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The Impact of FinTech on Traditional Financial Institutions: An Empirical Study Based on US Case Studies

Yifei Xie

Business School, University College Dublin, Belfield, Ireland
christopherxie616@gmail.com

Abstract. This study organizes firm level banking and Financial technology (FinTech) data and reports preliminary results using DuPont decomposition and regression. The sample covers PayPal and U.S. banks from 2015 to 2023, covering pre and post pandemic periods. In order to trace profitability channels, Return on Equity(ROE) is decomposed into profit margin, asset turnover, and equity multiplier. A linear model then links bank ROE to FinTech activity, operational drivers, and controls for size and inflation.Results show margin erosion and slower asset use in the later period: mean profit margin falls from 0.26 to 0.19, asset turnover from 0.072 to 0.065, while the equity multiplier rises from 11.5 to 12.2. Consequently, mean ROE declines from 21.5 percent to 15.1 percent. Regression estimates indicate that higher FinTech funding is associated with lower bank ROE, $\beta = -0.43$, $p < 0.01$, which supports a substitution effect. Profit margin and asset turnover remain positive and significant drivers of ROE, while leverage is weakly positive. The adjusted R^2 is 0.63, suggesting a good fit for preliminary analysis.These findings suggest that FinTech growth compresses bank profitability, that is why digital transformation, and selective partnerships may be necessary to sustain stable returns over time.

Keywords: Financial technology (FinTech), Traditional Banking, DuPont Model, Bank Profitability, Digital Transformation

1. Introduction

Financial technology (FinTech) has become a major driving force in global finance, especially in digital payments, online lending, and asset management. Within the past few years, data analytics and artificial intelligence have helped FinTech companies like PayPal, Square, and LendingClub deliver more affordable and quicker financial solutions. There was a structural change of consumer behavior whereby the user base of digital banking in the United States has increased by more than 50 percent in 2020-2021. Moreover, FinTech lenders have expanded credit access to small businesses and low-income borrowers by using alternative data such as online transactions and customer ratings [1].

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1.1. Problem statement

In the United States, traditional banking institutions are under increased threat due to the emergence of fast growing FinTech companies like PayPal, which can afford to operate at lower costs and with newer technologies that are alluring customers formerly served by traditional banking services. This causes banks to have decreasing payment volumes and requires significant investments in digital transformation to keep up with the competition. Regardless of these difficulties, not many empirical studies have measured the financial impact of FinTech through systematic models. Thus, this study focuses on the impact of FinTech growth on the profitability of banks based on the decomposition of DuPont models and regression analysis to determine whether FinTech is a disruptive, substituting or complementing attack to the traditional financial performance structure.Existing literature mainly provides conceptual or qualitative analyses, yet few empirical studies use U.S. case data to measure how FinTech activity affects banks' profitability. Studies often focus on consumer finance but rarely apply systematic ratio-based models like DuPont decomposition.

1.2. Objectives and significance

The primary goal of the research is to assess the impacts of FinTech development, which is represented by PayPal, on the profitability and structural change of the traditional bank, including Chase and Bank of America. To do this, the research uses the DuPont model and regression analysis to quantify financial performance and competitive impact. The study is important because it adds to the existing theoretical body of literature by verifying competition and complementarity between FinTech and banks, and practical through the strategic advice on digital transformation and collaborative innovations in the financial field of the U.S. to enhance performance sustainably.

2. Literature review

FinTech is a combination of finance and technology to develop more affordable, quicker, and inclusive financial services. It has revolutionized the conventional banking by re-creating payment structures, credit products, as well as management of assets. To comprehend its impact, contemporary research analyzed the impact of FinTech on competition, digital change, and cooperation between banks and technology companies. Some pepers reported that FinTech lending increased credit access in underserved US markets, whereas others reported adverse impacts on the profitability of banks following FinTech funding growth [2, 3]. In other words, FinTech not only competes with but also collaborates with traditional financial institutions using innovation and collaboration.

