and facilitating faster access to credit. The aforementioned phenomenon has resulted in intensified competition in the lending sector, thereby enhancing the availability of credit to individuals and business that were previously excluded by the conventional lending framework (Berger & Black, 2019).

Wealth management is another area where Fintech is making a significant impact. Fintech companies are developing new and innovative ways to manage the investments, provide individuals with access to sophisticated investments tools that were previously only available to institutional investors. The tools use algorithms and machine learning to analyse data and provide investment recommendations (Tandon et al., 2021). Insurance is also an area where Fintech is having an impact. Fintech companies are developing new and innovative insurance products that provide more personalized coverage at lower cost. These products use data analytics and machine learning to tailor insurance products to individual needs and risk profiles (Yan et al., 2018). Swan (2015) explains that the advent of Fintech has resulted in remarkable advancement in block chain technology, a revolutionary innovation that has the potential to transform the financial service industry. Through its ability to offer a secure and transparent way to record and transfer financial transactions, block chain technology is set to revolutionize financial transactions as we know them. In line with this, Fintech companies are tirelessly developing cutting edge technology including digital currencies and smart contracts which are poised to redefine the financial landscape (Swan, 2015).

Scholars like Schindler (2017) and Pullaro (2017) have acknowledged the lack of a universally accepted definitions for Fintech. However, they have endorsed the Financial Stability Board's (FSB) definition that stresses the role of technology in driving financial innovation. According to FSB, Fintech companies are entities that leverage technological advancement to generate novel business models, applications process, or products that significantly impact financial markets and institutions. This definition highlights the pivotal role of technology in spurring financial innovations and its vast implications for financial services and institutions. Nonetheless, as noted by Schindler (2017), the second part of the def-

initiation remains theoretical. Therefore, Fintech firms are not only automating traditional financial services and process but are also introducing revolutionary innovations that challenge established and even radical paradigms of finance.

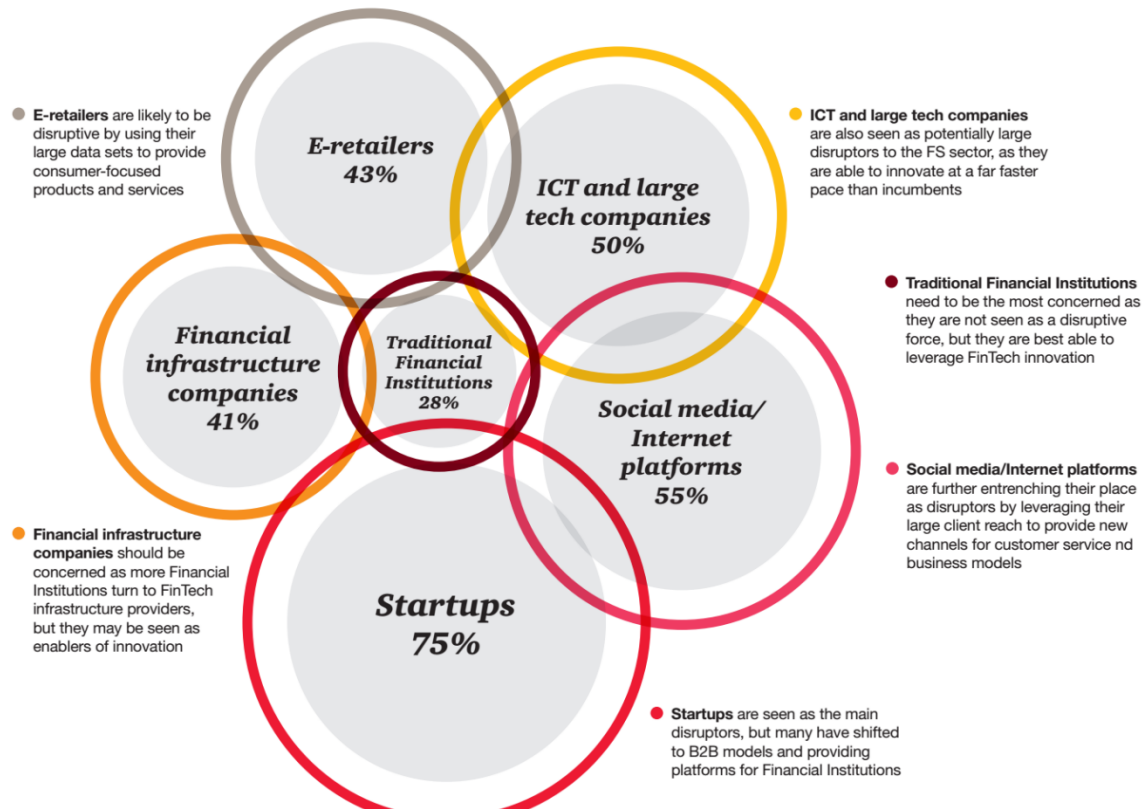


Figure 2 Fintech and disruptive entities
Source: PwC Global Fintech Survey 2017

These innovations, according to Pullaro (2017), will not only transform the way financial employees work but also reshape the normative principles that govern the marketplace and financial system as the Fintech industry continues to expand and captivate the attention and excitement of the market and the public. It is important to acknowledge that the adoption of Fintech isn't limited to the financial market but has spread beyond it, encompassing IT companies, retail, and social media (as depicted in Figure 2). This indicates that the financial world is converging, as highlighted in the Global Fintech Report of 2017. The survey highlights that innovation in the financial services industry is not necessarily originating from within the industry itself. Instead, it is being driven by a variety of sources, including technology businesses, online retailers, and social media platforms. Start-ups have been considered as the main disruptor due to their innovative use of technology and to offer new and improved service. According to the survey many of these start-ups (75%) have entered into the business of providing financial service to the customers. Further it highlights that 55% of social media and

internet platforms are increasingly being seen as disruptor in the financial service industry. Their ability to leverage the large customer base and extensive data analytical skill help them to create innovative financial products and service. Third largest disruptor is ICT and large tech companies (50%). These companies have extensive experience and resource to drive innovation in financial industry. On the other hand, E-retailers (43%) and Financials infrastructure companies (41%) have focus towards developing financial products as they have deep understanding of customer behaviour. Only 28% traditional financial institutions investing in new technologies and solutions to improve their operations and better serve their customers. However, traditional financial institutions are not leading the charge when it comes to innovation in the financial services space. This convergence signifies the expansion and emergence of new system quality with-in the financial market segment.

2.2 Why Fintech is important?

The Financial technology industry has emerged as a critical in the financial services due to the remarkable progress in information and communication technologies. These advancements have transformed the delivery of financial services and propelled the growth of Fintech firms. Fintech companies have emerged as a result of the 2008 financial crisis, using cutting-edge technology to improve financial services while decreasing associated risks and expenses (Gomber et al., 2017). To compete with established financial institutions, these new companies are using cutting -edge technology like block chain, big data analytics and artificial intelligence to create innovative goods and services (Demirguc-Kunt et al., 2018; Schueffel, 2016). A historical evidence from previous centuries demonstrates that achieving long-term economic prosperity requires financial innovation (Allen, 2012). By offering innovative financial product and services, it allows individual and business to access and participate financial system which ultimately lead to foster the economic growth and prosperity (Naziret al., 2021). The demand of convenience accessibility and transparency have also been driven to the growth of Fintech (Zheng et al., 2018; PWC, 2017).

The companies have revolutionized the core operations of the financial system, which is essential for providing resources and manufacturing activities and consumption activity along with stimulating savings, investments and more effective investment decision making. Financial innovation benefit all parties in the financial system by addressing imperfections in taxes, regulations, transactions costs, asymmetric information, and imperfect market functions (Demirguc-Kunt et al., 2018).

The financial system's importance in supporting production and consumption activities, as well as enabling saving, investment, and improved investment decisions cannot be overstated. To address challenges associated with taxes, regulations, transaction costs, asymmetric information, and market inefficiencies, Fintech can offer benefits to all financial system participants. These challenges

can prevent economic actors from efficiently achieving optimal results, such as pooling and transferring funds across borders and time zones, mitigating risk, gathering data to guide decision-making, tackling information imbalances, and enabling payment infrastructure (Tufano, 2003).

The emergence of Fintech companies can be attributed to the several factors such as technological advancement, changes in regulatory settings and customer preferences (Kshetri and Voas, 2018). Based on their findings, Fintech firms also have the potential to increase access to financial services to communities who have lower possibility to gain the service from the traditional financial system, while promote financial inclusion. These firms play a crucial role for increasing financial stability and minimizing risks in financial market. By enhancing openness and eliminating the imbalance of information that exists between different stakeholders in the market. Fintech companies are able to deliver more accessible and accurate financial information to all the consumers by employing technology and incentive approach. This could result to more informed decision making which might contribute to a more stable financial system. In the long run, this is advantageous for everyone who involved in the financial system, including investors, companies and individuals.

2.3 Fintech applications

The categorization of Fintech services provided by companies into three main pillars, depicted in figure 3, has been established by the Basel Committee on Banking Supervision (BCBS, 2017).

These pillars are closely associated with core banking operations such as accepting deposits from customers, Providing loans and credit facilities, Facilitating wire transfers and other forms of electronic funds transfer, withdrawals and deposits, and capital-raising services, and Managing investments and securities, offering financial advisory services to customers. (BCBS, 2017). The first pillar of Fintech services provided by companies aim to provide consumers and business with innovative solutions for accessing credit, raising capital, and managing their finances. These services are often faster, cheaper and more convenient than traditional banking services. This pillar is subdivided further into crowdfunding, lending marketplaces, mobile banking, and credit scoring. The Basel Committee on Banking Supervision has classified payment, clearing, and settlement services as the second pillar of Fintech services offered by companies. The pillar is subsequently classified into payment services for retail and wholesale transactions. The second pillar of Fintech services offered by companies is focused on enhancing the speed, efficiency, and cost-effectiveness of payment processing and transaction settlement for individuals and businesses.

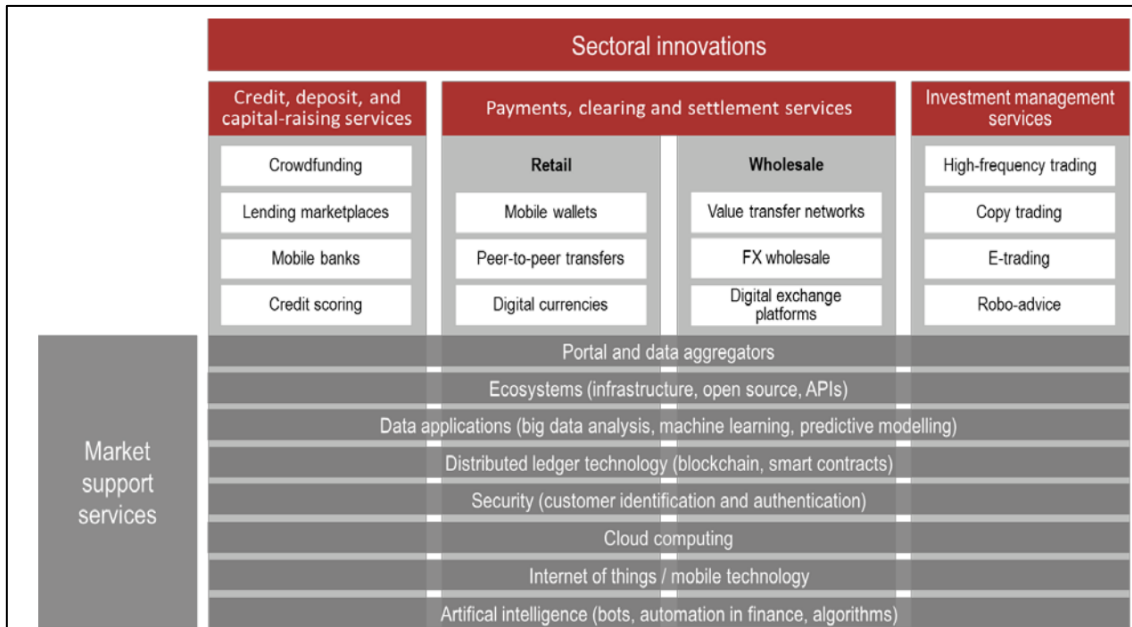


Figure 3: Fintech service pillars

Source: BSBC 2017

Retail payment services are specifically tailored to meet the requirements of the individual customers and small –scale enterprises. This service com-prise wide spectrum of alternatives including but not limited to mobile wallets, peer to peer transfer and digital currencies. Wholesale payment services such as value transfer network, foreign currency (FX) wholesale and digital exchange flat form are designed to cater the requirements of commercial entities and financial institutions. As per the Basel Committee of Banking Supervision’s classification, investment management services are the third and final pillar of Fintech services that are provided by firms. The aforementioned pillar is subdivided into distinct categories, namely high-frequency trading, copy trading, e-trading, and robo-advisory services. The objective of the third pillar of Fintech services offered by companies is to furnish investors with investment solutions that are more efficient, cost-effective, and customizable. Digital investment management services have the potential to enhance accessibility, speed, and transparency in comparison to conventional investment management services. This could lead to democratization of investing and an in-crease in financial literacy. These Fintech service pillars, as presented by BCBS in 2017, offers an extensive overview of the Fintech landscape. It highlights the potential for innovation and disruption in the financial services industry. Ahemed (2018) classified them into different categories, namely payments, insurance, planning, lending and crowdfunding, blockchain, trading and investments, data analytics, and security.

