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# Examining the Impact of Fintech Lending and Capital Regulatory Requirements on Bank Stability: A Study of Developed and Developing Countries

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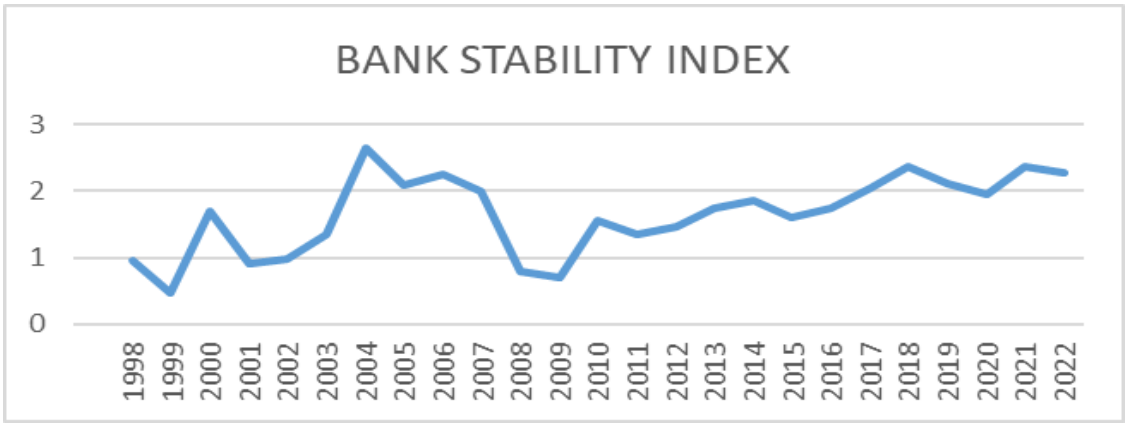
**Abstract**
Fin-tech plays a vital role in the modern age, it creates a revolution in the financial sector. Fin-tech provides the services the financial industry offers through its new technology, innovations, and unique platform to the population at their doorstep. After the financial crisis of 2008, the Basel Committee introduced Basel-III for the financial sector to ensure there was enough capital for the financial institutions to meet their daily needs and maintain the strongest position per the financial market's desire. The study aims to investigate whether or not fintech is a danger to bank stability. Is it dangerous for financial institutions to maintain their capital as Basel-III requires? This study conducts different statistical tests to overcome the exact situation and effects of fintech and bank capital requirements, blessings, or danger zones for financial institutions in the modern era. The statistical results reveal that financial institutions must adopt modern technology as fintech companies have provided in the contemporary era. Traditional banks are in a dangerous zone due to this healthy and tough competition in the form of fintech and Basel-III requirements, which are swords at the neck of financial institutions. The regulator and policymakers must take the necessary steps to make the desired regulation changes so that traditional banks can benefit from the new technology and keep themselves alive in the financial market.

**Keywords:** Fin-tech lending, bank capital, bank stability, bank concentration, total assets, non-performing loans, GDP, inflation, Basel III.

## Introduction

Banks are crucial to any country's economic standard. The bank was founded in Italy in the late 1400s. Nowadays, a bank has become a necessity of the time and has become the economic backbone of any country in the world (Chen & Dahlman, 2005). They take money from the people