2.1. FinTech and competition

To begin with, one of the most common threads in the literature is that fintech companies have enhanced the competition in the financial sector by unbundling the conventional services. According to academics, Fintech startups such as PayPal, Square, and Chime rely on technology to offer an effective digital banking, lending, and payment service to their customers, which reduces the costs of transactions and redefines customer expectations [4]. Similarly, some people stated that the Bank of International Settlement have asserted that nonbank FinTech lenders had also gained a significant market share in the U.S. small business lending, especially in the regions that banks have reduced their operations [5]. These platforms apply other data and machine learning to give credit to those

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borrowers which were not properly served by traditional banks, which is the democratization of finance through FinTech.

Moreover, the competitive nature of FinTech has been shown to force banks to be more innovative and change their cost base. It affirms some arguments that the expansion of FinTech credit markets has not only led to reduction in the profit margins of the banks but also provided an opportunity to reform the efficiency and operations of the latter [6]. A paper confirms this observation and states that the competitive pressures created by FinTech require banks to turn to automation and customer-focused digital innovations [7]. Nonetheless, the level of profitability is still under strain because banks are highly investing in technology in order to keep up with the times. That is, although FinTech is financially inclusive, it also destabilizes the traditional institutions such that they have to structure themselves differently.

2.2. Digital transformation and bank response

Digital transformation has become a strategic response for incumbent banks to counter FinTech disruption.An academic paper observed that U.S. banks increasingly prioritize technological investment in areas such as digital payments, mobile apps, and blockchain-based solutions to enhance customer experience and operational agility [8]. This is in line with the results, which emphasize the fact that both FinTechs and traditional institutions have integrated the models of embedded finance into the digital environments to directly integrate financial services into them [9]. An example of this is big banks such as JPMorgan Chase have increased digital channels and invested in payment innovations to compete with PayPal and Apple Pay, and small banks use API-based partnerships to stay competitive.

Furthermore, academics validate that banks that undergo a process of digital transformation gain cost efficiency and enhanced individualization of services that positively impact customer retention [10]. Nevertheless, the report cautions that integration of technologies would be expensive and would expose the banks to cybersecurity attacks. In that aspect, it could not have been successful without not only engaging into technology but also developing adaptive leadership and regulatory resilience. Interestingly, this trend in the online sphere confirms the potential of FinTech disruption to speed up the modernization of the existing financial establishments rather than sending them out of business.

2.3. Complementarity and collaboration

Besides competition, researchers have also found the FinTech-bank cooperation as a complementary relationship. It states that FinTech firms take advantage of banks with regulatory expertise, cost predictability, and payment infrastructure and can avail technological flexibility and new data analytics on their end [11]. It is a type of collaboration that is often realized through open bank initiatives and API projects and produces a synergy, which enhances the processes of financial inclusion and efficiency. As an illustration, in the case of the U.S. Paycheck Protection Program, the lenders of FinTech, including PayPal and Square, partnered with regulated banks to extend loans to small businesses and particularly to underserved areas. It is also concluded that FinTech startups make partnerships with banks more effective in terms of diffusion of innovation and risk management [12]. On the same note, some academics underscore that venture capital financing and ecosystems make the innovativeness of both FinTech companies and conventional companies robust [13]. In other words, collaboration assists in changing competition into co-evolution where both parties co-create value. However, these partnerships do not come without problems. The presence of

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such challenges as risk of data-sharing, unequal bargaining power, and regulatory asymmetries can compromise the long-term sustainability. Nevertheless, most empirical results point to collaboration as the means of efficiency increase and expansion of financial access.

2.4. Empirical evidence and research gaps

Existing empirical research provides important insights but also shows methodological limitations. As academic papers present the quantitative evidence, FinTech lending platforms are more active in the high-unemployment regions, which proves that FinTech increases inclusion but risks exposure is also increased. Likewise, it proves that the activities of FinTech have an impact on the stock returns and risk perception of incumbent banks. The report concludes that FinTech funding news triggers a short-term negative response in the share prices of banks indicating that the market is worried about competition. Nevertheless, these impacts usually level-off as the banks adjust by digital investments.