2.3.1 Credit deposit and capital raising services

Crowd funding

Agrawal et al. (2014) define crowdfunding as the act of accumulating funds through online platforms or social media from a substantial number of individuals within a specified fundraising duration. The goal is typically to raise small amounts of money from many people. If the target amount is not achieved, the funds are usually returned to the investors. According to the Ahemed (2018) crowdfunding is effective fundraising approach which allows entrepreneurs, companies, and individuals to collect money from wide range of sources, mainly through online flat forms.

Crowdfunding has shown to be a revolutionary alternative to the conventional banking system, making it possible for start-ups and SMEs to access much larger amount of money promptly. Mollick (2014), concludes that crowdfunding encouraged entrepreneurs since it provided a means for start-ups to raise money outside of traditional banking system. The researcher also discovers that crowdfunding may contribute level the difference when it comes to gaining access to capital, especially for people and communities previously excluded or inability to gaining access for loans from the banking system. Another study by Belleflamme et al. (2014) explores the impact of crowdfunding on the banking industry. According to the authors', crowdfunding has the capacity to challenge the conventional banking system by offering another funding option for small businesses and start-ups. The researchers discovered that crowdfunding has the potential to minimize the difference in information between borrowers and lenders, thereby facilitating entrepreneurs' access to funds.

Crowdfunding has some positive effects on the financial sector including banking sector. According to some researchers, crowdfunding can be used to support traditional banking by allowing start-ups and small enterprises access to financing that they might not otherwise have (Cumming et al., 2019). In this way, crowd-funding can be considered as different way to obtaining money that can help the traditional banking system fill in some gaps. Crowdfunding has challenging and many different effects on the banking business as a whole. It has the ability to change the way traditional banks work, but it can also work with traditional banks by giving start-ups and small businesses another way to get money.

2.3.2 Payment, clearing and settlement services

Crypto currency

Major financial institutions and regulatory authorities around the world have exhibited the immense of interest in crypto currencies such as Bitcoin, Litecoin, Dash and Monero. The name of the cryptocurrency came to play in 2008 after Satoshi Nakamoto invented Bit coin. It acts as a decentralized payment system which lever-age a network of computers to enable direct financial transactions without the need of the involvement of commercial or central bank (Holmberg,

2018) According to. (2015) one of the key objectives of Bitcoin is to serve as reliable and independent alternative currency to the world's banking sector, which has been rattled by misconducts in recent years. Hileman and Rauchs (2017) conclude that Bitcoin has the ability to reform the current monetary system by making it possible to conduct secure by making it possible to conduct secure and transparent transactions without intervention of intermediaries. Bitcoin also has the potential to serve financial service to the population that unbanked or underbanked, which would result to increase the people being included in the financial system.

Cryptocurrency has the ability to serve alternative to the centralized financial system that is both secure and independent which is one of the main benefit of cryptocurrencies. Cryptocurrencies are decentralized, hence it render them resistant to censorship, fraud and threats that gives users more privacy and anonymity (Bohme et al., 2015). Because there is no intervention of the intermediaries like bank or processing companies ultimately results to make transactions more efficient and faster.

However, the potential of price fluctuation, security threats, and regulatory concerns are several challenges/difficulties associated with cryptocurrency. Sing (2021) claims that the absence of the government intervention /control and uniformity has left it open to fraud and market manipulation. Furthermore, illicit act such as money laundering and financing of terrorism have been linked to the cryptocurrency which gives doubt of the anonymity of the transactions.

Despite the challenges, cryptocurrency has been gaining popularity as a viable investment payment option. By 2024 the worldwide cryptocurrency market according to the Statista (2021) analysis is expected to be worth more than 2 trillion USD. New technologies and applications will come to the existence as the field expand and regulation and oversight will increase to ensure the continued safety of the cryptocurrency market.

2.3.3 Investment management Service Robo-Advisors

Robo-advisory is a relatively new innovation in the financial sector, and as a result, there is a limited amount of literature available that explains its functionality and impact on businesses. Sironi (2016) describes Robo-Advisors as automated investment solutions that offer individuals digital tools to help them assess their investment needs and make goal-based decisions. The application of trading algorithms founded on passive investments and diversification approaches reinforces these choices made by employing balancing techniques. Similarly, Broby and Karkkainen (2016) provide a brief definition of Robo-Advisor as low-cost investment advice providers that use algorithmic technology on the Cloud. Due to their affordability, robo-advisory services have become a popular option for individual investors who prefer a lower fee structure than those charged by conventional financial advisors (Uhl & Rohner, 2018).

In addition robo-advisors have various advantage over traditional investment consulting service. For an instance, the automated operations of robo-advisors enable them to evaluate vast volume of data in real time, which enable investment decision to be made in a manner that is both more effective and more accurate (Sironi, 2016). In addition robo-advisors have the ability to provide client customized investment advice by utilizing machine learning algorithms that are trained on historical investment data and information that is specific to the client (Haberly et al., 2019). This personalized approach can help to improve client satisfaction and retention rates. Individuals now have access to low-cost personalized investment guidance due to the growing number of robo consulting services, which have caused significant upheaval in the traditional investment adversary business. As a direct consequence of this, robo adversary services have developed into an increasingly popular option for the investors looking for investing solutions that are both efficient and affordable.

2.4 The impact of Fintech Companies on banks

This section will provide a review of existing literature on the impact of Fintech companies on banks. The literature review has been presented under the headings that correspond to the aforementioned research questions.

2.4.1 How Fintech impact on financial performance of the banks

Numerous studies have examined how Fintech affects conventional banking institutions. A significant impact on the traditional financial industry and new technological opportunities for commercial banks can be attributed to the rapid development of Fintech (Li et al., 2022). Fintech functions effectively alongside traditional banking because banks already have an extensive amount of knowledge about their customers and their transactions (Begenau et al., 2018). This data advantage gives banks an advantage over online micro lending companies. For example, banks can use their "big data" to find potential loans, which lowers their credit risk (Bedeley, 2014). Big data analytics assist banks in predicting the behaviour of loans with greater accuracy, resulting in lower risk. Yao and Song's (2021) study indicates that commercial banks have been able to reduce the repetitive nature of their operations by utilizing data mining techniques.

The emergence of Fintech has brought the beginning of the new era of financial services and poses a challenge to the conventional banking system. The disruptive technology introduced by Fintech has enabled users to access financial solutions that are both quicker and more effective. On the contrary, this development has also had an adverse effect on the banking industry. Most of the studies concluded that conventional banks are having trouble keeping up with the rapid speed of innovation caused by the financial technology due to the rigorous regulations that they are required conform, which makes it difficult for them to meet the varied loan requirements from their customers. According to the Buchak et

al. (2018) findings, Fintech has been responsible for thirty percent (30%) of the rise of the shadow bank in the United States. The home mortgage market has experienced a reduction in the market share held by traditional banks as both shadow banks and Fintech lenders have emerged as significant players within the industry. The advent of online loan has brought transformative shift in borrowing landscape, thereby directly impacting the loan businesses of traditional banks (Jagtiani and Lemieux (2018). According to Nguyen (2022), the proliferation of Fintech has resulted in elevated loan costs, thereby amplifying the inherent risk associated with bank assets.

Akhisar et al. (2015) examine the performance of banks across 30 European countries from 2005 to 2013. Their findings reveal that banks with more advanced internet banking practices experienced a significant improvement in their return on equity (ROE) and return on assets (ROA). However, they were unable to determine the relationship between internet banking practices and performance in less developed European countries. Campanella et al. (2020) state that there is a connection between the advancement of the Internet of Things and the relative ROE of banks. Similarly, Uddin et al. (2020) reveal that investments in cyber technology have a notable effect on a bank's net earnings variability and capital buffer. The study suggests that if investments exceed a specific threshold, both variables tend to decline.

The research conducted by Rega (2017) analysed 38 European banks over the period of 2013-2015. The findings demonstrate a notable and favourable correlation in terms of Fintech innovation and bank profitability as evidenced by positive association observed in return of equity (ROE). According to Cheng and Qu's (2020) findings, the integration of Fintech in banks leads to a significant reduction in credit risks. Nevertheless, the existing information necessitates a comprehensive empirical inquiry to thoroughly examine the impact of Fintech expansions on bank's performance. At present there is a scarcity of studies that have specifically investigated this subject, particularly ones that focus on the holistic advancement of Fintech industry and its patent development.

Almulla & Aljughaiman, (2021) conducted a study to determine the significance of financial technology Research looks into how banks' Fintech service offerings affect their productivity. Furthermore, the research explores the impact of Fintech companies' expansion on bank's profitability. Authors examined 40 banks that are publicly listed in the Gulf Cooperation Countries. These countries witnessed a substantial increase in Fintech between the years 2014 and 2019. The aim was to investigate and compare the differences between conventional banks and Islamic banks in this context. Drawing from their findings, the study concluded that the integration of Fintech services has an adverse impact on the profitability of financial institutions. Moreover, the study reveals that when Fintech companies expand within a country, conventional banks experience a decline in financial performance, whereas Islamic banks are relatively unaffected by such expansions.

Yudaruddin (2023) conducted an investigation to identify how financial technology impact on the performance of both Islamic and conventional banks.

The study utilizes data from 124 banks, including both conventional and Islamic, operating in Indonesia between 2004 and 2018. This research confirms that Islamic banks perform poorly when compared to their conventional counterparts. Such research, however, shows that the bigger the number of Fintech companies that interact with Islamic banks, the more positive the influence on Islamic bank performance, especially in the peer-to-peer lending category. The findings of this research show that Islamic banks benefit from partnerships with Fintech firms throughout both prosperous and difficult times.

Li et al. (2017) investigated the impact of Fintech start-ups on the stock prices of traditional retail banks to understand the role played by Fintech digital banking start-ups. Authors look at how 47 large US retail banks fared financially from 2010 to 2016 after receiving investment from similar ventures. Results of analysis shows a positive association between the growths of Fintech funding or deals and the stock returns of conventional retail banks during the corresponding time frame. Last but not least, they conclude that although these results suggest a complementary relationship between Fintech and traditional banking, the statistical significance of these findings of these studies, however, not seen at the level of banking sector, roughly one third of the banks display negative coefficient signals that are not statistically significant. Although the Fintech business is still in its infancy, and their data set is limited, they cannot conclude with certainty that their results are merely coincidental. According to the Safiullah & Sudharshan (2019), Fintech has contributed to financial stability of banks through their expansions.

Meanwhile, several researchers have suggested that Fintech can have an influence on the risky behaviour of banks. Safiullah & Paramati (2022) highlight that Fintech has changed the way banks do business. For example, the expansion of Fintech has ushered in significant shift in interest rate deregulation and led notable changes in balance sheet composition and risk taking behaviour. It mostly shows that people are taking more risks because banks' profits have gone down and price competition has gotten tougher (Lee et al., 2021). However, it also means that banks have gotten much better at managing risks (Wang and Wu, 2018). Some scholars, on the other hand, claim that Fintech can lower risk-taking by considerably and make banks more willing to take risks (Li et al., 2021).

2.4.2 Fintech's impact on lending banks

Scholars have been interested in how the rapid development of Fintech is influencing banking lending procedures. This literature review will investigate the ways in which Fintech has changed the way banks lend money and the causes of these shifts. The emergence of disruptive technology has led to the growth of financial intermediaries commonly referred to as shadow banks or nonbanks. These entities are capable of providing loans at a lower cost since the lending process can be conducted entirely online, without the need for human loan officers. As a result, there are savings in labour and agency space costs. However,

banks tend to be more trustworthy and dependable, which can aid in client retention. Numerous studies have examined the impact of financial technology lending on market share. Buchak et al. (2018) identified that there was a significant surge in the market share of shadow banks in origination residential mortgage between 2007 and 2015. They also cite previous research suggesting that a large market share in the growth of residential mortgages could lead to credit-worthy borrowers being viewed as less creditworthy. According to Buchak et al. (2018), financial intermediaries can gain a competitive edge by leveraging counterfactual sources of information and big data methods to identify potential customers.

Sheng's (2021) research asserts that the implementation of Fintech has effectively enhanced the credit supply to small and medium-sized enterprises (SMEs) in the banking sector. This conclusion is drawn from an analysis of lending records of various banks in Chinese regions spanning from 2011 to 2018. The influence of Fintech on the augmentation of credit for Small and Medium Enterprises (SMEs) is comparatively more significant for large banks than small banks. From this perspective, it could be argued that prioritizing the utilization of financial technology may hold greater significance than the establishment of numerous regional banks. According to Tang (2019), online lending plays a substitutive role for bank lending in catering to borrowers who are considered marginal in the United States. However, it acts as a complementary source for bank lending when it comes to small loans. De Roure et al. (2016) reveal that the Fintech lenders target riskier individuals seeking small loans, a segment often disgraced by traditional banks. Further, concluded that Fintech lenders act as a substitute for conventional banks in providing high risk consumer loans.

The emergence of Fintech lending has had a beneficial effect on traditional banks within the lending market which suggests that factors such as regulatory concerns have contributed to this positive impact. Further, Buchak et al. (2018) reveals that regulatory restrictions have created a burden for traditional banks, resulting in a decrease in mortgage lending, which is not the case for shadow banks exempt from such regulations. Many banking products are increasingly information-based and may be acquired from a variety of financial service providers, hence the rise of Fintech has had a substantial effect on banks.

