

The Insinuations of Fintech on Risk - Taking: Mitigating the Professional Outcomes of Bank Operations

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Abstract

The proliferation of fintech has antiquated the conventional banking enterprise models of developing nations. It is currently unknown what effect fintech will have on the output and willingness of banks to take risks. This objective of the study is to limelight how financial institutions' perspectives on risk and productivity have shifted due to their adoption of fintech solutions. Researchers analysed annual data from four commercial banks in India (BOI, IDBI, FB, HDFC) for their quantitative analysis between 2022 and 2023. In order to evaluate the theoretical mediation hypothesis put forward in this research, path analysis and structural equation modelling (SEM) were applied to panel data. It was done to evaluate the hypothesis. According to the findings, implementing this fintech solution into the workings of banks reduces the amount of risk taken on by the bank. It improves the effectiveness with which its operations are carried out. The results of the path analysis showed that operational efficiency acts as a mediator between risk appetite and the adoption of fintech products by banks in India. In addition to other findings, the study discovered that. This article travels around commercial and central banks which are responsible for formulating monetary policy. The findings could be useful for business banks that employ fintech tools to boost productivity and reduce exposure to risk. It is the first empirical work that we are aware of that travel around how the spread of fintech products has altered the risk perception of customers and the productivity and profitability of banks in low-income and middle-income nations.

Keywords: Fintech, SEM, BOI, IDBI, FB, HDFC, Customers, Banking Industry, Regulation, Covid-19 pandemic

OVERVIEW

Over the past few years, technological advancements in the banking division have had a momentous crash on the global fiscal system. The various technological advancements that have shaken up the conventional financial services industry are referred to as "fintech," an abbreviation. Customers were encouraged to switch to digital money management by the lower rates and broader availability of services offered by the digital platform. Traditional methods were presented with new challenges upon the emergence of the innovative tools, technologies, and business models that fintech has to offer to successfully recognise and manage the inherent risks linked with financial uncertainty. It was necessary in order to be successful. By taking part in these challenges, financial institutions can enhance their risk analysis and management capabilities.

Fintech is being adopted faster in nations with more developed economies than in those still in the process of economically establishing themselves. It is now possible for business executives in developed nations to employ fintech to construct more reliable compliance and risk management infrastructures. As a direct result of breakthroughs in financial technology, significant advancements have also been made in domestic and international electronic

payment systems. The adoption of financial technology in poor nation has been gradual, in line with a research conducted in 2022 by [1], even though the digital economy has enormous prospects. According to surveys that were carried out during the epidemic, there has been a significant increase in people's interest in monetary services and products.

Fintech solutions are becoming increasingly attractive to financial institutions as a means of enhancing their capacity to satisfy the requirements of their customers and as a supplement to more traditional banking procedures. They do this to guarantee they will maintain their position at the top of the business. Academics are currently engaged in a contentious discussion on the impact that financial technology products might have on the risk-taking behaviour of banking institutions.

[2] has drawn the conclusion that fintech significantly affects the risky behaviour of banks. It helps financial institutions achieve their business goals, such as reducing expenses in other areas and providing high-quality services promptly to their customers while also satisfying their customers' needs for excellent service. The value of money invested in numerous forms of financial technology has increased dramatically around the world. This trend can be seen in every region. Banks and other financial institutions employ fintech because it simplifies processes and reduces overhead costs in various areas, including risk management, transaction processing, and general business operations. On the other hand, the expansion of fintech and the associated technological improvements raise the bar for competition amongst banks. It enables financial institutions to provide their customers with more competitive goods and services. Since this is the case, bank profits are going down, and as a result, banks are becoming more prepared to take risks [5].

PURPOSE OF THE STUDY

To examine the banking sector's propensity for taking risks and its capacity to function efficiently in fintech industry is the core. On the other hand, there needs to be more evidence available on this subject [5, 6], as most recent research [7] has concentrated on how the use of fintech products influences banks' risk-taking behaviour. Recent research has focused on how financial technologies influence worker productivity. This article aimed to determine whether financial institutions operating in developing economies are more open to taking risks as a direct result of having access to fintech goods and services.

To put it another way, the findings of the study fill in a previously identified gap in our knowledge. The focus of the majority of this research has been on four commercial banks. The research also explores how the application of fintech solutions has the potential to raise financial institutions' output while simultaneously lowering those organisations' transaction costs. The need to study these developing nations arises from the fact that they are leading the financial technology-induced revolution. On the other hand, these nations are textbook cases of the kind that have to borrow money from banks. This finding proposes that banks carry on to take part in a pivotal function in the economy and that our country with a higher reliance on banks may be more vulnerable to the negative impacts of banks' excessive risk-taking activity [8]. To understand how banks with a primary focus on developing economies have responded to the heightened level of risk-taking made feasible by fintech products, is also an

aim of the study. To find out how the perception of risk of bank has changed as a result of the enhanced productivity that was brought about by the implementation of fintech solutions.

RESEARCH QUESTIONS

- 1) Is there a safe path combining the risks that traditional banks take on and those that fintech companies take?
- 2) Does the effectiveness of the bank have a role in determining whether or not this stability is maintained?

Commercial banks might use this research to rethink and restructure their operations, allowing them to compete with fintech companies by providing their customers with products and services that are both innovative and marketable. The research scholar of the study felt that regulators of conventional banking might use the findings to improve their understanding of the influence.

LITERATURE REVIEW

New financial technology have allowed for the launch of numerous cutting-edge company models and digital services. Among these are digital cash, digital currency, digital invoicing, payment via the internet, wealth management, online investments, digital advising, digital leasing, crowd funding, and online coverage. These are just a few examples out of a much larger number. The alternatives presented above are only a tiny sample of the numerous. For example, adopting cutting-edge technology such as blockchain and artificial intelligence can help financial institutions improve the efficiency with which they provide services to their clients. Since the COVID-19 outbreak, there has been an increase in potential partnership opportunities between financial institutions and companies that specialise in financial technology. Financial institutions are fast adopting and capitalising on digital commodities to remain ahead of the competition and preserve their market position.

In order to accept fintech solutions in this age of rapid technological innovation, traditional financial institutions are aggressively engaging with fintech businesses, utilising the platform supplied by fintech companies, and investing in fintech start-ups. It is all being done in order to adopt fintech. Another option for banks would be acquiring a fintech company to gain access to the technological products that fintech companies produce [10]. The first alternative is for financial institutions to launch their fintech divisions; the second choice is for major internet companies to collaborate with financial institutions to aid the latter in reorganising their business practices to develop internet technologies. According to the technology spill over idea, the influence of applying a technology or scientific progress in one industry or sector may lead to its use in other industries or sectors. This hypothesis is based on the observation that technological and scientific advancements tend to spread from one industry or sector to another. New technological advances and scientific breakthroughs may spread due to this influence. It indicates how responsive the banking business is to new methods and breakthroughs in this domain, which may spread to other industries in the future. In the financial technology sector context, this shows the commitment of the sector to transparency. If financial institutions started embracing mobile payment systems, industries

like retail and hotels would likely follow suit. The widespread use of fintech within financial institutions may modify the organization of banking services and how they are utilized. Some examples of fintech advancements that may necessitate adjustments to SOPs and customer service delivery include mobile payment app use and online banking.