as a deposit and give it to borrowers with a fixed margin after confirmation (Tobin, 1982). With the rise of banks, management is making minor rules and regulations to operate within a limit, avoid future disputes, and create a balance between borrowers and lenders. (Kapstein, 1989). This means that the term stability refers to how the bank is stable in a financial crisis and how the risk and fraud from society can be controlled (Caprio & Honohan, 1999). Monetary stability means the health of the bank's financial position. It plans on how to conduct itself in a crunch scenario to work and survive life, and in the worst economic conditions to meet its obligations. The stability of the bank and its determinants on the financial sector, society, and economic system of the country must have multiple theories (Cetorelli & Gambera, 2001; Cerutti et al., 2012). Bank stability is essential in providing funds for economic growth and other economic activities in the country (Kuzilwa, 2005). The relationship between the effluxion of fintech and bank stability is essential. Financial technology, or fintech, has rapidly taken the lead and developed, overtaking other technologies in developed countries than in developing countries in a few years. Fin-tech has revolutionized the financial system and gained popularity among people based on affordable services and inventions. With the advancement of technology, FinTech has revolutionized financial services by introducing blockchain technology, Big Data, and Artificial Intelligence (Mosteanu & Faccia, 2021). Fin-tech - providing companies with new technology, software, mobile applications, and other digital gadgets to provide financial services to the people (Safiyuddin et al., 2023). The purpose behind fintech is to invent new financial services with innovations that will prevail over traditional financial services (Harsono & Suprapti, 2024). Fintech has produced an offer of digital banking systems known as neo banks that do not have physical branches. They operated on an offline online platform for a transaction fee (Claessens et al., 2018). Fin-tech has also increased the system's readiness to provide the world's loan service through an online platform. Fin-tech has also played an essential role in the expansion of financial inclusivity. Through digital financial services, only fintech provides facilities to those individuals to gain the advantage of financial eligibility, which was disjoined by traditional banks (Omarini, 2018). Another highly researched variable that influences the bank's stability is the bank regulatory capital (Krüger et al., 2018; Abou-El-Sood, H. 2016; Thakor, A. V. 2014; Ben Bouheni, F. 2014; Distinguin et al., 2013). The regulation's essential purpose is to ensure enough capital to cover the bank losses and meet the short-term demand. The Group of Ten countries signed the first Basel capital adequacy standard in 1988 to improve the stability of internationally active banks and create a level playing field. (Pattison, 2006). The standards were updated in 2004 with more sophisticated rules and principles, and again in 2010 following the global financial crisis with enhanced capital, liquidity, and leverage requirements. (Basel III). A survey conducted by the Financial Stability Institute, undertaken in 117 countries that monitor survey of non-Basel Committee member jurisdictions, shows that 95 out of 117 countries have adopted Basel III or are in the stage of adopting it since the monitor was based on mid-2015. This much greater number of respondents to the survey is a sign that Basel principles have become a regular and essential tool for bank regulators in developed and developing countries. The bank is the foundation of any country's economy. Other words that we may use to describe the bank are the backbone of the economy. The bank's money position is vital. If the bank's money position is good, the economy's money position will also be good. The bank's money position can be examined by its financial stability. Bank stability has fluctuated over the last two decades and caught the attention of researchers and policymakers, and the empirical evidence in Graph 1 emphasizes the variability in bank stability. This ongoing concern with bank stability suggests that the determinants of bank stability remain vital. Governments worldwide made significant regulatory changes and financial innovations after the 2008 financial crisis. At this stage, we can infer how these changes have impacted bank health. However, despite these efforts, the precise impact of these measures on bank stability remains uncertain.




Source: World Bank

At this stage, the influence of fintech lending and bank capital requirements on bank stability is the problem. Bank regulation is also a big problem for traditional banks in the new fintech era. A comprehensive approach to the complex concept of bank stability by investigating Fin-tech lending, Bank Regulatory Capital, their interaction, and simultaneous influence on Bank stability, determining their relative significance, and suggesting various recommendations on how banks can become more immune to potential threats. The ultimate goal is to expand the current knowledge by providing policymakers, regulators, and practitioners with evidence-backed solutions that will allow us to maintain a healthy and stable banking sector in the constant flux of the financial world.

**Research Contribution**

Despite previous research (including Allen et al., 2022; Carletti et al., 2021; Vives, 2019) and input from policymakers (BIS, 2018; Financial Stability Board, 2019; IMF, 2017; OECD, 2020) suggesting that the emergence of new digital competitors is likely to disrupt the banking industry, the extent to which the Fin-tech phenomenon is affecting the established banking industry is still mostly unexplored. While some studies have delved into the impact of Fin-tech companies on bank competition (see Buchak et al., 2018; Cornaggia et al., 2018; Tang, 2019, among others), as far as we are aware, none have explicitly analyzed the influence of Fin-tech lending on bank stability. Although no explicit examination of the effects of Fin-tech lending on bank stability has been conducted so far, relatively few attempts have been made to investigate the impact of Fin-tech lenders on banks' stability (Banna et al., 2021; Haddad & Hornuf, 2023; Wang et al., 2021). These attempts have involved a broad concept of Fin-tech competition when assessing the underlying approach of Fin-tech companies. Previous studies have relied on indirect measures, such as the number of Fin-tech firms in a given country and the media attention focused on the phenomenon, to proxy Fin-tech competitive pressure (Koziol & Lawrenz, 2009). Therefore, this paper focuses on each country's annual volume of Fin-tech lending. This approach allows for a more direct focus on the impacts conveyed through the primary activity carried out by financial intermediaries. Several researchers have examined the impact of bank regulatory capital on bank stability. For instance, (Lotto 2018; Yudaruddin et al., 2022; Umar et al., 2018). However, the results are contradictory. One strand of the literature argues that increased regulatory capital by banks can enhance financial stability (Santos, 2001). On the other hand, others contend that when regulatory capital is too high, banks are inefficient in using existing capital sources, which reduces profitability and can lead to financial instability (Obadire and colleagues, 2022; Stewart and others, 2021; Berger and Bouwman, 2013). Consequently, this study aims to offer additional empirical evidence on the impact of bank regulatory capital ratios on bank stability by examining a larger sample of both developed and developing countries.