Yan et al. (2015) observe that technological advancements in online lending have minimized information asymmetry between lenders and borrowers, due to the abundance of big data that is automatically collected and stored in these systems. The availability of these data on the platform allows for easy connection between both parties. Consequently, the transaction process is enhanced with greater efficiency and effectiveness. In contrast, traditional banks may not possess the necessary analytical skills to effectively use this new source of data. Furthermore, Yan et al. (2015) support the notion that Fintech lending reduces the risk associated with information asymmetry in the lending process. The authors claim that the success of Fintech lending to an increase in demand from individual and start-up businesses, as well as a decrease in regulatory barriers that facilitate loan access. In spite of this, there are few concerns regarding the

ways in which financial technology will disrupt the methods in which banks lend money. If non-traditional data source are used to evaluate credit, this could lead to practices that are unfair to loan applicants. On the other hand, if automation is used in the lending industry, there may not be enough openness and responsibility during the lending process.

2.4.3 How Fintech regulation impact on banking industry

The impact regulations have on the emergence of Fintech has been and continues to be substantial. It might be even more significant than technological breakthrough (Navaretti et al., 2018). The level of impact that Fintech has on the banking industry is directly proportional to the manner in which financial technology business are regulated and supervised by regulatory bodies along with their capacity to compete directly with conventional financial institutions in providing banking services and products (EBA,2017). Traditional banks will need to adapt their business models and processes to meet the challenges of Fintech regulations, while also competing with new entrants in the market" (Deloitte, 2020).

The study conducted by Bofondi & Gobbi (2017) investigates alterations in regulatory policies that occurred in the 1980s. During this era, there was a rise in information technology and novel financial products like money market funds that posed a challenge to conventional banking practices. In that particular period, a systematic methodology was implemented to achieve deregulation, with the objective of fostering competitiveness and efficiency in the financial sector. Nonetheless, this phenomenon resulted in the expansion of shadow banking, which refers to uncertain off-balance sheet activities carried out by financial institutions, leading up in the financial crisis of 2008. The availability of more products and market participants boosts supply, which in turn drives down the price of financial services and promotes greater financial inclusion. On the other hand, this may potentially pose threats to the financial system's ability to maintain its stability and carry out its functions correctly (BIS 2018). Bofondi & Gobbi (2017), and Vives (2017), who are also contributors to this issue, which was hold the view that inadequate regulations governing Fintech could lead to similar outcomes. The reason for this phenomenon can be attributed not only to the inherent risks that are associated with financial technology, but also to the competitive pressure that banks face from Fintech. This pressure may lead banks to exploit regulatory arbitrage opportunities and engage in activities that carry higher levels of risk.

According to Vives (2017), Fintech has the potential to cause significant disruptions that require regulation to ensure that it provides social benefits while also preserving financial stability. Buchak et al. (2018) contend that stricter regulations that result in higher compliance costs may cause traditional banks to lose their market share and profitability. Conversely, Fintech credit can benefit from this circumstance because they are not subjected to the same regulatory framework. KPMG (2019) claims that Fintech companies can contribute to an increase the systematic risk of the whole financial system. Even though, Fintech firms may not subject to the same regulations as traditional financial institutions, they are

still subject to the range of regulations, including those related to the data protection, AML/KYC and consumer protection (BIS, 2018).

However, Collaboration between banks and Fintech firms is more advantageous when regulatory constraints are more stringent. Banks are relying more on outside service providers to develop and provide technology-driven services (BIS, 2018). Banks have the potential to reduce regulatory burdens by adopting the technological innovations developed by their Fintech counterparts. Studies have shown that banks which adopt Fintech solutions tend to become more competitive and efficient (Wang et al., 2021). This reinforces the idea that banks should collaborate with Fintech companies in order to remain competitive, especially when faced with greater regulatory requirements.

On the other hand, as Fintech firms increasingly offer financial services that were once the exclusive domain of traditional banks, these activities can pose challenges to banks' traditional business models and affect the stability and efficiency of financial markets (BIS, 2019). According to a report by the European Banking Authority, "banks may be required to make significant investments in new technologies and personnel to ensure compliance with new regulatory requirements" (EBA, 2020). Smaller banks may struggle with this more so than larger ones since they may lack the necessary resources. However, level playing field for all market participants is something that Fintech regulations can help to achieve. This also ensure that both traditional banks and Fintech firms are held to the same regulatory standards, lowering the potential for unfair competition (World Bank Group, 2022).

3 DATA AND METHODOLOGY

The approached research methodology is a qualitative research design which is the procedure of realistic investigation seeking an in-depth knowledge of social sensations in their natural environment. It concentrates on the “why” rather than the “what” of social phenomena and depends on the direct occasions of human beings as meaning-making mechanisms in their day to day lives (Aspers & Corte, 2019). This section of the re-search presents several stages of the procedure of the research, encompassing the inclusion and exclusion criteria for the papers, analysis and the descriptive review of the chosen papers for the systematic review.

3.1 Systematic Literature Review

Systematic Literature Review (SLR) is a method of research to gather, recognize, and analyse critically the functional research investigations (e.g., themes, symposium proceedings, books, dissertations) via a systematic technique (Pati & Lorusso, 2017). An SLR revises the readers with existing literature regarding a particular heading. Its main destination is to examine points which are difficult about the prevailing knowledge on a subject regarding research questions to gather knowledge for future work (Kitchenham et al., 2009). The first step in starting the SLR is to define an "Original Concept" or involvement in a topic to be researched. An initial review of the available literature could help determine whether the subject is simply too broad to adequately protect in the timeframe and whether the priority should be narrowed. Reading a few publications can help set the tone for a proper review, as can developing a potential research inquiry (Rivera et al., 2022).

Once concentration has been determined, an SLR could be conducted to identify more studies that pertain to the variables in this inquiry. Since there are multiple techniques to conduct an SLR (Kitchenham et al., 2009, Okoli & Schabram, 2011) this research aimed to include a process and practical guide while referencing to illustrative information for Fintech technologies. Having followed the characterization of the graphical abstract (Petersen et al., 2015), the procedure that this article discusses consists of two major stages: "Strategic plan", and "Undertaking" (Pati & Lorusso, 2017).

The entire first method in an SLR is to define the process, which explains the evaluation procedure and serves as a record of the tasks to be completed. Achieving feedback from colleagues while constructing the procedure is recommended to achieve the continuity and relevance of the evaluation and to recognize when changes are required (Runeson et al., 2012). The protocol's finished objective is to guarantee the study's consistency. Properly clarified study question(s) are the major components that direct the aim for research recognition and extraction of data (Wohlin et al., 2020).

3.2 Defining of PICO and synonyms

The PICO (Population, Intervention, Comparison, and Outcome) requirements assist in establishing study questions by collapsing the SLR's aims into powerful search terms (Petersen et al., 2015). PICO is commonly shown in the health and psychosocial science research disciplines to inspire researchers to investigate about the elements of the research question (Pati & Lorusso, 2017). It is indeed possible to create a list of PICO components and their correlating computer science words, that also contains key phrases deduced from the PICO components. From that juncture forward, it is critical to consider synonyms or "alike" conditions which can afterward be employed to construct questions in the chosen library resources. For example, the key phrase "context awareness" may be additionally connected to "content sense".

The proper choice of a database is critical to the authenticity of a research since it has to sufficiently encompass the region under inquiry (Vieira & Gomes, 2009). The Web of Science (WoS) is a global and inter-disciplinary database for scientific, technological, biomedical, and other literary works. Scopus is a database which currently collates 40,562 peer-reviewed journals, while WoS only categorizes 24,831. Scopus is therefore the world's largest interdisciplinary collection of data. Even so, supplies pertinent to computer science, including such as Bank of International Settlements (BIS), OECD iLibrary IEEE Xplore, and National Bureau of Economic Research (NBER), Springer Link, and Research Gate, might be required.

To avoid bias, writers must describe the criteria for inclusion and exclusion prior to actually under-taking the evaluation, but while they may be adapted if needed. These requirements would be used to pick primary studies. This first list contains or excludes articles on abstracts and main bibliographic information. When in doubt, the paragraph is skim read to determine its significance for the evaluation. The evaluation process explores the synthetic information and derivatives important data from the publications that were chosen (Mengist et al., 2021). This stage has two primary objectives.

The very first objective is to look at the literature in the context of the most influential authors, journal articles, nations, and institutions. It also aids in the identification of topical comparisons. Even though it is not required, this action will help investigators place their tasks, detect trends, and discover opportunities for collaboration. Following that, information from the articles selected could be evaluated utilizing bibliometric analysis (BA). BA provides an overview of highly qualified and recent developments in a subject or research area by summarizing huge quantities of bibliometric records (Donthu et al., 2021).

3.3 Inclusion and Exclusion Criteria

When designing high-quality research protocols, it is common procedure to create inclusion and exclusion criteria for participants in the study. Inclusion criteria

are the essential attributes of the target group which the researchers are going to employ to determine the outcome of their study. Demographic, diagnostic, and geographical features are common inclusion criteria. Exclusion criteria, on the other hand, are papers and articles which contains less information highlighting the title and objectives of the research.

When conducting a research article, experimenters should not merely specify the adequate inclusion and exclusion criteria, but furthermore evaluate how all such selections would then exploit the reality and trustworthiness of the findings of the study (Patino & Ferreira, 2018). The table 1 given below indicates how the articles were selected to the research by following the inclusion and exclusion criteria.

Table 1 Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Researches related to academics published in peer reviewed articles and quantitative and qualitative research studies.	Books, News, editorials and columns
Original articles related to the topic	Articles from non-banking authorities like Corporate governance Sector.
Articles published in English	Articles not published in English
Articles available freely from the University Library of Jyväskylä	Articles not available freely in the University Library of Jyväskylä
Articles published in between 2009-2022	Articles published before 2009
Articles related to Fintech impacts on banking sector.	Articles related to Fintech impacts on corporate governance sector.
Journals with high quality having a good circulation and coverage	Journals with less quality having no good circulation and coverage
Articles pertinent to systematic reviews of Capital and Fintech asset in several countries	Articles with no any substantial assurance or encompassing practical outcomes of capital and Fintech assets in the countries
Articles which examine the influence and challenge of capital and Fintech assets in several countries	Article which examine the influence of Fintech on corporate governance excluding banks.
For the publications which are duplicated regarding the exact research, just the fully finished and recent articles are being included	Incomplete and repetition points and articles were excluded.
Journal characterized by substantial impact factor	Journal characterized by a low impact factor

3.4 Collection of Research materials and Critical Evaluation

A systematic review, is described as an evaluation that uses a systematic way to conclude evidence on areas which have a thorough and in-depth research proposal. Moreover, regardless of the increased guidance for performing a good systematic review, it was discovered that basic steps frequently begin with completing an inquiry, then selecting appropriate tasks, that also comprises formulating requirements and looking for articles, evaluating the calibre of included research findings, concluding the indications, and analysing the findings (Ryś et al., 2009).

Even so, in practice, some of these simple efforts are hard to accomplish. There are multiple topics which a research scientist might confront that have no unique remedy (Examples are the prevention of global economic crisis, the future of Fintech). Scopus employs a standard search approach, which is tailored to each database in this thesis to produce the most effective results. The initial search strategy is based on the development of the research inquiry (i.e., PICO or PICOS = Population, Intervention, Comparison, Outcome, Study design). Search strategies have been developed to provide complementary terms (e.g., in the retrieved articles) as well as any relevant subject cataloguing anticipated to recover relevant studies, in addition to the assistance of a specialist in the evaluation field or industry or a knowledge expert. (Tawfik et al., 2019).

Furthermore, designers recommend against using words for the results even though their incorporation may impede the investigation for inclusion criteria since the utilised result is not stated clearly in the publications. As per the "Assessing the Methodological Quality of Systematic Reviews" (AMSTAR guidance), at least two databases must be started searching in the systematic review but as the amount of searchable databases increases, the efficiencies and the outcomes become more precise and in-depth. Here we have used maximum of five databases for the reliability of the research (Shea et al., 2017).

The arrangement of the databases is primarily determined by the research question; when carrying out an investigation from several research, it is better to depend on Scopus, BIS, OECD iLibrary, IEEE Xplore, and NBER, Springer Link, and Research Gate. As previously mentioned, we suggest seven databases to help offset just about all articles published in Fintech and its effect on banking institutions. Investigators must think about which databases are pertinent to their research subject. A few databases don't really assist the use of certain Boolean or quotation; however, several databases have a unique keyword research method.

Eventually, all documents are assembled into a sole Endnote library with the goal to remove multiple copies and extract them into an Excel spreadsheet. It is mandated to utilize the withdraw duplication of work function with two choices. All citations which have the same title and writer and were authored during the exact same year, in addition to having the identical title and creator and were accepted for publication within the same journal, would've been removed. After that little step, any residual citations must be outsourced to an excel

sheet containing the essential data for the purpose of screening. These might include the identities of the writers, the date of publishing, the journal, the DOI, the URL link, and the abstract.

Because financial authorities' databases need not permit using multiple search strings, just one key phrase was utilized at a time when seeking for articles. As the final search string of the Scopus, the following was used.

("Fintech" OR "Financial Technologies" OR "Fintech Firms" OR "Fintech Revolutions" OR "Fintech Adoption") AND ("Banks" OR "Banking institutions" OR "Financial Institutions" OR "Bank Performance" OR "Banking Industry") AND ("Customer" OR "Client" OR "Consumer")

The last search term from the entire database was 310 articles, which were filtered by reading out through names and evaluating the published journal articles before being constructed into an Excel spreadsheet. Following that, the abstracts of every article were evaluated for eligibility, and 212 articles were eliminated, leaving 53 articles.