The financial sector constantly pushes the boundaries of innovation to provide superior service to its clients. The pervasive availability of financial technology solutions threatens the conventional banking system. Utilizing technology associated with fintech can help financial institutions like banks become more efficient. Banks already have access to various technological solutions that can assist them in operating more effectively as a business. They influence the way banks function, inspire the creation of novel financial products, cut down on unnecessary overhead, and boost banks' overall efficacy. To better fulfil the needs of its clientele and offer a higher level of customer satisfaction, banks are increasingly turning to fintech firms.

Banks and credit unions may improve their services and efficiency with the assistance of products from the fintech industry. The increased productivity and efficiency that results from standardizing business practices is something that can be of advantage to a wide variety of different types of financial organizations, including banks. Fintech solutions make it possible for banks to improve the efficiency of their operations, lessen the amount of risk they are depicted to, as well as simplify the practice of their clients carrying out monetary transactions. [13] contended that as the scope of financial inclusion broadens, banks will become less inclined to take risks due to reduced marginal costs of their operations. Not only do solutions provided by the fintech industry make banks more productive, but they also minimize the amount of dangerous behaviour exhibited by the financial sector. Lowering operating costs will be the initial stage in accomplishing this objective, which will then be followed by measures to improve operational management. According to [14], financial institutions would be less likely to engage in risky behaviour if they utilized fintech solutions since these products would result in significant cost savings and improvements in operational performance. Big data has been used in the financial industry for various objectives, including risk management, investment administration, and process optimization.

On the other hand, fintech is a formidable competitor for banks in the current world since it can take banks' place in the market for the products that banks offer. Businesses can reduce costs, boost efficiency, and find it easier to attract new consumers with fintech, which is short for financial technology. As a result, a decline in bank profits is possible as a result of the development of fintech that can tempt clients away from traditional banks. Because of the substitution impact, financial institutions' risk is increased. In the not-too-distant future, the banking industry may view fintech companies as both an ally and an adversary. Utilizing financial technology and making investments in fintech are two things that banks need to do if they want to stay ahead of the competition and improve their operational efficiency.

Threatening the financial security of the system as a whole and of individual customers is the rising risk that banks confront due to the proliferation of fintech products [15]. The banking industry has grown more user-friendly, transaction fees have fallen, and the market landscape for financial services has become considerably more user-friendly thanks to

improvements in fintech. Because of this, the bank might be less exposed to certain risks, but it will still be sensitive to others, particularly technological, systemic, and working risks.

[5] highlighted how the spread of financial technology affects banks' propensity to take chances. [16] looked into the effectiveness, capitalization, and vulnerability of banks. Understanding the connection between these three ideas was the focus of this study. The study concludes that banks' propensity to engage in hazardous behaviour is significantly correlated with the efficiency with which they run their operations. If a bank has sufficient capitalization and its operations are managed effectively, the probability of it engaging in risky behaviour drops significantly.

The financial services industry is undergoing significant transformations, and one of the primary contributors to these shifts is fintech. It refers to the inner workings of institutions, the processes by which money is created, and the transition to using digital currency. These changes are the direct outcome of advances in technological capability. As the financial technology industry continues to grow, the conventional business models of banking industry will become increasingly archaic, necessitating the adoption of new regulatory frameworks. It should come as no surprise that the markets for financial technology in India are among the most vibrant in the world. However, Asia is just beginning to develop its financial technologies. Financial technology has much potential that has yet to be thoroughly found. In many Asian nations, neither the existence of this problem nor the significance of debating the necessity of addressing it has been extensively acknowledged or taken seriously. It is especially true regarding the relevance of the debate on the need to address it. Academic institutions must conduct research that will assist commercial banks in mitigating the risks associated with implementing fintech-related solutions. In order to fulfil this responsibility, they have a responsibility. As a result, this study aims to find whether or not the application of fintech products by financial institutions changes their level of comfort with risk, and if so, how.

When consumers have faith in the financial institutions with which they do business, they are more likely to be ready to assume some degree of calculated risk [18]. According to [19], taking some risks is necessary for the development of a firm; nonetheless, these risks must be handled appropriately. According to the research findings, the most effective course of action for companies to adopt when confronted with insurmountable hazards is to assume as many risks as possible. For banks to remain competitive and encourage the creation of original ideas, the banks need to take some measured risks. This study pooled information from four financial institutions to inquire into how commercial banks' propensity for taking risks relates to their ease of access to electronic banking services. In all of their analysis, they made use of standard errors. It was discovered that in areas where people had easier utilisation of digital financial services, the probability of consumer loan default and investment loss was dramatically reduced. One of the most crucial factors is the level of competition currently present in the industry, [20], as it can significantly impact whether or not a bank is profitable. Banks often engage in a wide range of dangerous behaviour to ensure that they continue to have a competitive advantage over other kinds of businesses and organizations. They are on the lookout for innovative ways to improve operational efficiency.

Even the most traditional commercial banks in today's fast-paced technology world are exploring the opportunities given by fintech to keep up with the competition and ensure their future. It is done for two reasons. It is being done to maximize the opportunities afforded to us by advances in financial technology. The enhanced openness that we see in the financial sector is a direct result of technological breakthroughs. As a result, new business opportunities have presented themselves, but so have new business hazards. The results of an investigation conducted by [6] on whether or not the growth of fintech influences banks' propensity to take on risk suggest that fintech actually impacts the willingness of banks to take on risk. Statistical analysis shows a U-shaped connection between banks' willingness to take risks and the financial technologies they deploy. Initially, due to breakthroughs in fintech, banks are more eager to take chances, but with time, this mentality alters significantly. The tremendous influx of cash into the financial technology industry supports the trend of financial institutions investing resources into innovative digital solutions. The enormous influx of cash supports this tendency. The significant influx of new money lends support to this pattern.

According to the findings of some studies [5, 21], implementing fintech solutions may cause financial institutions to alter their approach to risk-taking. Commercial banks today take on a far less proportion of the risk they once did. Since fintech integrates banking with technology, it has a more profound effect on banks' propensity to take risks than traditional banking does. When it comes to mitigating the dangers that come with using fintech products, larger financial institutions are better equipped in terms of experience and resources. They have a better understanding of their current financial status, a lower risk tolerance, and a more robust readiness to invest in innovative technologies at the leading edge. While this was going on, [22] found how the proliferation of online banking has influenced the risk-taking tendencies of firms. Her study was primarily centred on discovering the factors that led to the shift in behaviour that she saw. The findings imply a link between banks' willingness to take on risk and the growing popularity of conducting financial transactions online.