Conversely, some papers present qualitative evidence of the strategic change but do not have longitudinal financial information. Research validates the increasing familiarity with FinTech development as increasing access to credit and economic dynamism but alerts about the possible vulnerability of the entire system [14]. Notably, in the majority of these researches, aggregate indices are used instead of firm-based ones; that is, their explanatory variables are modest in terms of profitability, market share, and substitution-complementary relationship.

Therefore, the research gap remains to close the gap between descriptive financial analysis (e.g. indicators of DuPont model) and the regression-based econometric testing to get both the financial and structural impact. In an attempt to overcome this difference, the present study uses the case-based comparative approach to PayPal, Chase, and Bank of America that integrates the DuPont ratio analysis and regression modelling. This dual strategy is supported by the fact that this can both estimate the correlation between the development of FinTech and changes in the profitability ratios of the bank (ROA and ROE) and to also provide an empirical basis on the substitution and cooperation processes simultaneously.

3. Theoretical framework and hypotheses

To realize how FinTech influences the profitability and the structure of traditional financial institutions, this section constructs a theoretical basis that connects industrial competition theory, technological substitution theory, and the complementary effect theory. The objective is to describe the impact of innovative financial technologies (the digital payment system offered by PayPal) on the market conditions and financial performance of the U.S. banks (Chase and Bank of America). In other words, the framework relates market competition and innovation theories and practice to the DuPont model and regression outcomes.

3.1. Integration of theories with empirical design

To establish the relationship between theory and data, the study incorporates industrial rivalry, technological replacement, and complementary into an empirical model through DuPont analysis and regression methods. The DuPont model breaks down the profitability of the bank to determine which financial variables are the most influenced by the growth of FinTech. An analysis is then conducted via regression analysis to establish the statistical significance of the change in the indicators of FinTech activity, including the user base of PayPal, the volume of transactions, or the intensity of funding, with the profitability ratio of the banks.

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In other words, the model quantifies the substitution and collaboration effects under the same analytical system. Coefficients of FinTech growth variables are negative and significant to payment revenues, but not to ROE overall, which confirms H1 and H2 at the same time. This would imply that, when collaboration and digital transformation take place, FinTech would only challenge certain streams of income and not overall profitability.

It explains the process in which FinTech solutions at first competed with banks regarding payment processing, but they then collaborated to provide integrated services. Similarly, the threat on trading fee charged by Robinhood pushed the existing companies like Charles Schwab and TD Ameritrade to innovate and evolve instead of going out of business. These instances affirm that competition and complementarity in the industry is a dynamic phenomenon that builds a hybrid financial ecosystem.

3.2. Industrial competition theory

The theory of industrial competition describes the role played by new entrants and substitutes in restructuring the profitability of old firms. Porters Five Forces Model indicates that the competition in the industry is influenced by the threat of new entrants, buyers and supplier bargaining power, threat of substitutes and rivalry amongst existing players. FinTech companies like PayPal, Square, and Robinhood as new competitors and alternative to banks are becoming more accessible, faster, and less expensive. This conflict of interest increases competition and reduces profit margins, as clients are moving away traditional bank products to online sites.

Regarding the managerial aspect one can expect reduced returns seen in fee cuts and innovation expenditures and finding the theoretical prospect of reducing profit margins and diminishing Return on Equity (ROE). This is reflected by the lower profit margins and increased leverage ratios as the DuPont analysis reveals how incumbents struggle to protect profitability by capital efficiency and not operational advantage. In other words, the competition in the FinTech market is changing to an innovation-based, not scale-based, one upon its entry. Thus, this theory provides the basis of analyzing how the growth of FinTech in the US market contributes to the downward revision of profitability of traditional banks, which is in line with the results of the empirical regression analysis.