The inclusion and exclusion criteria have been used in the delimitation procedure, and the way the research responded the research problem was taken into account. Publications which coped with the subject from the point of view of just one nation, or, for instance, from the point of view of a corporation, were therefore exempted. Documents which fulfilled the inclusion criteria were actively and literally through the financial administrations.

Moreover, thirty papers were removed because they did not comply with the above mentioned requirements, resulting in a total of 23 articles that formed the synthesizing. This review process is illustrated in the PRISMA flow chart (Figure 4). The quality assurance of the research shown in the synthesizing is a component of the method in published studies (Tran et al., 2021). The purpose of the quality evaluation is to look at the interior grade of the research, i.e., whether the information and outcomes correlate with the goals (Chen et al., 2014). As previously stated, the systematic review has extendedly been used as a primary analysis in the almost all the fields including the financial sector. As a result, quality assessment systems were created mainly for research within this field. Even so, 23 revealed vital aspects which can be used when collecting quality assessments. Appendix 4 A includes an inventory of the standard evaluation queries utilized in this research, and Appendix B contains the responses to the research.

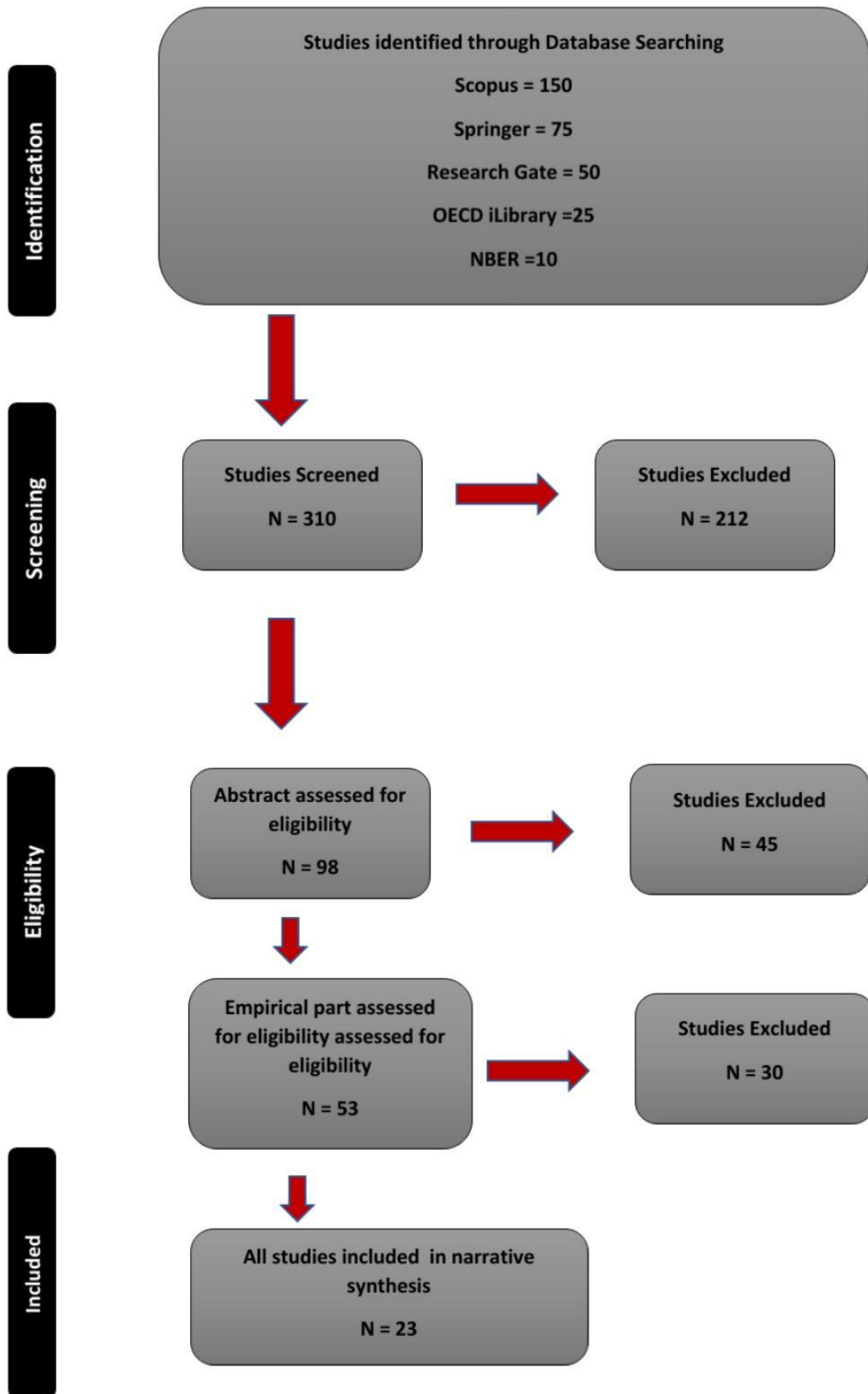


Figure: 4 PRISMA Flow Chart (Author Generated)

3.5 Analysis of the research materials

Because of the sheer amount of information available, trying to analyse information and deciphering the findings from a systematic review and/or meta-analysis can be demotivating at first. The assignment, even so, is controllable if approached methodically. To create a descriptive synthesis of findings from numerous qualitative research methods, here in the thesis it was started collecting the main finding of all included research projects by research method and decide whether the accumulation makes reference to optimistic, critical, blended, or incomplete outcomes according to the frequency of research results (Impellizzeri, 2012). According to the Centre for Cognitive Ageing and Cognitive Epidemiology CCACE, "if research findings are extremely heterogeneous, it may well be most suitable to summarize the data textually rather than try a numerical (meta-analytic) overview" (Cronin, 2011).

Tabulation is critical to narrative synthesis (Cornin, 2011). Typically, the table gathers data pertaining to the study subjects, methodologies, and vital research results of the articles published. The tabulation helps improve the study's clarity by allowing the reader to quickly determine what types of studies were selected for the substance. Appendix 1 contains a list of the articles chosen for this study and organized after tabulation. The formation of groups is possible according to the distinctions and commonalities of the study results. Eventually, the codes extracted from the components are patterned and synthesized (Nowell et al., 2017).

3.6 Description of research material

A critical stage of the technique is describing the gathered study data for a literature review. The below section includes the chosen articles' major themes, publication details, and research methodology. A table 2 contains extra extensive data on every article. The goal of tabulating and describing the research data is to continue increasing the study's transparency and efficiency. The report's final project material is composed of 23 articles. The papers are classified into three categories:

1. The consequence of Fintech firms' activities on the performances of banking initiative
2. Services of lending and payment delivered by Fintech firms
3. Impact of Fintech regulations on banking sector

3.7 Descriptive summary

Table 2 Descriptive Summary

Author, Title, and Journal	The purpose of the study	Method and Sample	Findings
<p>1) Saphyra, A.R., Zahra, R. and Noerlina (2021). A Systematic Literature Review of Fintech Investment and Relationship with Bank in Developed Countries. (ICCSAI)</p>	<p>This paper looks at the condition of Fintech funding and investment in advanced nations by trying to define the studies, deep insight, market dynamics, connections, affects, and difficulties which are most pertinent to Fintech asset in advanced nations. As capital markets, Fintech and banks perform an important function in the global financial sector.</p>	<p>Systematic Literature Review was approached where this Systematic Literature Review (SLR) focuses on financial technology (Fintech) asset action in to discover discrepancies in the investing activities of financial technology firms in certain advanced countries. This is accomplished by tracing the literary works on investments and capital in Fintech in industrialized economies and trying to connect it to the primary research issues which have been investigated to date in studies enclosed in searchable databases.</p>	<p>As financial institutions, Fintech and banks perform an essential part in the worldwide financial sector. As a consequence of this collaboration, the banking and finance marketing strategy will grow to be more efficient and lucrative. This collaboration, even so, presents its own collection of repercussions and obstacles for Fintech investor, as demonstrated by this research. In the meantime, the bank's marketing strategy needs to be updated in order for it to continue to exist and broaden its potential markets. On just one hand, the development of Fintech introduces a unique challenging problem for banking institutions; but at the other hand, such difficulties could be converted into possibilities, banking institutions to broaden even further.</p>

<p>2) Kumari, A. and Devi, N.C. (2022). The Impact of FinTech and Blockchain Technologies on Banking and Financial Services. Technology Innovation Management Review, 12(1/2).</p>	<p>This research investigates the role of Fintech and block chain innovations in electronic financial and banking services. The current study demonstrates that Fintech and blockchain get a significant impact on automatization patterns. The study focused on tasks to improve in banking products and services, with a special focus on the society.</p>	<p>Literature Review Articles were selected from 2008 to 2021 for the analysis</p>	<p>According to the findings of this study, banking institutions are experiencing significant transformations in order to keep pace with electronic changes in technology. The study revealed that Fintech will result in significant adjustments in asset benchmarks which provide great customer data and are supported by blockchain - based. Blockchain in Fintech could indeed get a more efficient banking option than we presently have, predicated on shares and devolution of power. The above research thereby adds to making people aware more about blockchain-based Fintech society, which allows quick transfers of money, superior safety, and transparent financial monitoring.</p>
<p>3) Stulz, R.M. (2019). FinTech, BigTech, and the Future of Banks. NBER WORKING PAPER SERIES.</p>	<p>Bigtech firms have unique benefits which financial institutions are unable to recreate, posing a very much harder task to established banks in financial inclusion and lending to small businesses. Fintech and Bigtech are both making a contribution to a</p>	<p>Literature review, the author employed a comprehensive approach by integrating existing literature and market analysis to provide the insight in to the transformative impact of Fintech and Bigtech on the banking industry</p>	<p>Fintech firms end up competing with banking institutions in certain areas. Fintech companies benefit from less regulatory oversight, the absence of large rigid institutions, and the absence of legacy Systems. Banks, on the other hand, are distinct in ways that non-banks could indeed recreate. Fintech banks, that are digital banks, could indeed start competing with banking institutions</p>

	<p>long term trend of financial institutions continuing to lose their competitive advantage even though they gain fewer access to diverse data regarding prospective borrowers. This research aims to determine the significant obstacles and dangers affiliated with Fintech in the banking system.</p>		<p>in terms of customer interface and comfort, and yet legacy banks get the benefit of an extensive customer base, extensive experience with regulatory agencies, and a wider product supplying. Fintech companies can improve banking institutions by forcing them to start competing extremely hard, but increased competition does not make banks safe and secure. As market becomes more competitive, banks will be forced to take more risks in order to stay successful with their current pricing structure. If they can't take any more risks, they'll have to drastically cut their costs and be more like utility companies</p>
<p>4) Hanafizadeh, P. and Amin, M.G. (2022). The transformative potential of banking service domains with the emergence of FinTechs. Journal of Financial Services Marketing.</p>	<p>By researching and reading, the research aims at identifying suggestions for novel and creative regions of Fintech company's activities. These locations are classified and characterized via thematic analysis and are classified utilizing Banking Industry Architecture Network</p>	<p>The Systematic Literature Review method was used to conduct a literature review on Fintech financial firms' offerings in the banking system. 255 records were derived at this phase. Within a week of eliminating unnecessary files, 87 articles were left for</p>	<p>From 2010 to 2018, this research examined the ex-ante factors that influence global banks' purchase of Fintechs. Utilizing hand-collected information, it was demonstrated that financial institution panels with a higher female representation, and also CEOs with company longer, are much more inclined to look into Fintech purchases.</p>

	(BIAN) service scenery.	inquiry at this point.	
5) Lv, S., Du, Y. and Liu, Y. (2022). How Do Fintechs Impact Banks' Profitability? – An Empirical Study Based on Banks in China. FinTech.	This article explains how Fintechs affect banking performance, after which we develop the Error Correction Model (ECM) and merge it with the Granger correlational exam using data from the Industrial and Commercial Bank of China (ICBC) from 2011 to 2020.	Quantitative Research The Industrial and Commercial Bank of China (ICBC), China's greatest delegate bank, is the subject of research in this article. Researchers gathered information from yearly reports from 2011 to 2020 to ensure the information's accessibility, truthfulness, and functionality.	(1) Bank profitability (ROE) is linked to Fintech development (FTI), bank assets (TA), interest-bearing asset profitability (NIM), credit risks (NPL), and cost control (CTI). (2) Fintechs have a "U"-shaped effect on the financial performance of banks. Fintechs have a preliminary effect on bank company that also lessens banking performance; the benefits of Fintechs slowly raise inside the mid and late phases, and capital adequacy keeps increasing. (3) Bank assets (TA) and interest-bearing asset profitability (NIM) are trending in the same manner as banks' profitability (ROE), whereas default risk (NPL) and controlling costs (CTI) move in the reverse way. (4) The level of financial earnings and the advancement of Fintech are Granger reasons of one another; the magnitude of the firm's assets is the Grange reason of the profitability, as well as the rise in profitability is the Granger reason of the improved performance in NIM and the decrease in NPL.