Adopting fintech services hurts the credibility of banks, and that state-owned financial institutions are more creative. It has been demonstrated that implementing fintech solutions can increase security at financial institutions. The incorporation of fintech into the operations of financial institutions has made it possible to achieve higher levels of efficiency while also lowering the level of risk. Customers are put in a position where they are more susceptible to financial fraud and the revelation of personally identifiable information when a company launches a product that utilizes fintech. It puts customers in a precarious position. Consumers run a greater chance of falling prey to fraudulent financial schemes as a direct consequence of this fact. As a result of the launch of these products, the bank is now in a stronger position to undertake strategic initiatives that involve taking some degree of calculated risk. In light of what has been discussed up to this point, the research scholar proposed the following hypothesis.

It is a widely held belief that commercial banks have been more willing to take risks as a direct result of the successes experienced in establishing fintech products. Robo-advisors and regulatory technology are two instances of modern software that are creating significant

changes in the fiscal services. Businesses can cut expenses with the help of fintech by enhancing the productivity of internal processes and making better use of available resources. Banks in nations that are members of the GCC are expected to be more effective at turning a profit than they are at incurring losses. It is still the case even if there is an overall improvement in cost efficiency. [24] was designed to be a conversation about precisely this subject matter. The proliferation of financial technology also affects the effectiveness of commercial banking [6]. Borrowers can find themselves in a better financial position due to the growing number of options for refinancing made accessible by fintech lenders.

In the most recent few years, financial institutions such as banks and other financial organizations have achieved significant advancements in utilizing various forms of financial technology. This company stands out from its competitor's credit to its cutting-edge features, such as the integrated chat capabilities of WhatsApp and the customized service it offers to each unique consumer. Conversational AI can help users find a solution to their problem more quickly by asking questions about the user and the situation. These queries can speed up the discovery and execution of a solution. Several research studies [25, 26] have found the positive aspects of engaging in conversational commerce. One study discovered that using chatbots boosted the number of commercial transactions, whilst another study discovered the exact opposite [27]. Chatbots powered by artificial intelligence can save financial institutions money by responding to customer enquiries in a fraction of the usual amount of time. It is made possible by combining vast data processing and rapid quantitative learning. Fintech chatbots are a new financial technology application that aims to assist consumers in making better investment decisions through real-time communication, artificial intelligence, and human, financial experience. It is accomplished through the usage of fintech chatbots. The rapid rise in popularity of CRSs, also known as conversational recommendation systems, may be ascribed partly because these systems can extract meaningful information from users and provide appropriate recommendations.

HYPOTHESES

Fintech may impact the efficiency with which commercial banks carry out their duties. As a direct consequence, the corporation will be required to spend less money on things such as the rent for the corporate headquarters and the pay for the financial specialists of the company. These totals incorporate the monthly rent payment the accountants of the company must make. Robo-advisors make investing more accessible by reducing the cost and complexity of getting started. Robo-advisors are also known as automated investment advisors. Cloud computing and other recent technical improvements [29] have enabled increased automation of payment processing and account settlement, reducing the risk of data theft. It has led to a lower incidence of data breaches. The growing use of fintech within the financial services industry has brought about many benefits, two of which are an improvement in operational efficacy and a reduction in operational risk. Because fintech solutions are becoming increasingly influential, traditional financial institutions can now assume more significant risks. In the beam of previous discussions, the subsequent hypothesis is put up.

The second hypothesis examines the effectiveness of commercial banks in nations that are developing and proposes that this effectiveness moderates the correlation between fintech product production and institutional risk taking. The technological breakthroughs that have taken place inside the financial sector have entirely changed the underpinnings of the banking business. The financial services industry is dependent on the widespread adoption by financial institutions of the numerous solutions given by fintech companies to sustain its growth and development. The bank has implemented a credit system driven by big data technology in an effort to mitigate the dangers of dealing with money [30]. There has been an increase in the number of open lines of communication between companies as a direct result of improved internal management in the financial technology sector. According to the research findings, recent improvements in financial technology have not only improved banking technology but also helped lower operational expenses.

Thirdly, new developments in financial technology have had a more significant impact on the commercial banking systems in recent years than in earlier ages. It has been the case over the most recent years. When managing the company they are in charge of, ability of the bank to do so efficiently is directly proportional to the amount of capital it is willing to put at risk. When the operations of the bank could be more efficient, there is more likely that the financial institution will invest in high-risk companies. According to the answers of [31], the tendency of sets to take risks was found to have a positive correlation with their access to liquid assets. The sample size of the study, which encompassed the years 2022 to 2023, was big enough to be statistically representative of the whole banking industry in India. The study was carried out in India. They concluded that a bank would be less likely to fail if it had a large amount of cash. Financial institutions formed on a solid basis of technological innovation are far less likely to engage in risky behaviour than those established on a weak foundation of the same type of innovation. In their research, [32] looked at various factors, including the banks taking risks, the availability of capital, and profitability of the bank. The research concluded that there is a substantial correlation between banks' risk-taking tendencies and the output levels resulting from such risk-taking tendencies. Research is now being conducted to understand better the factors contributing to the association between credit risk and an overall efficiency of the bank. Its correlation depicts how the technical efficiency of the bank decreases when credit risk increases due to the associated costs and managerial overhead growth. It happens because of the increased cost of managing the risk.

If commercial banks in developing nations can find ways to boost the efficiency of their operations, they will be more willing to take on risky investments. The concept that the progression of financial technology influences banks' inclination to take risks is given credence for several reasons. Important considerations include the size of the bank, its capacity for making speedy loans, and strategy for diversifying its revenue streams. The academic world is divided over whether or not implementing this new technology would have a more significant detrimental effect on traditional financial institutions or creative fintech businesses. Large financial institutions can accelerate the development of breakthrough technologies by working together with or investing in companies that specialize in financial technology. In this scenario, every participant would emerge victorious. The

initial costs of starting a fintech company are extraordinarily high, and most community banks and credit unions do not have the financial resources to cover them. Because they offer more opportunities for financing and lending endeavours, larger banks may be depended on more frequently than their smaller equivalents. It is because larger banks have more customers. It is because a more significant number of customers often bank with larger institutions. Because of this, most clients choose to conduct business with larger financial institutions [33]. The belief that larger financial companies are "too big to fail" impervious to the possible catastrophic implications of tough market circumstances is another common misunderstanding among investors. Investors generally have this opinion. Investors could feel more at ease taking calculated risks due to this, which is especially important when dealing with important financial institutions [34]. According to the findings of [35], large, prestigious, and widely present banks are more likely to give credit to influential employees of an organization.