## Literature Review

Fin-tech has revolutionized the financial industry by providing new services with the help of the latest technology worldwide, as examined by Nguyen and Dang (2022). Bank stability is the dependent variable, while fintech is the independent variable. Fin-tech has changed the global world and provided tough competition to the financial sector. The financial industry has been dramatically influenced by the fintech competitor, forcing them to review their business strategy. Zhao et al. (2022) Fin-tech also hit the monetary economy of China. China is the second-largest economy that has adopted fintech after the USA, while it is eighth among the top fifty global economies. They used three empirical measurements: bank performance through CAMEL, fintech industries development, and fintech capability and patent. They used robust checks and heterogeneous effects to judge the relationship between fintech and traditional banks. They found a negative relationship between fintech and bank profitability in China. They found a lack of technological advancement in the services provided by the traditional banks in China. Fintech companies provide new technology and services and have become more popular by giving loans to end users at a lower rate than traditional banks. This was the primary reason for the decline in the banks' profit, which had created an alarming situation for their existence. Tang et al. (2024) examined fintech, bank diverts, and liquidity evidence from China. In their studies, bank diverts was the dependent variable, while fintech was the independent variable. They examined the robust test development of fintech and found that it negatively affected their liquidity and diversification. The relationship between them is heterogeneous. They examined that both state-owned and smaller banks, measured through market capitalization, have weaker responses than fintech development. They examined the fact that the COVID pandemic also boosts the fintech revolution, which weakens their liquidity. In policy recommendations, they recommended that the regulator implement the new regulation to level the playing field for both the fintech and banking sectors. They also suggested that the banks adopt the latest technology as soon as possible to mitigate the risk of liquidity and divestment to ensure their existence in the modern era of competition.

## Capital Regulatory Requirement on Bank Stability

Bank capital has also greatly influenced the financial sector. After the financial crisis of 2008, the Basel Committee introduced Basel III for the financial sector to strengthen its financial position strong enough to meet its obligations and daily needs of the market requirements. Bermpei et al. (2018) examined the condition of institutional quality and the effect of bank regulations and supervision on bank stability. Evidence from emerging and developing economies. They investigated whether the quality of the financial institutions could strengthen the regulation or have weak control over the bank's stability. Also, political stability was a factor that strengthened the bank's stability. Corruption was another factor that could positively affect the bank's stability if it were controlled. In banks, loan repayment could be strengthened when the regulation is strong enough. This study did not find a negative effect of institutional quality on bank stability. Regulation could be more effective in controlling the adverse effects on the bank's stability. DeYoung et al. (2018) examined the joint regulation of bank liquidity and bank capital. They compare the liquidity performance of the bank to the required capital according to the new Basel III. They looked at the data of pre-Basel III from the USA banking sector, particularly those banks whose assets were below 1 billion USD. They also considered liquidity and capital as alternatives. These banks indulged in increasing their liquidity position, as well as capital requirements, so that they could keep tight control over loans, loan commitments, and dividend payouts. Fratzscher et al. (2016) examined the credit provision and banking stability after the Great Financial Crisis: the role of bank regulation and the quality of governance. These studies' influence on the financial crisis played a significant factor in the banking sector, which urged the management to take the necessary action to strengthen the Basel rules and closely monitor the banking sector's financial

health. When Basel III was implemented, the bank reduced lending and offered only small-scale loans to the market. They used the panel data, which covered over 50 nations of the world, both advanced and emerging economies. Study the effect of the crisis on bank stability and credit growth. The loan was reduced through the tightening of the Basel III requirement, and the bank's stability improved. Basel III has a positive effect and plays a significant role in banking stability after the crisis.