<p>6) Abdalmajeed Alsmadi, A., Alrawashdeh, N., Al-Gasaymeh, A., Al-Malahmeh, H. and Moh'd Al_hazimeh, A. (2023). Impact of business enablers on banking performance: A moderating role of Fintech. <i>Banks and Bank Systems</i></p>	<p>The objective of this article is to ascertain whether the effects of company enabling technologies and financial technology (Fintech) on the banking system is a great chance or an interruption.</p>	<p>The quantitative research design was used, and the assumptions and prototype were evaluated. The study used questionnaires to gather information in order to obtain its goals. A total of 150 Saudi bank managers were polled. The PLS-SEM technique was used on the 130 significant and legitimate reactions provided by the respondents.</p>	<p>The existence of company enabling technologies made possible Fintech advancement that also resulted in improved banks profitability in financial, cultural, and physical terms. Furthermore, Fintech acts as a bridge builder, amplifying the optimistic effects of business enabling technologies. As a result, while Fintech is not a technological breakthrough, it would provide a few possibilities for the financial sector.</p>
<p>7) Li, Y., Stasinakis, C. and Yeo, W.M. (2018). <i>FinTech and Banking Efficiency: Evidence from Chinese commercial banks.</i></p>	<p>This article is aimed at the empirical analysis of the influence of Fintech on the efficiency of operation in commercial banks.</p>	<p>To assess the theory, precisely evaluating the level of efficiency of commercial banking institutions is critical to obtaining efficient outcomes from empirical study. The assumption is to assess banks performance objective manner. There are two types of approaches for trying to measure commercial banks perfor-</p>	<p>It was discovered that the enhancement of Fintech has a powerful impact on the effective alterations of city commercial banks in regions with elevated degrees of development within the field of finance.</p>

		mance: parameterized methods and non-parametric methodologies.	
8) Lien, N.T.K., Doan, T.-T.T. and Bui, T.N. (2020). Fintech and Banking: Evidence from Vietnam. The Journal of Asian Finance, Economics and Business	The article concentrates on comprehending Fintech and its implementation in the Vietnamese banking industry. In order to achieve this research goal, the authors analyzed Fintech latest developments, particularly Fintech implementation in the financial services industry in Vietnam. In order to enhance the level of Fintech services at banking institutions, the study considers variables impacting consumers' actual intent for using services of Fintech.	Quantitative Research methodology was used where data were gathered through a survey of 620 clients of banking institutions in Ho Chi Minh City, Vietnam's biggest financial center. The researchers calculated the study design using multiple regression as the analysis approach.	According to the findings of the research, Fintech services are critical to the Vietnamese banking sector. Furthermore, by determining the variables that affect clients' intentions to use Fintech services, this article has achieved outstanding results. As a result, the perception of usefulness (PU), social impact (SI), customer trust (TRU), and perceived ease of use all have a beneficial effect on the intent to use Fintech (INT) services (PEU). Predicated on the findings of this research, bank executives would be able to assess the efficiency of Fintech services. That not just, but the findings of this research are useful for scholars and policy makers.
9) Xu, F. (2022). FinTech and Bank Performance in Europe: A Text-mining Analysis.	The paper examines the impact of adoption of financial technology (Fintech) by banks on the sector of banking.	This article outlines the bank FinTech extent for every bank as well as investigates the connection between bank Fintech and bank performance using	According to the findings, bank Fintech is linked to bank capital, capital adequacy, operating efficiency, earnings power, and cash flow. In broad sense, banks could indeed gain from introducing bank Fintech. This is the first paper towards

		CAMEL rating software's criterion utilizing text-mining analysis on the financial statements of 48 European banking industry from 2015 to 2021.	using text-mining analysis to describe the financial institution Fintech indicator for European commercial banks and test its connection using the CAMEL scheme.
10) Safiullah, M. and Paramati, S.R. (2022). The impact of FinTech firms on bank financial stability. Electronic Commerce Research.	This paper aims at examining the effect of Fintech technologies on the financial stability of banks.	Using only a data set of 26 banking institutions out of an emerging economy (Malaysia) from 2003 to 2018, we discover that the advancement of Fintech firms tends to increase bank's financial stability over the years.	Once the performing of sub-sample assessments by bank size, bank category (Islamic vs. traditional), as well as the degree of corporate governance, the influence of Fintech companies on bank monetary stability remains consistent. The outcomes are tolerant of various design models, financial stability metrics, and Fintech.
11) Kong, Y. (2022). Research on the Impact of Fintech on the Profitability of Commercial Banks.	To assess the influence of profitability on commercial banks by the use of Fintech.	This empirical study collects panel data of 67 commercial banks in China from 2011 to 2019 and utilizes the digital financial inclusion index to evaluate the level of development of Fintech to examine the influence of Fintech on the profitability of commercial banks.	The empirical analysis depicts that there exists a substantial "inverted U-shaped" connection between fintech and the profitability of the commercial banks of China. Apart from that, the expansion of Fintech has a substantially higher influence on the profitability of bigger and medium-sized commercial banking institutions despite minor ones.

<p>12) Tseng, P.-L. and Guo, W.-C. (2021). Fintech, Credit Market Competition, and Bank Asset Quality. <i>Journal of Financial Services Research.</i></p>	<p>The research aims at investigating the incentives of bank screening under the competition of credit market between traditional banks and a Fintech start-up.</p>	<p>Theoretical modeling approach: The author formulated the mathematical model based on the Salop (1979) spatial competition model and developed the circular city model to analyze dynamic of competition between the Fintech startup and traditional banks in the lending market .</p>	<p>Fintech advancement could have a detrimental impact on bank asset values by altering their testing rewards in the financial system. As well, the banks' screening rewards would be stripped away if the price of the screening technology that the Fintech start-up begins to fall, or if the achievement of that screening technology is improved by information technical innovation.</p>
<p>13) Basdekis, C., Christopoulos, A., Katsamopoulos, I. and Vlachou, A. (2022). FinTech's rapid growth and its effect on the banking sector. <i>Journal of Banking and Financial Technology</i></p>	<p>This research looks into the fast expansion of Fintech and its effect on the Greek financial system. This subject is becoming extremely relevant as the percentage of Fintech competing companies with conventional banking on financial products grows as electronic tech improves.</p>	<p>This is a qualitative case study in which data was collected from the major players using a survey questionnaire primarily with closed ended questions. To accomplish this, we utilize questionnaire survey, one per survey. The very first sample comprised of Greek banking sector customers of financial products, while the sample 2 comprised of Greek</p>	<p>Clients of all age ranges appear to believe traditional banks further than Fintech firms, while the amount of mobile commerce varies by age and education. According to the responses of customers, safety is at the top-most priority of concerns when it comes through using financial services provided by Fintech firms. The second questionnaire with bank staff, from the other hand, obviously suggests that school degree is a crucial factor in their preparedness and reaction to recent innovations.</p>

		private banking sector.	
14) Anagnostopoulos, I. (2018). Fintech and regulators and banks. Journal of Economics and Business	This goal is to foster an understanding of and evaluate the impact of Fintech growth with regard to the wider Fintech surroundings. We also hope to provide a diversity of viewpoints to make readers understand the transformative power of Fintech and its repercussions for the bigger financial ecosystem.	The research method used in this study is action research (AR). Author draw a practical situations, issues and experience gained through direct participation and engagement with stakeholders and the goal of solving real problems in real contexts.	Technology-enabled credit institutions may improve the adaptability and consistency of credit in the banking markets and limit the country's economic exposure to pure liquidity, given that I shareholders are taught in school and fully comprehend that certain channels are not straightforward suppliers of cash flow, and (ii) the end shareholders are not conventional financial institutions. Fintech technologies are presently less vulnerable to scheme shocks than conventional banking because their activities are more indigenously pushed in accumulation and by magnitude.
15) Elsaid, H.M. (2021). A review of literature directions regarding the impact of fintech firms on the banking industry. Qualitative Research in Financial Markets, ahead-of-print (ahead-of-print).	This paper aims to provide a review of the literature on the possible impact of Fintech contractors on the global financial services industry. This paper performs a literature search to find potential advantages or obstacles that Fintech companies may pose to	This article is founded on a review of previously released studies on Fintech and digital financial services. To discover relevant studies, the Scopus database, the SSRN database, and Google scholar were used. The sample size would include	According to the present article, whilst also Fintech companies are anticipated to steal some of the market from banking institutions, they are not anticipated to take over banks. To start competing with Fintech companies, banks must speed up their adoption of innovations and high tech. It is also suggested that business alliances and collaboration between banks and Fintech businesses could occur in a

	the conventional banking sector.	documents that had a serious influence on the banking and financial industries.	manner that enhances both parties.
16) Murinde, V., Rizopoulos, E. and Zachariadis, M. (2022). The impact of the FinTech revolution on the future of banking: Opportunities and risks. International Review of Financial Analysis	This article aims at reviewing the burgeoning literature on Fintech and the services enabled with Fintech- , targeting on the chances and threats for banking institutions.	Quantitative Study Utilizing data with elevated quality at bank level from 115 countries around the world for the past 16 years, it analyses the statistical instants of few major pointers of the altering banking terrain in the era of Fintech	Fintech lending institutions are not likely to replace banks, possibly even though banking institutions are constructing their own Fintech systems or collaborating with Fintech setup. Designers as well demonstrate whether the legislation, global network, and political tensions would then form banking's destiny. Researchers recognize a few potentially fruitful suggestions and sum up some key consequences for lawmakers and professionals according to current studies.
17) Zhao, J., Li, X., Yu, C.-H., Chen, S. and Lee, C.-C. (2021). Riding the FinTech Innovation Wave: FinTech, Patents and Bank Performance. Journal of International Money and Finance.	This study examines the effect of financial technology creation on Chinese banks' execution, utilizing both data from patent and index of Fintech development, through the application of a generalized technique of instants example to determine probable endogeneity.	Empirical Analysis Within 2003–2018, there existed a whole amount of 120 banking institutions in prevalence for the complete duration, encompassing twelve joint-stock commercial banks (JSCBs), three policy banks (PBs), five state-	Fintech innovation lessens banks' accumulated earnings and asset reliability, particularly prominent for big state financial institutions; however, it enhances banks' equity sufficiency and management quality, albeit to a lesser extent for policy financial institutions as well as government commercial banks.

		owned commercial banks (SOCBs), and 100 city commercial banks (CCBs).	
18) Acar, O. and Çıtak, Y.E. (2019). Fintech Integration Process Suggestion for Banks. Procedia Computer Science	This aims at drawing a framework by utilizing experience in business in Kuveyt Türk Participation Bank in Turkey to provide guide to extra banking institutions in the process of Fintech Integration.	Case study approach: focusing on the experience of Kuveyt Türk participation bank in Turkey. Sample consists of relevant stake holders with in Kuveyt Türk participation bank, including employees from internal departments involved in the Fintech integration process. Those participants are from IT, compliance, legal and senior management.	This article described suggestions for banks' Fintech regional integration. The world's economic market is evolving dramatically, and financial institutions are experiencing severe repercussions. Despite these trends, no study article has provided guidelines for bank Fintech coordination mechanisms.
19) Wu, G., Luo, J. and Tao, K. (2023). Research on the influence of FinTech development on credit supply of commercial banks: the case of China. Applied Economics	This article evaluates the influence of Fintech improvement on the supply of credit in the commercial banks of China to people and businesses	Quantitative Study which uses panel data strategies and usage of financial details from 22 recorded commercial banks of China between the year 2013 and 2020 to analyses the relationships empirically which	It was demonstrated that Fintech advancement successfully helps facilitate the growth of bank lending, and the connection holds even after endogeneity problems have been solved. We also discover that the interactive manner by bank size and type, with the effect on government financial institutions being the least effective as well as the influence on financial firms

		are hypothesized .	deemed most meaningful.
20) Dwivedi, P., Alabdooli, J.I. and Dwivedi, R. (2021). Role of FinTech Adoption for Competitiveness and Performance of the Bank: A Study of Banking Industry in UAE. International Journal of Global Business and Competitiveness.	This study targets to analyse the influence of Fintech on the competitiveness and execution of the banking institutions in the UAE.	Qualitative Research The study is evaluated empirically depending upon 76 banking experts and managers (bankers) from Dubai (UAE)	This demonstrates that the application of Fintech used to have a substantial effect on the viability and achievement of the financial services industry in the UAE. The 2nd results suggest that appropriate Fintech application and alignment with technology management get an immediate effect on the success of the banking sector in the United Arab Emirates.
21) Al-Shari, H.A. and Lokhande, M.A. (2023). The relationship between the risks of adopting FinTech in banks and their impact on the performance. Cogent Business & Management	This targets to investigate the connection between the threats of applying Fintech in banking institutions and the influence on execution, where the counteracted scorecard was utilised to estimate execution.	Quantitative Research. The details were gathered by means of a questionnaire for 263 participants at the managerial stage of the branches of bank in Yemen from October to December 2021	This study demonstrated the reality of the proposed connection between the threats and the impact of threat variables on every aspect, excluding for the influence of outsourcing threats on cyber risks. Again, the research finding is that cyber risks and functional risks of applying Fintech owe an unfavorable influence on the performance of banks.