As per fifth hypothesis, because of the bigger scale of financial institutions in developing nations, commercial banks are more likely to participate in operations that demand a higher level of risk. It is because developing nations have more financial institutions overall. According to research [36, 37], one strategy a financial institution can use to reduce the overall risk it is exposed to is increasing the number of liquid assets it possesses. When banks have more liquid assets, they are better positioned to be flexible with the terms of the loans they offer and to raise the total amount of money they lend [38, 39]. It has been discovered that having access to highly liquid assets reduces risk, demonstrating the inverse link between liquidity and risk-taking [40]. Compared to their counterparts in industrialized nations, banks have a greater propensity to maintain a higher proportion of their total assets in liquid forms. It is a significant deviation from the conventional banking practices followed in nations that have experienced industrialization. It is because nations with a low GDP per capita typically have slower rates of overall economic growth. These dodgy banking practices would never be accepted in a civilized nation for apparent reasons. Based on their data, the research scholar of the study concluded that large deposit institutions are less prone to take risks.

Because they have fewer resources, commercial banks typically refrain from taking on unwarranted risks. Diversifying the sources of income that financial institutions rely on can help them boost their profitability while lowering the risk of incurring losses. For financial institutions to realise the benefits of income diversification, the practises they are currently employing must be jettisoned in favour of less risky alternatives that provide greater returns on investment. According to the findings of [41], better risk-adjusted profitability (stability) is connected with a higher percentage of non-interest revenue as a proportion of total revenue. The goal of this research was to determine if Indian banks' productivity would increase if they shifted their focus from interest earnings to other revenue streams. The risk of default by counterparty is reduced, financial transactions are streamlined, and the demand for liquid assets that can be used to hedge risks around the world is met. The answer to this problem was supposed to be found at the end of the study. They concluded that the amount of risk a bank is willing to take on is directly proportional to the amount of other income it

earns. [42] explored the practices of banks and analysed how these banks interacted with clients with various levels of income and creditworthiness. During the study, researchers from eleven distinct Asian nations studied the collected data from one hundred and sixteen financial organisations. According to the findings, the willingness of financial institutions to take on additional risk appears to increase in tandem with the variety of economic fields to which they are exposed. According to [43], the research scholar concludes that there is no association between the risk tolerance of financial institutions and their propensity to diversify their assets.

When they have access to various sources of revenue, commercial banks are more careful with the money their customer's deposit. There has been a dramatic reduction in the ability of financial firms to adhere to the law since the global banking crisis began in 2008. It is one of the primary reasons traditional financial institutions face such a significant challenge from shadow banking. Several studies have been conducted on the capacity of shadow banking to generate "safe" collateral as a possible asset. The risk of default by counterparty is reduced, financial transactions are streamlined, and the demand for liquid assets that can be used to hedge risks around the world is met. [35] reviewed all of the research that had been conducted on the subject up to that point in time. According to research conducted by [6], the prevalence of shade banking causes banks to become less risk-taking. If this is, in fact, the case, then the possibility that part of the bank loans may go into default is inversely proportionate to the exposure that the bank has in the interbank trade market. Shadow banking, risk-taking, and fiscal stimulus in developing nations were the primary topics of [45] research. According to the findings of the research scholar, "shadow banking" is linked to the current problematic situation of conventional banks.

Shadow banking has a substantial upshot on the amount of risk taken by mercantile banks in developing nations, according to the research presented in support of Hypothesis 8. It is believed that 64 per cent of people worldwide currently engage in this activity. When financial institutions begin employing fintech companies' products, they experience a positive shift in how they think about taking risks. Both [6] and [7] have carried out research projects that are complementary to one another and provide more insight into the same issue.

The report concludes that the widespread use of fintech tools like AI, cloud computing, and online banking can help financial institutions reduce the risk to which they are exposed [47, 48]. If the ideas, standards, and growth targets presented by the plan are put into action, there will be an increase in the effectiveness with which fintech services are used.

The new programme initiated by the government of India is known by its working title, "Digital India." Opportunities and dangers that face banking industry in India are discussed by [49]. Many of the digital platforms these companies use to sell their goods and services are pioneers in the relatively new but rapidly expanding field of financial technology. How they operate their business is the root cause of this problem. This category may include, amongst other things, platforms for artificial intelligence, P2P payments, deep learning, machine learning; big data, robo-advisors; the cloud; blockchain; and various applications of cloud computing. Between 2019 and 2024, the RBI plans to implement a strategy that will broaden the availability of financial services across the entire nation.

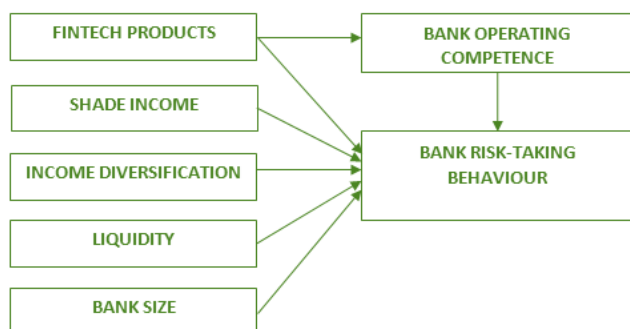


Figure 1: Theoretical framework of the study

METHODOLOGY AND RESULTS

For this study, survey was conducted between 2022 and 2023 with fifty commercial banks in developing economies. In order to obtain secondary data for this inquiry, bank account statements from commercial banks were utilized. In this study, we employ the Z-score to graphically express the level of risk that an organisation is ready to assume [5]. We acquired additional knowledge on developing our financial technology product by employing text analysis. During our study, several vital ideas surfaced, and in Table 1, we have provided an index of these ideas.

Table 1: Fintech keywords

Sl.No	Dimension	Keywords					
1	Information Transfer	E-Bank	Internet Bank	Online Bank	Abbreviation For Online Banks	Network Banking	Internet Banking
2	Risk Management	Internet Finance	Credit Information System	Online Insurance	Network Car Insurance	Online Finance	Internet Insurance
3	Resource Allocation	Online Lending	Network Investment	P2p	Internet Investment	Crowd Funding	Smart Investment
4	Clearing And Payment	Cross-Bank Clearing	Online Payment	Internet Payment	Mobile Payment	Network Payment	Third-Party Payment
5	Technical Base (Tech)	Big Data	Cloud Computing	Artificial Intelligence	Block chain	Biometrics	Strategic-Decision Support

The growth of fintech solutions was evaluated based on how well they met these five criteria developed based on previous research. This instrument is constructed out of a total of thirty distinct parts and components. A code is provided to each commercial bank throughout the duration of the agreement, and it is determined by these (5) five dimensions. A "1" will be added to a section of the annual report of the commercial bank if that section contains information that applies to the current year. A "0" will be added to the clause at the end of it if it is determined that the clause does not apply to the current year. In addition, the concept of a mediator is utilized to analyze the efficiency with which banks operate in this inquiry. In

this study, we look at the model in great depth by employing a technique known as structural equation modelling (SEM).

