RESEARCH ARTICLE OPEN ACCESS

A Framework to strengthen the Reliability OF financial Technology Lending Applications by Integrating with Central Banks

Dr.Mona Nasser, *Dr.Riham Hagag,*Ahmed Mohamed Ebrahim ELDesouky
(Dean of Thebes higher Institute of computer & Management Sciences, Integrated Thebes Institutes)
(Lecturer at Information Systems Department, Helwan University, Helwan)
(Department of Information System, Helwan University, Helwan),

ABSTRACT
The biggest near-term threat for the most of Central Banks Across All Countries comes from Fintech Companies as the financial ecosystem is changing rapidly due to the increased use of information technologies by financial institutions and over the past few years Fin-Tech has become a major force that is disrupting and transforming financial services on a global scale, the present period is considered crucial for financial services practitioners. Due to the massive number of technical advances that have altered the way businesses operate, and daily transactions are conducted, the FinTech (financial technology) industry has grown up to be one of the most significant industries receiving support from decision-makers globally. However, FinTech face a complex regulatory environment that was designed for older business models and is slow to adopt change. So, the fintech refers to any app, software, or technology that allows people or businesses to digitally access, manage, or gain insights into their finances or make financial transactions. The increase in financial technology usage is reshaping our financial world. People's money is easier to access, and it provides new ways to share, save, invest, Lend and manage money making life better for the people while helping reach those underserved by legacy financial options.
Keywords: Applications, BNPL, Central Banks, Fintech, Financial Industry

---

Date of Submission: 04-07-2024 Date of acceptance: 16-07-2024

I. INTRODUCTION

Innovation is a term that often sparks debate within the technology sector. It necessitates a structured framework to enable safe and regulated innovation. The term 'financial technology,' or Fintech, can be applied to any innovation in how people conduct business and handle financial operations. More recently, it has been enhancing and automating the delivery and use of financial services (Marin Luetic,2021). At its core, Fintech is employed to assist companies, business owners, and consumers in better managing their financial operations, processes, and daily lives. Fintech relies on specialized software and algorithms used on both computers and smartphones, Over the last decades, digital inclusion, fueled by sharp growth in mobile internet and smartphone adoption, has improved significantly across both developed countries and emerging markets. This makes mobile payment or the e-wallet a more convenient and user-friendly alternative to conventional modes. Our Article Here Will Concentrate on Lending fintech sector as we found that Gap is exists on Limit Amount proposed to Customers who demand Lending this Gap is occurred as Those fintech Companies Depending only on I-SCORE lending Limit which is daily File not an Instant so customers Can Over limit if they request Lending Amount from two different Fintech companies at same day as it will not reflect till Day After, **From the Previous** We found Fraud Cases, foggy Customer Limit, Financial Risk crises, increasing of Inflation Rate and Unseen Lending and Investing transaction for Central Bank, Customers Financial Data Unprotected and Every Day Crises added by Revolution of Applications Without Regulation and Central Platform is Established. We all need to understand that certain barriers take time to be overcome. Which brings us to the following question:

"Can Traditional Banks Be Fintech? "or "Can Fintech Vendors Play Banks Role in future? "

Those questions are very hard to answer, mainly because both of them have different advantages and Disadvantages. but in our thesis will find and begin with the first step which Stated in

One Word **Integration** Proposed Process to Make a Module Solution executed and Integrated the Financial Cycle Between Central Banks and Fintech Companies.

This Paper is organized as follow: section (2) describes the types of fintech, section (3) shows the existing Problem Faced recently by Central Banks, section (4) described the proposed framework Application Characteristics, (5) the proposed system objectives then Finally the conclusion

II. TYPES OF FINTECH:

Fintech covers a wide range of use cases across business-to-business (B2B), business-to-consumer (B2C), and peer-to-peer (P2P) markets. The following are just some examples of the types of fintech companies and products that are changing the financial services industry.

2.1 Digital payments:
payment apps and services have become more and more common. That's because receiving payments via direct bank transfer is significantly less expensive than using credit cards, and getting users signed up and authenticated has become faster and easier.

2.2 Personal financial management (PFM): apps help users consolidate financial information from various accounts into a single dashboard, making it easier to stay up-to-date with their finances. These services help people to manage, budget, and make sense of their money.

2.3 Wealth management:
Fintech solutions help financial advisors and wealth management platforms aggregate held-away account information to better grow assets under management

2.4 Fintech lenders:

Lenders often struggle to gain a full and accurate picture of their applicants due to the amount of work and time it takes to collect income information, account balances, and asset history. In addition, it can be a cumbersome process to get borrowers to connect their bank accounts to receive and repay loans, almost the most risk Section which will be discussed in this Article

III. THE PROBLEM STATEMENT CASE

Based On several Previous Studies, we found that Financial Risk Raised However central bank has no view or authority to find the Delinquent customers or to determine the provision for Fintech Companies and segment of the credit rating for customers with Unseen of Financial Transaction Applied also Double Protection Is required of Customers from Unauthorized Fintech Companies and Other protection for Fintech Applications from a Fraudulent person, so a solution must be placed and taken to coordinate performing Process for the Fintech Companies Which Can Be Categorize into Main Popular Sections: (**Fintech lenders**).