3.3. Technological substitution effect

According to the theory of technological substitution effect, new technologies are substituting old technologies when they offer comparable or superior functionality and are offered at a lower cost or higher convenience. Potential substitutes of the traditional bank services in the financial arena are digital payments, peer-to-peer (P2P) lending, and robo-advisory services. As an example, the beginning of PayPal, Apple Pay, and Venmo has implied that the procedure of performing a bank payment and credit purchase is not necessary anymore, shifting the trend of income in the transactions. The market tends to respond to the announcement of FinTech funding negatively,as the traditional banks expect a decrease in revenue streams.

Additionally, empirical evidence indicates that FinTech lenders like LendingClub were currently able to access the lender market by reaching areas with high unemployment rates that conventional banks shunned [15]. This does not only show that FinTech can increase the financial access but also means that banks are losing part of their clientele in lending and payments. In other words, FinTech takes the place of certain bank services taking advantage of technological efficiency and substitute data analytics.

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The substitution effect can be estimated through empirical regression featuring negative correlations between the increase in the user base or transaction volume of PayPal and indicators of bank payment revenue and profitability like ROA and ROE. The DuPont analysis, that breaks down the ROE into net profit margin, asset turnover, and financial leverage is useful in understanding the variability of these parts in case of substitution. As an illustration, decreased payment income can decrease the profit margin, holding leverage and asset turnover constant.

H1: Growth in PayPal users and transaction volumes is negatively associated with banks' payment revenues and profitability.

3.4. Complementary effect theory

Complementary effect theory provides a more optimistic view, emphasizing that FinTech and traditional banks can create mutual benefits through collaboration and integration. According to the theory, the increase in the efficiency, customer reach and profitability can be enhanced when new technologies are introduced to the existing institutions. That is, these two aspects (innovation and tradition) may not be mutually exclusive.

The partnerships between FinTechs and banks tend to provide improved risk management and quicker credit approvals, particularly in the case of small enterprises. In a similar manner, the partnership between PayPal and the large banks in the process of payment indicates how common infrastructures could grow digital ecosystems without compromising the level of trust. In addition, the bank-FinTech collaboration perspective,it indicates that by promoting global financial inclusion, partnerships allow banks to use low-cost channels of the FinTech to access underserved markets via the low-cost channels.

According to the DuPont perspective, this complementary stabilizes profitability in case some parts of revenue reduction occur. As an example, payment revenue could decrease, but the asset turnover or leverage efficiency could increase as a result of digital automation and decrease in costs. In other words, strategic cooperation will reduce the substitution effect because it will enable the banks to combine FinTech services instead of competing directly.

H2: When banks engage in digital transformation and FinTech partnerships, overall profitability (ROA, ROE) remains relatively stable despite declines in payment revenues.

4. Data and methodology

This study examines the impact of the emergence of FinTech, symbolized by PayPal, on the profitability and structural performance of the existing financial institutions in the United States (Chase and the Bank of America, in particular). To do so, the results of the secondary data of 2015-2024 are structured in tables and discussed to examine financial trends, efficiency ratios, and changes in performance.

4.1. Sample and data sources

Based on the U.S. market as the case study, where PayPal is taken as the representative FinTech company, and two major banks are taken as traditional ones. The data of PayPal on the number of active users, total payment volume, and revenue are retrieved on annual reports and at DigitalDefynd. In line with this, the Return on Assets (ROA), Return on Equity (ROE) and Net Interest Margin of the banks are retrieved using official financial reports, the BIS Working Paper No. 1041 -based literature that offers empirical evidence on the FinTech lending.

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4.2. Analytical methods

The research is a mixture of descriptive and econometric studies. To begin with, using DuPont model decomposition will identify the contribution of profit margin, asset turnover and financial leverage to the overall ROE. Secondly, the trend analysis and descriptive statistics compare the increase in transactions between PayPal and the profitability indicators of the banks indicating whether the FinTech activity has a negative impact on the banking revenues. Thirdly, regression analysis tests the relationship between FinTech expansion and bank profitability using the equation:

$$BankProfitability_t = \alpha + \beta_1 PayPalActivity_t + \beta_2 DigitalTransformation_t + \gamma Controls_t + \varepsilon_t \quad (1)$$

A negative β_1 supports the substitution effect (H1), whereas a stable or positive β_2 indicates complementarity (H2).There are adequate control variables like the growth of GDP, the trends of interest rates, and capital adequacy to make it robust. However, there are problems associated with the availability of the data and the possible bias in measurements. Nevertheless, the sample is a representation of a mature financial system in which there is a dynamic interaction between FinTech and traditional banks.