Table 2: Measurement of variables

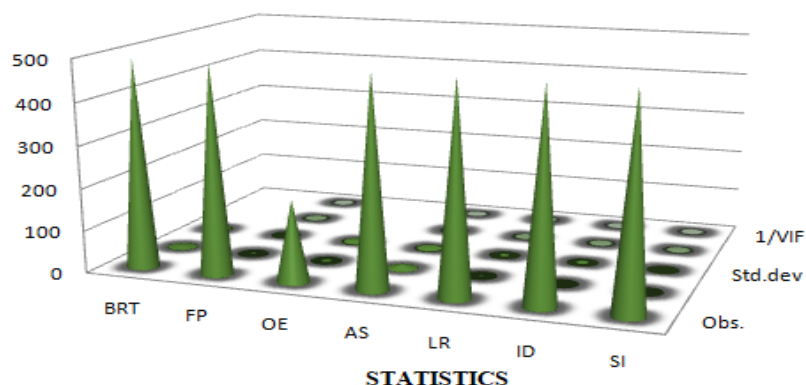
Variable	Control Variables
Bank Risk-Taking	Shadow Income
Z-Score Fintech Development	Income Diversification
Fintech Index	Liquidity
Bank Efficiency	Size

Table 2 displays a breakdown of the operationalized elements of this study, showing each factor broken down into its component pieces. The following set of econometric equations describes the relationship that exists between the variables:

$$BRT_{it} = \alpha_1 + \beta_1 FTI_{it} + \beta_2 AS_{it} + \beta_3 LR_{it} + \beta_4 ID_{it} + \beta_5 SI_{it} + \varepsilon_{it} \quad (1)$$

$$OE_{it} = \alpha_1 + \beta_1 FTI_{it} + \beta_2 AS_{it} + \beta_3 LR_{it} + \beta_4 ID_{it} + \beta_5 SI_{it} + \varepsilon_{it} \quad (2)$$

$$BRT_{it} = \alpha_1 + \beta_1 FTI_{it} + \beta_2 AS_{it} + \beta_3 LR_{it} + \beta_4 ID_{it} + \beta_5 SI_{it} + \beta_6 OE_{it} + \varepsilon_{it} \quad (3)$$



	BRT	FP	OE	AS	LR	ID	SI
■ Obs.	493	493	193	493	493	493	493
■ Mean	4.185	0.362	0.451	9.392	0.349	0.273	0.069
■ Std.dev	2.022	0.16	1.62	1.465	0.429	0.487	0.205
■ VIF		1.05		1.06	1.01	1.02	1.04
■ 1/VIF		0.955		0.939	0.992	0.977	0.958

The variables, including their averages and standard deviations, are summarised statistically in chart 1, which may be seen here. Given these findings, we can conclude that the data follow a normal distribution. We could not find evidence of multi-co linearity between the variables, regardless of whether we used the value of tolerance or the VIF.

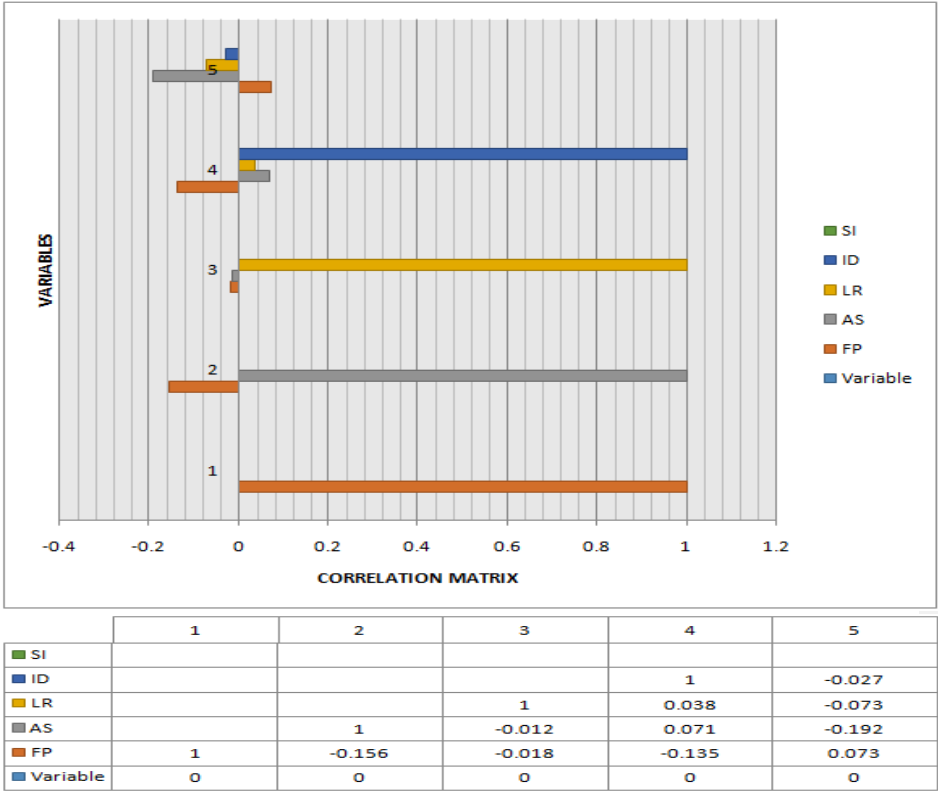
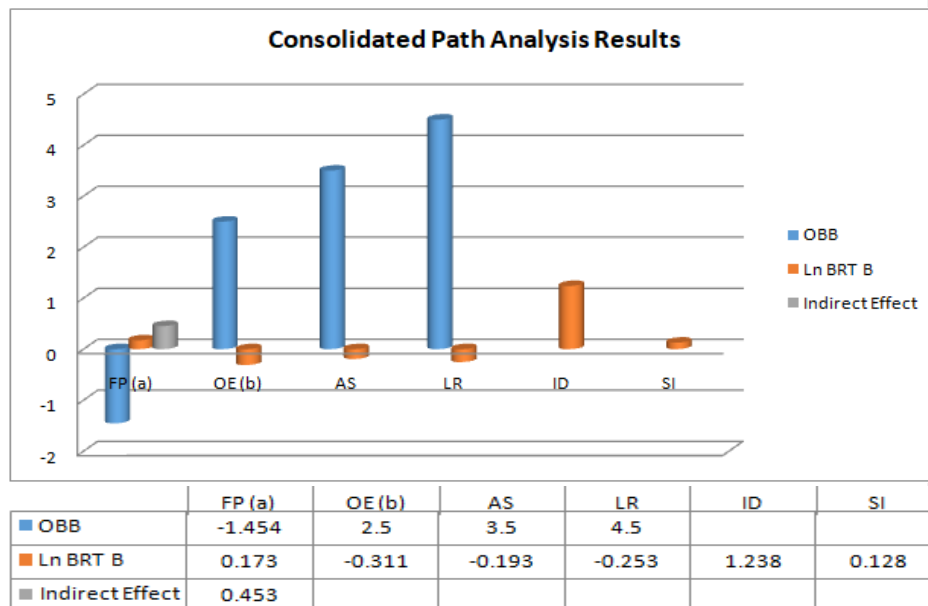


Chart 2 showed a negative correlation between the fintech product and consumer wealth and income distributions (-0.156 and -0.135, respectively, $p = 0.0$). Table 5 shows that when measuring the degree of operational efficiency, the fintech item is not an important indicator ($= 1:454$). The statistical significance of the values along the "a" line suggests that using fintech products contributes to improving the operational efficiency of the bank by lowering the costs associated with such efficiency. The effectiveness of the bank is evaluated through the lens of this study by comparing its operating expenses to its overall revenue. The increasing profitability of financial institutions can be attributed to a reduction in the costs of their operations, which can be achieved through increased operational efficiency.