**Research Methodology**

Research methodology is a structured scientific way to collect and analyze data, answer research questions, or test hypotheses. It acts as an outline of the research project and helps researchers to remain focused on the research attitude while studying. While selecting a research methodology, it's fundamental to consider specific considerations, such as research limitations and ethical concerns, that could influence your study. In a scientific paper, research methodology explains the various units and choices regarding the data collection and analysis method and the rationale behind those choices. That rationale should answer why these are the best methods to reach your research goals. Also, a well-thought-out research methodology will ensure that the research outcomes are valid and reliable. The three main types of research comprise quantitative research, qualitative research, and mixed-method research. Research methodology specifies how researchers do what they are about to do. The sample is the smaller group from which you will gather information. It's always going to be smaller than the whole population. In research, the population doesn't just mean people. It could be anything you're looking into, like objects, events, organizations, countries, species, organisms, etc.

| *Argentina* | *Japan* | *Singapore* |
|---|---|---|
| *Brazil* | Kenya | South Africa |
| *Cameroon* | Korea, Rep. | Tanzania |
| *China* | Liberia | Uganda |
| *Congo, Dem. Rep* | Mexico | United Kingdom |
| *Egypt, Arab Rep* | Magnolia | United States |
| *France* | Mozambique | West Bank And Gaza |
| *Gorgia* | Nigeria | Yeman |
| *Ghana* | Pakistan | Zambia |
| *India* | Russian Federation | Zimbabwe |
| *Indonesia* | Rwanda | |

Econometrics uses statistics and math to make and check models that try to explain complicated stuff with simple equations. It's standard to use the basic formula y = mx + b to break things down.

$$\text{B STABILITY} = \text{F ( FL} + \text{CRR} + \text{B CON} + \text{NON P LOANS} + \text{GDP)}$$

$$\text{B STABILITY} = \beta 0 + \beta \text{FLit} + \beta \text{CRRit} + \beta \text{B CONCEit} + \text{NON P ASSETSit} + \beta \text{GDPit} + \varepsilon \text{it}$$

**Ordinary Least Squares**

Ordinary least squares is a statistical method to draw the best-fitting line through data points. It is based on minimizing the sum of the squares of differences between the observed data points and the values predicted by the linear equation. In other words, it is a method of finding the line that best fits the data by minimizing the gap between the actual data points and the predicted values. This concept is widely used in simple linear regression. Thus, OLS gives consistent estimates for the fixed effects and the variance of the residuals as long as certain conditions are met. It is likewise best among the linear unbiased estimators if the errors are homoscedastic and serially uncorrelated. In summary, OLS is a suitable method of estimating parameters in a linear regression model, whether simple or multiple.