<p>22) Kwon, K.Y., Molyneux, P., Pancotto, L. and Reghezza, A. (2023). Banks and FinTech Acquisitions. Journal of Financial Services Research.</p>	<p>This article examines ex-ante characteristics impacting the acquisition of international bank of Fintech firms from 2010–2018.</p>	<p>Empirical Analysis Data collected from S&P global market intelligence, Bank’s annual reports, BoardEx, moody’s bank analytics and World Bank data base. The study focuses on analyzing bank acquisition in the Fintech sector during the period 2010-2018. The final dataset comprises 105 instances of international Fintech acquisitions conducted by 80 banks across 15 OECD countries.</p>	<p>This finds that CEO term entirely impacts the judgment to create an acquisition of Fintech where CEO age has an inversely connection. Bank boards with a higher female existence are moreover probably like to seek Fintech investments.</p>
<p>23) Varma, P., Nijjer, S., Sood, K., Grima, S. and Rupeika-Apoga, R. (2022). Thematic Analysis of Financial Technology (Fintech) Influence on the Banking Industry. Risks</p>	<p>This aims at analyzing how Fintech had impacted current alterations in the banking sector and the challenges which are upcoming, with a certain highlight on block chain technology.</p>	<p>Comprehensive thematic analysis of current researches on Fintech in the sector of banking.</p>	<p>Fintech has tremendous capacity to improve and influence the banking sector and the whole world. The banking sector might give advantages from incorporating arising technologies like the block chain, AI, machine learning, or additional layers of making decision.</p>

3.8 Thematic Analysis

Among the most prevalent kinds of qualitative research study is thematic analysis (Braun & Clarke, 2006). It attempts to discover common patterns by creating themes' main points from different studies and incorporating them to form a clear whole (Throne et al., 2004). The difference between content analysis and qualitative methods is seen as a selection between a useful and straightforward strategy. In contrast to thematic analysis, descriptive study is thought to be easier for data categorizing and thus "quicker to just get begun with" (Humble & Moze-lius, 2022).

To discover a wide range of information, we used broad search criteria and general purpose best-fit turns of phrase. We then individually analyzed and compared lookup records. Research which did not fit the intent of our evaluation were removed from the search results by using the inclusion/exclusion requirements. Components from search history were thus thrown away. If the initial search yielded no successful outcomes, a more specific syntax was used. To use a syntax, we found among most pertinent inquiry, which we then filtered down to Fintech's impact on financial institutions.

As a direct consequence, several related papers were chosen. The thesis was checked for multiple copies and filtrated the outcomes that use the inclusion/exclusion requirements, yielding only the necessary for the thesis. Appendix 1 discusses about the thematic analysis in detail with reference to the selected journal articles.

Table 3 Thematic Analysis

Objectives	Key Themes
Increment or decrement of the performance of banks by Fintech	Digitization of fundamental banking activities and their presentation 24 hours a day, seven days a week
	Developing novel goods and amenities in line with consumer understanding and requirement assessment
	Accepting money transfer authorizations from customers and delegating deposit to acceptors/small and medium-sized businesses respected only by bank
	Developing infrastructure to guarantee the privacy and safety of client information and financial transactions

	Consumers are clustered and financial services are provided based on their condition for each group.
	Using electronic wallets in the applications of the bank
Impact of Fintech on lending in Banks	Credit rating and risk prediction for consumers by analyzing data in the bank to evaluate credit rating and anticipate risk prior to actually making customer loans.
	Incorporating systems and connections to connect shareholders and businesspersons for crowdfunding through a range of approaches (charitable organization, revenue and loss communicating, stock collaboration).
	Putting an infrastructure in place to bring the people closer together in a peer-to-peer setting to lend money or deliver borrowers and lenders around each other
	Maintenance of information exchange and receipt of the lender's required warranties for reimbursement
Influence of Fintech regulations on the banking industry	Application of trading platforms for the internet and market rates based on supply and demand
	Creating suggestions to guide the consumer's current amount on the consumer's finance status, threat or risk-aversion status, and financial objectives.
	Incorporating and making preparations robot-advisors continue providing suitable customer offers, as well as to mentor investors rely on the customer's acknowledged investment objectives
	Creating systems for the launch of different crowdfunding designs

4 RESULTS

This chapter discussed research findings. The whole segment seeks to gather applicable data from multiple research articles as corroboration for this research that is explained in a research problem. Thereby, given the evidence, these data could be utilized as a guidance in planning this published research that will be helpful down the road. The impact of Fintech firms on the performance of banking sector is discussed in the subsection 4.1. The 4.2 subsection describes the effect of lending and payment services provided by Fintech to the banking industry. Finally, subsection 4.3 explains the impact of Fintech regulations on the banking industry.

4.1 The consequence of Fintech firms' activities on the performances of the banking sector

Cooperation between Fintech and banking institutions is a remedy for both stakeholders, who both have shortcomings in obtaining investment services (Acar & Çıtak, 2019). The goal of this cooperation is to develop the most efficient and effective financial advisory company model (Jakšič & Marinč, 2019). As a result, this collaboration has the potential to broaden the market prey, increase profits, and increase economic benefit for banking institutions (Románova & Kudinska, 2016).

The connection formed through collaborative efforts between Fintech and banking institutions benefits both parties and gives them a benefit over banking institutions which are solely transaction-oriented and Fintech businesses that continue to be considered energized. Lenders which embrace Fintech technology could make existing money transfers suitable and cost-effective. Fintech companies which receive bank assistance are capable of creating novel goods which are more convenient, decreasing the risk of financial products and rising shareholder and borrower trust in Fintech companies (Románova & Kudinska, 2016).

Banks could help Fintech companies determine their results in the generation by this cooperation, ensuring that the payment system does not lead to an absence of banking rules. This also impacts the chance for Fintech entering the market to raise the Fintech company's investment potential (Románova & Kudinska, 2016).

Finance frequently relies on and develops in tandem with technological advancements. The finance system has become the most skillful consumer of communication and information technology in the procedure. The monopoly on the provisions of financial service of traditional banking industry has been disrupted due to the emergence of the Fintech. However, creating a clear distinction between banks has proven to be a challenge as they both provide similar services with different approach (Acar & Çıtak, 2019). Through Fintech's mobile technol-

ogy borrowers and investors can connect instantly, bypassing the need of the traditional banks. This implies that proper regulations and monitoring are needed to ensure that every abiding with the rules and not taking the advantage of the system.

Fintech is a method of lowering peripheral expenses while boosting productive capacity. They could mean a significant large stash of intangibles which are hard to calculate in financial system, smudging industry sections and raising serious confidentiality, strategy, and conformance concerns (Navaretti & Calzolari, 2017). As per estimates, payment-related fields have allured the most incentive to invest in Fintech firms since the financial meltdown of 2008, taking account for 70% of complete financial technology infrastructure in Fintech as a contest to traditional banking Románova & Kudinska, 2016).

Fintech is the use of new tech supplying novel and enhanced banking services (Mohanasundaram et al., 2021). Such phases are increased in technology-focused Fintech startups to establish innovative approaches with enhanced protection, advertising characteristics, connect directly, and emerging customer stereotyping methods. Fintech firms have substantially increased market rivalry by straight interacting with customers. Numerous Fintech firms even now depend on banks to hold information and process payouts, and users regularly initiate financial technology transactions from a checking account. Small and large incumbents are adopting digital transition across the entire value chain in order to compete with Fintech (Feyen et al., 2021).

Six Fintech business models can be recognized such as lending, crowdsourcing, financial advisory, financial market, and banking and insurance (Lee & Shin, 2018). Financial options include cryptocurrencies such as bitcoin and payment services such as e - wallets, PayPal, Bizum, and others. Fund raising and non-intermediated peer-to-peer (P2P) lending are components of the Fintech lending model. Crowd sourcing companies, such as GoFundMe and Crowd funder, serve as a link between both the project manager and investment funds intrigued in partaking in the undertaking, acquiring financial assistance for a venture or entrepreneurship from a broad spectrum of individuals (Deng et al., 2019). P2P lending, on the other hand, is a supplement to bank loans which is aimed at consumers who need immediate monetary capacity or who lack adequate credit histories with banking institutions.

P2P lending systems are not obligated to put money in a savings network of branches or ATMs because they only offer online services that correspond to borrowers with lenders (Deng et al., 2019). Furthermore, they are much less subject to regulation than traditional banking, possess lower profit margins, and offer lower-cost services than banking institutions (Thakor, 2020). When compared to conventional banking, such options might provide assistance more quickly and at a lower cost. In terms of the fourth type of Fintech company, robo-advisors are widespread utilized in the financial advisory industry continue providing investment strategies for existing customers using big data analysis and deep learning (Mahmud et al., 2023)

The benefits of robo-advisors include easiness of the use, lower overhead expenses, lowered cognitive biases, and substantial tax cash reserves (Mahmud, et al., 2023). Wealth front and Betterment are two examples of such businesses. Foreign cash transactions and Fintech buying and selling are among the most prevalent capital market marketing strategies. Along with the other given services offered by Fintech firms, such as Robohood, eToro, and many others, the prices are reduced and the procedure is more useful (Deng, et al., 2019). Insurtech is another term for Fintech's insurance system. They might provide clients with quick and appropriate insurance coverage by utilizing cloud technology and data storage. Ladder and CoverFox are two examples of Insurtech businesses. Customer hypothesis (hypothesis of the various sections of the customers who think that they interact and engage with the company and brand) and dynamic capability hypothesis (enhancement of strategies for bank managers of successful banks to adapt to radical discontinuous changes) can both endorse the effect of the outside Fintech on bank performance (Elsaid, 2021). Customers, so according to their own choices, might choose the greatest cost-effective packages of services provided by Fintech. As a result, if new programs fulfil the very same customer expectation as current ones, they can be employed to substitute the latter competition in the market (Christensen et al., 2018).

According to innovation theory which explains the pattern and speed at which new ideas, practices, or services spread through a customer population, Fintech, as an innovative model, has the capacity to use high technology to provide services at lower prices and higher reliability, likely to result in competition in the market (Christensen et al., 2018).

4.2 Services of Lending and payment delivered by Fintech firms

Shadow banking, Islamic funding, credit institutions consistency and adaptability, variables that affect banks' performance, competing, and alternate solution financial systems are among the subjects addressed in the "Banking" thematic publications. Although there are some citations to or discussion groups about revolutionary innovation, the main emphasis is not on Fintech or similar technologies. According to studies, technological advances must be incorporated into the financial industry program to enhance achievement, effectiveness, and consistency (Buallay et al., 2019). Some many publications emphasized the significance of regulatory oversight, trying to argue that existing rules are ineffectual at hastening the technological revolution (Kaur et al., 2021).

The research findings labelled "Lending" encompass an array of lending-related subjects, including peer-to-peer lending, crowdfunding, supply chain financing, handheld devices, and compliance issues. In overall, the reports talk how big data analytics might reduce investigation and signaling expenses in managing credit risk (Sanka & Cheung, 2021). Finally, innovative lending alternatives like online peer-to-peer lending platforms start reducing asymmetric information. This could lead to increased efficiency when compared to direct banks (Arantes et al., 2018). This is backed up by a rising number of digital payments

in emerging markets (Arantes et al., 2018). Due to greater comfort, clarity, and flexibility, the literature reviews admit that crowd funding and crowd-lending could be an important danger to conventional financial services (Katalkina & Saksonova, 2022). Whereas crowd funding has grown tremendously, academics are skeptical about the model's long-term viability (Langley & Leyshon, 2017). Fintech solutions are best prepared than lenders such as banks to provide instant admission to reserves of cash and lending to all those with little or no revenue. A platform with a peer-to-peer (P2P) digital lending enables the transfer of debtors and stockholders. A person with chargeable funds could loan it directly to an insolvent via a digitalized service and collect curiosity upon that.

4.3 Impact of Fintech regulations on banking sector

Because of the tendency of integration between banks and Fintech, rules and regulations primarily focus on the services offered rather than the supplier itself, with the primary goal of ensuring that products and services are offered in complete disclosure. To deadline, it appears that the financial services sector is having undergone dramatic overhaul. As a consequence, free markets and regulatory requirements are propelling Open Banking to new heights. The application of the PSD2 Directive, which creates a single billing market, provides the legal foundation. Third-party connectivity to bank-held consumer data is also regulated, and as a result, banks lose exclusivity over their customer information (Kaur et al., 2021).

Moreover, the content analysis for the theme Fintech disclosed a topic area, "Fintech," in addition to two sub-themes, one nation and just one banking-related. The "Fintech" theme investigates the opportunities and threats posed by Fintech, such as social sustainability, regulatory oversight, and surrogacy barriers (Candra et al., 2020). The difference between Fintech procedures and regulatory oversight is a significant obstacle in the articles reviewed so far (Katalkina & Saksonova, 2022). The biggest problem brought up by scholars is the disparity in laws governing banking institutions and Fintech firms (Restoy, 2019).

Some other manifestation of the regulatory disparity is Fintech firms' failure to comply with organizational legislation such as anti-money laundering (AML) legislation (Katalkina & Saksonova, 2022). Fintech implementation appear to be affected by government assistance, brand recognition, user creativeness, believe, and risk involved, related to other technological innovations (Candra et al., 2020) The publications in the topic "Fintech Impacts on Banking and Financial Sector" directly mention and assess the opportunities and risks affiliated with Fintech for traditional banking. The effect of Fintech differs by industry and is influenced by barriers of entry, geographical reach, and financial market (Shmratko & Shmuratko, 2019). As per research, both small and large incumbent banks understand the value of developing new technologies (Langley & Leyshon, 2017).

5 DISCUSSION AND CONCLUSION

5.1 Discussion

The preliminary target of this analysis is to explore how the Fintech and its operations could contribute to the banking industry. Here, thesis used a systematic literature review as the methodology of the analysis where thesis answered the below research questions:

1. What is the impact of Fintech on lending in Banks?
2. Has Fintech resulted to increase or decrease in the performance of banks?
3. How Fintech regulations have influenced the banking industry?

All the three questions have been answered specifically in the results section (section 4) while the Literature review had mentioned the past work related to the above three questions.