To put it another way, its utilization rate is significantly higher than average. This study supports prior research by [7] that indicated an increase in production after financial organisations adopted new technologies. Technologies like blockchain, AI, and the widespread adoption of electronic payment and credit systems are just a few examples of recent advancements in the finance industry that could eventually lead to more efficient banking procedures.

The statistical evidence demonstrates that route "b" between the operational efficiency and risk-taking of the bank is more likely to be correct, with a correlation equal to 0.311 and identical to 0.001. The findings lend credence to the idea that the two have some relationship. The finances of the banks typically shows signs of improvement if a concerted effort is made to cut operational expenses anywhere across the board. Financial institutions that are successful at luring new customers and holding on to the ones they already have always maintain a stable cash reserve, offer a diverse selection of services, and do so at affordable prices. There is some evidence that fintech products have a large indirect effect on the efficiency with which intermediaries carry out their tasks ($= 0.453$, $p 0.05$). The results of the route analysis support the comprehensive theory of mediation. It supports Hypothesis 2, which contends that operational efficiency serves as a conduit for communication between risk-taking and the availability of financial resources.

On the other hand, there is not even a hint of a connection between liquidity and the other control variable, which is referred to as bank risk-taking ($= 0$). Another control variable is income diversification ($= 1.238$, $p 0.03$). It was shown that this influence had a positive impact on the situation. The hypothesis that the effect in question is favourable is supported by statistical evidence. This outcome is consistent with the findings that have been

uncovered. The findings of the study provided evidence supporting the findings reached by [41]. Because he found similar results in his research, this conclusion should not surprise anyone. This study lends credence to the opposite conclusion reached by [6], who discovered that shadow banking operations have a comparatively small impact on banks' propensity to take on risk.

The results of a route study that was carried out on various banks' basis for a selection of emerging economies are presented in Table 6. Researchers in India discovered that emphasizing fintech goods (also known as the "path a") is connected with lower levels of efficiency in the operations of a firm ($= 0.408$, $p 0.05$). Compared to the risk-taking level, the "b" coefficient, which stands for operational efficiency, takes on a completely meaningless quality due to the setting. However, the data did not validate the notion that the operational effectiveness of fintech products tempers Indian customers' tendency towards risky behaviour. This outcome runs counter to the hypotheses that were developed. The researchers found the possibility that this was the fundamental source of the issue. The findings demonstrate that this hypothesis is not supported by the data, providing credibility to my argument in my thesis. However, there is only a tangential connection between the vast number of financial instruments that have become available due to advances in technological capability and risk.

The statistical analysis reveals that the outcome was positive and statistically significant ($= 4.854$, $p 0.01$). According to research, this approach allows fintech companies to boost bank stability while reducing risk. It has been discovered that the utilisation of fintech services in India is highly connected with a willingness to take risks proportional to the potential returns. The result of the preceding phrase paved the way for this one. There may be more loans classified as nonperforming since larger banks have been engaging in practises meant to diversify their sources of income. On the other hand, it would indicate that operational effectiveness and risk tolerance are connected meaningfully (path "b" coefficient $= 0.359$, $p = .005$). The route analysis concluded that travelling around India would produce the most significant amount of savings in terms of both time and money ($= 0.404$, $p 0.1$). Another recent innovation is the creation of applications for mobile phones that allow access to financial services.

Table 6 shows that there is no correlation between a fintech product and enhanced productivity in the Indian banking industry. This is why Option "A" is the best bet. It has been found that risk-taking is statistically linked to the use of fintech products (path "b" or the path coefficient $= 3.600$, $p 0.01$), and that operational efficiency is correlated with risk-taking (path "a" or the path coefficient $= 0.0$, $p 0.05$). Both of these relationships are shown to impact one another positively. The use of fintech is linked with a statistically significant ($= 1.692$, $p 0.05$) increase in the propensity to participate in gambling-related activities. The results of the path analysis corroborate the effectiveness of the bank sector in India moderates the association between the use of monetary technology offerings and the willingness to take risks.

Because [5] found that traditional banks held substantially less risk after their broad usage of fintech, our data provide more support for their conclusions. Because it enables businesses in the industry to construct a trust mechanism that mitigates banks' dangerous conduct while simultaneously boosting the speed at which they can discover information and recruit new customers, blockchain technology is fast gaining acceptance in the fintech sector. Incorporating fintech products can lower operational expenditures; using technology such as cloud computing in credit can increase management effectiveness; and improved information sharing across departments can assist financial institutions in expanding in a productive manner. This is demonstrated by the fact that the asset-to-liability ratio is both a positive and statistically significant predictor. Even though [37] forecasted that liquidity would play a significant part, the findings presented here indicate that it has a negligible impact on the willingness to take risks. In contrast to the favourable but insignificant correlation between having a variety of income sources and taking risks.

The findings of the path analysis provide evidence in support of the specific mediating causal mechanism between risky behaviour and the utilisation of fintech goods. Because of this, it is necessary to emphasise the alternative theory more. It illustrates how banks' extensive reliance on financial technology products lowers operating efficiency and increases risk profile. The cutting edge of the Fintech is currently being produced by MFS providers, PSOs, and PSPs who offer payment services via mobile devices. After implementing fintech, financial institutions are far more reluctant to take risks than previously due to reduced operational efficiency. It is because production as a whole has been going down. When financial institutions implement fintech solutions, they see improvements in their profit margins, cost structures, and risk profiles. According to the conclusions of that study, using fintech products can reduce the risk-taking behaviour exhibited by a bank by enhancing operational efficiency. The findings of this study offer more support for the notion presented earlier in the discussion. Based on their data, the research scholar's study concluded that large deposit institutions are less prone to take risks. When there is a greater variety of sources of income coming in, there is a significantly lower probability that financial institutions will engage in activities considered to be high-risk ($p = 0.049, = 0.764$).