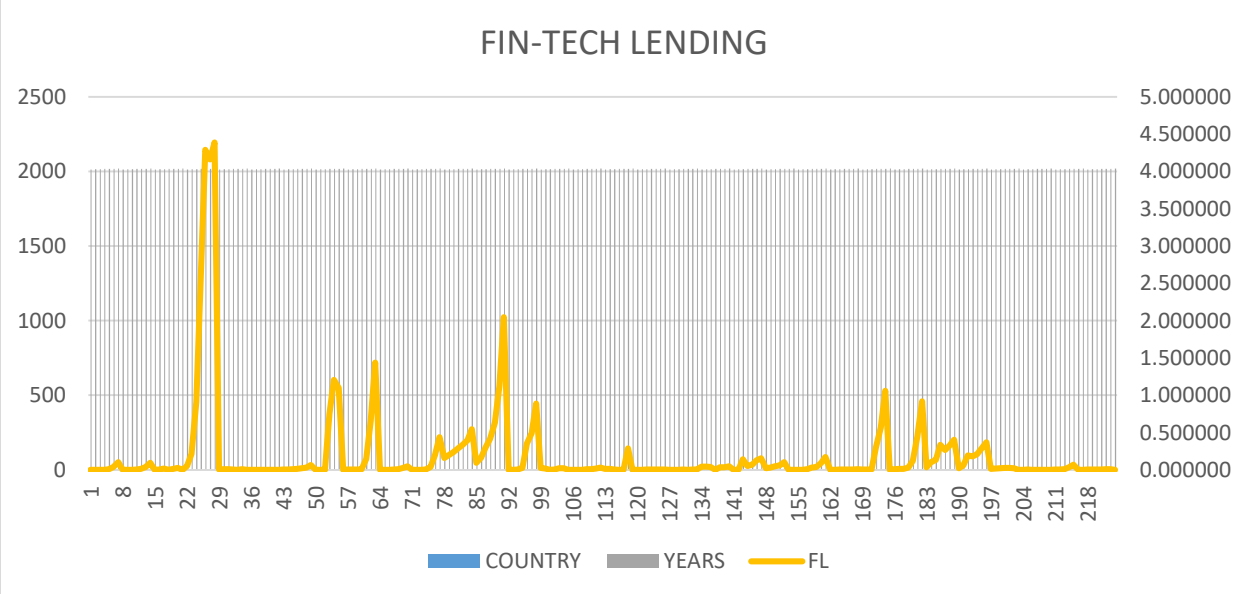
**Fixed effect/ Random effect**

The crucial concept behind variance components models is the difference between the fixed and random effects. The fixed effects are based on comparison levels representing the population one is interested in. For instance, if a scientist is seeking to compare the difference in the yields of soybeans of varying varieties, the Variety effect would be fixed if one is interested in the exact varieties. The random effects serve when individuals aim to infer about the entire population based on the sample. For example, the Subject random effect would be the appropriate descriptor in a study of psychology that compares the test results' differences between a few groups. When every effect is random, the model is referred to as a random-effects model, and a fixed-effects model when both are fixed. Most models include a mix of both, named the mixed model. The variance components show how much each factor contributes to the variability of the dependent variable.

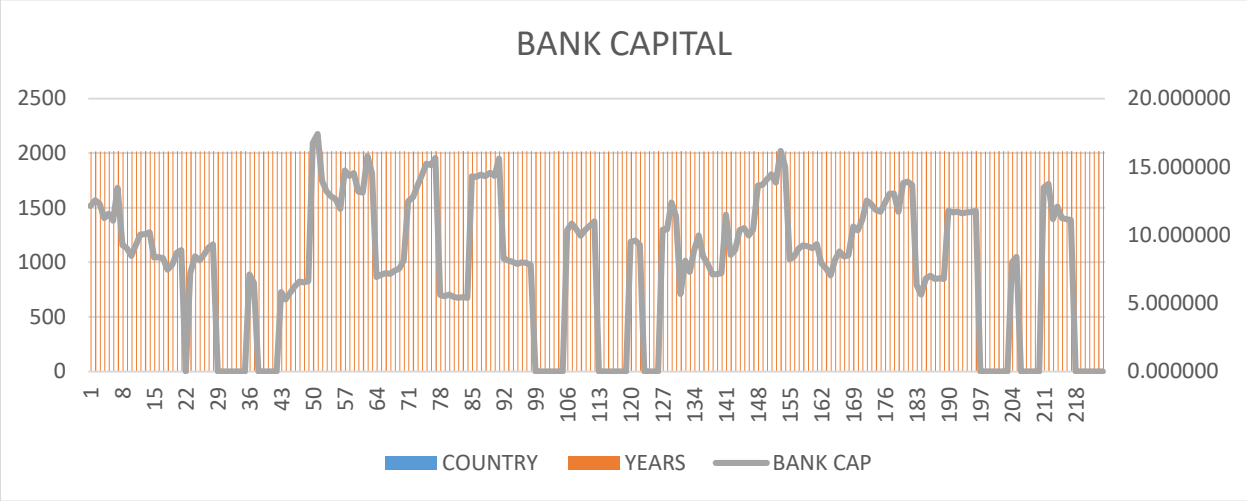
**Variables Measurement**

| *Variables* | *Definition and Measurement* | *Source* |
|---|---|---|
| *Z-score* | Country-level (CZ-score) or bank-level Z-score (BZ-score) Bank-level Z-score = ROA + (equity/ total assets) /Std (ROA). | World Bank Global Financial Development database |
| *FINC Lending* | Fin-tech companies are lending in a year. | World bank |
| *Capital adequacy* | Total capital ratio (CAR) | Bank Focus |
| *Bank concentration* | share of assets of the largest bank in the total banking sector | World bank |
| *Asset quality* | non-performing loans to gross loans (NPL | Bank Focus |
| *GDP GROWTH* | Annual percentage growth rate of GDP per capita | World bank |