Fintech Startup Companies Which Specialized on Lending Sector "BNPL – Lending" May Cause Economic Crises and Help Increasing Inflation Rate by Depending on Lending process based on Goodwill and Stable Income for Retail and Corporate Customers ignoring Negative earning or Inability of Installments Payment. Which May Lead and affect the Three Triangle Sides include the Following:

A) Central Banks
B) Fintech Companies
C) Customers

3.1 CASE STUDY REFLECTS THE RISK OF FINTECH LENDING PROCESS:

A customer Need Loan for Buying a New Car It Costs Around 30,000 USD, the customer went to Bank and find that he can lend About 10,000 USD after bank check the customer Income Pay slip, The Customer Get the Loan from Bank then He went to FINTECH Company at same Day and demand Loan in order to buy a Car, as mentioned Previously they depend on Goodwill, Customer Net Income, Customer properties, sport club membership and self-employer or employee adding to Customer Credit Rating which is not updated Daily Here Gap is Exists . They Lend Him 20,000 USD However on same day He went to Another Fintech Company with same Process He Gained Another 20,000 USD So from This Point of View Let us Brief it in points:

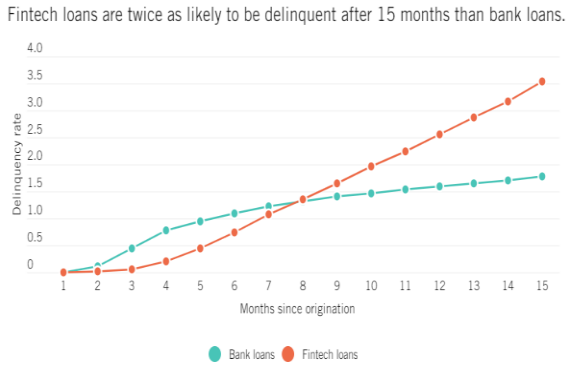
- Customer Limit Depending on Bank Study: 10,000 USD "Most Accurate"
- Customer Limit After Lending from Fintech Companies: 50,000 USD So, Customer Gain Over Limit Fund with 40,000 USD.

CONT. 3.1:

This is a critical Existing Case occurred Daily in Financial Market which may cause financial crises Including delinquent Customers and Inflation of Egyptian currency Because of High demand and High initiation for Buying goods and Products.

Then If We Take One of popular Section which mentioned Before Like Lending Section We Will find the Threats of lack of integrity between Fintech Companies and Central Banks as the interest rates of Fintech loans are generally higher than the interest rates that you'll find through a bank With a high credit Rating For Customers or corporate Limit Which Depend on Income, Life style and Assets Own without Consider of Customer Liabilities ,That's one trade-off for increasing the odds of getting approved, and doing so quickly.

Another trade-off is the newness of Fintech business loans. Fintech lending's popularity exploded in the years following the financial crisis a decade ago



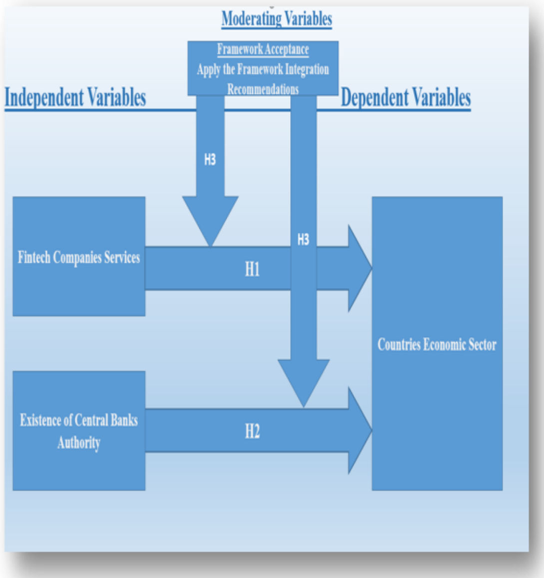
From the previous Chart we found that Financial Risk Raised also central bank has no view or authority which may lead to increased risk of direct disruption in providing financial services or critical infrastructure with High Rate of Inflation, Encouraging the attack vendors of the entire economy because the more systems that are connected, the more vulnerabilities there will be for a cyber-criminal to exploit.