The rapid advancement of digital technology has resulted in far-reaching effects, which have affected every aspect of human life. The rising customer demand creates a more cutthroat atmosphere of competition within the financial technology industry. Traditional financial institutions have begun to look to the solutions provided by fintech companies to keep their existing customer base and maintain their position as competitive players in the market. Now available to customers are financial services that are not only helpful but also uncomplicated and competitively priced. The advancement of technology is directly responsible for all of these things. The banking sector has benefited tremendously from the innovative practices of fintech companies, which employ various cutting-edge technologies to enhance customer service and reduce operating expenses. The major goal of this research was to identify a possible relationship between the two factors. The effective operations of the company provide the moderation effect in this situation. Multiple empirical studies have found a correlation between the implementation of new financial technology solutions and a

reduction in the amount of risky bank activity and an increase in bank stability. This link has been observed in various financial settings, with the same findings each time. Incorporating several different fintech solutions has made it possible for the bank to improve its operational effectiveness significantly. The findings point to a connection between banks' inclination for risk-taking and their early adoption of innovative financial technology services and products. The findings indicate this association. There is a correlation between banks' later acceptance of goods offered by financial technology companies and their reduced risk-taking and increased efficiency. It is because financial institutions can boost their return on investment by postponing the implementation of particular financial technology solutions.

CONCLUSIONS AND RECOMMENDATIONS

- 1) As a result of installing this financial technology solution, the bank has experienced a reduction in the costs associated with its transactions and operations. Financial institutions can respond more swiftly to changes in their environments if they adopt innovative technological solutions for the financial sector, streamline their operational procedures, and organise their organisational structure.
- 2) As more people have entered the field of financial technology, prices have dropped and more places now provide 10-digit contactless numbers.
- 3) Individuals who needed assistance during the pandemic of influenza A (COVID-19) that the CDC experienced in 2009. Because of this, traditional financial institutions must collaborate with emerging fintech companies.
- 4) Because of advancements in financial technology, banks operating in emerging economies can now guard themselves against credit and liquidity risks. Therefore, commercial banks should attempt to combine goods associated with financial technology to reduce the risk to which they are subject.
- 5) Financial institutions can reduce risk exposure by diversifying their income streams and participating in low-risk ventures that offer significant returns. These kinds of efforts usually wind up being fruitful in the long term. The steadiness of the bank will significantly improve as a direct consequence of this modification. Financial institutions will need to enhance their usage of fintech and find new revenue streams if they want to maintain their current market share and avoid losing it altogether.

The chance that these banking organisations will engage in risky activity increases in tandem with their embrace of fintech solutions. It demonstrates that using financial technology solutions could result in significant shifts within the financial sector. In order to effectively mitigate the effects of unfavourable occurrences such as the COVID-19 outbreak, national governments and regulatory bodies would need to write efficient legislation and move quickly to incorporate fintech solutions into the existing financial infrastructure.

REFERENCES

- [1] Shubham Goswami (2022), "Impact of Financial Technology (Fintech) on Financial Inclusion (FI) in Rural India", Universal Journal of Accounting and Finance 10(2): 483-497.

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- [2] Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The evolution of Fintech: A new post-crisis paradigm? University of Hong Kong Faculty of Law Research Paper No. 2015/047, UNSW Law Research Paper No. 2016-62. Retrieved from. <https://doi.org/10.2139/ssrn.2676553>.
- [3] Arslanian, H., & Fischer, F. (2019). The future of finance: The impact of FinTech, AI, and crypto on financial services. Springer.
- [4] Barth, J. R., Nolle, D. E., & Rice, T. N. (1997). Commercial banking structure, regulation, and performance: An international comparison. *Managerial Finance*, 23(11), 1–39. <https://doi.org/10.1108/eb018653>
- [5] Berger, A. N., Miller, N. H., Petersen, M. A., Rajan, R. G., & Stein, J. C. (2005). Does function follow organizational form? Evidence from the lending practices of large and small banks. *Journal of Financial Economics*, 76(2), 237–269. <https://doi.org/10.1016/j.jfineco.2004.06.003>
- [6] Buchak, G., Matvos, G., Piskorski, T., & Seru, A. (2018). Fintech, regulatory arbitrage, and the rise of shadow banks. *Journal of Financial Economics*, 130(3), 453–483. <https://doi.org/10.1016/j.jfineco.2018.03.011>
- [7] Chiu, I. H. (2016). Fintech and disruptive business models in financial products, intermediation and markets-policy implications for financial regulators. *Journal of Technology Law & Policy*, 21, 55–112.
- [8] Camera, G., Casari, M., & Bortolotti, S. (2016). An experiment on retail payments systems. *Journal of Money, Credit and Banking*, 48(2–3), 363–392.
- [9] Claessens, S., and E. Perotti. (2007). “Finance and Inequality: Channels and Evidence.” *Journal of Comparative Economics*, 35 (4):748–773.
- [10] Crépon, B., F. Devoto, E. Duflo, and W. Parienté. (2015). “Estimating the Impact of Microcredit on Those Who Take It Up: Evidence from a Randomized Experiment in Morocco.” *American Economic Journal: Applied Economics* 7 (1): 123–150.
- [11] Dapp, T., Slomka, L., & Hoffmann, R. (2014). Fintech–The digital revolution in the financial sector. *Deutsche Bank Research*, 11, 1–39.
- [12] Demir, A., Pesqu'e-Cela, V., Altunbas, Y., & Murinde, V. (2020). Fintech, financial inclusion and income inequality: A quantile regression approach. *The European Journal of Finance*, 1-22. <https://doi.org/10.1080/1351847X.2020.1772335>
- [13] Ehrentraud, J., Ocampo, D. G., Garzoni, L., & Piccolo, M. (2020). Policy responses to Fintech: A cross-country overview. In *FSI Insights on policy implementation*, (no. 23). Bank of International Settlements.
- [14] EY. (2019). Unleashing the potential of Fintech in banking. EY. Retrieved from <https://fintechalliance.com/knowledge-bank/though-leadership/unleashing-the-potential-of-fintech-inbanking>.
- [15] Feyen, E., Frost, J., Gambacorta, L., Natarajan, H., & Saal, M. (2021). Fintech and the digital transformation of financial services: Implications for market structure and public policy. In *BIS Papers*. No 117.
- [16] Freixas, X., & Rochet, J.-C. (2008). *Microeconomics of banking*. Cambridge, MA: MIT Press.
- [17] Frost, J., Gambacorta, L., Huang, Y., Shin, H. S., & Zbinden, P. (2019). BigTech and the changing structure of financial intermediation. *Economic Policy*, 34(100), 761–799.
- [18] Galor, O., and J. Zeira. (1993). “Income Distribution and Macroeconomics.” *The Review of Economic Studies* 60 (1): 35–52.
- [19] Gatev, E., & Strahan, P. E. (2006). Banks’ advantage in hedging liquidity risk: Theory and evidence from the commercial paper market. *The Journal of Finance*, 61(2), 867–892.