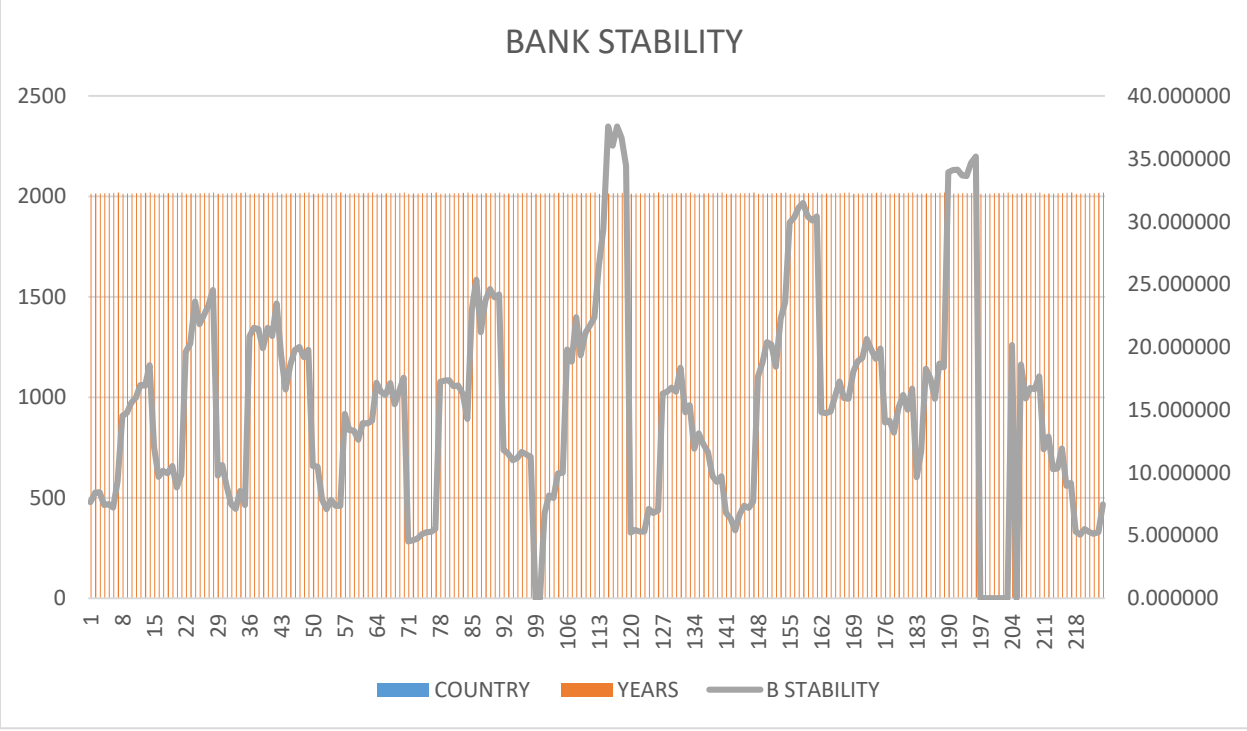
**Results and Analysis**



Fin-tech lending was started in developed countries such as China, France, Indonesia, Japan, Russia, the UK, the USA, and developing countries such as India and Pakistan in 2013. There was a significant rise in Fin-tech lending from 2015 to 2017. It has become more popular over time due to its innovation, cost-effectiveness, and easy loan application processing for individuals and small and medium enterprises. The Fintech companies' products attract people due to easy access and modern technology.




Bank capital in China, France, Indonesia, Japan, Russia, the UK, the USA, India, and Pakistan in 2013 started after the Basel III regulation was implemented. A massive rise in 2014 shows that the banking sector maintains the capital requirement prescribed in Basel III to retain the capital to meet its obligations and short-term demand in times of need. We can see the stability in the bank capital requirement through the period of 2015 to 2019, which shows the performance of China's banking industry in a stable position.



Bank stability in China, France, Indonesia, Japan, Russia, the UK, the USA, India, and Pakistan after the induction of Fin-tech in 2013 fluctuated. There was a slight rise in the year 2015, but after that, bank stability dropped, and there was variability from 2016 to 2019, which is due to the popularity of FinTech lending. Fin-tech companies have greatly influenced bank stability through their popularity due to their innovations, user-friendliness, and providing services as the traditional banking system provides the services.