Experts knows, the more systems are connected together, the more vectors there are for cyber-attack. Also, Areas that lack the legislative coverage are Data storage, Digital authentication, AML/KYC, crowdfunding, and cryptocurrency. So, as mentioned before This Study Aim to Create a Solution to fill the existing Gap by building Centralized Platform in shape of framework is needed to Enhance and Control the relation between Central Banks and Fintech Companies Especially in Economically Religious Countries to Apply Governance/process Control and Financial Risk Assessment.

IV. THE PROPOSED FRAMEWORK:

This Article is working on 4 research Hypothesizes:

- H1: Perceived benefit positively impacts on Existing of Fintech Companies and Its Services on Countries Economic sector.
- H2: Perceived benefit positively impacts OF Existence of Central Banks Authority on Fintech Companies and How it reflects on Countries Economic sector.
- H3: Central Framework perceived the Framework Which Moderates the Integration between Central Banks and Fintech on Countries Economic sector.
- H4: Impact After Deploying and Implementing a Framework on Fintech Integration with central Banks on Countries Economic sector.



***The model constructed by the researcher.**

From The previous Our proposed Framework will Achieve the following Points:

1. Develop a Novel Integration System Framework that fosters a stronger connection between Fintech Companies and Central Banks.

2. Establish a New Credit Rating Tool featuring real-time customer ratings, alongside or in conjunction with traditional I-Score assessments.

CONT. 4:

3. Strengthen Central Banks' oversight over untraceable transactions and financial flows.
4. Implement measures to restrict engagements with unauthorized and uncertified Fintech Companies.
5. Lower inflation rates by reducing loans that rely solely on formulas approved by Central Banks.

6. Enhance the governance of the lending process.
7. Establish a new integrating system framework that fosters seamless collaboration between fintech companies and Central Banks.
8. Develop a new credit rating tool that provides instant customer credit scores, eliminating the reliance on external credit rating agencies like I-Score.
9. Strengthen the authority of Central Banks in controlling unseen financial transactions and funds.
10. Implement Measure to prevent unauthorized and uncertified fintech companies from operating in the financial ecosystem.
11. Evaluate the impact of the new integration system on the country's economic stability.

4.2 THOSE APPLICATIONS MAINLY OPERATING ON THREE DIFFERENT PLATFORMS:

- **API:** (application program interfaces) safely and securely connect consumers' bank accounts to fintech apps and services so they can share financial data, transfer funds, and verify their identities.
- **Mobile applications:** Most fintech companies offer a mobile app so that users can access their funds and insights at any time. Whether it be a digital banking app, a financial management tool, or an investment platform, mobile apps are nearly synonymous with fintech.
- **Web-based solutions:** On top of offering a mobile app, some (but not all) FinTech's also offer a web-based solution where users can log in via a web browser and perform the same functionality, they can perform on the mobile app.

4.3 The Properties for Proposed Systematic Framework:

aims to establish a unique centralized platform to achieve instant, accurate credit scoring in the lending process, serving both banks and fintech companies. Additionally, it aims to provide comprehensive supervision over interest rates for wealth management fintech companies. The Proposed Software Integration Platform will be Desktop System Software, a cross platform framework that will be later allowed for Both Android and IOS Applications and will be connect to Centralized Database Owned by Central Bank to Store and retrieve Required Information.

SRS – Functionality – User class & characteristics: Functionality of system Software Categorized into Three Comities:

A) Central Bank User:

- User Able to Add the Certified and Authorized New Fintech Company.
- User Able to Remove Existing Fintech Company.
- User Able to Take Admin Rule for Create Users and align Role for Each User Depending on Fintech Companies Role and Sector.
- User Ability to execute Batch Migrate the new KYC recorded on Banks Daily.
- User Ability to Check Participated Companies Information and Operations.

B) Fintech Companies User:

- User Able to Check Instant Customer Credit Rating.
- User Able to Update /Modify Customer Limit after Lending/ Settlement process.
- User Able to Enter the Accepted Lending Formula for Lending Sectors.
- User Able to Enter the Accepted Interest Rate Formula for Investment Sectors.
- User Ability to Enter the variables on the required Agreed Operation to Find out the Proposed Lending Amount or The Proposed Interest Rate.

C) Retail Customer User:

- User Ability to check Authorized Fintech Companies.
- User Ability to find and Check His Instant Credit Rating.

Cont. 4.3 - Non – Functional Requirement:

- <u>Performance Requirement:</u> The System Application should load and ready to use within 15 Seconds, user Should Interact within 5 Seconds and Database should be optimized to Ensure Fast Query Performance.

- <u>Security Requirements</u>**:** The System Application Should Ensure Secure Transactions and Protect User Data by double authentication with acceptable Security Criteria.

- <u>Availability</u>**:** The System Application Should Have Availability to Ensure That Integration is Available 24/7

- Correctness: The System Application Should Accurately Display Rates and Ensure Each Transactions.