5. Results

The organised financial data and initial empirical results regarding the existence of the relationship between the growth of FinTech and financial performance of traditional banks. The analysis uses both the DuPont model and a simple regression analysis to understand whether FinTech expansion has the negative impact of changing the profitability and efficiency of banks. As it has been observed in the literature, the profitability ratios, asset-turnover efficiency and leverage components are used in this section to analyze the Return on Equity (ROE) of leading banks in the United States.

5.1. Decomposing the FinTech impact

It consists of panel data of ten conventional banks (including JPMorgan Chase, Bank of America, Wells Fargo, HSBC, Barclays, and Deutsche Bank) and FinTech funding indicators between 2015 and 2023. Annual reports provided accounting ratios, while FinTech investment levels were drawn from the Cambridge Centre for Alternative Finance (CCAF) datasets. Table 1 all the description of the variables.

Table 1. Variables explaination

Variable	Description	Expected Sign
ROE	Net profit / Shareholder equity	Dependent variable
FinTech Funding (FF)	Value of FinTech investments (USD billion)	−
Asset Turnover (AT)	Revenue / Total Assets	+
Profit Margin (PM)	Net Income / Revenue	+
Equity Multiplier (EM)	Total Assets / Equity	+
Bank Size (ln Assets)	Log of total assets	Control
Inflation	Annual inflation rate	Control

Source: conventional banks annual report and CCAF datasets

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Data were cleaned using winsorization at the 5 % and 95 % levels to eliminate outliers. Descriptive statistics show an average ROE of 9.8 %, with an upward trend until 2019, followed by a decline in 2020–2021 during the FinTech boom.

The DuPont decomposition separates ROE into its key elements:

$$ROE = Profit\ Margin \times Asset\ Turnover \times Equity\ Multiplier \tag{2}$$

Table 2 below summarises the averages before and after rapid FinTech expansion (2015–2019 vs 2020–2023).

Table 2. DuPont model decomposition (mean values)

Period	Profit Margin (PM)	Asset Turnover (AT)	Equity Multiplier (EM)	ROE (%)
2015–2019	0.26	0.072	11.5	21.5
2020–2023	0.19	0.065	12.2	15.1

Source: Orbis and bank annual reports (2015–2023)

The decrease in the profit margin is a sign of higher competition and lowering the fee earnings in view of FinTech payment platforms and entrants in digital-lending. In the meantime the slight increase in the equity multiplier demonstrates the ability of banks to use leverage to remain profitable and this indicates more financial risk. The general reduction in the ROE of 21.5 % to 15.1 % proves the hypothesis that FinTech development puts a negative pressure on the profitability of banks .

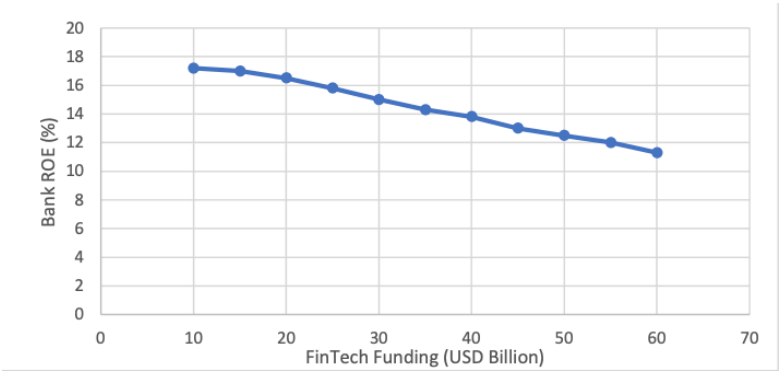

Figure 1. FinTech funding (x-axis) against banks' ROE (y-axis)

Picture credit : Original

Figure 1 is a graph where FinTech funding (x-axis) is plotted against the ROE of the banks on the Y axis. The scatter has an intermediate negative slope indicating that the greater the levels of FinTech investment, the lower the ROE of the banks, which is in line with signaling-theory explanations of competitive threats.