**Descriptive Statistics**

| *VARIABLE* | *OBS* | *MEAN* | *STD. DEV* | *MIN* | *MAX* |
|---|---|---|---|---|---|
| *BSTABILITY* | 224 | 15.13089 | 8.322925 | 0 | 37.57542 |
| *FL* | 224 | .1810416 | .5719243 | 0 | 4.38877 |
| *BANKCAP* | 224 | 7.928239 | 4.97151 | 0 | 17.39699 |
| *BCON* | 224 | 55.94834 | 20.72824 | 0 | 100 |
| *NONPLOAN* | 224 | 4.309786 | 4.66949 | 0 | 24.7 |
| *GDP* | 224 | 3.282691 | 3.573947 | -27.99455 | 11.64892 |

**Table 1: Descriptive statistics**

Table 1 shows the results of the intertemporal properties of the data for variables such as bank stability, fintech lending, bank capital, concentration, nonperforming loans, total assets, gross domestic product, and inflation. The mean value of fintech lending is 0.1810 with a standard deviation of 0.5719. The average value of bank concentration is 7.92, with a range from low 0 to high 17.40 bank capital. Bank concentration average is 55.94 with a range from low 0 to high 100. The non-performing loans value is 4.31 with a range of low 0 to high 24.7. GDP is 3.28 with a low value of -27.99 to a high of 11.65.

**Table 2: Correlation Matrix**

| | *Bstabi~y* | *Fl* | *Bankcap* | *Bcon* | *Nonploan* | *Tassets* | *Gdp* |
|---|---|---|---|---|---|---|---|
| *Bstability* | 1.000 | | | | | | |
| *Fl* | 0.1713 | 1.000 | | | | | |
| *Bankcap* | 0.1345 | .1533 | 1.000 | | | | |
| *Bcon* | 0.1464 | -0.1474 | -0.2936 | 1.000 | | | |
| *Nonploan* | -0.0512 | .0016 | 0.4880 | -0.3252 | 1.000 | | |
| *Gdp* | 0.0787 | .1644 | 0.1903 | -0.1563 | 0.1596 | 0.0142 | 1.000 |

The correlation matrix is shown in Table 2. The correlation matrix results show no multicollinearity issue regarding bank stability, fintech lending, bank capital, concentration, nonperforming loans, total assets, GDP, and inflation.

**Table 3: Result for Variance Inflation Factor (VIF)**

| *Variable* | *Vif* | *1 / vif* |
|---|---|---|
| *Nonploan* | 1.55 | 0.644445 |
| *Bankcap* | 1.41 | 0.711098 |
| *Fl* | 1.25 | 0.800005 |
| *Bcon* | 1.18 | 0.844580 |
| *Gdp* | 1.12 | 0.891727 |
| *Mean VIF* | 1.30 | |

Multicollinearity is thought to be present when the VIF for each independent feature ≥ 10, which means that besides other features in the model, they have high variance nonperforming loans but still under the significance level. The VIF value of all variables is below the significance level of 5%, showing the absence of multicollinearity.

**Table 3: Regression Analysis**

| *Bstability* | *coefficient* | *Std. err.* | *T* | *P > t* | *[95% conf. interval]* | |
|---|---|---|---|---|---|---|
| *Fl* | 2.340407 | .9693822 | 2.41 | 0.017*** | .4259498 | 4.250968 |
| *Bankcap* | .3437245 | .127291 | 2.70 | 0.007*** | .092846 | .594603 |
| *Bcon* | .0841704 | .0280421 | 3.00 | 0.003*** | .028902 | .1394387 |
| *Nonploan* | -.1660519 | .1359886 | -1.22 | 0.223* | -.4340725 | .1019687 |
| *Gdp* | .1417019 | .1553873 | 0.91 | 0.363* | -.1645518 | .4479555 |
| *_con* | 7.523342 | 2.170964 | 3.47 | 0.001*** | 3.244578 | 11.80211 |

The OLS regression analysis conducted on panel data in Stata reveals that with 224 observations, the overall model is significant ($p < 0.0005$), explaining 9.54% of the variance in the dependent variable while highlighting that fintech lending and bank capital are significant factors for bank stability, whereas non-performing loans and GDP negatively affect it.

**Table 4: Hausman Test**

| *Chi2* | *0.81* |
|---|---|
| *Prob* | 0.9767 |

In the context of panel data, the Hausman test is used to choose between fixed and random effects models. It tests whether the panel data's idiosyncratic errors correlate with the independent variables. P value (prob > chi2 = 0.9767). Here is the p-value of this test. Less than or equal to 0.05 means we accept the null hypothesis. In this case, the chi-square statistic is 0.81 and the p-value is 0.9767, indicating that since the p-value exceeds 0.05, the random effects model is appropriate for use.