-Maintainability: The system Application should continuously integrated so that features, Updates and Bug Fix can be deployed rapidly Without Downtime.

- Usability: The System Application Interface should be intuitive and easy to navigate, allowing Users to Perform their Role Smoothly.

V. THE PROPOSED SYSTEM APPLICATION OBJECTIVES:

Our proposed System will be owned by the Central Banks itself. All financial sectors will rely on instantaneous integration rather than traditional file data transfers, allowing for the evolution of instant credit scoring through a centralized platform.

So, Let Us show Comparison between the Daily file and Our Instant system Credit rating.

Table (2.1): Comparison between Daily file & Proposed System

Features	Daily File	Proposed System
Data	Daily Files Transfer	API Methodology
Credit Rating	Updated Daily	Instant Update
Owned by	Local Company	Central banks
Cover	Banks – Fintech Companies	Banks – Fintech Companies or any new authorized financial Technology
Authority and roles	Just Scoring Retail and Corporate Vendors	Scoring Retail and Corporate Vendors with supervision of central banks on Lending Formulas
Accuracy	40% depending on File sent from each institute and time frequency for sending file	100% as it reflects Instant on Application which is already owned by Central Banks
Availability	File sent and Update only on Working Days	Application Updates and Available 24/7
Data Security	Data May be Copied and customers data transferred if file copied or transferred to illegal Persons	Data Is fully secured as it is already Automated and centralized by One Comity

5.2 OPPORTUNITIES:

1) **Instant Customer Credit Rating:** it provides an opportunity to revolutionize credit rating, offering instant evaluation and more accurate assessments.
2) **Fintech Performance Evaluation:** It enables the evaluation of fintech companies' performance, particularly in the lending sector, ensuring better risk management.
3) **Supervision and Control:** it allows for effective supervision of lending processes, benefiting both banks and fintech companies.
4) **Economic Strengthening:** Enhanced market cash flow, facilitated by it contributes to economic stability and growth.

VI. CONCLUSION:

The results of this research Fintech firms are recognized as innovation drivers in the financial services field and are predicted to play a significant role in the financial services industry. Digital transformation and technology advancements enabled numerous fintech firms to address their customers' needs efficiently and at a low cost. It is argued that conventional banks need to keep up with the pace of innovation to stay competitive in the market, as fintech firms are said to be growing faster, generating higher revenue and having high prospects of success so Central Banks have no Option or choice rather than setup a Strong independent Platform Consolidate and gather all Startup and existing fintech with direct and instant integration with banks in order to achieve The peak benefit from the fintech revolution with Clear authority and manipulation.

REFERENCES

[1]. Asa Romeo Asa, Dennis Tsanga, Christeline Januarie, Mekelaye Kamati, 2021 “Technological Innovation as a Strategy for Competitive Advantage within the Namibian Banking Industry", International Journal of Management Science and Business Administration, Volume 8, Issue 1.

[2]. Chang H. & Kuan J., 2017" The Fin Tech revolution and financial regulation: The case of online supply chain financing", Asian Journal of Law and Society, Volume 4, Issue 1.

[3]. Dariusz Piotrowski. 2022, " Consumer perceived ethicality of banks in the era ofdigitalisation: The case of Poland", Economics and Business Review, Volume. 8 Issue 22-, No. 1,

[4]. Daniel Broby, 2021 “Financial technology and the future of banking", Broby Financ Innov, Volume 7- Issue 47,.

[5]. Emily L., 2017," Financial inclusion: A challenge to the new paradigm of financial technology, regulatory technology and anti-money laundering law ", Journal of Business Law, 6.

[6]. William M., 2018"Regulating Fin Tech", V.L. Review, Volume 71- Issue

[7]. Vivek Dubey & Rohit Walimbe, 2021,"Fintech 2022 Trends: The era of F-CUBE “Fast and "Furious Fintech, Technium Volume. 3, Issue 9.

[8]. anna O., 2018," Banks and Fin Techs: How to develop a digital open banking approach for the bank's future ", International Business Research,

[9]. Philipp M., 2018"In Unchartered territory-Banking supervision meets Fin Tech", Corporate Finance

[10]. Nader Alber, Muhammed Dabour" 2022, he Effects of Digital Transformation and Fintech on Banking Industry: Risks and Opportunities Perspectives, Ain Shams University, Working Paper,

[11]. Charles M. C. Lee, Yanruo Wang & Qinlin Zhong, 2020,” ELPR: A New Approach to Measuring the Capital Adequacy of Commercial Banks”, www.ssrn.com,

[12]. Ahmed T.Al Ajlouni, Monir AL hakim, 2018 "Financial Technology in Banking Industry": Challenges and Opportunities, International Conference on Economics and Administrative Sciences ICEAS