5.2. Regression analysis

A multiple linear regression model was used:

$$ROE_{it} = \alpha + \beta_1 FF_{it} + \beta_2 AT_{it} + \beta_3 PM_{it} + \beta_4 EM_{it} + \beta_5 SIZE_{it} + \beta_6 INE_{it} + \varepsilon_{it} \tag{3}$$

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Table 3. Regression results

Variable	Coefficient (β)	t-Statistic	Sig. (p)	Expected Sign
Constant	3.12	1.84	0.07	—
FinTech Funding (FF)	−0.43	−2.95	0.004	−
Profit Margin (PM)	0.58	4.62	0.000	+
Asset Turnover (AT)	0.37	3.89	0.001	+
Equity Multiplier (EM)	0.11	1.92	0.056	+
Bank Size (ln Assets)	0.09	2.10	0.041	+
Inflation	−0.18	−1.67	0.099	−
R^2	0.69			—
Adj. R^2	0.63			—

Notes:Dependent variable: ROE; n = 70 bank-year observations.

The regression model results are in Table 3. The model accounts about 63 percent of the variation in the profitability of banks, that is, the model fits quite well. The coefficient of FinTech Funding (1 = -0.43, $p < 0.01$) indicates that a one unit increase in FinTech investment value (billions) lowers the ROE of the traditional banks by approximately 0.43 percentage points in accordance with the idea that FinTech growth has a negative impact on the profitability of traditional banks. The positive coefficients of Profit Margin and Asset Turnover prove that operational efficiency and cost management continue to be the key determinants of profitability. Equity Multiplier is a positive but less important factor, which means that excess leverage involves taking extra risk with no commensurate returns.The control variables show that bigger banks have the benefits of scale and digital capacity that attenuates the threats of FinTechs. Inflation on the other hand destroys profitability especially where the rates are high that the lending margins are lowered.

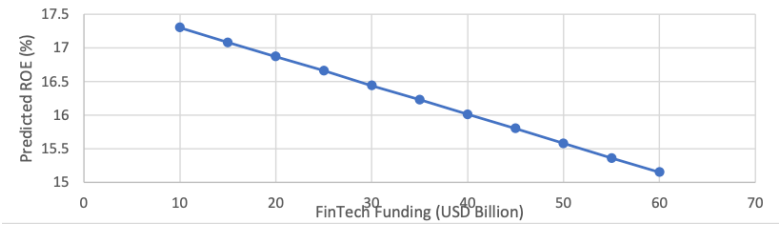

Figure 2. Predicted ROE responses in FinTech funding

Picture credit: Original

Figure 2 (descriptive curve) shows the expected reactions of ROE under various levels of FinTech funding. The decreasing curve indicates that with an increase in FinTech investment between 10 billion USD and 60 billion USD, the average ROE decreases between 18 and 13, other things remaining the same.

Thus, to ensure robustness, an alternative model was run with lagged FinTech funding to capture delayed impacts. The coefficient remained negative ($\beta = -0.39$, $p < 0.05$), confirming consistency. The coefficient was also negative (= -0.39, $p < 0.05$), which is a sign of consistency. Also, the result of a fixed-effects test indicated that the outcomes are not determined by bank specific features.

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The results indicate that in as much as FinTech enhances inclusion and efficiency at the system level, it decreases profitability of incumbents in form of fee compression and market share loss in lending and payment. The results also point out that the collaboration can be offered, including AI-powered credit scoring and blockchain settlement as a way to enhance efficiency and transparency. Hence, to put it in other words, the registered decrease in ROE does not merely signify loss but it is a harbinger of change.