Answering the first research question of the impact of Fintech on lending in banks, Firms of Fintech are identified as innovators in the financial assistance sector and are expected to have an important impact in the sector. Digitalization and technical advances have enabled many Fintech companies to meet their clients' core needs affordably. It is maintained that customary banks must maintain up with the rate of technological advancement to stay on top of competition, as Fintech firms are growing rapidly, making more money, and require a greater success. Adaptation of sophisticated technology in banking sector now is viewed as a key point of difference against competing companies and a crucial step for financial viability (Elsaid, 2021).

Banks are thought to have serious financial problems than Fintech companies due to having to charge for their payment network of branches, ATMs, overhead expenses, as well as other expenditure that arise because of being strongly regulated. Of that kind circumstances typically favor many Fintech companies over conventional banking. Previous research found that many commercial banks continue to use outdated information systems and are regarded to be slow to adopt new technologies (Basdekis et al., 2022). Moreover, the COVID-19 pandemic has also made human jobs extra digital, and Fintech companies will attempt to focus on the market opportunity presented by integrating their electronic experiences into everyday activities of individuals.

Thus, it is asserted that Fintech companies will be capable of supplanting banking sector in the future by offering clients with effective and creative banking system at a minimal price. This thesis reviews the arising literature on Fintech, with a concentrate on the interplay of Fintech firms and banks. The main aim of this thesis is to specify how possible Fintech companies are to affect the banking industry plus the economic security in overall. This article as well supplied an evaluation of the possible effect of Fintech on economic and social well-being (Basdekis et al., 2022).

Next research question which inquired whether the Fintech increase or decrease the efficiency of banks, for the reasons stated, it appears unlikely that

Fintech companies will completely replace banking institutions. Willingly, people always prefer banks to Fintech businesses to keep their wealth. Large banks have also gained trust via client relations for centuries. Fintech companies must be gentle and receive their customers' enthusiasm and credibility. Similarly, it is crucial to take into account the interaction that might occur among banks and Fintech companies via collaboration, as noted in several previous research described in this study. Banks can profit from the creation of novel customer groups, goods, and assistance, as well as enter fresh markets, create novel offerings, and gain technological advances by collaborating with Fintech companies (Harasim, 2021).

In exchange, Fintech firms seek monetary capacity, infrastructural facilities, consumer availability, and reputation for safety. As a consequence, instead of attaining a competitive advantage, Fintech companies and banking institutions could profit from collaborating. The growth of Fintech raises implied worries about financial stability because of the lax restrictions put on Fintech companies. In the last few decades, new technologies have modified the path we interact, purchase, and conduct business (Thorne et al., 2004). Emerging technologies have regularly interrupted how customers associate with one's cash, how much they anticipate from banks, and how financial institutions operate. Contemporary procedures are streamlined and made better, errors are reduced, interaction is enhanced, and consumers' perception and interrelations with cash are changed.

Similarly, Fintech disturbance is an outlier that leads to an important modification in online banking and, as a consequence, threat. The growing quantity of researchers obtainable demonstrates academics' renewed interest. This thesis concentrated on personal, main, scientific investigations on Fintech, banks, and block conveyor subjects. Such research findings allow for easy connectivity to proof research results. When multiplied by a large number, they get to be an overpowering jumble of personal informational fragments devoid of order and cohesiveness (Manesh et al., 2021). Using thematic analysis, it was transitioned from assessment to synthesizing by bringing together tearing down research results, examining them, exploring key features, and incorporating occurrences into a changed collective. The thesis discusses in depth two components of our findings: the ramifications of Fintech and block chain systems. The last research question, which seeks about the influence of Fintech regulations on the banking industry. Fintech is the fruit of the growth of modern finance, which is aided by financial engineering, shifts in consumer supply, regulatory oversight, as well as, technological innovations which end up driving innovation (both the collection and market stimulus). The principal objective of financial advancement, for both Fintech firms and standard finance negotiators and currency sector, is to cut costs while improving their competitiveness. As a result, providing additional services or updating the existing ones is a continuing process for all economic attendees. Such actions involve a variety of dangers, including regulation, tactical, and operational, along with threats to the environment (Langley & Leyshon, 2017).

According to the evaluation, banking institutions are cognizant of Fintech's organizational plans, which might also greatly boost client comfort and

industry scope (Lv et al., 2022). For instance, (Polasik & Piotrowski, 2016) demonstrated that Polish banking institutions were keen on introducing multiple payment innovative ideas at the same time. Even so, the potential advantages financial intermediation may well be accompanied by a rise in systemic risk and consumer rights. A large number of studies have been conducted on the efficiency and security of technological advances.

This could indicate the primary issues of formed companies with respect to adopting creative solutions. Subramanian et al. (2019) investigated a technique for realigning link weight training in acyclic payment systems in hopes of lowering computational expenses. This shows that banking institutions are prepared to adopt Fintech, yet there's still a great deal of confusion regarding how they can do so extra successfully. Banks could indeed develop their own product lines or outsource third-party facilities. The partnership of banks and Fintech considered to be a significant topic of the reviewed literature. This was also noted that, in terms of adjusting to global digitization, incumbent banking institutions in the Middle East and North Africa (MENA) recommend working collaboratively with Fintech organizations (Zalan & Toufaily, 2018).

As a result, banks have seemed to have moved their focus from conventional bank loans to stock funds in Fintech (Hommel & Bican, 2020). Fung et al. (2020) studied 84 nations and discovered that promoting technology companies enhances bank monetary sustainability in developing markets while backfiring in mature economies. Also, there was a usage of the correlation between financial stock market returns and financial technology funding to demonstrate their synergies (Li et al., 2017).

Furthermore, data shows that interruption has an adverse effect on the profitability of banks (Phan et al., 2020). Notably, it was discovered that excessive investment in modern finance degrades effectiveness. As a result, there it seems to be no agreement in the study on the effect of Fintech on banks (Demirgüç-Kunt et al., 2020). The findings on the association between Fintech-induced financial intermediation and actual development is especially conflicting (Kaur et al., 2021). The rapid evolution of technological innovations could indeed clarify these inconsistencies. Fintech proposals have yet to emerge in a complete change of the finance market due to a lack of general agreement on the core concept of Fintech in the financial ecosystem. Furthermore, in recent years, a wide range of economic inventions have emerged, not all of which are intrusive. Moreover, in recent times, a broad variety of economic inventions have aroused, not all of which are intrusive.

Moreover, because interruption could indeed take some time, establishment candidates commonly ignore troublemakers. Banks are being forced to convert in response to Fintech disturbance. According to the articles reviewed, multi-party collaborative effort and collaboration are favored in transition (Bongomin et al., 2019). This appears to be consistent with the reported reply, as financial institutions have started shifting from cost-cutting to innovation-focused outsourcing (Hadad & Bratianu, 2019). While the research results of several publications emphasize this same aspects of economic collaboration as a technique of

adjusting to a new surroundings, few studies looked into collaboration in the industry of banking. Correspondingly, it was discovered that technology in the financial services sector in the United Kingdom seeks to enhance existing retail bank transactions (Ramdani et al., 2020). By collaborating with or obtaining Fintech companies, the bigger banks apparently took a much more prominent participation in the Fintech disturbance. Even so, psychological forces could slow the adoption of technology. Regulatory authorities who require disclosure of information, register, and loaning boundaries could aid in facilitating cooperation among banks and online lending systems (Varma et al., 2022). Longer intermediaries' chains, on the other hand, may be diametrically opposed to the positive changes of lending platforms. This is a regulation issue, and the enhanced riskiness must be managed to enable for alternate solution financial intermediaries' streams. Furthermore, a "wait and see" or laissez-faire method has indeed been chastised for failure to account for enhanced stress occurs and regulatory arbitrage.

Although this number of combinations to be ultimately unsustainable, it could be used to foster financial advancement and incorporation in developing markets. Encouragement of larger corporate social responsibility in banking firms could be advantageous as a supplementary strategy for tackling the elevated risk of latest tech (Climent & Climent, 2018) elevated transparency and colonial attention might promote an equitable and long-term lending climate that is mindful of consumers' social economic ambitions. This, even so, can indeed be challenging to accomplish, especially in nations with historically strict controls of banking (Thompson, 2019). Whenever an official entry greets incumbent competing companies face with good services or goods, the established parties would then speed up their advancement to protect their company, in accordance with the theory of disruptive innovation (Clayton et al., 2015). Even so, because incumbents are involved in cooperation, our results indicate that disruptive innovation is not clearly relevant to the capital market.

5.2 Conclusion

According to the study's findings, Fintech companies start competing with banks for individual behaviors. Fintech corporations help through less regulation, the scarcity of enormous rigid institutions, and the dearth of outdated computer schemes. Banks, contrarily, are precise in ways that non-banks could indeed recreate. Fintech banks, where they are online banks, could indeed compete with banks in terms of customer interaction and comfort, but legacy banking institutions have the benefit of an extensive client base, extensive experience with regulatory agencies, and a wider product providing. Fintech companies could improve banks via compelling them to start competing roughly, however intense contest does not complete companies safe and secure.

As market becomes more competitive, banks will be forced to seize more dangers with the intention of remaining profitable with their prevailing structure of pricing. If they are incapable of taking many risks, they'll have to slash the expenses

drastically and come to be same as utility companies. More research is believed to be needed to obtain a greater awareness of few problems pertaining to Fintech actions and their influence on financial stabilization. More scientific work has seemed to be required to investigate the impact of contest between banks and Fintech companies on the capital adequacy of marketplaces in nations where Fintech lending services are commonly used.

Research papers might be mandated to specify the real edges and drawbacks of strategic partners, amalgamations, and consolidations which arose between banking and firms of Fintech. This might be reasonable to look into the position of bank wealth in fostering lender confidence. More investigation is needed to determine whether the period, level of income, civilization, and cultures of the populace in the congregation have a significant impact on their use of Fintech.

Future studies may also look into the effect of lawful and regulatory ambiguity on the advancement of Fintech in expanding nations. Upcoming work might look into the impact of the complete absence of a Fintech registration structure on the long term of Fintech operations.

APPENDIX 01 (Increment or decrement of the performance of banks by Fintech

Key Themes	(Abdalmajeed Alsmadi et al., 2023)	(Anagnostopoulos, 2018)	(Acar and Çıtak, 2019)	(Basdekis et al., 2022)	(Elsaid, 2021)	(Kong, 2022)	(Kwon et al., 2023)	(Lien, Doan and Bui, 2020)	(Munir, Rizopoulos and Zachariadis, 2022)	(Saphyra, Zahra and Noerli, 2021)	(Varma et al., 2022)	(Xu, 2022)	(Al-Shari and Lohkhan, 2023)	(Kumar and Devi, 2022)	(Li, Stasinakis and Yeo, 2018)	(Dwivedi, Alabdoh and Dwivedi, 2021)	(Hanafiza and Amin, 2022)	(Lv, Du and Liu, 2022)	(Safiullah and Paramati, 2022)	(Stulz, 2019)	(Tse and Guo, 2021)	(Wu, Luo and Tao, 2023)	(Zhao et al., 2021)
Digitization of fundamental banking activities and their presentation 24 hours a day, seven days a week	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	N/A	Relevant	Relevant	Relevant	N/A	Relevant	N/A	N/A	N/A	Relevant	N/A	Relevant	N/A	N/A	N/A	Relevant
Developing novel goods and amenities in line with consumer understanding and requirement assessment	Relevant	Relevant	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	Relevant	Relevant	N/A	Relevant	N/A	Relevant	N/A	Relevant	N/A	Relevant	N/A	N/A	N/A	N/A
Accepting money transfer authorizations from customers and delegating deposit to acceptors/small and medium-sized businesses respected only by bank	Relevant	Relevant	N/A	Relevant	Relevant	Relevant	Relevant	N/A	N/A	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	Relevant	Relevant
Developing infrastructure to guarantee the privacy and safety of client information and financial transactions	Relevant	N/A	N/A	N/A	N/A	N/A	Relevant	Relevant	Relevant	N/A	N/A	Relevant	Relevant	N/A	N/A	Relevant	Relevant	N/A	Relevant	Relevant	Relevant	N/A	N/A
Consumers are clustered and financial services are provided based on their condition for each group.	N/A	Relevant	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	Relevant	N/A	N/A	Relevant	Relevant	Relevant	N/A	N/A	Relevant	N/A	N/A	Relevant	N/A
Using electronic wallets in the applications of the bank	N/A	Relevant	Relevant	N/A	N/A	Relevant	Relevant	Relevant	N/A	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	N/A	N/A	Relevant	N/A	N/A	Relevant

APPENDIX 2 (Impact of Fintech on lending in Banks)

Key Themes	(Abdamed Alsmadi et al., 2023)	(Agnostopoulos, 2018)	(Acar and Çıtak, 2019)	(Basdekis et al., 2022)	(Elsaid, 2021)	(Kong, 2022)	(Kwon et al., 2023)	(Lien, Doan and Bui, 2020)	(Murrin, Rizopoulos and Zachariadis, 2022)	(Sapahyra, Zahr and Noerlina, 2021)	(Varma et al., 2022)	(Xu, 2022)	(Al-Shari and Lo-khande, 2023)	(Kumar and Devi, 2022)	(Li, Stasinakis and Yeo, 2018)	(Dwivedi, Alabdo and Dwivedi, 2021)	(Hanafizadeh and Amin, 2022)	(Lv, Du and Liu, 2022)	(Safiullah and Paramati, 2022)	(Stulz, 2019)	(Tseng and Guo, 2021)	(Wu, Luo and Tao, 2023)	(Zhao et al., 2021)
Credit rating and risk prediction for consumers by analysing data in the bank to evaluate credit rating and anticipate risk prior to actually making customer loans.	N/A	Relevant	Relevant	N/A	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	Relevant	Relevant	Relevant	N/A	Relevant	N/A	Relevant	Relevant	N/A	N/A	N/A
Incorporating systems and connections to connect shareholders and businesspersons for crowdfunding through a range of approaches (charitable organization, revenue and loss communicating, stock collaboration).	Relevant	N/A	Relevant	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	N/A	Relevant	N/A	Relevant	N/A	Relevant	N/A	Relevant	N/A	Relevant	N/A	Relevant	N/A
Putting an infrastructure in place to bring the people closer together in a peer-to-peer setting to lend money or deliver borrowers and lenders around each other	N/A	N/A	N/A	Relevant	Relevant	Relevant	N/A	N/A	N/A	Relevant	Relevant	Relevant	N/A	Relevant	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	Relevant	N/A
Maintenance of information exchange and receipt of the lender's required warranties for reimbursement	Relevant	N/A	Relevant	N/A	Relevant	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	N/A	Relevant	N/A	N/A	N/A	Relevant	N/A	Relevant