**Random Effect**

| *Bstability* | *Coefficient* | *Std. err.* | *Z* | *P > Z* | *[ 95% conf. interval]* | |
|---|---|---|---|---|---|---|
| *Fl* | 0.713593 | 0.321125 | 2.22 | 0.026*** | 0.0841994 | 1.342988 |
| *Bankcap* | 0.237515 | 0.089767 | 2.65 | 0.008*** | 0.0615743 | 0.413457 |
| *Bcon* | 0.048587 | 0.008763 | 5.54 | 0.000*** | 0.0314118 | 0.065762 |
| *Nonploan* | -0.189185 | 0.053326 | -3.55 | 0.000*** | -0.293702 | -0.084668 |
| *Gdp* | -0.105148 | 0.049391 | -2.13 | 0.033*** | -0.201954 | -0.008342 |
| *_cons* | 11.56077 | 1.715458 | 6.74 | 0.000*** | 8.198539 | 14.92301 |

The RE table presents the results of a random effects regression model with bank stability as the dependent variable. All variables are significant at the 5% level ($p < 0.05$), indicating that fintech lending, bank capital, and bank concentration positively contribute to bank stability, while non-performing loans and GDP have a negative correlation with stability, suggesting that a decrease in non-performing loans or GDP would enhance bank stability; the model also shows strong statistical significance and fits well, underscoring the significant relationships among all variables.

## Discussion

Fintech lending has emerged as a transformative force in the financial sector, reshaping the traditional dynamics between borrowers and lenders. It offers faster, more accessible credit through digital platforms, often appealing to underserved segments. While this innovation promotes financial inclusion, it also introduces new challenges for traditional banks. As fintech firms compete for market share, banks may face pressure on profit margins and loan volumes. However, banks can benefit by collaborating with fintechs to enhance operational efficiency and reach. The impact on bank stability depends on managing risks, especially credit and cybersecurity risks. Unregulated fintech growth could lead to increased systemic vulnerabilities. A 1% change in the FL brings a change in the coefficient 0.7135935, which reflects that FL is positively significant for bank stability. As per the empirical evidence the Fin-tech lending is necessary for bank stability. A 1% change in the bank capital brings a change of 0.2375159 in bank stability, which reflects that bank capital is positively significant with bank stability. As per the empirical evidence, bank capital is also necessary for bank stability. A 1% change in the bank concentration brings a change of .048587 in bank stability. A 1% change in non-performing loans brings a negative change of -.1891854 in bank stability. It reflects that an increase in non-performing loans will increase the bad debts, which is highly dangerous for bank stability and repo of the financial institution in the market (González 2005; Köhler 2015; Kim et al., 2020). A 1% change in GDP brings a change of -0.1051483. It reflects that if the GDP rises, the bank stability will also rise, and if the GDP decreases, the bank stability will also decrease.

## Conclusion and Limitations

In the modern era, fintech lending and financial inclusion have played a vital role in revolutionizing the global context. All the developed and developing countries are now busy adopting and implementing technology in financial services. They have made their work easy at an affordable cost (Schindler 2017). But there has been a gap in most of the population, which is still out of the technology. Fin-tech lending has threatened the bank's stability through modern innovations. The financial institution and bank could not provide the services to individuals and small and medium enterprises due to the strict policy through regulatory requirements. Research and statistical analysis have revealed that banks must adopt fintech lending and technology, which not only significantly impacts bank stability but also significantly enhances or strengthens bank capital (de Mendonca & Nascimento, 2020; Noman et al., 2018). It is the most critical challenge for the policymaker and the regulator to deal with the situation to improve the bank's stability. The World Bank and the IMF are involved in growing and implementing fintech and financial inclusion to eliminate poverty. Most of the population has a mobile phone in the modern era and can get access to financial service goods and services at an affordable cost. The limitation of fintech is that most people lack the knowledge to use financial technology. The other limitation is that in some areas, the price of the technology is too high, and the infrastructure is either too costly or unavailability. The policymakers, regulators, and government must take necessary steps to make the changes in the regulations to support traditional banks to survive in the financial market (Tang et al., 2024). The diversification of the customer portfolio is a major issue in the modern era for traditional banks (Wojcik 2021).

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