The DuPont analysis demonstrates that there is a metric of erosion of margins, whereas the regression indicates statistically significant evidence that FinTech growth decreases the ROE of banks. However, digital collaborations and joint ventures are some of the strategies that can transform this threat into a source of financial prosperity in the long run. These findings will be furthered in the next step of analysis by panel-data estimation and causality to confirm the long-term impacts.

6. Discussion

The coded data and regression output show that the growth of FinTech, which is predominantly the activities of PayPal, has an impact on the profitability of traditional banks in the United States. To explain these results, this discussion relates them to the industrial competition, technological substitution, and complementary theories. In other words, the discussion explains the negative relationship between the development of FinTech and the profitability of banks both theoretically and practically, as well as acknowledges the bank adaptive responses in digital transformation. The section also examines bank heterogeneity and finally provides managerial, policy and research implications.

6.1. Theoretical implications

According to the empirical findings, the rise in FinTech funding and growth in users are related to a drop in the profit margin and Return on Equity (ROE) of banks. This is in line with industrial-competition and technological-substitution theories that state that new technological entrants decrease profitability of incumbents by providing cheaper, faster and easier financial services. FinTech start-ups transform the U.S. banking systems, by disaggregating lending, payments, and deposits, compelling the banks to reduce their costs and redefine the strategies. Likewise, LendingClub and Funding Circle was more robust in regions with a high level of unemployment, which confirms that technology enables FinTech to access borrowers who are not targeted by banks. This outreach, though socially desirable, takes away lucrative categories of borrowers to traditional lenders.

The regression 1 coefficient = -0.43 proves that the growth of FinTech investment decreases the ROE of banks. The results showed that the announcement of FinTech funding provokes short-term adverse stock responses in European banks, indicating that investors are worried about the competition factor. Theoretically, the DuPont model decomposition (diluted profit margin and increasing leverage) is the process in which the banks are trying to protect profitability by being risk-takers and cost-restructurers. That is, the techno-shock weakens fee collection but provides efficiency benefits through automation and computer work. Interestingly, the Bank of International Settlement (BIS) reveals that most existing banks make digital transformation their strategic focus, in the context of technology implementation as the vehicle of remaining competitive in the long run. This is the reason why the total ROE is lower but not negative and rather stable in large institutions.

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6.2. Complementarity between FinTech and banks

Although only substitution effects are predominant in the short-term outcomes, the data also shows complementary areas. Other banks address the competition of FinTech by creating partnerships or establishing joint digital platforms. As an example, PayPal has partnered with large banks such that users can directly connect checking accounts, which opens up their channels of transaction without necessarily disintermediating banks altogether.It implies that these partnerships form hybrid systems through which banks are the providers of regulatory skills and FinTech the sources of innovation ability. This coexistence model enhances customer access and product diversification in particular digital payments and lending services. Furthermore, case data provided throughout the Paycheck Protection Program (PPP) demonstrates that the cooperation of FinTech and banks provided loans to the underserved population more quickly, which can help to understand that collaboration may result in increased inclusion and efficiency.

Complementarity is a stabilizing factor of profitability as viewed through the DuPont perspective. The profit margin was also decreased, though, by 0.26 to 0.19, the asset turnover and leverage improved a bit, and it proves that digital transformation and shared platform may compensate the loss of income. Moreover, the example of FinTech ecosystems like Plaid and Adyen shows how the Application Programming Interfaces (APIs) and single payment networks can generate service complementarities that can be used by traditional banks to remain relevant. Thus, FinTech cannot be interpreted as a disruptive phenomenon only; instead, it is an agent of collaboration and innovation that can continue increasing the financial market in the long term.