APPENDIX 4 A (Questions for Quality appraisals)

Criteria of Quality Assessment	Questions	Measures
Type of Publication	<ul style="list-style-type: none"> ▪ Where is the study been published? 	<ul style="list-style-type: none"> • Academic Journal • Technical Report • Springer Link • BIS working paper
Impact Factor of the journal	<ul style="list-style-type: none"> ▪ What is the impact factor of the journal where the article is published 	<ul style="list-style-type: none"> • 1.1-2.0 • 2.1-3.0 • 2.1 -4.0 • 4.1-5.0 • >5.0
Introduction	<ul style="list-style-type: none"> ▪ Are the aims and objectives clear? ▪ Is there any sort of connection to theory or to previous study? 	<ul style="list-style-type: none"> • Stating the aim of the research • Stating the objectives of the research • Linked to the previous theories
Methodology	<ul style="list-style-type: none"> ▪ How the method was selected? ▪ How and why the sample was chosen 	<ul style="list-style-type: none"> • Any justification regarding the selected method • The sample selected is presented and justified
Data	<ul style="list-style-type: none"> ▪ How, and who gathered data? ▪ Is the collected data reliable and trustworthy? 	<ul style="list-style-type: none"> ▪ A comprehensive description about the data gathering. ▪ The data chosen are reliable and applicable
Analysis	<ul style="list-style-type: none"> ▪ What method used for the analysing of data? ▪ Is the analysis precise and trustworthy? 	<ul style="list-style-type: none"> ▪ Describing the actual details ▪ The chosen details are accurate and reliable.
Results	<ul style="list-style-type: none"> ▪ Is there any relation of the results back to the research question? ▪ Is there any limitations listed out by the authors of the respective article? 	<ul style="list-style-type: none"> ▪ Clear description of the arrived results. ▪ Describing the strengths and weaknesses of the study ▪ Discussing the theory and the relevancy to the study

APENDIX 4 B (Evaluation of the quality of the articles)

Article	Assessment of quality
<p>Saphyra, A.R., Zahra, R. and Noerlina (2021). A Systematic Literature Review of Fintech Investment and Relationship with Bank in Developed Countries. (ICCSAI)</p>	<ul style="list-style-type: none"> • Academic Journal • IF 4.1-5.0 • Aim and objectives are mentioned • Is connected with theories and earliest studies • The created framework is justified and presented in a clear manner. • The use of policies were comprehensively explained as a collection and was valid and reliable • A trusting analysis was present • The results were arrived clearly in a descriptive manner
<p>Kumari, A. And Devi, N.C. (2022). The Impact of FinTech and Blockchain Technologies on Banking and Financial Services. Technology Innovation Management Review, 12(1/2).</p>	<ul style="list-style-type: none"> • Academic Journal • IF 2.1-3.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • A well justified resale gap was identified. • The method selected for the study was justified.

	<ul style="list-style-type: none"> • A precisely performed analysis was used here • The limitations, weaknesses and strengths were mentioned precisely
<p>Stulz, R.M. (2019). FinTech, BigTech, and the Future of Banks. NBER WORKING PAPER SERIES</p>	<ul style="list-style-type: none"> • Working paper series • IF 2.1 -4.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • The structure of the study was clear and informative
<p>Hanafizadeh, P. And Amin, M.G. (2022). The transformative potential of banking service domains with the emergence of FinTechs. Journal of Financial Services Marketing.</p>	<ul style="list-style-type: none"> • Academic Journal • IF 2.1 -4.0 • Aim and objectives are mentioned • Is connected with theories and earliest studies • The created framework is justified and presented in a clear manner. • The use of policies were comprehensively explained as a collection and was valid and reliable • A trusting analysis was present

	<ul style="list-style-type: none"> • The results were arrived clearly in a descriptive manner
<p>Lv, S., Du, Y. and Liu, Y. (2022). How Do Fintechs Impact Banks' Profitability?—An Empirical Study Based on Banks in China. FinTech.</p>	<ul style="list-style-type: none"> • Academic Journal • IF>2.1-3.0 • Aims and objectives were clearly mentioned • The method chosen was also stated and justified why it was selected • Theories had been connected with several past articles • Discussion and Conclusion were precisely mentioned
<p>Abdalmajeed Alsmadi, A., Alrawashdeh, N., Al-Gasaymeh, A., Al-Malahmeh, H. and Moh'd Al_hazimeh, A. (2023). Impact of business enablers on banking performance: A moderating role of Fintech. Banks and Bank Systems</p>	<ul style="list-style-type: none"> • Academic Journal • IF 3.1-4 • The aims and objectives were stated clearly • There were linked theories from various past articles • There was a clear explanation on how the results were obtained but the real data was not explained and the gathering of details is not described in an understanding way.
<p>Li, Y., Stasinakis, C. and Yeo, W.M. (2018). FinTech</p>	<ul style="list-style-type: none"> • Academic Journal • IF>5.0

<p>and Banking Efficiency: Evidence from Chinese commercial banks.</p>	<ul style="list-style-type: none"> • Aim and objectives are mentioned • Is connected with theories and earliest studies • The created framework is justified and presented in a clear manner. • The use of policies were comprehensively explained as a collection and was valid and reliable • A trusting analysis was present • The results were arrived clearly in a descriptive manner
<p>Lien, N.T.K., Doan, T.-T.T. and Bui, T.N. (2020). Fintech and Banking: Evidence from Vietnam. The Journal of Asian Finance, Economics and Business</p>	<ul style="list-style-type: none"> • Academic Journal • IF>2.1-3.0 • Aims and objectives were clearly mentioned • The method chosen was also stated and justified why it was selected • Theories had been connected with several past articles • Discussion and Conclusion were precisely mentioned

<p>Xu, F. (2022). FinTech and Bank Performance in Europe: A Text-mining Analysis.</p>	<ul style="list-style-type: none"> • Academic Journal • IF 3.1-4 • The aims and objectives were stated clearly • There were linked theories from various past articles • There was a clear explanation on how the results were obtained but the real data was not explained and the gathering of details is not described in an understanding way.
<p>Safiullah, M. and Paramati, S.R. (2022). The impact of FinTech firms on bank financial stability. Electronic Commerce Research.</p>	<ul style="list-style-type: none"> • Academic Journal • If >5.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • A well justified resale gap was identified. • The method selected for the study was justified. • A precisely performed analysis was used here • The limitations, weaknesses and strengths were mentioned precisely • Evaluation and explanation of outcomes of the

	research were narrowed down.
Kong, Y. (2022). Research on the Impact of Fintech on the Profitability of Commercial Banks.	<ul style="list-style-type: none"> • Working paper series • IF>3.1-4.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • The structure of the study was clear and informative
Tseng, P.-L. and Guo, W.-C. (2021). Fintech, Credit Market Competition, and Bank Asset Quality. Journal of Financial Services Research.	<ul style="list-style-type: none"> • Academic Journal • IF>5.0 • Aim and objectives are mentioned • Is connected with theories and earliest studies • The created framework is justified and presented in a clear manner. • The use of policies were comprehensively explained as a collection and was valid and reliable • A trusting analysis was present • The results were arrived clearly in a descriptive manner

<p>Basdekis, C., Christopoulos, A., Katsamposakis, I. And Vlachou, A. (2022). FinTech's rapid growth and its effect on the banking sector. Journal of Banking and Financial Technology</p>	<ul style="list-style-type: none"> • Working paper series • IF>3.1-4.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • The structure of the study was clear and informative
<p>Anagnostopoulos, I. (2018). Fintech and regtech: Impact on regulators and banks. Journal of Economics and Business</p>	<ul style="list-style-type: none"> • Academic Journal • If >5.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • A well justified resale gap was identified. • The method selected for the study was justified. • A precisely performed analysis was used here • The limitations, weaknesses and strengths were mentioned precisely
<p>Elsaid, H.M. (2021). A review of literature directions regarding the impact of fintech firms on the banking industry. Qualitative Research in Financial Markets, ahead-of-print (ahead-of-print).</p>	<ul style="list-style-type: none"> • Academic Journal • Aim and objectives of the study is stated • Connected to early studies and theories

	<ul style="list-style-type: none"> • The selection of sample and method is presented • Chosen details are reliable and applicable • Description of actual details • Analysis is trustworthy and precisely done • Clear description of how results arrived • Discussion about the weaknesses of the study
<p>Murinde, V., Rizopoulos, E. and Zachariadis, M. (2022). The impact of the FinTech revolution on the future of banking: Opportunities and risks. International Review of Financial Analysis</p>	<ul style="list-style-type: none"> • Academic Journal • IF >5.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • A well justified resale gap was identified. • The method selected for the study was justified. • A precisely performed analysis was used here • The limitations, weaknesses and strengths were mentioned precisely
<p>Zhao, J., Li, X., Yu, C.-H., Chen, S. and Lee, C.-C. (2021). Riding the FinTech Innovation Wave: FinTech,</p>	<ul style="list-style-type: none"> • Academic Journal • IF 3.1-4

<p>Patents and Bank Performance. Journal of International Money and Finance.</p>	<ul style="list-style-type: none"> • The aims and objectives were stated clearly • There were linked theories from various past articles • There was a clear explanation on how the results were obtained but the real data was not explained and the gathering of details is not described in an understanding way.
<p>Acar, O. and Çıtak, Y.E. (2019). Fintech Integration Process Suggestion for Banks. Procedia Computer Science</p>	<ul style="list-style-type: none"> • Academic Journal • IF >5.0 • Aim and objectives are mentioned • Was connected with theories and earliest research articles • A well justified resale gap was identified. • The method selected for the study was justified. • A precisely performed analysis was used here • The limitations, weaknesses and strengths were mentioned precisely • Discussion of the theory and its suitability for research

<p>Wu, G., Luo, J. and Tao, K. (2023). Research on the influence of FinTech development on credit supply of commercial banks: the case of China. <i>Applied Economics</i></p>	<ul style="list-style-type: none"> • Academic Journal • IF>5.0 • Aim and objectives are mentioned • Is connected with theories and earliest studies • The created framework is justified and presented in a clear manner. • The use of policies were comprehensively explained as a collection and was valid and reliable • A trusting analysis was present • The results were arrived clearly in a descriptive manner
<p>Dwivedi, P., Alabdooli, J.I. and Dwivedi, R. (2021). Role of FinTech Adoption for Competitiveness and Performance of the Bank: A Study of Banking Industry in UAE. <i>International Journal of Global Business and Competitiveness</i>.</p>	<ul style="list-style-type: none"> • Academic Journal • IF 3.1-4 • The aims and objectives were stated clearly • There were linked theories from various past articles • There was a clear explanation on how the results were obtained but the real data was not explained and the gathering of

	<p>details is not described in an understanding way.</p>
<p>Al-Shari, H.A. and Lolkhande, M.A. (2023). The relationship between the risks of adopting FinTech in banks and their impact on the performance. Cogent Business & Management</p>	<ul style="list-style-type: none"> • Academic Journal • IF>5.0 • Aim and objectives are mentioned • Is connected with theories and earliest studies • The created framework is justified and presented in a clear manner. • The use of policies were comprehensively explained as a collection and was valid and reliable • A trusting analysis was present • The results were arrived clearly in a descriptive manner
<p>Kwon, K.Y., Molyneux, P., Pancotto, L. and Reghezza, A. (2023). Banks and FinTech Acquisitions. Journal of Financial Services Research.</p>	<ul style="list-style-type: none"> • Academic Journal • IF 3.1-4 • The aims and objectives were stated clearly • There were linked theories from various past articles • There was a clear explanation on how the results were obtained but the real data was

	<p>not explained and the gathering of details is not described in an understanding way.</p>
<p>Varma, P., Nijjer, S., Sood, K., Grima, S. and Rupeika-Apoga, R. (2022). Thematic Analysis of Financial Technology (Fintech) Influence on the Banking Industry. Risks</p>	<ul style="list-style-type: none"> • Academic Journal • IF>5.0 • Aim and objectives are mentioned • Is connected with theories and earliest studies • The created framework is justified and presented in a clear manner. • The use of policies were comprehensively explained as a collection and was valid and reliable • A trusting analysis was present • The results were arrived clearly in a descriptive manner

Appendix 5

Acknowledgement

I would like to acknowledge the use of Grammarly and Open AI ChatGpt in improving the quality of sentence in this thesis. Grammarly was used to detect and correct the grammar and spelling issues while Open AI ChatGpt was used to improve the sentence structure and vocabulary. Those tools were helpful to ensure the clarity and consistency of the sentence.