- [20] Goetzmann, W. N., & Rouwenhorst, K. G. (2005). *The origins of value: The financial innovations that created modern capital markets*. Oxford: Oxford University Press.
- [21] Gomber, P., Kauffman, R. J., Parker, C., & Weber, B. W. (2018). On the fintech revolution: Interpreting the forces of innovation, disruption, and transformation in financial services. *Journal of management information systems*, 35(1), 220-265.
- [22] Gorton, G., & Pennacchi, G. (1990). Financial intermediaries and liquidity creation. *The Journal of Finance*, 45(1), 49–71. <https://doi.org/10.2307/2328809>
- [23] Greenbaum, S. I., Thakor, A. V., Boot, A. W. A., et al. (2019). *Contemporary financial intermediation* (4th ed.). Amsterdam: Elsevier.
- [24] Gromek, M., Teigland, R., Siri, S., & Puertas, A. M. (2018). The next wave of FinTech: Redefining financial services through technology. *Stockholm School of Economics & PA Consulting report* (pp. 3–73). Stockholm School of Economics.
- [25] Gupta, R., Mejia, C., Gianchandani, Y. B., & Kajikawa, Y. (2021). Ambidextrous firm strategy: Insights from internet of things linked interfirm deals. *IEEE Transactions on Engineering Management*, 1-16.
- [26] Holmström, B., & Tirole, J. (1998). Private and public supply of liquidity. *Journal of Political Economy*, 106(1), 1–40. <https://doi.org/10.1086/250001>
- [27] Huang, A. H., Zang, A. Y., & Zheng, R. (2014). Evidence on the information content of text in analyst reports. *The Accounting Review*, 89(6), 2151–2180.
- [28] IMF. (2019). Fintech: the experience so far. In *Policy Paper* (No. 19/024). Retrieved from <https://www.imf.org/en/Publications/Policy-Papers/Issues/2019/06/27/Fintech-The-Experience-So-Far-47056>.
- [29] Jacobides, M. G. (2005). Industry change through vertical disintegration: How and why markets emerged in mortgage banking. *Academy of Management Journal*, 48(3), 465–498. <https://doi.org/10.5465/amj.2005.17407912>
- [30] Jain, G., Paul, J., & Shrivastava, A. (2021). Hyper-personalization, co-creation, digital clienteling and transformation. *Journal of Business Research*, 124, 12–23.
- [31] Jain, P. K., Jain, P., & McInish, T. H. (2016). Does high-frequency trading increase systemic risk? *Journal of Financial Markets*, 31, 1–24.
- [32] Jaumotte, F., S. Lall, and C. Papageorgiou. 2013. “Rising Income Inequality: Technology, or Trade and Financial Globalization?” *IMF Economic Review* 61 (2): 271–309.
- [33] Kashyap, A. K., Rajan, R., & Stein, J. C. (2002). Banks as liquidity providers: An explanation for the coexistence of lending and deposit-taking. *The Journal of Finance*, 57(1), 33–73. <https://doi.org/10.1111/1540-6261.00415>
- [34] Kirilenko, A., Kyle, A. S., Samadi, M., & Tuzun, T. (2017). The flash crash: High-frequency trading in an electronic market. *The Journal of Finance*, 72(3), 967–998.
- [35] Kunt, A., L. Klapper, D. Singer, S. Ansar, and J. Hess. 2018. *The Global Findex Database 2017: Measuring Financial Inclusion and the FinTech Revolution*. Washington, DC: The World Bank
- [36] Legner, C., Eymann, T., Hess, T., Matt, C., Böhmann, T., Drews, P., M'adche, A., Urbach, N., & Ahlemann, F. (2017). Digitalization: Opportunity and challenge for the business and information systems engineering community. *Business & Information Systems Engineering*, 59(4), 301–308. <https://doi.org/10.1007/s12599-017-0484-2>
- [37] Leibler, A. (2019). The emergence of a global economic order: From scientific internationalism to infrastructural globalism. In M. Prutsch (Ed.), *Science, numbers and politics*. London: Palgrave Macmillan.
- [38] Magnuson, W. (2018). Regulating Fintech. *Vanderbilt Law Review*, 71(4), 1167–1227.

- [39] Mookerjee, R., and P. Kalipioni. 2010. "Availability of Financial Services and Income Inequality: The Evidence from Many Countries." *Emerging Markets Review* 11 (4): 404–408.
- [40] Murinde, V. 2012. "Financial Development and Economic Growth: Global and African Evidence." *Journal of African Economies* 21(1): i10–i56.
- [41] Najaf, K., Mostafiz, M. I., & Najaf, R. (2021). Fintech firms and banks sustainability: Why cybersecurity risk matters? *International Journal of Financial Engineering*, 2150019.
- [42] Navaretti, G. B., Calzolari, G., Mansilla-Fernandez, J. M., & Pozzolo, A. F. (2018). Fintech and banking: Friends or foes? In Working paper.
- [43] Shin, H. S. (2019). Big tech in finance: Opportunities and risks. In BIS Annual Economic Report. Retrieved from <https://www.bis.org/publ/arpdf/ar2019e3.htm>.
- [44] Sironi, P. (2016). *FinTech innovation: From Robo-advisors to goal-based investing and gamification*. New York: John Wiley & Sons.
- [45] Svirydenka, K. 2016. "Introducing a New Broad-based Index of Financial Development." IMF Working Paper No 16/5.
- [46] Sy, A. N., Maino, R., Massara, A., Saiz, H. P., & Sharma, P. (2019). Fintech in sub-Saharan African countries: A game changer?. In Departmental Paper (No. 19/04).
- [47] Tanda, A., & Schena, C. M. (2019). BigTech strategic approaches: Worrying competition?. In *FinTech, BigTech and banks* (pp. 37–50). London: Palgrave Macmillan. Ch. 3.
- [48] Taylor, C., Almansi, A. A., & Ferrari, A. (2020). Prudential regulatory and supervisory practices for Fintech: Payments, credit and deposits. In *Finance, Competitiveness & Innovation Insight*. The World Bank Group. Retrieved from <https://openknowledge.worldbank.org/handle/10986/33221>.
- [49] Thakor, A. V. (2020). Fintech and banking: What do we know? *Journal of Financial Intermediation*, 41, Article 100833. <https://doi.org/10.1016/j.jfi.2019.100833>
- [50] Vives, X. (2017). The impact of Fintech on banking. *European Economy - Banks, Regulation and the Real Sector*, 2, 97–105.
- [51] Yang Y. *et al.* (2021). Nexus between green finance, fintech, and high-quality economic development: Empirical evidence from China *Resour. Policy*
- [52] Zachariadis, M. (2020). How open is the future of banking? Data- sharing and open data frameworks in financial services. In M. King, & R. Nesbitt (Eds.), *The technological revolution in financial services: How banks, FinTechs, and customers win together*. Toronto: University of Toronto Press.