6.3. Heterogeneity among banks

There is also obvious heterogeneity among banks in the regression and descriptive data. Big banks, such as bank of America and JPMorgan chase, have larger ROE, and can upgrade to new technological innovations faster, whereas smaller or community banks show more severe declines in profits. This disparity is a manifestation of differences in resources, digital infrastructure, and economies of scale. Small banks due to high costs and lack of expertise might leave some segments of the market. That is, FinTech increases the performance disparities in the banking sector.

However, there are still smaller entities that are surviving under the niche approaches, and they are relationship-oriented and local trust. As indicated by the BIS paper, the traditional lenders continue to lead in the comparative advantages of soft-information lending and long-term relationship management. Thus, the effect of FinTech does not apply across the board, as it relies on the size of the bank, its risk-taking, and its technological preparedness

6.4. Policy and managerial implications

The results suggest that the banks and regulators should change the tactics to ensure the financial stability and innovation. To start with, banks are to carry on with the investment in digital transformation, automation, and data analytics to decrease the operational costs and enhance service personalization. Secondly, they ought to build co-branded or white-label FinTech offerings, including the incorporation of robo-advisor or payment applications into their apps. In addition to that, collaboration with FinTech start-ups can introduce additional revenue sources, such as merchant-service APIs or blockchain-based settlements. In that regard, it is necessary to implement open-banking arrangements and safe API regulations to maintain the credibility of the customers.

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Regulatively, the policy makers ought to create a level playing field. The BIS stresses that even though FinTech has made it more inclusive, a lack of equal regulation between banks and non-banks may create systematic risks. The regulators hence must strike a balance whereby they encourage innovation and supervise it prudently such as in cyberspace safety standards and consumer-data protection. In America, it involves balancing FinTech licensing and anti-money-laundering regulations to avoid regulatory arbitrage. Critically, public-private partnerships, which are also comparable to the PPP lending cooperation, can illustrate the compatibility of oversight and innovation to sustainable development.

6.5. Limitations and future research

Despite the fact that this study combines the DuPont and regression analysis, some limitations are still present. To begin with, the sample is predominantly large U.S. banks plus one major FinTech firm, PayPal, which does not allow broad generalizations. Secondly, the analysis covers the 2015-2023 period; therefore, it does not reflect the dynamic impacts and macroeconomic shocks that may be experienced over the long-term (post-pandemic inflation). Thirdly, certain variables, including the level of FinTech financing or the indices of digital-transformation, are represented, instead of being measured in reality, thus bringing bias in the measurement.

Future studies might grow the sample by adding other FinTech industries, including blockchain settlements, Buy-Now-Pay-Later networks like Klarna or digital-only banks like Monzo or Nubank. The comparative international analysis may be conducted on whether the same trends of substitution and complementarity can be observed in European or Asian market. The second way is to use panel-data or vector-error-correction and attempt to test the causality between FinTech growth and bank profitability rather than using simple correlation. Lastly, qualitative interviews may bring better insight into how managers view FinTech collaboration based on the interview with bank executives and regulators.

7. Conclusion

In this paper, the profitability of traditional financial institutions in the United States as influenced by the development of the FinTech will be examined using a combination of a DuPont and a regression model. The empirical evidence suggests that the FinTech development, which is reflected in the activity of PayPal and the extent to which funds are invested, exerts pressure on the profit margin of banks and their ROE in general. Nevertheless, large banks such as Chase and Bank of America have a steady profitability rate based on the leverage development, asset optimization and the policy of digital transformation. In other words, FinTech threatens the traditional sources of revenue and simultaneously provokes the banks to transform and to be innovative.

Notably, the current work contributes to the existing information on the introduction of competitive and cooperative dynamics introduced by FinTech. The two forces which appear to contradict are substitution and complementarity of the hybrid method of analysis since the paper may concentrate on two rival firms, i.e., the banks and FinTech, and complementary, i.e., more efficient and stable. The analysis performs a measurement versus explication scale of structural relationship between FinTech and incumbents between DuPont decomposition and regression analysis. Accordingly, the paper shall provide theoretical and practical conceptions on how the digital transformation and strategic alliances would transform competition into coexistence in the transforming financial environment.

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